Appendix A

Notice of Preparation

METROPOLITAN TRANSPORTATION COMMISSION
ASSOCIATION OF BAY AREA GOVERNMENTS

PLAN BAY AREA 2050

NOTICE OF PREPARATION (NOP)

To:	Interested Agencies, Organizations and Individuals
Project:	**Draft Environmental Impact Report for Plan Bay Area 2050** ***(Regional Transportation Plan/Sustainable Communities Strategy for the Nine-County San Francisco Bay Area)***
Lead Agencies:	Metropolitan Transportation Commission/Association of Bay Area Governments
Comment Period:	September 28, 2020 to October 28, 2020 (30 days)

Figure 1. Nine-County San Francisco Bay Area

Interested agencies, organizations and individuals are invited by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) to comment on the scope and content of the environmental impact assessment that will be conducted for the long-range regional plan for transportation, housing, the economy and the environment known as *Plan Bay Area 2050*. A map of the area is included in this notice as Figure 1.

MTC and ABAG are the joint lead agencies undertaking preparation of a program-level Draft Environmental Impact Report (DEIR) for Plan Bay Area 2050. Plan Bay Area 2050 is designed to serve as the 2021 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the San Francisco Bay Area. In addition to the focus on transportation and land use, Plan Bay Area 2050 incorporates economic and environmental issues more deeply into the Plan; taken as a package, the Plan identifies a suite of integrated strategies that will enable the Bay Area to accommodate future growth and make the region more equitable and resilient in the face of unexpected challenges, such as sea level rise. The Plan identifies regional transportation planning needs, priorities and funding, and allows project sponsors to qualify for federal funding for public transit, streets and roads and bicycle and pedestrian facilities. The Plan also identifies affordable housing needs and revenues as well as revenues to support select economic development and environmental resilience strategies.

Plan Bay Area 2050 seeks to ensure that the Bay Area is affordable, connected, diverse, healthy, and vibrant for all by the year 2050. It also seeks to meet or exceed state and federal planning requirements, including state-mandated targets for greenhouse gas emissions reductions. The Plan is required to be updated every four years. Attachment A to this NOP provides more information on MTC, ABAG, SB 375 and Plan Bay Area 2050.

In accordance with the California Environmental Quality Act (CEQA) Guidelines (Section 15082), the purpose of this Notice of Preparation is to seek comments about the scope and content of the environmental impact assessment that will be conducted for Plan Bay Area 2050. If you represent an agency that may rely upon the EIR for project approval and/or tiering, MTC and ABAG are particularly interested in what information may be helpful for these purposes. Input is also sought from organizations and individuals as to the issues that should be addressed in the EIR.

Adoption and implementation of Plan Bay Area 2050 has the potential to result in environmental effects in all the environmental impact areas identified in CEQA. For this reason, the Plan Bay Area 2050 EIR will be a "full scope" document and will analyze all the required CEQA environmental issue areas. These include: aesthetics; agriculture and forestry resources; air quality; biological resources; cultural resources; geology and soils; energy; greenhouse gas emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; recreation; transportation/traffic; tribal cultural resources; utilities and other service systems; and wildfire. The EIR will also address cumulative effects, growth inducing impacts and other issues required by CEQA.

MTC would be particularly interested in hearing your views on the following questions:

1. Are there any alternatives you believe MTC should evaluate?
2. What types of mitigation measures do you think would help avoid or minimize potential environmental effects?

All interested agencies, organizations and individuals are welcome to submit comments and/or participate in the scoping meetings for the Draft EIR. Oral comments will be accepted during the following virtual scoping meeting:

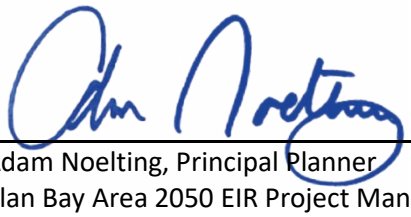
Thursday, October 15, 2020
11:00 a.m. to 1:00 p.m.
Zoom Registration Link:
https://bayareametro.zoom.us/webinar/register/WN_FIBJ5lfNR8eLSR-r78jqxQ

For participants who would like to join via telephone, please dial 888.788.0099 or 877.853.5247 (toll free) and, when prompted, enter webinar ID: 929 7977 2503. Additional information on the virtual scoping meeting is available at the following website: https://www.planbayarea.org/2050-plan/eir-scoping-meetings. A pre-recorded webinar providing an overview of the EIR scope will be made available on **October 12, 2020**, at the same location. A comment form will be available on this website to facilitate the submission of written comments. Written comments will also be accepted at the virtual scoping meeting; via email to eircomments@bayareametro.gov; via mail to MTC Public Information, 375 Beale Street, Suite 800, San Francisco, CA, 94105; or via fax to 415.536.9800. **All written comments must be received no later than October 28, 2020.** For more information, call the MTC Public Information Office at 415.778.6757.

Do you need an interpreter or any other assistance to participate? Please call 415-778-6757. We require at least three working days' notice to accommodate interpreter requests. For TDD or hearing impaired, call 711, California Relay Service, or 1-800-735-2929 (TTY), 1-800-735-2922 (voice) and ask to be relayed to 415-778-6700.

¿Necesita un intérprete u otra asistencia para participar? Por favor llame al 415-778-6757. Solicitamos tres días hábiles para poder coordinar servicios de interprete. Para servicios de TDD o para sordomudos, favor de llamar al 711 al Servicio de Retransmisión de California o al 1-800-735-2929 (para TTY) o al 1-800-735-2922 (para voz) y pida que lo conecten al 415-778-6700.

您是否需要翻譯員或任何其他幫助才能參加呢？請提前三天致電 415-778-6757. 有聽覺或者语言障碍的人士，请打电话到 711，加州传达服务. 电传打字机的联系号码是 1-800-735-2929，需要语音服务可以打电话到 1-800-735-2922，然后要求传达到 415-778-6700.



September 28, 2020

Adam Noelting, Principal Planner — Date
Plan Bay Area 2050 EIR Project Manager

NOTICE OF PREPARATION

Draft Environmental Impact Report for Plan Bay Area 2050

Regional Transportation Plan/Sustainable Communities Strategy for the Nine-County San Francisco Bay Area
Metropolitan Transportation Commission/Association of Bay Area Governments

ATTACHMENT A

Responsibilities and Requirements

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area (which includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma Counties). Created by the State Legislature in 1970, MTC functions as both the regional transportation planning agency (RTPA), which is a state designation, and as the region's metropolitan planning organization (MPO), which is a federal designation.

ABAG was formed in 1961 by a joint powers agreement among Bay Area local governments and serves as the comprehensive regional planning agency and Council of Governments (COG) for the nine counties and 101 cities and towns of the San Francisco Bay Region. ABAG is a public entity created by local governments to meet their planning and research needs related to land use and is responsible under state law to conduct the Regional Housing Needs Allocation (RHNA) process. ABAG also hosts several joint powers and administrative entities related to environmental and water resource protection, disaster resilience, energy efficiency and hazardous waste mitigation, financial services and staff training to local counties, cities and towns.

Per federal planning requirements, a Regional Transportation Plan (RTP) is a long-range plan that identifies the strategies and investments to maintain, manage, and improve the region's transportation network. The RTP must address no less than a 20-year planning horizon and include long-range and short-range strategies and actions that support the development of an integrated multimodal transportation system. The RTP must be updated at least every four years and seek to address projected transportation demand over the RTP planning horizon and pursue operational and management strategies that will improve the performance of the transportation system. The RTP must have a fiscally constrained financial plan that demonstrates how the RTP can be implemented and how the transportation system can be operated and maintained using revenues reasonably expected to be available over the planning horizon. The RTP also has myriad state and federal requirements with respect to public participation, equity and environmental justice, and air quality conformity, among others. As required by state legislation (Government Code Section 65080 et. seq.) and by federal regulation (Title 23 USC Section 134), MTC is responsible for preparing the RTP for the San Francisco Bay Area region.

Regional transportation planning, local land use planning and regional housing allocations are more closely aligned because of the passage of California's Sustainable Communities and Climate Protection Act (SB 375 (Steinberg)) signed into law in 2008. MTC and ABAG are jointly required by SB 375 to develop the Sustainable Communities Strategy (SCS) that accompanies the RTP. The SCS must identify the general location of land uses, residential densities, and building intensities within the region; identify areas within the region sufficient to house all the population of the region, including all economic segments of the population; identify areas within the region sufficient to house an 8-year projection of the regional housing need; identify a transportation network to serve the regional transportation needs; gather and consider the best practically available scientific information regarding resource areas and farmland in the region; consider the state's housing goals; set forth a forecasted development pattern for the region; and allow the regional transportation plan to comply with the federal Clean Air Act. (Gov. Code, § 65080, subd. (b)(F)(2)(B)).

Together, the Plan (RTP/SCS) should support the reduction of per-capita passenger vehicle-generated greenhouse gas (GHG) emissions by identifying policies and strategies that integrate land use and transportation planning. Plan Bay Area 2050 will meet the requirements of SB 375 by attaining or exceeding a per-capita GHG emission reduction target of -19 percent by year 2035 from 2005 levels, as established for the San Francisco Bay Area by the California Air Resources Board (CARB). If the Plan does not achieve the GHG emission target set by CARB, an Alternative Planning Strategy (APS) must be developed to demonstrate how the target could be achieved.

VISION AND GUIDING PRINCIPLES

Plan Bay Area 2050 seeks to meet or exceed federal and state planning requirements and is also designed to offer a more aspirational vision of what the San Francisco Bay Area could become. MTC and ABAG conducted a months-long outreach and engagement effort to determine the most pressing issues that should be considered as the agencies plan for life in 2050. In September 2019, ABAG adopted Resolution No. 09-19 and MTC adopted Resolution No. 4393 affirming the following vision for the Plan: to ensure that the Bay Area is affordable, connected, diverse, healthy, and vibrant for all by the year 2050. The guiding principles of this vision are defined as follows:

- **Affordable**: All Bay Area residents and workers have sufficient housing options they can afford—households are economically secure.
- **Connected**: An expanded, well-functioning, safe and multimodal transportation system connects the Bay Area—fast, frequent and efficient intercity trips are complemented by a suite of local transportation options, connecting communities and creating a cohesive region.
- **Diverse**: The Bay Area is an inclusive region where people from all backgrounds, abilities and ages can remain in place—with full access to the region's assets and resources.
- **Healthy**: The region's natural resources, open space, clean water and clean air are conserved—the region actively reduces its environmental footprint and protects residents from environmental impacts.
- **Vibrant**: The Bay Area is an innovation leader, creating quality job opportunities for all and ample fiscal resources for communities.

CEQA STREAMLINING

SB 375 contains CEQA incentives, or streamlining provisions, to encourage coordinated land use and transportation planning. Certain types of development projects (i.e., transit priority projects or residential/mixed use residential projects, as defined by statute) may qualify for CEQA streamlining as long as the requisite criteria are met. Consistency will be determined by the local jurisdiction that is the lead agency for each project to be streamlined. MTC and ABAG will include appropriate information in the SCS, such as land use information as required by SB 375 and/or guidance to aid in interpreting land use information, that will allow a jurisdiction to make a consistency determination with respect to appropriate streamlining options on a project-by-project basis. Additionally, the EIR will support other CEQA streamlining options that do not fall into the categories under SB 375, such as SB 743, SB 226 and the State CEQA guidelines.

Plan Bay Area 2050 Project Description

Plan Bay Area 2050 is a long-range plan charting the course for the future of the nine-county San Francisco Bay Area. Plan Bay Area 2050 will focus on four key issues—transportation, housing, the environment, and the economy—and will identify a path to make the Bay Area more equitable for all residents and more resilient in the face of unexpected challenges. Building on the work of the Horizon initiative (https://www.planbayarea.org/2050-plan/horizon), this new regional plan will outline strategies for growth and investment through the year 2050.

REGIONAL GROWTH FORECAST

The Plan Bay Area 2050 Regional Growth Forecast identifies how much the Bay Area might grow between the Plan baseline year (2015) and the Plan horizon year (2050), including population, jobs, households, and associated housing units. The forecast also includes important components of that growth, including employment by sector, population by age and race/ethnic characteristics, and households by income level.

As shown in the table below, Plan Bay Area 2050 forecasts[1] the Bay Area to add over 2.7 million people, 1.4 million new jobs, 1.4 million new households, and 1.5 million new housing units between 2015 and 2050. In September 2020, MTC adopted Resolution No. 4437 and ABAG adopted Resolution No. 16-202 approving the Regional Growth Forecast.

Plan Bay Area 2050 Regional Growth Forecast								
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Total Population	7,660,000	7,930,000	8,230,000	8,550,000	9,000,000	9,490,000	9,930,000	10,330,000
Total Employment	4,010,000	4,080,000	4,150,000	4,640,000	4,830,000	5,050,000	5,230,000	5,410,000
Total Households	2,680,000	2,760,000	2,950,000	3,210,000	3,500,000	3,710,000	3,890,000	4,040,000
Total Housing Units	2,710,000	2,840,000	3,060,000	3,370,000	3,670,000	3,900,000	4,080,000	4,250,000

[1] This forecast was revised earlier this year to integrate the significant adverse impacts of the coronavirus pandemic and 2020 recession on the first decade of the planning period.

GROWTH GEOGRAPHIES

To plan for this future growth and meet the greenhouse gas emissions reduction target established pursuant to SB 375, Plan Bay Area 2050 identifies specific areas prioritized for new housing and jobs, known as Growth Geographies. For housing, Growth Geographies include Priority Development Areas (PDAs), Transit-Rich Areas (TRAs), and High-Resource Areas (HRAs). For jobs, Growth Geographies include Priority Production Areas (PPAs), PDAs, and TRAs. These Growth Geographies build on local and regional planning efforts and include 216 locally-nominated PDAs and 36 locally-nominated PPAs within the nine-county Bay Area. A map of the Plan's Growth Geographies is included as Attachment B. For more information, including definitions, eligibility criteria, and exclusions, please see ABAG Resolution No. 03-2020, available at the following link: http://mtc.legistar.com/gateway.aspx?M=F&ID=317bc8b5-813a-47ab-80dc-275d0b43f86a.pdf

The Plan also includes 184 locally-nominated Priority Conservation Areas (PCAs). Although not a designated Growth Geography, PCAs are areas of regional significance that have broad community support for conservation and need environmental protection. They provide important agricultural, natural resource, scenic, cultural, recreational, and/or ecological values, and ecosystem functions.

PLAN REVENUES AND STRATEGIES

Plan Bay Area 2050 also includes a financially constrained transportation investment plan pursuant to RTP/SCS requirements as defined by state and federal planning regulations. It includes transportation projects and programs that would be funded through existing and future revenues that are projected to be reasonably available to the region over the horizon of the Plan to support the adopted growth pattern. A total of $466 billion in existing revenues[2] is available for the financially constrained Plan Bay Area 2050 and at least $113 billion in new revenues[3] have also been identified.

Although not required by state and federal RTP/SCS requirements, Plan Bay Area 2050 has also identified funding needs and revenues for affordable housing as well as revenues to support select economic development and environmental resilience strategies as follows:

- *Housing Element*: $122 billion in existing funding and $346 billion in new revenues
- *Economy Element*: $234 billion in new revenues
- *Environment Element*: $15 billion in existing funding and $87 billion in new revenues[4]

To advance the Plan Bay Area 2050 Vision and meet or exceed state and federal planning requirements, including state-mandated GHG emissions reductions targets, these existing and anticipated revenues will support 35 integrated strategies, defined as policies or bundles of investments, across the four core elements of the Plan. These strategies are clustered under eleven key themes:

[2] $12 billion in existing transportation revenues are used to support Environment strategies.
[3] New revenues are estimates based upon Final Blueprint strategies; estimates subject to change.
[4] $15 billion in new environment revenues are used to support Transportation strategies.

Element	Theme	Strategy	Cost Estimate[5]	Total
Transportation	Maintain and Optimize the Existing System	Restore, Operate, and Maintain the Existing System	$390 billion	$579 billion
		Support Community-Led Transportation Enhancements in Communities of Concern	$8 billion	
		Enable a Seamless Mobility Experience	$3 billion	
		Reform Regional Fare Policy	$10 billion	
		Implement Per-Mile Tolling on Congested Freeways with Transit Alternatives	$1 billion	
		Improve Interchanges and Address Highway Bottlenecks	$11 billion	
		Advance Other Regional Programs and Local Priorities	$18 billion	
	Create Healthy and Safe Streets	Build a Complete Streets Network	$13 billion	
		Advance Regional Vision Zero Policy through Street Design and Reduced Speeds	$4 billion	
	Build a Next-Generation Transit Network	Enhance Local Transit Frequency, Capacity, and Reliability	$31 billion	
		Expand and Modernize the Regional Rail Network	$81 billion	
		Build an Integrated Regional Express Lane and Express Bus Network	$9 billion	
Housing	Protect and Preserve Affordable Housing	Further Strengthen Renter Protections Beyond State Legislation	$2 billion	$468 billion
		Preserve Existing Affordable Housing	$237 billion	
	Spur Housing Production at All Income Levels	Allow a Greater Mix of Housing Densities and Types in Blueprint Growth Geographies	N/A	
		Build Adequate Affordable Housing to Ensure Homes for All	$219 billion	
		Integrate Affordable Housing into All Major Housing Projects	N/A	
		Transform Aging Malls and Office Parks into Neighborhoods	N/A	
	Create Inclusive Communities	Provide Targeted Mortgage, Rental, and Small Business Assistance to Communities of Concern	$10 billion	
		Accelerate Reuse of Public and Community Land for Mixed-Income Housing and Essential Services	N/A	

[5] Cost estimates may be adjusted pending additional analysis.

Element	Theme	Strategy	Cost Estimate	Total
Economy	Improve Economic Mobility	Implement a Statewide Universal Basic Income	$205 billion	$234 billion
		Expand Job Training and Incubator Programs	$5 billion	
		Invest in High-Speed Internet in Underserved Low-Income Communities	$10 billion	
	Shift the Location of Jobs	Allow Greater Commercial Densities in Growth Geographies	N/A	
		Provide Incentives to Employers to Shift Jobs to Housing-Rich Areas Well Served by Transit	$10 billion	
		Retain and Invest in Key Industrial Lands	$4 billion	
Environment	Reduce Risks from Hazards	Adapt to Sea Level Rise	$19 billion	$102 billion
		Provide Means-Based Financial Support to Retrofit Existing Residential Buildings (Energy, Water, Seismic, Fire)	$15 billion	
		Fund Energy Upgrades to Enable Carbon-Neutrality in All Existing Commercial and Public Buildings	$18 billion	
	Expand Access to Parks and Open Space	Maintain Urban Growth Boundaries	N/A	
		Protect and Manage High-Value Conservation Lands	$15 billion	
		Modernize and Expand Parks, Trails, and Recreation Facilities	$30 billion	
	Reduce Climate Emissions	Institute Telecommuting Mandates for Major Office-Based Employers	N/A	
		Expand Clean Vehicle Initiatives	$4 billion	
		Expand Transportation Demand Management Initiatives	$1 billion	

EQUITY AND PERFORMANCE OUTCOMES

Plan Bay Area 2050 is required by state mandates to accommodate future growth in a more sustainable manner by reducing per capita GHG emissions and providing adequate housing for the region's projected population growth at all income levels. To determine whether the Plan is on track to achieve its Vision, MTC and ABAG developed two questions for each of the Plan's Guiding Principles. These questions are accompanied by draft metrics[6] that are intended to aid in the analysis of the Plan's performance.

[6] Metrics may be modified pending additional analysis.

Guiding Principle	Question	Metrics
Affordable	Will Bay Area residents spend less on housing and transportation?	Housing & Transportation Costs as a Percent of Income
		Transport Expenses Per Trip
	Will the Bay Area produce and preserve more affordable housing?	Share of New Housing Production (2015-2050) that is Deed-Restricted Affordable
		Share of At-Risk Affordable Housing Preserved
Connected	Will Bay Area residents be able to access their destinations more easily?	Percent of All Bay Area Jobs Accessible by Various Modes and Commute Times
		Share of Households and Jobs within ½ Mile of Frequent Transit
	Will Bay Area residents have a transportation system they can rely on?	Peak-Hour Travel Time (Minutes); Percent of Person Hours in Transit Spent in Crowded Conditions
		Share of Transit Revenue Vehicle Assets Past Their Useful Life Benchmark
Diverse	Will Bay Area communities be more inclusive?	Share of Households that Are Low-Income
	Will Bay Area residents be able to stay in place?	Share of Neighborhoods that Experience Displacement and Gentrification Between 2015 and 2050
Healthy	Will Bay Area residents be healthier and safer?	Percent of Households in Risk-Prone Areas or Risk-Prone Buildings that are Protected or Retrofit
		Annual Fatalities and Injuries, Per 100 Million VMT
		Daily $PM_{2.5}$ Emissions (Tons)
	Will the environment of the Bay Area be healthier and safer?	Change in Daily CO_2 Emissions Per Capita Relative to 2005 for Cars and Light-Duty Trucks and for All Vehicles
Vibrant	Will jobs and housing in the Bay Area be more evenly distributed?	Jobs-Housing Ratio
		Mean Commute Distance (Miles)
	Will Bay Area businesses thrive?	Growth in Per Capita Gross Regional Product (2015-2050)
		Growth in Number of Jobs (2015-2050)

NOTICE OF PREPARATION
Draft Environmental Impact Report for Plan Bay Area 2050

Attachment B

Plan Bay Area 2050 Growth Geographies

- **Priority Development Area***
- **Priority Production Area**
- Transit-Rich Area (Outside High Resource Area)
- Transit-Rich Area (Within High Resource Area)
- High Resource Area with Basic Bus Service**
- • **Regional Rail Station**
- — **Regional Transit (Existing)**
- ----- **Regional Rail (Blueprint)*****

**Priority Development Areas are locally designated geographies that, in general, meet state Transit Priority Area criteria as well as additional MTC/ABAG criteria.*
***Peak headways of 16 to 30 minutes (January 2020).*
****Includes intercity rail, commuter rail, and heavy rail systems. New Transbay Rail Crossing alignment is representative only.*

Areas shown are conceptual, and do not supersede local government land use authority. Specific levels and types of development will be determined through local planning.

The following areas are excluded from the map: Wildland urban interface areas; Areas of unmitigated sea level rise (i.e., areas at risk from sea level rise through year 2050 that lack mitigation strategies in Plan Bay Area 2050 Environment Element); Areas outside locally-adopted urban growth boundaries; and Parkland and other open spaces within urbanized areas identified in the California Protected Areas Database. To complement adopted PDAs, High-Resource and Transit -Rich Areas are shown in jurisdictions that have nominated a total land area for PDAs that is less than 50% of the area within its boundaries eligible for PDA designation. Specific land uses analyzed in these locations in the Blueprint are expected to vary based upon local and regional context.

Scale:

Miles
0 3 6 9 12

Kilometers
0 4 8 12 16

Source: TomTom, MTC/ABAG, 511 Regional Transit Database 2020
Map Author: JC, August 2020
File Location: https://mtcdrive.box.com/s/2fj92frlzzwybfw6jixj3ha83j17xl3w

Appendix B

Scoping Summary and
Notice of Preparation Comments

APPENDIX B
SCOPING SUMMARY

A Notice of Preparation (NOP) informs the public of the lead agency's intent to prepare an environmental impact report (EIR) pursuant to the California Environmental Quality Act (CEQA). An NOP for an EIR was issued by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) on September 28, 2020 for the Draft Environmental Impact Report for Plan Bay Area 2050 – the Regional Transportation Plan (RTP) / Sustainable Communities Strategy (SCS) (Plan). The NOP was sent to the California State Clearinghouse, federal, state, and local agencies, and members of the public. As a connected action, one public scoping meeting was held to provide the public and public agencies with the opportunity to learn more about the Plan Bay Area 2050 and to provide another venue to submit comments regarding the issues that should be addressed in the EIR.

A virtual scoping meeting was held on Thursday, October 15, 2020 from 11:00 a.m. to 1:00 p.m. At this meeting, a presentation by MTC staff provided an overview of the proposed Plan, the CEQA process, and key environmental issues identified in the NOP. Oral and written comments were accepted during the meeting. The NOP is provided as Appendix A of the Draft EIR.

Table B-1, below, lists the scoping comments (both written and oral) received during the NOP comment period (September 28, 2020 to October 28, 2020). The table lists the commenter, the County from where the commenter is located (if applicable), the date the comment was received, and a summary of the relevant EIR section/s in which the comments are addressed. Comments provided by state agencies are not linked as originating from a specific county. All written NOP comment letters are provided in their entirety in this Appendix. Oral comments at the public scoping meeting were provided to the court reporter in attendance at the meeting; the transcript in its entirety is also provided in this Appendix. Note, the EIR does not respond directly to the comments; rather, it addresses environmental issues related to the project that are associated with the project, including issues raised in these comments.

Comments Related to the Scope of the Project

Some of the comments include questions about aspects of the Plan or request information that are not related to the potential physical environmental impacts of the project. Some comments are related to the description and scope of the Plan, rather than issues that should be addressed in the environmental document for the Plan. Comments regarding the Plan that do not pertain to potential physical environmental effects were forwarded to the appropriate MTC and ABAG staff, but are not evaluated in this Draft EIR because they do not pertain to the project's physical environmental effects. The following table includes a list of the NOP comments, including oral comments received during the scoping meeting. The table includes a summary of the topics addressed in the NOP comments, indicating in which EIR section the comments are addressed.

Table B-1 Comments Received on the Notice of Preparation

Letter Number	Name of Author	Agency / Organization	County of comment origin[1] (if applicable)	Date Received	Relevant EIR Section(s)	Written / Oral
AGENCIES						
State						
1	Charlene L Wardlow	California Department of Conservation – Geologic Energy Management	Not Applicable	10/25/2020	Hazards and Wildfire	Written
2	Debbie Hultman	California Department of Fish and Wildlife – Bay Delta Region	Not Applicable	11/2/2020	Project Description Biological Resources Hydrology and Water Quality Land Use, Population, and Housing	Written
Regional / Local						
3	Chanda Singh	San Mateo County Planning and Building Department	San Mateo	10/27/2020	Environmental Justice Transportation Land Use, Population, and Housing Climate Change and Greenhouse Gases Hydrology and Water Quality Public Services and Recreation Alternatives	Written
4	Mark Leong	Caltrans – District 4	Alameda; Contra Costa; Marin; Napa; San Francisco; San Mateo; Santa Clara; Solano; Sonoma	10/27/2020	Transportation Climate Change and Greenhouse Gases Environmental Justice Biological Resources Tribal Cultural Resources	Written
5	Ana M. Ruiz	Midpeninsula Regional Open Space District	San Mateo Santa Clara	10/28/2020	Hazards and Wildfire Agriculture and Forestry Resources Aesthetics and Visual Resources Biological Resources Climate Change and Greenhouse Gases Transportation Hydrology and Water Quality Alternatives	Written

Letter Number	Name of Author	Agency / Organization	County of comment origin[1] (if applicable)	Date Received	Relevant EIR Section(s)	Written / Oral
6	Jeff Henderson, AICP	Delta Stewardship Council	Not Applicable	10/2/2020	Land Use, Population, and Housing Hydrology and Water Quality Agriculture and Forestry Resources Biological Resources	Written
7	Clay Holstine	City of Brisbane	San Mateo	10/28/2020	Project Description Climate Change and Greenhouse Gases Biological Resources Land Use, Population, and Housing Hazards and Wildfire Geology, Seismicity, and Mineral Resources Public Services and Recreation Public Utilities and Facilities	Written
8	Brent Pearse	Santa Clara Valley Transportation Authority	Santa Clara	10/28/2020	Climate Change and Greenhouse Gases Land Use, Population, and Housing Transportation	Written
9	Jonathan Lait	City of Palo Alto	Santa Clara	10/28/2020	Alternatives Land Use, Population, and Housing Transportation Climate Change and Greenhouse Gases Hydrology and Water Quality	Written
10	Rich Hillis, Lisa Gibson	San Francisco's Planning Department	San Francisco	10/28/2020	Climate Change and Greenhouse Gases Transportation Alternatives Public Utilities and Facilities Air Quality	Written
11	Erik Vink	Delta Protection Commission	Not Applicable	10/28/2020	Land Use, Population, and Housing Public Services and Recreation	Written

Letter Number	Name of Author	Agency / Organization	County of comment origin[1] (if applicable)	Date Received	Relevant EIR Section(s)	Written / Oral
12	Kari Svanstrom	City of Sebastopol	Sonoma	11/5/2020	Agricultural and Forest Resources Hydrology and Water Quality Biological Resources Land Use, Population, and Housing Transportation Climate Change and Greenhouse Gases Public Services and Recreation Public Utilities and Facilities	Written
ORGANIZATIONS AND INDIVIDUALS						
Organizations						
13	Bruce Rienzo, Olga Bolotina, Victoria Brandon	Sierra Club, SF Bay Chapter	Alameda; Contra Costa; Marin; Napa; San Francisco; San Mateo; Santa Clara; Solano; Sonoma	10/28/2020	Biological Resources Climate Change and Greenhouse Gases Transportation Hydrology and Water Quality Alternatives	Written
14	Annie Burke, David Lewis, Amanda Brown-Stevens	Together Bay Area, Save The Bay, and the Greenbelt Alliance	Alameda; Contra Costa; Marin; Napa; San Francisco; San Mateo; Santa Clara; Solano; Sonoma	10/28/2020	Air Quality Climate Change and Greenhouse Gases Biological Resources Hazards and Wildfire Public Services and Recreation Land Use, Population, and Housing	Written
15	Carin High, Gail Raabe	Citizens Committee to Complete the Refuge	Alameda; Contra Costa; Marin; Napa; San Francisco; San Mateo; Santa Clara; Solano; Sonoma	10/28/2020	Air Quality Climate Change and Greenhouse Gases Biological Resources Hydrology and Water Quality Land Use, Population, and Housing Public Services and Recreation Transportation Alternatives	Written

Letter Number	Name of Author	Agency / Organization	County of comment origin[1] (if applicable)	Date Received	Relevant EIR Section(s)	Written / Oral
16	David Schonbrunn	Transportation Solutions Defense and Education Fund	Marin	10/28/2020	Alternatives Transportation Land Use, Population, and Housing Climate Change and Greenhouse Gases	Written
17	Hayley Currier, Adina Levin, Jonathon Kass, Ian Griffiths	TransForm, Friends of Caltrain, SPUR, Seamless Bay Area	Alameda; Contra Costa; Marin; Napa; San Francisco; San Mateo; Santa Clara; Solano; Sonoma	10/28/2020	Alternatives Climate Change and Greenhouse Gases Transportation	Written
18	Jonathon Kass	SPUR	Alameda; Contra Costa; Marin; Napa; San Francisco; San Mateo; Santa Clara; Solano; Sonoma	10/28/2020	Alternatives	Written
Individuals						
19	Jean Severinghaus	Individual	Marin	9/28/2020	Climate Change and Greenhouse Gases	
20	Gary Trott	Individual	Unknown	10/6/2020	Hazards and Wildfire Biological Resources Public Utilities and Facilities Transportation	Written
21	Vicki DeSmet	Individual	Sonoma	10/2/2020	Hazards and Wildfire	Written
22	Kalin Pacheco	Caltrans	Not Applicable	10/9/2020	Transportation	Written
23	Paul D. Rockett	Individual	Not Applicable	10/12/2020	Hazards and Wildfire Climate Change and Greenhouse Gases	Written
24	Victoria DeSmet	Individual	Sonoma	10/13/2020	Hazards and Wildfire Public Utilities and Facilities Transportation	Written
25	Victoria DeSmet	Individual	Sonoma	10/13/2020	Hazards and Wildfire Public Utilities and Facilities Transportation	Written
26	Victoria DeSmet	Individual	Sonoma	10/13/2020	Hazards and Wildfire Public Utilities and Facilities Transportation	Written

Letter Number	Name of Author	Agency / Organization	County of comment origin[1] (if applicable)	Date Received	Relevant EIR Section(s)	Written / Oral
27	Andrew Lipsett	Individual	Not Applicable	10/13/2020	Hazards and Wildfire	Written
28	Victoria DeSmet	Individual	Sonoma	10/19/2020	Project Description	Written
29	Bill Mayben	Individual	Sonoma	10/20/2020	Climate Change and Greenhouse Gases Air Quality Traffic Hydrology and Water Quality Hazards and Wildfire Biological Resources Noise	Written
30	William L Martin	Individual	San Francisco	10/22/2020	Public Utilities and Facilities	Written
31	Heinrich Albert	Individual	Alameda	10/22/2020	Hydrology and Water Quality Public Utilities and Facilities	Written
32	Bill Mayben	Individual	Sonoma	10/22/2020	Climate Change and Greenhouse Gases	Written
33	Bill Mayben	Individual	Sonoma	10/22/2020	Climate Change and Greenhouse Gases	Written
34	Bill Mayben	Individual	Sonoma	10/23/2020	Air Quality Cultural Resources Energy Climate Change and Greenhouse Gases Land Use, Population, and Housing Noise Public Services and Recreation Transportation Public Utilities and Facilities	Written
35	Bill Mayben	Individual	Sonoma	10/26/2020	Climate Change and Greenhouse Gases	Written
36	Gary DeSmet	Individual	Sonoma	10/28/2020	Land Use, Population, and Housing	Written
37	Patrisha Piras	Individual	Alameda	10/28/2020	Alternatives Climate Change and Greenhouse Gases Hydrology and Water Quality Transportation	Written

Letter Number	Name of Author	Agency / Organization	County of comment origin[1] (if applicable)	Date Received	Relevant EIR Section(s)	Written / Oral
38	Ken Bukowski	Individual	Alameda	10/28/2020	Transportation	Written
39	Victoria DeSmet	Individual	Sonoma	10/28/2020	Hazards and Wildfire Public Utilities and Facilities Geology, Seismicity, and Mineral Resources Transportation	Written
SCOPING MEETING TRANSCRIPTS						
40	Meg	Individual	N/A	10/15/2020	Transportation	Written
41	No Name Given	Individual	N/A	10/15/2020	Project Description Alternatives	Written
42	Linda Curtis	Individual	N/A	10/15/2020	Transportation	Oral
43	No Name Given	Individual	N/A	10/15/2020	Project Description	Written
44	No Name Given	Individual	N/A	10/15/2020	Transportation	Written
45	Cindy Winter	Individual	Marin	10/15/2020	Transportation	Oral
46	Tom Conlin	Individual	N/A	10/15/2020	Alternative Land Use, Population, and Housing	Oral
47	Susan Landry	Individual	N/A	10/15/2020	Alternative Land Use, Population, and Housing	Oral
48	Linda Winter	Individual	N/A	10/15/2020	Energy	Oral
49	Gary Germano	Individual	Sonoma	10/15/2020	Transportation Hazards and Wildfire	Oral
50	Judy	Individual	N/A	10/15/2020	Project Description	Written
51	John	Individual	N/A	10/15/2020	Project Description	Written
52	No Name Given	Individual	N/A	10/15/2020	Transportation	Written
53	No Name Given	Individual	N/A	10/15/2020	Land Use, Population, and Housing	Written
54	No Name Given	Individual	N/A	10/15/2020	Project Description	Written

Letter Number	Name of Author	Agency / Organization	County of comment origin[1] (if applicable)	Date Received	Relevant EIR Section(s)	Written / Oral
55	No Name Given	Individual	N/A	10/15/2020	Project Description	Written
56	No Name Given	Individual	N/A	10/15/2020	Project Description	Written
57	Carol	Individual	N/A	10/15/2020	Transportation Hazards and Wildfire	Written
58	Robert	Individual	N/A	10/15/2020	Transportation	Written
59	No Name Given	Individual	N/A	10/15/2020	Cultural Resources and Tribal Cultural Resources	Written
60	No Name Given	Individual	N/A	10/15/2020	Project Description	Written
61	No Name Given	Individual	N/A	10/15/2020	Project Description	Written
62	No Name Given	Individual	N/A	10/15/2020	Introduction	Written
63	Ton Conlin	Individual	N/A	10/15/2020	Transportation Land Use, Population, and Housing Project Description Climate Change and Greenhouse Gases	Oral
64	No Name Given	Individual	N/A	10/15/2020	Introduction	Written
65	Tom Conlin	Individual	N/A	10/15/2020	Land Use, Population, and Housing Climate Change and Greenhouse Gases	Oral
66	John	Individual	N/A	10/15/2020	Hydrology and Water Quality	Written
67	John	Individual	N/A	10/15/2020	Land Use, Population, and Housing	Written
68	John	Individual	N/A	10/15/2020	Project Description/throughout document	Written
69	John	Individual	N/A	10/15/2020	Project Description	Written

[1] The county of commenter origin indicates the country from which the commenter is located or the county (or counties) represented by the commenter, if applicable.

From:	Adam Noelting
To:	EIR Comments
Subject:	Fwd: CalGEM CEQA comments_SCH 2020090519 - Plan Bay Area 2050 (Regional Transportation Plan/Sustainable Communities
Date:	Sunday, October 25, 2020 7:40:06 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png CalGEM CEQA comments_SCH#2020090519.pdf

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From: CalGEMNorthern@DOC <CalGEMNorthern@conservation.ca.gov>
Sent: Wednesday, October 21, 2020 9:21:40 AM
To: Adam Noelting <ANoelting@bayareametro.gov>
Cc: OPR State Clearinghouse <State.Clearinghouse@opr.ca.gov>; OLRA@DOC <OLRA@conservation.ca.gov>; Perez, Jan@DOC <Jan.Perez@conservation.ca.gov>; Wright, Tharon@DOC <Tharon.Wright@conservation.ca.gov>; CalGEMNorthern@DOC <CalGEMNorthern@conservation.ca.gov>
Subject: CalGEM CEQA comments_SCH 2020090519 - Plan Bay Area 2050 (Regional Transportation Plan/Sustainable Communities

External Email

Mr. Noelting,
Please see the attached.

Thank you,

Dana Lolmaugh
CalGEM/Northern District - Sacramento
California Department of Conservation
801 K Street, MS 18-05, Sacramento, CA 95814
T: (916) 322-1110
E: Dana.Lolmaugh@conservation.ca.gov

October 20, 2020

Adam Noelting
Metropolitan Transportation Commission
375 Beale Street, Suite 800
San Francisco, CA 94105
anoelting@bayareametro.gov

CEQA Project: SCH # 2020090519
Lead Agency: Metropolitan Transportation Commission
Project Title: Plan Bay Area 2050 (Regional Transportation Plan/Sustainable Communities Strategy)

The Geologic Energy Management Division (Division) oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. Our regulatory program emphasizes the wise development of oil, natural gas, and geothermal resources in the state through sound engineering practices that protect the environment, prevent pollution, and ensure public safety. Northern California is known for its rich gas fields. The map contained in the Notice of Preparation does not provide adequate detail to determine if existing or plugged and abandoned wells might be in the vicinity of any future projects. It is recommended that the Metropolitan Transportation Commission utilize the Division's well finder resource when more detailed maps are available to ascertain if a well could be affected. http://maps.conservation.ca.gov/doggr/wellfinder/#close Data for wells located on private and public land are available at the Division's website: https://secure.conservation.ca.gov/WellSearch

The permitting agency(s) and property owner(s) should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near oil and gas wells. These issues are non-exhaustively identified in the following comments and are provided by the Division for consideration by the permitting agency, in conjunction with the property owner and/or developer, on a parcel-by-parcel or well-by-well basis.

1. It is recommended that access to a well located on a property be maintained in the event abandonment or re-abandonment of the well becomes necessary in the future. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access. This includes, but is not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, and decking.

2. Nothing guarantees that a well abandoned to current standards will not start leaking oil, gas, and/or water in the future. It always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. The Division acknowledges that the wells presently abandoned to current standards have a lower probability of leaking oil, gas, and/or water in the future, but makes no guarantees as to the adequacy of the abandonment or the potential need for future re-abandonment.

3. Based on comments **1** and **2** above, the Division makes the following general recommendations:

    a. **Maintain physical access to all oil and gas wells.**

    b. **Ensure that the abandonment of all oil and gas wells is to current standards**.

If the permitting agency, property owner, and/or developer chooses not to follow recommendation "**b**" for the well located within the project corridors, the Division believes that the importance of following recommendation "**a**" for the well located on the subject property increases. If recommendation "**a**" cannot be followed for the well located on the subject property, then the Division advises the permitting agency, property owner, and/or developer to consider any and all alternatives to proposed construction or development on the site (see comment **4** below).

4. Sections 3208 and 3255(a)(3) of the Public Resources Code give the Division the authority to order the re-abandonment of any well that is hazardous, or that poses a danger to life, health, or natural resources. Responsibility for re-abandonment costs for any well may be affected by the choices made by the permitting agency, property owner, and/or developer in considering the general recommendations set forth in this letter. (Cal. Public Res. Code, § 3208.1.)

5. Maintaining sufficient access to an oil or gas well may be generally described as maintaining "rig access" to the well. Rig access allows a well servicing rig and associated necessary equipment to reach the well from a public street or access way, solely over the parcel on which the well is located. A well servicing rig, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well without disturbing the integrity of surrounding infrastructure.

6. The Division recommends that a permitting agency consider the use of surface mitigation measures as a condition for project approval, if and when appropriate. Examples of surface mitigation measures include venting systems for wells, venting systems for parking lots, patios, and other hardscape, methane barriers for building foundations, methane detection systems, and collection cellars for well fluids. The Division **does not** regulate the design, installation, operation, or adequacy of such measures. The Division recommends that such surface mitigation measures are designed, installed, and operated by qualified engineers. The permitting of surface mitigation measures falls under the jurisdiction of the permitting agency.

7. If during the course of development of a parcel any unknown well(s) is discovered, the Division should be notified immediately so that the newly discovered well(s) can be incorporated into the records and investigated.

8. The Division recommends that any soil containing significant amounts of hydrocarbons to be disposed of in accordance with local, state, and federal laws. Please notify the appropriate authorities if soil containing significant amounts of hydrocarbons is discovered during development.

9. The Division recommends that any wells found in the course of this project and any pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property. This is to ensure that present and future property owners are aware of (1) the wells located on the property, and (2) potentially significant issues associated with any improvements near oil or gas wells.

No well work may be performed on any oil or gas well without written approval from the Division in the form of an appropriate permit. This includes, but is not limited to, mitigating leaking fluids or gas from abandoned wells, modifications to well casings, and/or any other re-abandonment work. (NOTE: The Division regulates the depth of any well below final grade (depth below the surface of the ground). Title 14, Section 1723.5 of the California Code of Regulations states that all well casings shall be cut off at least 5 feet

but no more than 10 feet below grade. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this grade regulation, a permit from the Division is required before work can start.)

To reiterate, the permitting agency, property owner, and/or developer should be aware of, and fully understand, that the above comments are made by the Division with the intent to encourage full consideration of significant and potentially dangerous issues associated with development near oil or gas wells.

Thank you for the opportunity to comment on this project.

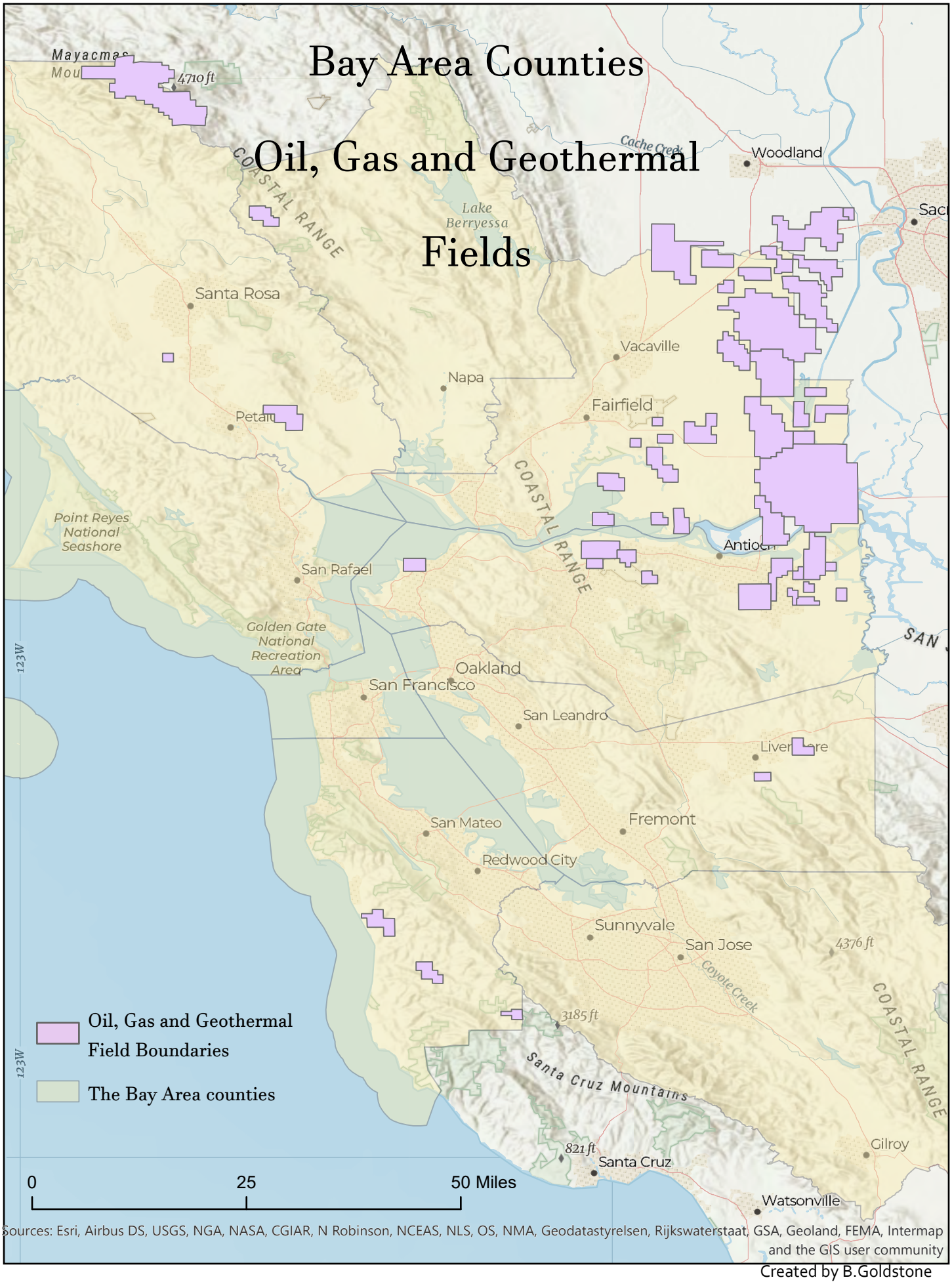
Sincerely,

DocuSigned by:
Charlene L Wardlow
067E7BD5EA114A7...

Charlene L Wardlow
Northern District Deputy

Enclosures:

1. Oil, Gas & Geothermal Fields of the Nine Bay Area Counties



From: Adam Noelting
To: EIR Comments
Subject: Fw: Plan Bay Area 2050-SCH2020090519
Date: Monday, November 2, 2020 8:31:40 AM
Attachments: Plan Bay Area 2050-SCH2020090519-Noelting-ALLEN103020.pdf

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From: Hultman, Debbie@Wildlife <Debbie.Hultman@wildlife.ca.gov>
Sent: Friday, October 30, 2020 1:27 PM
To: Adam Noelting <ANoelting@bayareametro.gov>
Cc: OPR State Clearinghouse <State.Clearinghouse@opr.ca.gov>; Allen, Garrett@Wildlife <Garrett.Allen@wildlife.ca.gov>; Weiss, Karen@Wildlife <Karen.Weiss@wildlife.ca.gov>; Weightman, Craig@Wildlife <Craig.Weightman@wildlife.ca.gov>
Subject: Plan Bay Area 2050-SCH2020090519

External Email

Mr. Noelting,

Please see the attached letter for your records. If you have any questions, contact Mr. Garrett Allen, cc'd above.

Thank you,

Debbie Hultman | Assistant to the Regional Manager
California Department of Fish and Wildlife – Bay Delta Region
2825 Cordelia Road, Ste. 100, Fairfield, CA 94534
707.428.2037 | debbie.hultman@wildlife.ca.gov

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

October 30, 2020

Mr. Adam Noelting
Metropolitan Transportation Commission
375 Beale Street, Suite 800
San Francisco, CA 94105
anoelting@bayareametro.gov

Subject: Plan Bay Area 2050 (Regional Transportation Plan/Sustainable Communities Strategy), Notice of Preparation of a Draft Environmental Impact Report, SCH No. 2020090519, Nine Counties of the San Francisco Bay Area

Dear Mr. Noelting:

The California Department of Fish and Wildlife (CDFW) has reviewed the Metropolitan Transportation Commission's (MTC) Notice of Preparation (NOP) of a draft Environmental Impact Report (EIR) for the Plan By Area 2050 (Regional Transportation Plan/Sustainable Communities Strategy) (Project), which encompasses all nine San Francisco Bay Area counties (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma).

As stated in the NOP, MTC is required by state legislation (Government Code Section 65080 et seq.) and by federal regulation (Title 23 USC Section 134) to prepare a Regional Transportation Plan (RTP) for the San Francisco Bay Area region. Additionally, MTC is responsible for developing a Sustainable Communities Strategy per the Climate Protection Act (SB 375) signed into law in 2008.

The California Code of Regulations, title 14, section 1500 et seq. (California Environmental Quality Act (CEQA) Guidelines), specifically Section 15082, stipulates that the NOP shall provide the responsible and trustee agencies and the Office of Planning and Research with sufficient information describing the Project and potential environmental effects to enable such agencies to make a meaningful response. The NOP shall include a description of the project, specific location of the project, and probable environmental effects of the project. CEQA Guidelines section 15124 stipulates that the project description shall contain a description of the project's technical and environmental characteristics.

Because the NOP provides minimal information about the existing and future technical and environmental characteristics of the Project, our comments below offer guidance on how MTC should proceed in identifying, analyzing, and mitigating effects of the Project on environmental factors subject to CDFW's statutory authority. Specific recommendations to reduce or avoid potentially significant effects of the Project on fish,

wildlife, plant, and habitat resources, will necessitate a draft EIR that details the Project's existing and future technical and environmental characteristics, including sufficient technical data to permit a full assessment of al significant environmental impacts (CEQA Guidelines, §15147).

CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and their habitats (i.e., biological resources). CDFW is a trustee agency with responsibility under CEQA for commenting on projects that could affect fish and wildlife resources (CEQA Guidelines, §15386). As a trustee agency, CDFW reviews and comments on environmental documents and impacts arising from project activities, as those terms are used under CEQA (Fish and Game Code, §1802).

CDFW is also considered a Responsible Agency if a project would require discretionary approval, such as the California Endangered Species Act (CESA) Permit, the Native Plant Protection Act (NPPA) Permit, or the Lake and Streambed Alteration (LSA) Agreement; and other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife trust resources.

REGULATORY REQUIREMENTS

California Endangered Species Act

CDFW has discretionary authority over activities that could result in the take[1] of any species listed as candidate, threatened, or endangered pursuant to CESA (Fish and Game Code, Section 2050 et seq.). CDFW considers adverse impacts to CESA-listed species, for the purposes of CEQA, to be significant without mitigation. Take of any CESA-listed species is prohibited except as authorized by law (Fish and Game Code, §§ 2080 and 2085). If the Project, including Project construction or any Project-related activity during the life of the Project, will result in take of a CESA-listed species, CDFW recommends that the Project proponent seek appropriate authorization prior to Project implementation [e.g., CESA Incidental Take Permit (ITP)].

Lake and Streambed Alteration

Per Fish and Game Code, Section 1602(a), an entity may not substantially diver or obstruct the natural flow of; substantially change or use material from the bed, bank, or channel of; or dispose of any debris, waste, or other material, into any river, stream, or

[1] Fish and Game Code, Section 86: "Take" is defined as hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

lake unless 1) the entity provides written notification to CDFW, and 2) CDFW issue an LSA Agreement, or determines that an LSA Agreement is not necessary for the Project.

Ephemeral and/or intermittent streams and drainages (i.e., drainages that are dry for periods of time or only flow during periods of rainfall) are also subject to the notification requires in Fish and Game Code section 1602(a).

CDFW must comply with CEQA prior to issuance of an ITP or LSA Agreement for a project. As such, CDFW may consider the lead agency's (i.e., MTC's) CEQA documentation for the Project. To minimize additional requirements by CDFW and/or under CEQA, the draft EIR should fully disclose potential Project impacts on CESA-listed species and any river, lake, or stream, and provide adequate avoidance, minimization, mitigation, monitoring and reporting measures for issuance of the ITP or LSA Agreement.

Fully Protected Species

CDFW has jurisdiction over fully protected species of birds, mammals, amphibians, reptiles, and fish pursuant to Fish and Game Code sections 3511, 4700, 5050, and 5515. Take of any fully protected species is prohibited and CDFW cannot authorize take except in limited circumstances.

State Rare Plants

CDFW also has jurisdiction over plants designated as 'rare' under the NPPA (Fish and Game Code, §1900 et seq.). The NPPA prohibits the take of rare plants, and includes exceptions to some activities.

Migratory Birds

CDFW has jurisdiction over actions that may result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code section 3503, 3503.5, and 2513 prohibit the following: unlawful take, possession or needless destruction of the nest or eggs of any bird; unlawful take, possession, or destruction of any birds-of-prey or their nests or eggs; and unlawful take of any migratory nongame bird.

Furbearing and Nongame Mammals

CDFW has jurisdiction over furbearing mammals pursuant to California Code of Regulations, title 14, section 460. This section states, "fisher, marten, river otter, desert kit fox, and red fox may not be taken at any time," and therefore CDFW cannot authorize their take. Additionally, nongame mammals, such as bats, cannot be taken or

possessed except as provided in the Fish and Game Code or in accordance with regulations adopted by the Commission (Fish and Game Code, §4150).

Fish Passage

Per Fish and Game Code section 5901, it is unlawful to construct or maintain in any streams any device or contrivance that prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream. Please also note that Fish and Game Code section 45 defines "fish" to include a wild fish, mollusk, crustacean, invertebrate, amphibian, or part, spawn, or ovum of any of those animals.

Water Pollution

It is unlawful to deposit in, permit to pass into, or place where it can pass into the waters of this state any substance or material deleterious to fish, plant life, mammals, or bird life (Fish and Game Code, §5650). Additionally, per Fish and Game Code section 5652, it is unlawful to deposit, permit to pass into, or place where it can pass into the waters of the state, or to abandon, dispose of, or throw away within 150 feet of the high water mark of the waters of state, any cans, bottle, garbage, motor vehicle or parts thereof, rubbish, litter, refuse, waste, debris, or the viscera or carcass of any dead mammal, or the carcass of any dead bird.

SCOPE AND CONTENT OF ENVIRONMENTAL INFORMATION

CDFW offers the following comments and recommendations below to assist MTC in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

Intended Uses of the EIR and CDFW's Role as a Responsible Agency

The draft EIR should articulate the intended uses of the EIR and specify whether CDFW is anticipated to be one of the responsible agencies that will use the EIR in its decision making for subsequent Project activities (CEQA Guidelines, §15124). Additionally, the draft EIR should clearly state whether it is intended to be a final comprehensive document, for which all subsequent projects will utilize, or whether tiered documents will be prepared for individual projects.

Program EIR and Tiering

A program EIR is written so subsequent Project activities within the scope of the program EIR would not require preparation of an additional environmental document (CEQA Guidelines, § 15168). CDFW is pleased to provide guidance to MTC in support of the preparation of a draft EIR that, pursuant to Section 15168, *deals with the effects*

of the program as specifically and comprehensively as possible. Based on the large scale and scope of the Project and anticipated preparation of a program EIR, additional environmental documents will most likely need to be prepared and tiered from the EIR for certain subsequent Project activities (CEQA Guidelines, §§ 15152 and 15162).

The draft EIR should clearly establish a procedure for determining if subsequent Project activities are within the scope of the EIR, or require an additional environmental document. This will be critical to ensuring adequate analysis of Project activity effects on biological resources. CEQA Guidelines section 15168(c)(4) states, *"Where the subsequent activities involve site-specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR."* CDFW recommends developing the checklist with this draft EIR to guide the appropriate CEQA review level for future projects as an attachment to the draft EIR. A procedure or checklist will be critical to ensuring adequate analysis of Project effects on biological resources. CDFW recommends using the procedure and checklist developed for infill projects as a model; it can be found in CEQA Guidelines Section 15183.3 and Appendix N. The checklist should also outline how habitat will be analyzed per species or habitat type, how impacts will be assessed, and whether any mitigation is necessary.

When used appropriately, the checklist should be accompanied by enough relevant information and reasonable inferences to support "within the scope" of the EIR conclusion. For subsequent Project activities that may affect sensitive biological resources, a site-specific analysis should be prepared, from which the supporting information would be derived (see additional guidance regarding site-specific analyses below). The checklist should cite the specific portions of the EIR, including page and section references, containing the analysis of the subsequent Project activities significant effects and indicate whether it incorporates all applicable mitigation measures from the EIR.

The EIR should state that as soon as the lead agency has determined an additional environmental document will be required for a subsequent Project activity, it shall consult with all responsible and trustee agencies, including CDFW, to obtain recommendations as to whether an additional EIR or negative declaration should be prepared (CEQA Guidelines, § 15063).

Project Description

The draft EIR must include a Project description, including reasonably foreseeable future phases of the proposed Project, which contains sufficient information to evaluate and review the Project's environmental effects. To evaluate Project effects on biological

resources, it will be necessary to include all Project activities that may result in a potentially significant effect in the draft EIR.

The Project description should detail activities that result in any type of ground disturbance, including even minor disturbances (e.g., trampling, soil erosion, runoff, and sedimentation), visual disturbance (e.g., light sources that may result in phototaxis), and auditory disturbance (i.e., noise). Detailed information about facilities/infrastructure and related construction, operation, maintenance, and decommissioning should be included.

The Project description should also identify setback distances from flood zones, wetlands, streams, and lakes, including perennial, intermittent, or ephemeral channels, and ponds.

Biological Expertise

Project applicants often engage the services of a biologist experienced in conducting CEQA analysis to develop a Project description that contains sufficient information to evaluate impacts on biological resources. CDFW strongly recommends this approach and encourages MTC to ensure that Project engineering and construction experts are available to support biologists in preparing a complete and accurate Project description.

Environmental Setting

An EIR must include a description of the environmental setting (i.e., physical conditions) that contains sufficient information to understand the significant effects of the proposed Project and its alternatives (CEQA Guidelines, §15125 and 15360).

Program Level Detail

CDFW recommends that the draft EIR include the following information at the level of detail that is feasible at the “program level” to avoid siting subsequent Project activities where sensitive biological resources occur and to target areas that may require additional analysis.

- *Ecoregions.* An environmental setting that is also organized by the U.S. Department of Agriculture ecoregion section.

- *Species and Vegetation.* A description of the vegetation and natural communities (and mapping), fish, wildlife, and their habitats, including fully protected, rare, threatened, and endangered species, as these terms are defined in CEQA Guidelines section 15380, within the Project area of potential effect. This includes resources in the vicinity of the Project that may be significantly affected. Species with special designations; for example, California Species of Special Concern,

federal agency species of concern, and California Native Plant Society (CNPS) Rare Plant Rank species, typically meet the section 15380 criteria.

- *Aquatic/Wetland Features.* A description and mapping of water features, including streams, lakes, riparian habitat, wetlands, groundwater and aquifer sources, seasonally and permanently wetted channels, sloughs, depressions, spring seeps, ponds, and flood zones.

- *Protected Habitat Areas.* A description and mapping of specially protected habitat areas and other sensitive biological features (e.g., conservation lands, CDFW-owned lands, Marine Protected Areas, and wildlife movement corridors).

- *Climate Change Projections.* A description and mapping of areas where future physical conditions are projected to be altered due to climate change. This will inform how the Project will affect such areas in the foreseeable future because of changing conditions, e.g., sea level rise.

Site Specific Detail

For subsequent Project activities that may affect sensitive biological resources, the draft EIR should require the preparation of a site-specific analysis of biological resources to establish local baseline conditions that could not be described in the draft EIR at the program level. This may include, but should not be limited to,

- *Site-specific Environmental Data.* For example, soil, water table, and topographic data as may inform the occurrence of, and Project activity impacts on, sensitive biological resources.

- *Conserved Lands Spatial Data.* For regions with habitat conservation plans, databases and GIS layers that catalog existing conserved lands will help to direct the location of subsequent Project activities.

- *Rare Plants and Natural Communities.* A thorough assessment of rare plants and rate natural communities following CDFW's 2018 *Protocols for Surveying and Evaluating Impacts to Sensitive Native Plant Populations and Sensitive Natural Communities,* which can be found here: https://wildlife.ca.gov/conservation/survey-protocols.

- *Lake or Streambed Alterations.* A description of any Project activity-related alteration in the bed, channel, bank, and/or natural flow of the water features described above. These areas should be quantified by existing habitat type, management strategies and constraints, species presence, and ownership and/or agency responsible for the management and maintenance of the parcel.

- *Rare, Threatened, Endangered Species Surveys*. Protocol-level survey results for any fully protected, rare, threatened, and endangered plants and animals, including species listed on CDFW's Special Vascular Plants, Bryophytes, and Lichens List (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline). Surveys should be conducted in accordance with CDFW and U.S. Fish and Wildlife Service (USFWS) accepted protocols.

- *Wetland Delineations.* Delineations should be conducted to determine the boundaries of wetlands that may be impacted by the Project. Resource agencies do not necessarily use the same criteria to identify wetlands (e.g., California Coastal Commission, State Water Resources Control Board, U.S. Army Corps of Engineers). Therefore, prior to conducting any delineations, the applicant should consult with the resource agencies with jurisdiction over the Project activity to determine the appropriate criteria for identifying wetlands.

IMPACT ANALYSIS AND MITIGATION MEASURES

The CEQA Guidelines section 15126.2 necessitates that a draft EIR discuss all direct and indirect impacts that may occur with implementation of the Project. This includes evaluating and describing impacts such as:

- Permanent and temporary habitat disturbances associated with ground disturbance, noise, lighting, reflection, air pollution, traffic or human presence;

- Obstruction of movement corridors, fish passage, or access to water sources and other core habitat features;

- Impacts to riparian areas, lakes, rivers, streams, and wetlands;

- Impacts to rare, threatened, and endangered species, including potential for "take" of special-status species;

- Loss or modification of breeding, nesting, dispersal and foraging habitat, including vegetation removal, alternation of soils and hydrology, and removal of habitat structural features (e.g. snags, roosts, overhanging banks including to mature trees/nesting habitat for migratory birds and raptors;

- Conflicts with the provisions of adopted Habitat Conservation Plan, Natural Community Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plans.

The CEQA document also should identify reasonably foreseeable future projects in the Project vicinity, disclose any cumulative impacts associated with these projects,

determine the significance of each cumulative impact, and assess the significance of the Project's contribution to the impact (CEQA Guidelines, §15355). Although a project's impacts may be insignificant individually, its contributions to a cumulative impact may be considerable; a contribution to a significant cumulative impact – e.g., reduction of available habitat for a listed species – should be considered cumulatively considerable without mitigation to minimize or avoid the impact.

Based on the comprehensive analysis of the direct, indirect, and cumulative impacts of the Project, the CEQA Guidelines (§§ 15021, 15063, 15071, 15126.2, 15126.4 and 15370) direct the lead agency to consider and describe all feasible mitigation measures to avoid potentially significant impacts in the draft EIR, and/or mitigate significant impacts of the Project on the environment. This includes a discussion of take avoidance and minimization measures for special-status species, which are recommended to be developed in early consultation with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and CDFW. These measures can then be incorporated as enforceable Project conditions to reduce potential impacts to biological resources to less-than-significant levels.

Light Impact Analysis and Discussion

Artificial lighting has the potential to create a significant impact because unlike the natural brightness created by the monthly cycle of the moon, the permanent and continuously powered lighting fixtures create an unnatural light regime that produces a constant light output, 365 days a year that can have a cumulatively significant impact on fish and wildlife populations. The draft EIR should include a discussion in the Biological Resources section of the potentially significant impacts that could be created by increased permanent light installations or replacements or new installations to determine the extent of the impacts to fully protected, rare, threatened, endangered, nocturnal and migratory bird species known to occur within the Project vicinity.

Fish Passage Barriers

Senate Bill 857, which amended Fish and Game Code 5901 and added section 156 to the Streets and Highways Code states in section 156.3, "For any project using state or federal transportation funds programmed after January 1, 2006, the MTC shall insure that, if the project affects a stream crossing on a stream where anadromous fish are, or historically were, found, an assessment of potential barriers to fish passage is done prior to commencing project design. The MTC shall submit the assessment to the California Department of Fish and Wildlife and add it to the CALFISH database. If any structural barrier to passage exists, remediation of the problem shall be designed into the project by the implementing agency. New projects shall be constructed so that they do not present a barrier to fish passage. When barriers to fish passage are being

addressed, plans and projects shall be developed in consultation with the Department of Fish and Wildlife."

Wildlife Barriers and Connectivity.

Existing wildlife studies and data should be reviewed and as necessary new studies should be conducted to identify the areas where wildlife crossing is most prevalent and to identify areas where wildlife crossing structure(s) installation(s) would result in the largest benefit to rare, threatened, and endangered species and serve to reduce vehicle strikes. Existing structures should be updated, and new structures should be installed to facilitate wildlife movement and increase overall connectivity in the Project area. Site selection criteria and design criteria for wildlife connectivity structures should be conducted in coordination with natural resources agencies.

FILING FEES

CDFW anticipates that the Project will have an impact on fish and/or wildlife, and assessment of filing fees is necessary (Fish and Game Code, § 711.4; Pub. Resources Code, § 21089). Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW.

If you have any questions, please contact Mr. Garrett Allen, Environmental Scientist, at garrett.allen@wildlife.ca.gov; or Ms. Karen Weiss, Senior Environmental Scientist (Supervisory), at karen.weiss@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Gregg Erickson
BE74D4C93C604EA...

Gregg Erickson
Regional Manager
Bay Delta Region

cc: State Clearinghouse

From: Chanda Singh
To: EIR Comments
Subject: SMCo Planning & Building Comments - NOP Plan Bay Area 2050 DEIR
Date: Tuesday, October 27, 2020 8:45:40 PM
Attachments: SMCo PB Plan Bay Area 2050 DEIR Scoping Comment_signed.pdf

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External Email

Thank you for the opportunity to submit comments on the Notice of Preparation for the Plan Bay Area 2050 Draft Environmental Impact Report. Please see attached.

Thank you!
Chanda

Chanda Singh
Senior Transportation Planner

County of San Mateo
Planning and Building Department
csingh@smcgov.org
M: 408-781-1898
www.smcgov.org

COUNTY OF SAN MATEO
PLANNING AND BUILDING

County Government Center
455 County Center, 2nd Floor
Redwood City, CA 94063
650-363-4161 T
planning.smcgov.org

October 27, 2020

Metropolitan Transportation Commission/Association of Bay Area Governments
375 Beale Street, Suite 800
San Francisco, CA 94105
eircomments@bayareametro.gov

To Whom It May Concern:

SUBJECT: Notice of Preparation and Environmental Impact Report Scoping, Plan Bay Area 2050

The San Mateo County Planning and Building Department appreciates the opportunity to comment on the potential scope of the Metropolitan Transportation Commission and Association of Bay Area Government's planned program-level Draft Environmental Impact Report (DEIR) for the proposed Plan Bay Area 2050 (Plan). The Department is largely in support of the broad goals of the proposed Plan as described to date, and offers the following comments on the listed strategies below for consideration in assessing the potential environmental impacts of the strategies and related mitigation measures that may be included in the DEIR.

Strategy T5 - Implement Per-Mile Tolling on Congested Freeways with Transit Alternatives

Implementing a per-mile charge on freeway corridors where transit alternatives are planned, but do not yet exist, may disproportionately impact low-income residents. Travel times and mobility sheds are typically longer and smaller using the local transit network, and lower-income residents are often those less likely to be able to telework or avail themselves of other alternatives to travel. The travel time required and financial impact of this strategy may also be greater in the absence of full implementation of Strategies T2 (Restore, Operate, and Maintain the Existing System - including transit service frequencies returned to 2019 levels by 2035), T3 (Enable a Seamless Mobility Experience), T4 (Reform Regional Fare Policy), and T10 (Enhance Local Transit Frequency, Capacity, and Reliability). The DEIR should analyze these compounding impacts, especially on low-income residents, including comparing job access by mode with consideration to travel times, and the costs for a transit versus a priced roadway trip. The DEIR should consider an alternatives analysis, where this strategy is employed only when transit alternatives to roadways are funded (instead of just planned), and if Strategy T6 (Improve Interchanges and Address Highway Bottlenecks) was removed, as it appears T5 was expanded due to the inclusion of T6. Consider incorporating research findings by Drs. Evelyn Blumenberg and Paul Ong in this regard (e.g., Cars, Buses, and Jobs: Welfare Participants and Employment Access In Los Angeles, Jan 2001, Transportation Research Board).

Strategy T9 - Advance Regional Vision Zero Policy through Street Design and Reduced Speeds

Emphasizing enforcement as part of the Vision Zero framework is contrary to a growing awareness of the disproportionate impacts of law enforcement in our communities of color and on black lives, and is not in keeping with the central tenets of Vision Zero as framed by the Vision Zero Network (https://visionzeronetwork.org/about/what-is-vision-zero/). This strategy's language should be refined to include equity and engagement first. The DEIR should address the potential impacts due to additional law enforcement. The DEIR alternatives analysis should consider removing this strategy and instead, augmenting Strategy T8 (Build a Complete Streets Network) to address Vision Zero.

Strategy H2 - Preserve Existing Affordable Housing

San Mateo County strongly supports the goal of preservation of existing affordable housing, both dedicated long-term and naturally occurring affordable housing. In this context, it is important for the DEIR to also assess the potentially displacing effects of various planned transportation projects described in StrategiesT11, T12, as well as potentially the strategies generally identified in Strategy T2. Displacement of existing residents constitutes both an obvious equity impact and a potential compounding physical impact: displacement of existing residents may result in those residents living further from transit and traveling greater distances to and from jobs, as in the case of current housing cost-related displacement that creates long commutes from peripheral parts of the Bay Area. Without assessing the potential displacing and dispersing effects of transportation projects as part of a cumulative impact analysis, the DEIR may not adequately assess the real potential impacts of these projects.

Strategy EN1 - Adapt to Sea Level Rise

The impacts of sea level rise will be exacerbated by additional challenges, including rising shallow groundwater tables, subsidence, changes in precipitation due to climate change and its impact on creek flooding and stormwater runoff, both of which can be trapped behind levees. The strategy's description and DEIR should acknowledge these compounding impacts. The County of San Mateo has collaborated with communities to develop resources related to Sea Level Rise Vulnerability and Adaptation, including Sea Change Burlingame, Millbrae Climate Adaptation Assessment, and others. Sea Change San Mateo County (https://seachangesmc.org/) includes resources related to potential evaluation and mitigation strategies that could be employed in the DEIR to address sea level rise and other climate-driven impacts.

Strategy EN6 - Modernize and Expand Parks, Trails, and Recreation Facilities

The California Coast has been an important recreational destination in the region and recently visitation has increased. Residents of the unincorporated San Mateo County Midcoast have reported a dramatic increase in visitors on weekday and weekends during the

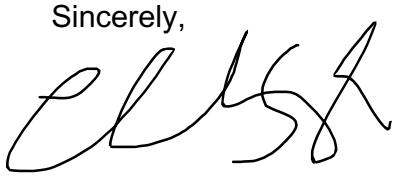
COVID-19 pandemic. With no transit options to the coastside and limited infrastructure for pedestrians and cyclists, traffic volumes and safety concerns have increased. Projected population increases for the region, in particular for San Francisco, Santa Clara and San Mateo Counties, and limited funding to expand public open space opportunities will lead to greater pressure on existing coastside parks and beaches. The DEIR should address these potential impacts.

Strategy EN7 - Institute Telecommuting Mandates for Major Office-Based Employers

Telecommuting is a critical traffic-reduction strategy, however, it is unclear how the mandated 60% target would impact local businesses in job centers that rely on the business of daytime employee populations – many of the same businesses that are already suffering and closing due to COVID-19. The DEIR analysis should address this concern by identifying which geographies would be most impacted (e.g., locations of impacted large office-based employers) and the alternatives analysis should consider a voluntary target and/or reduced target.

Again, thank you for the opportunity to comment on the planned DEIR for Plan Bay Area 2050. Should you have any questions or require any additional information, please do not hesitate to contact me at csingh@smcgov.org.

Sincerely,



Chanda Singh
Senior Transportation Planner

From:	Leong, Mark@DOT
To:	EIR Comments
Cc:	state.clearinghouse@opr.ca.gov
Subject:	Plan Bay Area 2050 Notice of Preparation (NOP)- Caltrans comments
Date:	Tuesday, October 27, 2020 3:58:52 PM
Attachments:	PBA 2050 NOP Caltrans.pdf

External Email

Hello Adam,

Thank you for the opportunity to comment on the Plan Bay Area 2050 NOP. Attached you will find our comment letter. Feel free to reach out to me if you have any questions or if you need additional information.

Best regards,

Mark Leong, Branch Chief
Local Development- Intergovernmental Review
Caltrans, District 4 | cell: 510-960-0868

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
P.O. BOX 23660, MS–1A
OAKLAND, CA 94623-0660
PHONE (510) 286-5900
FAX (510) 286-6301
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

October 27, 2020

Adam Noelting, Principal Planner
Metropolitan Transportation Commission (MTC)
375 Beale Street, Suite 800
San Francisco, CA 94105

Dear Mr. Noelting:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process of the Plan Bay Area (PBA) 2050 Notice of Preparation (NOP). We are committed to ensuring that impacts to the State's multimodal transportation system and to our natural environment are identified and mitigated to support a safe, sustainable, integrated and efficient transportation system. The following comments are based on our review of the September 2020 NOP.

Project Understanding
MTC and the Association of Bay Area Governments (ABAG) are the joint Lead Agencies preparing PBA 2050 which seeks to ensure that the Bay Area is affordable, connected, diverse, healthy and vibrant for all by the Year 2050. The Lead Agencies' regional growth forecasts project the total population to increase by 2.7 million and housing units to increase by 1.4 million by the Year 2050. As part of the Blueprint process, PBA 2050 also seeks to meet or exceed State and federally-mandated Greenhouse Gas (GHG) emission reduction targets.

Modeling and Analysis
When analyzing scenario/project alternatives and their potential impacts, please note the following:

- Please consult Caltrans regarding the analysis of capacity-increasing projects on the State Highway System (SHS) as well as proposed land use projects that may impact the SHS. Per SB 743, Vehicle Miles Traveled (VMT) is the primary metric to assess potential transportation impacts. Caltrans SB 743 implementation information is available at

https://dot.ca.gov/programs/transportation-planning/office-of-smart-mobility-climate-change/sb-743;

- Please ensure that metrics and performance measures that address VMT, passenger and freight congestion (particularly with the expansion of the Express Lane Network), and mode choice take into account clean air/electric vehicles (passenger and truck), automated vehicles, and Transportation Network Companies (TNCs);

- The PBA 2050 Environmental Impact Report (EIR) should acknowledge COVID-19 impacts, regarding the prioritization, funding, and construction schedule of transportation projects, as well as opportunities related to telework;

- The PBA 2050 EIR should acknowledge and take into account California Executive Order (EO) N-79-20 which mandates that 100 percent of in-State sales of new passenger cars and trucks are zero emission by 2035, and EO N-19-19 which requires the redoubling of the State's efforts to reduce GHG emissions and mitigate the impacts of climate change while building a sustainable, inclusive economy.

Relationship with Statewide Planning
Caltrans strongly encourages the Lead Agencies attain consistency with the goals and objectives of State plans which include, but are not limited to, the following:

- The Draft California Transportation Plan 2050, which seeks to combat climate change and the risks it imposes to infrastructure and communities (Final to be released Winter 2021). https://ctp2050.com/;

- The California Active Transportation Plan, *Toward an Active California*, which seeks to strengthen and reconnect local networks, improve safety, and expand multimodal access. https://www.catplan.org/district-4;

- The Interregional Transportation Strategic Plan (ITSP), which provides guidance for the identification and prioritization of interregional transportation projects for the Interregional Transportation Improvement Program (ITIP). (The 2021 ITSP is currently under development which will update the 2015 ITSP). https://dot.ca.gov/programs/transportation-

planning/multi-modal-system-planning/interregional-transportation-strategic-plan;

- The California State Rail Plan, which provides a framework for California's rail network. https://dot.ca.gov/programs/rail-and-mass-transportation/california-state-rail-plan;

- The California Freight Mobility Plan, which seeks to provide a long-term vision for California's freight future. https://dot.ca.gov/programs/transportation-planning/freight-planning/ca-freight-advisory-committee/cfmp-2020;

- Comprehensive Multimodal Corridor Plans developed in coordination with partners and stakeholders for multimodal long-range corridor planning. https://dot.ca.gov/programs/transportation-planning/multi-modal-system-planning/system-planning/corridor-planning.

Alignment with the California Integrated Travel Project (Cal-ITP)
Cal-ITP seeks to make travel simpler and cost-effective for all. As part of the $10 million cost estimate to develop the strategy to reform the regional fare policy, please include a discussion on its alignment with the Cal-ITP principles and standards, including payment options, data standards, and equity. Information about Cal-ITP can be found at https://dot.ca.gov/cal-itp.

Equity
Caltrans is committed to advancing equity by directing support, resources and protections to disadvantaged communities, while ensuring that transportation-related GHG emissions are reduced to improve the quality of life for all. Caltrans commends the Lead Agencies' efforts to sustainably accommodate future growth by reducing per capita GHG emissions and providing adequate housing for all income levels. The PBA 2050 EIR should discuss criteria pollutant reductions (including Particulate Matter (PM) 2.5) particularly for disadvantaged communities.

VMT Banking and Exchange
PBA 2050 should include VMT banking and exchange as an opportunity to coordinate land use mitigation strategies on a regional level. The Lead Agencies should explore the structural and legal considerations to enact policies and procedures to enable the creation of banks and exchanges across local jurisdictions within the Bay Area.

Climate Change
The SHS provides critical accessibility and mobility to those living in and passing through the Bay Area. Caltrans is committed to understanding the potential impacts of climate change, particularly sea level rise, to create a more resilient transportation network. While Caltrans recognizes that PBA 2050 is financially constrained and the strategies have been fully vetted through the public/stakeholder engagement process, sea level rise adaptation strategies will require a more significant investment. The PBA 2050 EIR should fully address sea level rise impacts and their constraints.

Environmental Considerations
The State Highway System within the Bay Area overlaps numerous protected and sensitive natural resources, including large tracts of protected open space, recreational trails, habitat for threatened and endangered species. Caltrans continues to seek opportunities to incorporate environmental considerations into its transportation planning and scoping processes. Integrating design features that enhance fish passage and wildlife connectivity across the highway system and avoiding impacts to wetlands and open space provide an opportunity to better integrate California's transportation system into the environment. Improving wildlife and fish passage can contribute to the enhancement and recovery of imperiled species and reduce offsite mitigation requirements. The PBA 2050 EIR should address potential impacts of planned transportation projects and their impacts on fish and wildlife passage. The PBA should further discuss and identify programmatic mitigation opportunities that best address adverse environmental impacts on a corridor-wide basis.

Freight Planning
The PBA 2050 EIR should consider the extraordinary significance of interregional and interstate travel, especially the role of freight and commerce, when reflecting upon the core elements of PBA 2050. Based upon the unique geography of the Bay Area, which has allowed the region to become a domestic, interregional and international gateway for freight distribution, the PBA 2050 EIR should address how freight sustainability is a key factor in meeting established goals and strategies related to equity, environment and economy. The California Freight Mobility Plan provides important information in this regard.

Tribal Coordination
Per Code of Federal Regulations, 23 CFR § 450.316, Part C, the Lead Agencies shall appropriately involve the federally-recognized Tribal Governments and Tribes not federally recognized and other "interested Parties" that may have background and interest in Native American culture in the region. In addition, as mandated by Assembly Bill (AB) 52, the Lead Agencies must consult with Tribes regarding impacts to Tribal cultural resources as an impact under CEQA.

Early Coordination
Caltrans suggests that PBA 2050 clearly state that partner agencies should ensure early coordination with Caltrans in the planning process for projects that would entail any ongoing access issues, including work within, over, under or adjacent to State right of way.

Caltrans appreciates the opportunity to comment on the NOP. We look forward to our continued partnership in the development of PBA 2050. Should you have any questions regarding this letter, please contact me at (510) 960-0868 or by e-mail sent to Mark.Leong@dot.ca.gov.

Sincerely,

Mark Leong

District Branch Chief
Local Development- Intergovernmental Review

cc: State Clearinghouse

From:	Alex Casbara
To:	EIR Comments
Cc:	Ana Ruiz; Susanna Chan; Jane Mark
Subject:	PBA 2050 NOP Comment Letter - MROSD
Date:	Wednesday, October 28, 2020 9:14:01 AM
Attachments:	MROSD - PBA 2050 NOP Comment Letter.pdf

External Email

Good Morning,

On behalf of the Midpeninsula Regional Open Space District, I am writing to provide comments on the Plan Bay Area 2050 Notice of Preparation. Please refer to the attached comment letter.

Thank you for your consideration, and we look forward to participating in the Plan Bay Area 2050 refinement and environmental review.

Sincerely,

Alex Casbara
Planner III
acasbara@openspace.org
Midpeninsula Regional Open Space District
330 Distel Circle, Los Altos, CA 94022
P: 650.625.6593 | F: 650.691.0485
www.openspace.org | twitter: @mrosd

October 28, 2020

MTC Public Information
375 Beale Street,
Suite 800, San Francisco, CA, 94105
Submitted via email: eircomments@bayareametro.gov

Re: Notice of Preparation of an Environmental Impact Report for Plan Bay Area 2050

To Whom It May Concern,

On behalf of the Midpeninsula Regional Open Space District (Midpen), I respectfully submit the following comments regarding the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for Plan Bay Area 2050. Preserving nearly 65,000 acres of open space on the San Francisco Peninsula, Midpen is one of the largest regional open space districts in California. Our mission is *to acquire and preserve in perpetuity open space and agricultural land of regional significance, to protect and restore the natural environment, to preserve rural character and encourage viable agricultural use of land resources, and to provide opportunities for ecologically sensitive public enjoyment and education*.

Midpen supports the Plan Bay Area 2050 strategy to promote compact urban and suburban communities and discourage development beyond existing urban growth boundaries to avoid the loss of natural and working lands. This growth strategy aligns with Midpen's mission *to preserve a regional greenbelt of open space* and is consistent with statewide planning efforts, including Executive Order N-82-20, which aims to conserve at least 30% of California's natural spaces by 2030. Plan Bay Area 2050 also recognizes that natural lands provide vital resources to the region that enhance our resilience to climate change impacts. However, Midpen notes a discrepancy between this message and the Plan Bay Area 2050 investment strategy: of the $1,383B in projected revenue, only 7% is allocated toward environmental elements. This financial deemphasis on environmental strategies fails to adequately highlight the importance of our natural resources in sustaining the Bay Area as a uniquely attractive region to live and work.

Regarding the scope and content of the Plan Bay Area 2050 EIR, Midpen submits the following comments in accordance with the California Environmental Quality Act (CEQA) Guidelines (Section 15082).

Wildland-Urban Interface Avoidance Project Alternative

The Plan Bay Area 2050 Growth Geographies – Priority Development Areas, Transit-Rich Areas, High-Resource Areas, and Priority Production Areas – are typically confined within zones of existing development. To maximize the benefit of this focused-growth strategy, Midpen

requests the evaluation of a project alternative within the Plan Bay Area 2050 EIR that shifts all Growth Geographies outside of the wildland-urban interface (WUI) zone, including the WUI located within rural and sparsely developed portions of unincorporated counties. The WUI represents an area where human structures intermingle with undeveloped lands where conflicts between built spaces and the natural environment emerge, including increased ignition sources, high catastrophic fire risk to homes and the natural environment, habitat fragmentation, introduction of non-native invasive vegetation, and loss of scenic open space values. A **Wildland-Urban Interface Avoidance Alternative** would provide meaningful comparison to other project alternatives in reducing the environmental impacts related to wildfire hazards, conversation of agricultural lands, impacts to sensitive biological resources, impacts to views and vistas, vehicle miles travelled, and greenhouse gas emissions. The WUI for Santa Clara and San Mateo Counties are depicted in Attachment A, which also overlays housing element sites from the 5th cycle Regional Housing Needs Assessment located within the WUI.

Integrating Trail Connections into Land Use Development Projects

Plan Bay Area 2050 Strategy T8 (Build a Complete Streets Network) encourages safe opportunities for biking and walking, which includes building a contiguous regional network of 10,000 miles of bike lanes or multi-use paths. Midpen supports this objective to expand, enhance, and increase trail connectivity, and highlights the opportunity that new land use development projects within Growth Geographies provide in connecting communities to local trail and path systems, and expanding access to regional trail networks. Midpen recommends that Plan Bay Area 2050 establish a mitigation measure that outlines the following transportation demand management (TDM) strategies to help offset vehicle trips associated with new residential or commercial development in urban areas:

- Contribution of funds to planning efforts that expand the regional trail network.
- Allowance of TDM credits to reward land use projects that improve trail connectivity between Priority Development Areas and Priority Conservation Areas.
- Allowance of TDM credits to reward land use projects that expand accessibility for under-resourced communities to connect with regional trails and open spaces.

Groundwater Availability and Aquifer Recharge

Development associated with Plan Bay Area 2050 may result in new impervious surfaces that interfere with precipitation infiltration and could result in localized lowering of the groundwater table. This impact was documented in the Plan Bay Area 2040 EIR, which concluded the following:

> "Both land development and transportation projects would increase the total amount of impervious surfaces in the region and, as a result, redirect precipitation that might otherwise recharge groundwater. However, existing regulatory requirements at the local, state, and federal level include measures to minimize any increases in offsite stormwater runoff by encouraging onsite infiltration, which would effectively minimize the potential reduction in groundwater recharge to an acceptable level."

Plan Bay Area 2050 encourages growth patterns that avoid significant water supply issues; specifically, by encouraging urban infill development that would be subject to regulatory requirements including the California Urban Water Management Planning Act. To further reinforce this policy and avoid the loss of groundwater recharge, Midpen suggests that Plan Bay Area 2050 reduce grant eligibility for development located within rural communities and natural areas that reduce current rates of groundwater infiltration and storage. Alternatively, Plan Bay Area 2050 can include mitigation requiring no-net-loss in pervious surfaces and stream flow for new projects. This policy would ensure the protection of groundwater resources that support our natural and human communities.

Wildfire Hazards

Growth Geographies under Plan Bay Area 2050 include development adjacent to wildlands, which would expose future residents to loss, injury, or death and damage to property during wildfire events. To evaluate the magnitude of proposed development suggested within areas prone to wildfire, Midpen requests that the Plan Bay Area 2050 EIR quantify the total acreage of Growth Geographies classified as moderate, high, or very high fire hazard susceptibility.

The Plan Bay Area 2040 Draft EIR concluded that the potential for wildland fire hazard impacts related to land use changes from implementation of Plan Bay Area 2040 would be less than significant because existing federal, state, and local regulations reduce inherent hazards. Although Midpen acknowledges that existing regulations aim to reduce wildfire risks, a meaningful reduction in potential wildfire hazards could only be achieved by decreasing development pressure within fire-prone areas given the changing climate that is causing drier conditions, much longer fire seasons, and severe conditions that promote intense fires with high rates of spread. Thus, Midpen urges the Metropolitan Transportation Commission and Association of Bay Area Governments to include mitigation in the Plan Bay Area 2050 EIR that discourages development within high fire hazard severity zones identified by the California Department of Forestry and Fire Protection. Mitigation measures for home hardening and defensible space within the wildland-urban interface and designated fire hazard severity zones are no longer sufficient to reduce or avoid the risk of fire as is clearly evident by the catastrophic wildfires that have impacted the entire state of California over the last several years – including the August 2020 fires that affected each of the nine Bay Area counties.

Wildlife Movement and Connectivity

Plan Bay Area 2050 includes several strategies to maintain and expand regional transportation infrastructure, including the following:

- Strategy T1: Restore, Operate, and Maintain the Existing System
- Strategy T6: Improve Interchanges and Address Highway Bottlenecks
- Strategy T11: Expand and Modernize the Regional Rail Network

Intensification of linear transportation infrastructure near designated Priority Conservation Areas would interfere with critical habitat linkages that facilitate wildlife movement. In addition, land use development projects may directly encroach on established wildlife corridors, particularly when direct habitat removal occurs or when sites are located adjacent to

open space or riparian corridors. This impact was disclosed in the Plan Bay Area 2040 EIR, which also included Mitigation Measure 2.9-3 (included below) to reduce impacts to wildlife movement corridors and habitat connectivity. Midpen encourages including this same mitigation measure in the Plan Bay Area 2050 EIR.

> **Mitigation Measure 2.9-3:** Implementing agencies shall require project sponsors to prepare detailed analyses for specific projects affecting ECA [Essential Connectivity Areas] lands to determine what wildlife species may use these areas and what habitats those species require. Projects that would not affect ECA lands but that are located within or adjacent to open lands, including wildlands and agricultural lands, shall also assess whether or not significant wildlife corridors are present, what wildlife species may use them, and what habitat those species require. The assessment shall be conducted by qualified professionals and according to applicable agency standards. Implementing agencies and/or project sponsors shall implement measures, where feasible and necessary based on project- and site-specific considerations that include, but are not limited to:
>
> - constructing wildlife friendly overpasses and culverts;
> - fencing major transportation corridors in the vicinity of identified wildlife corridors;
> - using wildlife-friendly fences that allow larger wildlife such as deer to get over, and smaller wildlife to go under;
> - limiting wildland conversions in identified wildlife corridors;
> - retaining wildlife-friendly vegetation in and around developments; and
> - complying with existing local regulations and policies, including applicable HCP/NCCPs, that exceed or reasonably replace any of the above measures to protect wildlife corridors.

Transportation Improvements Affecting Trail Access

Plan Bay Area 2050 includes a variety of large, linear transportation and transit projects throughout the region. Construction of these projects could place new transportation infrastructure in locations that divide established communities, create physical barriers, or reduce access to the regional trail network and open space. This impact was disclosed in the Plan Bay Area 2040 EIR, which also included Mitigation Measure 2.3-2 (included below) to reduce impacts associated with physically dividing established communities. Midpen encourages including this same mitigation measure in the Plan Bay Area 2050 EIR with the modifications proposed below in underlined text.

> **Mitigation Measure 2.3-2:** Implementing agencies and/or project sponsors shall implement measures, where feasible and necessary based on project-and site-specific considerations that include, but are not limited to:
>
> - New transportation projects within urban areas shall be required to incorporate design features such as sidewalks, bike lanes, and bike/pedestrian bridges or tunnels that maintain or improve access and connections within existing communities and to public transit<u>, including access and connections to the regional trail networks and open space areas.</u>

- New transportation infrastructure shall be designed to increase access to existing trail connections, particularly regional trail networks, wherever feasible.
- Through regional programs such as the One Bay Area Grants (OBAG), MTC/ABAG shall continue to support planning efforts for locally sponsored traffic calming and alternative transportation initiatives, such as paths, trails, overcrossings, bicycle plans, that foster improved neighborhoods and community connections.

We appreciate the opportunity to submit comments on the Plan Bay Area 2050 EIR and look forward to reviewing the upcoming environmental documentation. Please add Jane Mark, Planning Manager (jmark@openspace.org) Alex Casbara, Planner III (acasbara@openspace.org), and Marion Shaw, Management Analyst (mshaw@openspace.org) to your notification list when the Draft EIR is available for public review and comment.

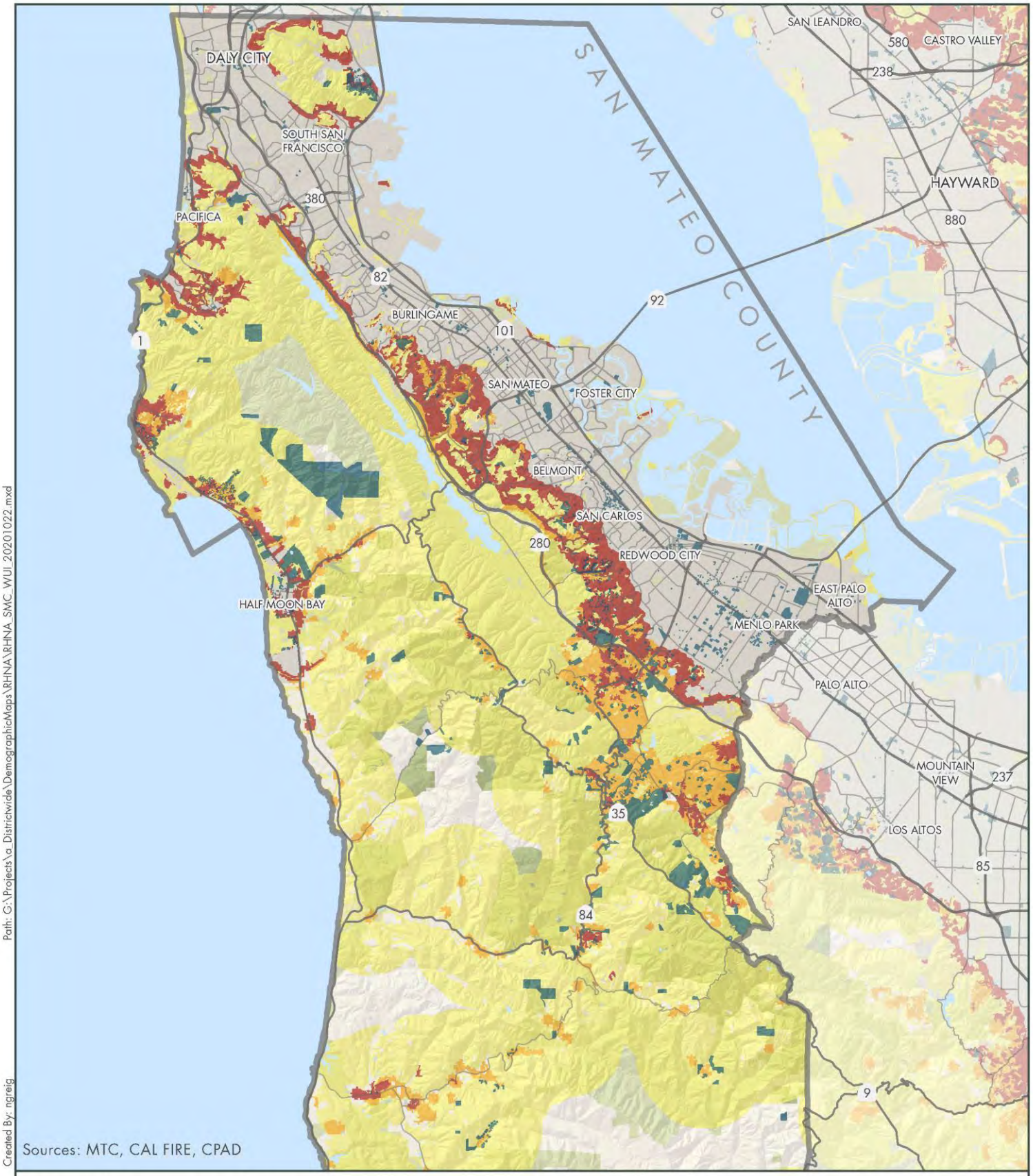
Sincerely,

Ana M Ruiz (Oct 27, 2020 15:31 PDT)

Ana M. Ruiz
General Manager

cc:
Midpeninsula Regional Open Space District Board of Directors

ATTACHMENT A: SAN MATEO COUNTY AND SANTA CLARA COUNTY WILDLAND-URBAN



Path: G:\Projects\a_Districtwide\DemographicMaps\RHNA\RHNA_SMC_WUI_20201022.mxd

Created By: ngreig

Regional Housing Needs Assessment (2015-2023) - Housing Element Sites

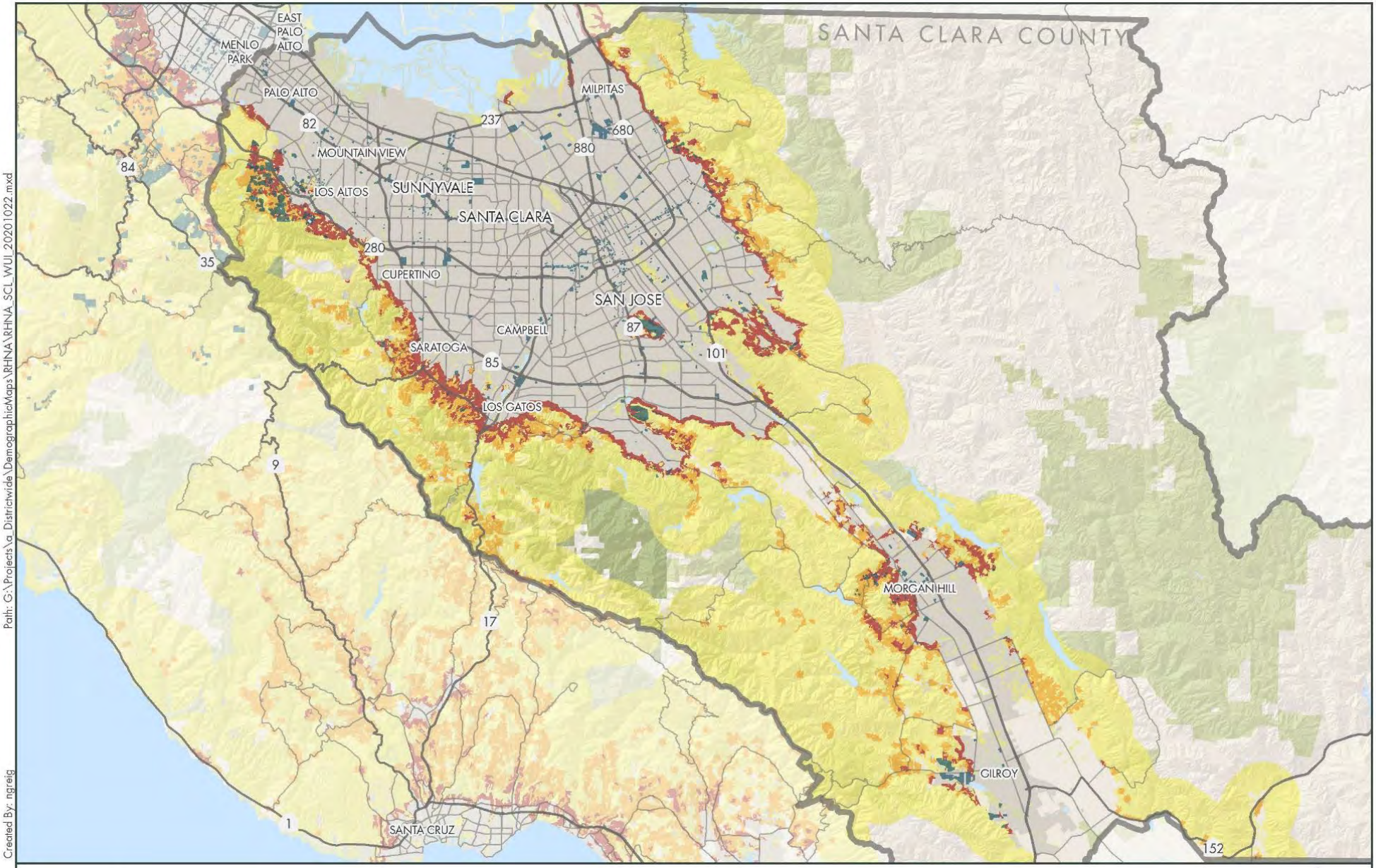
CAL FIRE WUI

- Interface
- Intermix
- Influence zone
- Housing element site
- Midpen preserve
- Other protected land

Midpeninsula Regional Open Space District
(Midpen)
10/23/2020

Miles
0 2.5 5

While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.



Path: G:\Projects\a_Districtwide\DemographicMaps\RHNA\RHNA_SCL_WUI_20201022.mxd

Created By: ngreig

Regional Housing Needs Assessment (2015-2023) - Housing Element Sites

CAL FIRE WUI

- Interface
- Intermix
- Influence zone

- Housing element site
- Midpen preserve
- Other protected land

Sources: MTC, CAL FIRE, CPAD

Midpeninsula Regional Open Space District
(Midpen)
10/22/2020

Miles
0 5 10

While the District strives to use the best available digital data, these data do not represent a legal survey and are merely a graphic illustration of geographic features.

From:	Thomason, Christie@DeltaCouncil
To:	EIR Comments
Cc:	Dave Vautin; Michael Germeraad; Rachael Hartofelis; Mark Shorett; Fain, Jessica@BCDC; Henderson, Jeff@DeltaCouncil; Livengood, Avery@DeltaCouncil
Subject:	Comment Letter
Date:	Wednesday, October 28, 2020 9:56:14 AM
Attachments:	image003.png 2020_1028 Plan Bay Area 2050 NOP Comment Letter.pdf

External Email

Dear Adam Noelting:

We appreciate and thank you for the opportunity to review and comment on the Metropolitan Transportation Commission/Association of Bay Area Governments Notice of Preparation of an Environmental Impact Report for Plan Bay Area 2050. Attached is our comment letter.

Christie Thomason
Executive Assistant
Delta Stewardship Council
Administration Division

O: (916) 445-4560

980 Ninth Street, Suite 1500
Sacramento, CA 95814

Delta Stewardship Council
A CALIFORNIA STATE AGENCY

980 Ninth Street,
Suite 1500,
Sacramento, CA
95814

916.445.5511
DELTACOUNCIL.CA.GOV

October 28, 2020

Adam Noelting
Metropolitan Transportation Commission/Association of Bay Area Governments
375 Beale Street, Suite 800
San Francisco, CA 94105-2066

Delivered via email: eircomments@bayareametro.gov

RE: Comments on Notice of Preparation of an Environmental Impact Report for Plan Bay Area 2050, SCH# 2020090519

Dear Adam Noelting:

Thank you for the opportunity to review and comment on the Metropolitan Transportation Commission/Association of Bay Area Governments (MTC/ABAG) Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for Plan Bay Area 2050. The Delta Stewardship Council (Council) recognizes the objective(s) of Plan Bay Area 2050, as described in the NOP, to serve as the 2021 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), a long-range regional plan for transportation, housing, the economy and the environment in the nine-county San Francisco Bay Area region. This letter summarizes requirements of the Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act), the Council's enabling statute, pertaining to Plan Bay Area 2050, and provides the Council's comments on the NOP regarding the scope and content of the EIR for Plan Bay Area 2050.

The Council is an independent state agency established by the Sacramento-San Joaquin Delta Reform Act of 2009, codified in Division 35 of the California Water Code, sections 85000-85350 (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 enhancing the Sacramento-San Joaquin River Delta (Delta) ecosystem. (Wat. Code, § 85054.) The Delta Reform Act further states that the coequal goals 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. The Council is charged

with furthering California's coequal goals for the Delta through the adoption and implementation of the Delta Plan. (Wat. Code, § 85300.)

Pursuant to the Delta Reform Act, the Council has adopted the Delta Plan, a comprehensive long-term management plan for the Delta and Suisun Marsh that furthers the coequal goals. The Delta Plan contains regulatory policies, which are set forth in California Code of Regulations, Title 23, sections 5001-5015. A state or local 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 implementation of the project. (Wat. Code, § 85225.) As is discussed in more detail below, the Delta Reform Act also gives the Council specific authority to advise local and regional planning agencies regarding the consistency of local and regional planning documents with the Delta Plan. (Wat. Code, § 85212.)

Delta Reform Act Requirements concerning Local and Regional Planning Agencies

1. Early Consultation

The Delta Reform Act grants the Council specific authority to review and advise local and regional planning agencies regarding the consistency of local and regional planning documents, including sustainable communities strategies and alternative planning strategies, with the Delta Plan. The Delta Plan requires a metropolitan planning organization preparing a regional transportation plan that includes land within the Delta primary or secondary zones to consult with the Council early in the planning process regarding the issues and policy choices relating to the Council's advice. (Wat. Code, § 85212.)

Thank you for meeting with Council staff on December 12, 2019, and January 22, 2020, to discuss Plan Bay Area 2050, and for replying in a letter dated April 7, 2020 to the Council's February 25, 2020 comment letter regarding the proposed Growth Geographies that are located within the Delta. This early engagement enables the Council to offer timely advice on the consistency of Plan Bay Area 2050 with the Delta Plan. The Council looks forward to continued consultations with MTC/ABAG as preparation of the draft EIR and Plan Bay Area 2050 continue.

2. Council's Review of the Draft Sustainable Communities Strategy

Plan Bay Area 2050 is a regional transportation plan and sustainable community strategy for the nine-county Bay Area region that includes land within the Delta, specifically in portions of Alameda, Contra Costa, and Solano Counties. In addition to early consultation (described above), Section 85212 of the Delta Reform Act requires MTC/ABAG to provide to the Council:

- a draft sustainable communities strategy and an alternative planning strategy, if any, **no later than 60 days prior to the adoption of the final Plan Bay Area 2050**; and

- **concurrent** notice of its submission of the strategy(ies) via electronic mail to coveredactions@deltacouncil.ca.gov.

If the Council concludes that the submitted draft sustainable communities strategy (or alternative planning strategy) is inconsistent with the Delta Plan, it will provide to MTC/ABAG a written notice of the claimed inconsistency **no later than 30 days prior to the adoption of the final Plan Bay Area 2050**. If MTC/ABAG receives a timely written notice of inconsistency from the Council, MTC/ABAG's adoption of the final Plan Bay Area 2050 must include a detailed response to the Council's notice. (Wat. Code, § 85212.)

Please notify the Council via electronic mail addressed to Avery Livengood (Avery.Livengood@deltacouncil.ca.gov) when the adoption hearings for the final Plan Bay Area 2050 are scheduled. The Council would also welcome a presentation by MTC staff to the Delta Stewardship Council on the draft sustainable communities strategy at a future Council meeting prior to the adoption hearings.

Comment on Scope and Content of EIR for Plan Bay Area 2050

A state or local agency that proposes to carry out, approve, or fund an action that occurs in whole or in part in the Delta (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 implementation of the project. (Wat. Code, § 85225.) A covered action is an action that:

> (1) will occur, in whole or in part, within the boundaries of the Delta or Suisun Marsh;
>
> (2) will be carried out, approved, or funded by the state or a local public agency;

> (3) is covered by one or more provisions of the Delta Plan; and
>
> (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. (Wat. Code § 85057.5(b)(4).)

The Delta Reform Act exempts actions within the Secondary Zone of the Delta that a metropolitan planning organization determines are consistent with its sustainable community strategy (or alternative planning strategy) and that the State Air Resources Board has determined would achieve regional greenhouse gas emission reduction targets. (Wat. Code, § 85057.5(b)(4).) MTC/ABAG is the metropolitan planning organizaton for the Bay Area region, which contains portions of the Secondary Zone of the Delta. Thus, Water Code Section 85057.5(b)(4) provides MTC/ABAG with a significant role in shaping the State's Delta policy. Although Plan Bay Area 2050 is not a covered action, MTC/ABAG should ensure that it is consistent with the Delta Plan, as discussed in greater detail below.

1. Urban Expansion within the Delta

The Council exercises its authority through regulatory policies (set forth in Title 23 of the California Code of Regulations, Sections 5001 through 5016) and recommendations incorporated into the Delta Plan. One of these policies, Delta Plan Policy **DP P1** (Cal. Code Regs., tit. 23, § 5010) places certain limits on new urban development within the Delta. New residential, commercial, or industrial development must be limited to areas that city or county general plans designate for such development as of the date of the Delta Plan's adoption. In Contra Costa County, new residential, commercial, and industrial development within the Delta must be limited to areas within the 2006 voter-approved urban limit line (ULL). (Cal. Code Regs., tit. 23, § 5010(a)(2).) This policy is intended to strengthen existing Delta communities while protecting farmland and open space, providing land for ecosystem restoration needs, and reducing flood risk.

The Council's February 25, 2020 comment letter advised MTC/ABAG that its selection of Growth Geographies for Plan Bay Area 2050 should ensure that they provide for wise residential, commercial, and industrial development that does not conflict with DP P1, compromise Delta water supply reliability or ecosystem restoration, or negatively impact the Delta as an evolving place. According to MTC's Regional Growth Framework for Plan Bay Area 2050, only areas fully within an existing urbanized area, and undeveloped areas within an established urban growth boundary (UGB) or limit line (ULL), are eligible to be nominated as Priority Development Areas (PDAs) and Priority Production Areas (PPAs). If the Plan Bay Area 2050 PDAs and PPAs are fully within the Contra Costa 2006 ULL, new

residential, commercial, or industrial development within these areas would be consistent with DP P1.

The EIR should acknowledge Policy DP P1 in the regulatory setting for the Land Use and Planning section, as well as in the growth inducement discussion. The EIR should document how Plan Bay Area 2050 is consistent with Policy DP P1, and evaluate whether any of the Growth Geographies (i.e., PDAs and PPAs) located within or adjacent to the Delta have the potential to induce residential, commercial, or industrial development that would be inconsistent with DP P1.

The Council also has an interest in recommended transportation projects in Plan Bay Area 2050 that may induce urban expansion or improve or degrade connections to rural areas, that would be inconsistent with DP P1. The EIR should describe what infrastructure, beyond the recommended transportation projects, is necessary to support the strategy or the plans, programs, projects, or activities encompassed within it.

2. Consistency with Ecosystem Restoration Needs

Section 85212 of the Delta Reform Act requires that the Council's input on local and regional planning documents, including sustainable communities strategies, include, but not be limited to reviewing:

- the consistency of local and regional planning documents with the ecosystem restoration needs of the Delta; and
- whether the lands set aside for natural resource protection are sufficient to meet the Delta's ecosystem needs.

The Delta Plan designates six priority habitat restoration areas (PHRAs) that have the greatest potential for large-scale habitat restoration (Delta Plan, Chapter 4, p. 136-138). Delta Plan Policy **ER P3** (Cal. Code Regs., tit. 23, § 5007) states that significant adverse impacts to the opportunity to restore habitat must be avoided or mitigated in these areas (depicted in Appendix 5: http://deltacouncil.ca.gov/sites/default/files/2015/09/Appendix%205.pdf). Four PHRAs are located partially or wholly within the Plan Bay Area 2050 planning area: (1) Suisun Marsh; (2) Cache Slough; (3) the southern and western portions of the Yolo Bypass; and (4) the Winter Island and Dutch Slough portions of the Western Delta PHRA. The consistency of Plan Bay Area 2050 with the ecosystem restoration needs of the Delta is based on its impacts to the opportunity to restore habitat in these PHRAs.

Plan Bay Area 2050 designates locally-nominated Priority Conservation Areas (PCAs), which are lands set aside for protection. As noted in the Council's February 25, 2020 comment letter, the Council supports the new PCA designation in Cache Slough, which aligns with the Cache Slough PHRA. This new PCA complements the existing East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan PCA, which covers the Dutch Slough portion of the Delta Plan's Western Delta PHRA. In future RTP/SCS updates, the Council encourges MTC/ABAG to consider including additional PCAs within Delta Plan PHRAs, particularly the Suisun Marsh PHRA, to better ensure that the lands set aside for natural resource protection are in the priority locations and at elevations necessary to meet the Delta's ecosystem needs. The Council, for its part, will encourage Solano County and other participating jurisdictions to nominate Suisun Marsh for PCA designation in future updates to the RTP/SCS.

Closing Comments and Next Steps

As MTC/ABAG proceeds with development and environmental impact analysis for Plan Bay Area 2050, the Council invites MTC/ABG to continue to engage Council staff to ensure consistency between Plan Bay Area 2050 and the Delta Plan, to ensure that the two Plans are complementary in nature and serve to protect the Delta while promoting sustainable growth and economic vitality in the broader region.

Please contact Avery Livengood at (916) 445-0782 or Avery.Livengood@deltacouncil.ca.gov with any questions.

Sincerely,

Jeff Henderson, AICP
Deputy Executive Officer
Delta Stewardship Council

CC: Dave Vautin, MTC (DVautin@bayareametro.gov)
Michael Germeraad, MTC (MGermeraad@bayareametro.gov)
Rachael Hartofelis, MTC (RHartofelis@bayareametro.gov)
Mark Shorett, MTC (MShorett@bayareametro.gov)
Jessica Fain, Bay Conservation and Development Commission (jessica.fain@bcdc.ca.gov)

From: Ibarra, Angel
To: EIR Comments
Subject: PBA 2050 - Response Letter from City of Brisbane
Date: Wednesday, October 28, 2020 3:42:33 PM
Attachments: image001.png
20201028_PBA2050_EIRPreparation_BrisbaneResponse.pdf

External Email

To Whom It May Concern,

Please see the attached comments from the City of Brisbane regarding Planned Bay Area 2050 EIR Notice of Preparation.

Thank you, Angel Ibarra

Angel Ibarra
Admin Management Analyst, City Manager's Office
Direct: (415) 508-2109 | Email: aibarra@brisbaneca.org
City Hall hours: M, T, Th: 8-5, W: 8-8, F: 8-1
Stay connected with us via the Brisbane Blast, GoRequest, Facebook, Twitter, YouTube and Instagram!

City of Brisbane
50 Park Place
Brisbane, CA 94005-1310
(415) 508-2100
(415) 467-4989 Fax

October 28, 2020

MTC Public Information
375 Beale Street, Ste. 800
San Francisco CA 94105

Subject: EIR Notice of Preparation - Plan Bay Area 2050

To Whom It May Concern:

Thank you for the opportunity to review the above-referenced document. The City of Brisbane requests the forthcoming Draft EIR address the following issues:

1. The project description lacks sufficient detail to allow for adequate environmental review. For example, the number of households in Brisbane is proposed to increase by more than four-fold, from fewer than 2,000 in 2020 to more than 9,000 by 2050. While MTC staff has testified in meetings that most of this growth will occur within the geographic area known as the Brisbane Baylands, the EIR project description does not clearly show the distribution of projected residential growth. Without the disclosure of this information it is not possible to evaluate the feasibility of the proposed plan, or meaningfully assess its potential environmental impacts. For example, it is unclear if PBA 2050 forecasts housing in areas now occupied by critical regional infrastructure such as a PGE substation, Fuel Tank farm serving San Francisco International Airport, and planned high speed rail maintenance yard. If so, the PBA 2050 Draft EIR should identify alternative locations for these facilities and evaluate the environmental impacts of their relocation.

2. Based on prior MTC staff testimony that much of Brisbane's projected growth is forecast for the Brisbane Baylands (within the Bi-County Priority Development Area) the PBA 2050 Draft EIR should evaluate the potential environmental impacts of introducing additional housing in this area, beyond the maximum 2200 units already allowed in the adopted Brisbane General Plan. A substantial increase in projected housing within the Baylands would expand the housing footprint on the site into areas the city deemed unsuitable for housing for a variety of environmental reasons. This includes the entire east side of the site (approximately 340 acres), a former unregulated landfill which is known to contain a variety of hazardous and toxic substances and which is subject to subsidence and liquefaction. Projected housing could potentially encroach into biologically sensitive area (wetlands and endangered species habitat) and into areas subject to sea level rise. The Draft EIR for PBA 2050 should fully evaluate the potential environmental impacts (including

but not limited to public health and safety, biological resources, geotechnical and soils, flooding and sea level rise) of increasing both the housing footprint of and number of units on the Baylands.

3. The forecasted quadrupling of the size of the City of Brisbane raises a number of other potentially significant environmental impacts that must be evaluated in the PBA 2050 Draft EIR. Aside from the Baylands, it is unclear if PBA 2050 projects residential growth in areas the City has already determined are unsuitable for housing for a variety of environmental reasons, including but not limited to public health and safety, flooding, biological resources, and land use compatibility, PBA 2050 should clearly identify all such areas and fully evaluate the environmental impacts of introducing housing into these areas. PBA 2050 Draft EIR must further recognize that the growth projected for Brisbane in the 2050 Plan far exceeds growth planned for in the City's General Plan, and city services, infrastructure, and water supply are insufficient to support PBA 2050 projected growth. As such the PBA 2050 draft EIR should identify new capital facilities and physical improvements associated with the needed public services and infrastructure to serve the forecasted growth, and to evaluate the environmental impacts of constructing such improvements and facilities.

4. The City of Brisbane has insufficient water supply to accommodate PBA 2050 projected growth, and the PBA 2050 draft EIR should identify a viable water supply source and evaluate the impacts of securing, delivering and storing this additional water to serve projected future growth.

Thank you for your consideration. The City of Brisbane looks forward to reviewing the DEIR when available.

Sincerely,

Clay Holstine
City Manager

c: John Swiecki, Community Development Director
Tom McMorrow, City Attorney

From:	Pearse, Brent
To:	EIR Comments
Cc:	John Brazil
Subject:	VTA Comments on NOP for Plan Bay Area 2050 [MTC2001]
Date:	Wednesday, October 28, 2020 4:23:19 PM
Attachments:	MTC2001_NOPFINAL-VTA-comments_10.28.20.pdf

External Email

MTC:

Please find VTA comments on the NOP for Plan Bay Area 2050.

If you have any questions of comments you may reach out to me directly.

Sincerely,
Brent

Brent Pearse (He/Him)
Transportation Planner
Direct **408-550-4559**
WFH Schedule 6-10 a.m.; 1-5 p.m.

Santa Clara Valley Transportation Authority

October 28, 2020

MTC Public Information
375 Beale Street, Suite 800
San Francisco, CA 94105

Attn: MTC Public Information
Via Email: eircomments@bayareametro.gov

Subject: Notice of Preparation of the Draft Environmental Impact Report for Plan Bay Area 2050

Dear Metropolitan Transportation Commission:

Thank you for the opportunity to review the Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for Plan Bay Area 2050. The Santa Clara Valley Transportation Authority (VTA) offers the following comments on the NOP.

- Proposed Projects in the EIR (Attachment J – PBA2050 Final Blueprint – Transportation Projects, dated September 23, 2020 MTC Board Meeting): VTA supports MTC in pursuing improvements for Plan Bay Area 2050. While the main focus is to reduce Greenhouse Gas Emissions, the projects contained in the plan for the EIR are largely those that are aspirational in nature and would require a large amount of both regional funding and political support. Supporting projects that really focus on pricing and complete streets will largely be more effective in reducing Greenhouse Gas Emissions.

- Focus of Growth: While the plan focuses on an adopted base of the Growth Geographies, the effects of COVID-19 might pose a longer recovery period than previously identified. As the pattern of growth and travel will likely be altered to become a "new" normal scenario. The Growth Geographies approved still are focused on pre-COVID decisions. Another factor would be that these locations are affected by cuts in transit service across the Bay Area due to lower ridership at this time. Transit agencies are looking at ways to provide frequent service to those affected by the cuts most. An additional base scenario should eb looked at as the pandemic hasn't slowed down.

- Telecommuting: While VTA supports Transportation Demand Management (TDM) measures including telecommuting in general, VTA staff is concerned that the proposed strategy to require large employers to have at least 60% of their employees telecommute could lead to significant unintended consequences, such as impacts to small businesses and increased pressure for residential development in outlying areas. VTA recommends that the Plan Bay Area 2050 EIR thoroughly analyze the effects of any telecommute strategy and recommends that MTC and ABAG consider other TDM strategies including a more realistic telecommute target.

If you have any questions or comments you may reach me at (408) 550-4559.

Sincerely,

Brent Pearse
Transportation Planner

CC: John Sighamony, VTA

MTC2001

From: info@planbayarea.org on behalf of Bay Area Metro
To: EIR Comments
Subject: EIR Scoping Meetings Submission
Date: Wednesday, October 28, 2020 4:40:03 PM

External Email

Submitted on Wednesday, October 28, 2020 - 4:39 pm
Submitted by anonymous user: 199.33.32.254
Submitted values are:

Name: Rebecca Atkinson, Planner, on behalf of Jonathan Lait, Director of Planning and Development Services
County: Santa Clara County
Agency/Organization: City of Palo Alto
Would you like to remain informed of future Plan Bay Area EIR-related activities? Yes
Email: Rebecca.Atkinson@cityofpaloalto.org
Address: 250 Hamilton Avenue, 5th Floor City Hall, Planning Department
City: Palo Alto
State: CA
ZIP code: 94301
Comment:
Re: Notice of Preparation (NOP) for the Draft Environmental Impact Report for Plan Bay Area 2050

Dear Metropolitan Planning Commission and Association of Bay Area Governments,

Thank you for the opportunity to provide comments on the scope and content of the Draft Environmental Impact Report for Plan Bay Area 2050 in response to the NOP released on September 28, 2020.

Please note that the City doesn't necessarily support the overall development potential assessments, densities, and regional growth pattern proposed for the South Bay and West Bay that are reflected in the initial Draft Blueprint modeling results. The City has commented on Plan Bay Area 2050, as well as extensively on the concurrent RHNA methodology, based upon significant concerns about the potential distribution of new housing units for the City and across the region. The City looks forward to understanding more about the incorporation of Plan Bay Area 2050 Final Blueprint modeling results into the forthcoming RHNA methodology that will be forwarded to HCD.

Specifically, regarding the Notice of Preparation (NOP):

Comment 1: Screening Criteria and Alternatives Rejected:
a) We look forward to understanding the screening criteria utilized for selecting alternatives, as well as the alternatives submitted but rejected.

Comment 2: Suggested Alternatives to Evaluate:
a) Regarding Strategy H3: Allow a Greater Mix of Housing Densities and Types in Blueprint Growth Geographies and Strategy H4: Build Adequate Affordable Housing to Ensure Homes for All:

• Please consider an alternative where this strategy is not 100% successful and increased production is not achieved and/or achieved more slowly due to longer recession impacts, desire for lower density housing due to COVID-19, less funding availability, or unavailability of other requirements for the strategy to work as designed. While it is currently unclear to City staff how many years of recession impacts are incorporated into Plan Bay Area 2050 modeling/forecasts, staff assumes that this alternative would be defined and described in contrast to the assumed/stated years in Plan Bay Area 2050.

• Please consider an alternative where each City jurisdiction in the Bay Area grows at the same rate, except for the Big Three. This could account for existing jurisdictions with jobs/housing imbalances in either direction continuing to grow without the strategies incorporated in Plan Bay Area 2050.

• Please consider an alternative where the cities in the South Bay and West Bay do not meet their RHNA targets over this next 8-year 6th Cycle and subsequent cycles and/or do not build as much housing as anticipated in Plan Bay Area 2050.

b) Regarding Strategy EC1: Implement a Statewide Universal Basic Income, please consider an alternative that evaluates if this strategy is not implemented, as it is currently unclear how important Strategy EC1 is toward the achievement of Plan Bay Area 2050 goals.

c) Regarding Strategy EC5: Provide Incentives to Employers to Shift Jobs to Housing-Rich Areas Well Served by Transit, please consider an alternative where this is funded at a higher level than $10 billion, such as doubling the magnitude over the plan horizon in order to understand if this increases the performance of putting jobs where housing already exists. Please also include a performance comparison of Strategy EC5 to the previous Draft Blueprint Fee-Based strategies.

d) Regarding Strategy EN7: Institute Telecommuting Mandates for Major Office-Based Employers, please consider an alternative with a full telecommuting mandate for all or most employees for sectors that can telecommute or at least higher levels of telecommuting than what is incorporated into EN7, especially for South Bay and West Bay jobs.

Comment 3: Potential Impacts to Evaluate:
a) Regarding Strategy T5 – Implement Per-Mile Tolling on Congested Freeways with Transit Alternatives, please consider the potential impacts of wear and tear, circulation/congestion, and VMT on local streets due to the implementation of tolling on congested freeway corridors.

Comment 4: Consider updating Strategy H1: Further Strengthen Renter Protections Beyond State Legislation depending on Nov 3, 2020 election results, if relevant.

Comment 5: Please provide clarification about the no project alternative relative to EN1: Adapt to Sea Level Rise, as local governments and water districts are already working on adaptation projects at the local level.

Comment 6: Please provide clarification if the modeling assumes land assembly and if any of the strategies include funding for land assembly/purchase in order to accommodate the densities included in the Urban Sim 2.0 modeling. Some parcels seem too small to accommodate the density specified, such as an example parcel in Palo Alto that is less than an acre and specified for 98 housing units.

Thank you for your consideration.

Respectfully,

Jonathan Lait, Director of Planning and Development Services

The results of this submission may be viewed at:
https://gcc02.safelinks.protection.outlook.com/?
url=https%3A%2F%2Fwww.planbayarea.org%2Fnode%2F13901%2Fsubmission%2F32936&data=04%7C01%7Ceircomments%40bayareametro.gov%7C67f44e165a434e2acee308d87b9ac3b1%7C0d1e7a5560f044919f2e363ea94f5c87%7C0%7C0%7C637395252025929151%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=em6jfCQfyvil2Vu6VeNoXShfx0DhiWgyb3wfoUuGzkM%3D&reserved=0

From:	Jain, Devyani (CPC)
To:	Dave Vautin; EIR Comments; Adam Noelting
Cc:	Range, Jessica (CPC); Wietgrefe, Wade (CPC); Kern, Chris (CPC); Hillis, Rich (CPC); [redacted]; Johnson, Doug (CPC); Switzky, Joshua (CPC)
Subject:	Re: San Francisco Planning Department"s Comment Letter on the Plan Bay Area 2050 Notice of Preparation of An EIR (due 10-28-2020)
Date:	Wednesday, October 28, 2020 4:42:20 PM
Attachments:	Plan Bay Area 2050 EIR NOP Comment Letter San Francisco Planning-Signed 10282020.pdf Attachment A to Plan Bay Area 2050 EIR NOP Comment Letter SF Planning 10282020 - Suggested Measures.pdf

External Email

Dear Dave and Adam,

As discussed yesterday via email, please find attached (i) San Francisco Planning Department's Comment Letter on the Plan Bay Area 2050 Notice of Preparation of an EIR; and (ii) Attachment A to this Comment Letter, which includes suggested mitigation measures as a reference.

We appreciate your consideration of our comments and our request for a meeting to discuss comments on the Plan Bay Area 2050 Notice of Preparation of an EIR. Please contact me at devyani.jain@sfgov.org to schedule a meeting to discuss our comments at your convenience.

Thank you,
Devyani

Devyani Jain
Deputy Director of Environmental Planning
San Francisco Planning
PLEASE NOTE MY NEW ADDRESS AND PHONE NUMBER AS OF AUGUST 17:
49 South Van Ness Avenue, Suite 1400, San Francisco, CA 94103
Direct: 628.652.5555 | www.sfplanning.org
San Francisco Property Information Map

Due to COVID-19, San Francisco Planning is not providing any in-person services, but we are operating remotely. Our staff are available by e-mail, and the Planning and Historic Preservation Commissions are convening remotely. The public is encouraged to participate. Find more information on our services here.

San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

October 28, 2020

Metropolitan Transportation Commission (MTC) Public Information
Re: Plan Bay Area 2050
375 Beale Street, Suite 800
San Francisco, CA, 94105
eircomments@bayareametro.gov

Subject: Plan Bay Area 2050 Notice of Preparation of an EIR

To whom it may concern:

The San Francisco Planning Department recently received Metropolitan Transportation Commission's (MTC) Plan Bay Area 2050 Notice of Preparation of an EIR. We reviewed this document and are providing comments and recommendations related to the EIR's Transportation and Greenhouse Gas Emissions, Water Supply and Air Quality analyses in this letter, below.

Additionally, we would like to acknowledge that on September 23, 2020, the MTC approved the Final Blueprint for Plan Bay Area which is a policy document to guide the growth of the Bay Area through 2050. The San Francisco Planning Department appreciates MTC staff's work in developing the Plan Bay Area 2050 Blueprint that will help our region meet our collective climate goals. We also acknowledge Plan Bay Area's responsibility to meet State greenhouse gas emissions reduction targets with a fiscally constrained transportation investment plan, especially given the recent impacts of COVID-19 on our respective communities. This Blueprint included a strategy of increasing the number of Bay Area workers that work from home one or more days per week in pursuit of a goal to reduce greenhouse gas emissions and traffic congestion. It would do this by mandating all large office-based employers (25 or more employees) have at least 60 percent of their employees telecommute on any given day. The City and County of San Francisco (along with the City of San Jose) has been working with the MTC over the last month to address significant challenges stemming from this proposal. While San Francisco supports many of the innovative and bold strategies MTC has developed to help address our shared transportation challenges and meet our emissions reduction targets, we are concerned about the telecommute mandate as it is currently drafted. The telecommuting strategy in the Plan Bay Area 2050 Blueprint is not feasible, as documented in recent communications from San Francisco to MTC.[1]

Transportation and Greenhouse Gas Emissions

The San Francisco Planning Department provides the following recommendations to the EIR's transportation analysis and greenhouse gas, transportation sector analysis. The recommendations would provide benefits to California Environmental Quality Act (CEQA) lead agencies throughout the Bay Area region, including San Francisco.

[1] See San Francisco County Transportation Authority, "Comments on Strategy EN7 'Institute Telecommuting Mandates for Major Office-Based Employers", October 8, 2020; and Mayor London Breed and Mayor Sam Liccardo, "Statement on Plan Bay Area Telecommute Strategy," October 14, 2020.

Methodology

The department recommends that MTC use vehicle miles traveled (VMT) as a metric for its transportation impact analysis and greenhouse gas, transportation sector analysis. MTC should identify the VMT in 2005, 2020, 2035, and 2050 across transportation analysis zones in the region from:

- land uses distinguishing between existing and new development and land use types (employment, residential, and other); and
- existing and new transportation investments, particularly highway investments. The highway investments should account for induced demand consistent with the Office of Planning Research's Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018.

MTC should present the VMT as absolute or efficiency metrics, depending on the source of VMT.

MTC should identify a VMT threshold of significance that meets California Air Resources Board mandates for greenhouse gas reduction targets between 2005 and 2035 pursuant to Senate Bill 375, at a minimum. MTC should also consider a VMT threshold of significance that exceeds CARB's mandates pursuant to Senate Bill 375 to meet longer-term state climate targets.

MTC should map VMT throughout the region, including areas below, at, and above the threshold of significance.

MTC shall not use automobile delay in determining the significance of transportation impacts as it is no longer allowed under CEQA.

Mitigation Measures/Alternatives

MTC should identify *feasible* strategies within the plan and *feasible* mitigation measures or alternatives to the plan that reduce significant VMT impacts to less-than-significant levels.

The telecommuting strategy in the plan is not feasible as documented in recent communications from San Francisco to MTC. Alternative feasible strategies to achieve CARB mandates and VMT thresholds of significance may include:

- revising the telecommute strategy to focus on drive-alone office work trips, with a focus on those geographies with high VMT;
- comprehensively assessing transportation investments in the draft plan that increase VMT (e.g., highway expansion projects) and reallocating those investments to strategies that reduce VMT;
- revising assumptions and adding a new strategy regarding autonomous vehicles so that these vehicles are connected, electric, and shared;[2] and
- considering other new strategies such as indirect source review rule based on vehicular parking spaces (e.g., see Bay Air Quality Management District's *Clean Air Plan 2017*, TR16), or others described by recent and future communications from San Francisco.

The department looks forward to working with our transportation agency partners in San Francisco and MTC in identifying feasible strategies to address the challenges MTC faces in developing a plan that meets CARB mandates pursuant to SB 375.

[2] Email communications with MTC staff indicate that autonomous vehicles are assumed to exacerbate zero-occupant VMT in 2035 beyond the levels the region is currently facing from transportation network company vehicles.

Tiering

MTC should make the data in the methodology recommendations above available to the public or, at a minimum, to CEQA lead agencies in the Bay Area region. This also includes a comprehensive set of land use and transportation inputs by transportation analysis zone in the region. This will provide easier opportunities for CEQA lead agencies to tier off of the Plan Bay Area EIR for 1) certain land use projects when assessing growth inducing and global warming and VMT impacts (CEQA Guidelines section 15183.5(c)); and 2) certain transportation projects consistent with new CEQA statute section 20180.25 (aka Senate Bill 288). The department is also interested in being involved in any standards that MTC may develop for racial equity analysis pursuant to Senate Bill 288.

Water Supply

In accordance with the first two questions under the Utilities and Service Systems section of CEQA Guidelines Appendix G, the Draft EIR should address whether household and employment growth under Plan Bay Area 2050 would (a) require the construction of new or expanded water supply infrastructure the construction of which could cause significant environmental impacts; and (b) have sufficient water supplies available during normal, dry, and multiple dry years. In addressing these questions, the Draft EIR should consider the following.

In December 2018, the California Water Resources Control Board adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, which establishes water quality objectives designed to increase populations of native salmon species (the Bay-Delta Plan Amendment).[3] The water board has stated that it intends to implement the Bay-Delta Plan Amendment by the year 2022, assuming all other required approvals are obtained by that time. Implementation of the Bay-Delta Plan Amendment would result in a substantial reduction in the San Francisco Public Utilities Commission's (SFPUC) water supplies from the Tuolumne River watershed during dry years, requiring rationing in more years and at higher percentages for San Francisco and its wholesale water customers in Alameda, San Mateo, and Santa Clara counties than previously anticipated.[4]

Implementation of the Bay-Delta Plan Amendment is uncertain for several reasons and whether, when, and the form in which the Bay-Delta Plan Amendment would be implemented, and how those amendments could affect SFPUC's water supply, is currently unknown. The SFPUC currently analyzes three different water supply scenarios in its own planning.

However, if the Bay-Delta Plan Amendment is implemented, shortfalls would range from 12.3 million gallons per day (15.6 percent) in a single dry year to 36.1 million gallons per day (45.7 percent) in years seven and eight of the 8.5-year design drought based on 2025 demand levels. Based on 2040 demand, shortfalls would range from 21 million gallons per day (23.4 percent) in a single dry year to 44.8 million gallons per day (49.8 percent) in years seven and eight of the 8.5-year design drought with implementation of the plan amendment.

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3 State Water Resources Control Board Resolution No. 2018-0059, Adoption of Amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and Final Substitute Environmental Document, December 12, 2018, available at https://www.waterboards.ca.gov/plans_policies/docs/2018wqcp.pdf.

4 Memorandum from Steven R. Ritchie, SFPUC to Lisa Gibson, Environmental Review Officer, San Francisco Planning Department, Environmental Planning Division, May 31, 2019. This rationing would occur through the Water Shortage Allocation Plan in the 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County, as amended and restated in 2018 (Attachment H).

In summary, the Draft EIR should provide a clear explanation of any water supply assumptions that Plan Bay Area 2050 will ultimately rely upon, and should consider the following factors:

- Water supply is a key factor in planning for growth in the Bay Area.
- Water supply in the Bay Area is highly variable and uncertain due to natural fluctuations that are increasingly exacerbated by climate change and by regulatory uncertainty at the state and federal levels, including the significant proposed reductions in water supply put forth in the 2018 Bay-Delta Plan Amendment, as well as other means of addressing the water supply issues, including ongoing negotiations for alternative voluntary agreements, FERC licensing proceedings, and ongoing litigation on all these topics.
- The resulting water supply uncertainties complicate and could frustrate the ability of Bay Area communities to support projected growth.

Air Quality

The San Francisco Planning and Public Health Departments, in collaboration with the Bay Area Air Quality Management District, have recently completed an update to our Citywide Health Risk Assessment (Citywide HRA). The Citywide HRA includes modeled values of fine particulate matter ($PM_{2.5}$) and cancer risk resulting from toxic air contaminants (TACs) on a 20 meter by 20 meter grid throughout the entire City and County of San Francisco. The Citywide HRA accounts for emissions from on-road mobile sources, permitted stationary sources, diesel locomotives, ships and harbor craft, and ferry boats. This modeling forms the basis of the San Francisco's Air Pollutant Exposure Zone map, which shows areas within the San Francisco that have elevated levels of air pollution. We recommend that this assessment be presented as part of the existing air quality environmental setting for San Francisco in the Plan Bay Area 2050 EIR, because it is the most detailed, current, and comprehensive modeling available. Please contact San Francisco Planning Department staff, Josh Pollak (josh.pollak@sfgov.org), for more information on the Citywide HRA, San Francisco's Air Pollutant Exposure Zones, or to obtain a link to download the entire Citywide HRA.

Programmatic Mitigation Measures

The Plan Bay Area EIR presents significant opportunities for streamlining the CEQA analysis of projects consistent with the Plan, provided that the EIR adequately evaluates and includes measures to mitigate common environmental impacts of development projects. We have developed a set of comprehensive programmatic environmental measures, based on our experience preparing hundreds of documents using these measures. The measures cover the resource topics of air quality, archeology, tribal cultural resources, construction vibration, noise, and paleontology. The measures can generally be applied to projects with significant physical environmental impacts to those resource topics. These measures are included as a reference in Attachment A. We encourage MTC to consider including these as mitigation measures in the Plan Bay Area 2050 EIR should it be determined that the plan has the potential to result in significant impacts in those resource topics. Including the attached programmatic mitigation measures to address common environmental impacts of development projects would facilitate the streamlining of projects that tier off the Plan Bay Area 2050 in the future and allow the construction industry to have a uniform and consistent approach to addressing impacts to these topics in the wide variety of jurisdictions in the Bay Area.

Thank you for considering our comments and recommendations on the Plan Bay Area 2050 Notice of Preparation of an EIR, specifically those related to the EIR's Transportation and Greenhouse Gas Emissions, Water Supply and Air Quality analyses. We look forward to working with MTC staff and your EIR consultants, if possible, and further coordinating on the preparation of the Plan Bay Area 2050 Draft EIR. We would be pleased to meet with you and your EIR consultant (remotely via video conferencing at a convenient time) to further discuss and explain our NOP comments related to the preparation of the Plan Bay Area 2050 EIR.

We appreciate your consideration of our comments and our request for a meeting to discuss comments on the Plan Bay Area 2050 Notice of Preparation of an EIR. Please contact Devyani Jain at devyani.jain@sfgov.org to schedule a meeting to discuss our comments at your convenience.

Sincerely,

Rich Hillis
Planning Director

Lisa Gibson
Environmental Review Officer

cc: Wade Wietgrefe, Principal Planner (Transportation), Environmental Planning Division
Chris Kern, Principal Planner (Water Supply), Environmental Planning Division
Jessica Range, Principal Planner (Air Quality), Environmental Planning Division
Doug Johnson, Transportation Planning Manager, Citywide Planning Division
Joshua Switzky, Land Use & Community Planning Program Manager, Citywide Planning Division

Enclosure

Attachment A: Suggested Mitigation Measures

The following contains a list of programmatic mitigation measures, organized by environmental resource topic, that we suggest be included in the Plan Bay Area 2050 Environmental Impact Report in order to facilitate streamlining of land use development envisioned by the plan and necessary to achieve the region's greenhouse gas reduction goals. Should you have questions on the specific measures or how they can be adapted and included in the Plan Bay Area 2050 EIR, please contact Josh.Pollak@sfgov.org.

Air Quality

Measure AQ-1: Clean Off-road Construction Equipment

The property owner shall comply with all of the following:

A. *Engine Requirements.*

1. All off-road equipment greater than 25 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities shall have engines that meet or exceed either U.S. Environmental Protection Agency (USEPA) or California Air Resources Board (CARB) Tier 4 Interim or Tier 4 Final off-road emission standards.[1]
2. Where grid power is available, portable diesel engines shall be prohibited.
3. All diesel engines, whether for off-road or on-road equipment or vehicles, shall not be left idling for more than two minutes, at any location, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions, safe operating conditions). The property owner shall post legible and visible signs in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the two-minute idling limit.
4. The property owner shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment and require that such workers and operators properly maintain and tune equipment in accordance with manufacturer specifications.

B. *Waivers.*

1. The Lead Agency may waive the equipment requirements of Subsection (A)(1) if: a particular piece of Tier 4 Interim or Tier 4 Final off-road equipment is not available or technically not feasible; the equipment would not produce desired emissions reduction due to expected operating modes; or use of the equipment would create a safety hazard or impaired visibility for the operator. The property owner shall demonstrate that with approval of the waiver, the project would not exceed any health risk or criteria air pollutant significance threshold established by the Lead Agency. If the Lead Agency grants the waiver, the contractor must use the next cleanest piece of off-road equipment, according to Table AQ below. Emerging technologies with verifiable emissions reductions supported by substantial evidence may also be employed in lieu of the step-down schedule below.

[1] See 40 CFR Part 1039 and Title 13 CCR Sections 2403 to 2784.

2. The Lead Agency may waive the alternative source of power requirement of Subsection (A)(2) if an alternative source of power is limited or infeasible at the project site. If the Lead Agency grants the waiver, the contractor must submit documentation that the equipment used for onsite power generation meets the requirements of Subsection (A)(1).

Table AQ– Clean Off-Road Construction Equipment Compliance Step-down Schedule

Compliance Alternative	Engine Emission Standard	Emissions Control
1	Tier 2	CARB Level 3 VDECS[1]
2	Tier 2	CARB Level 2 VDECS
3	Tier 2	CARB Level 1 VDECS

How to use the table: If the Lead Agency determines that the equipment requirements listed in Section A.1, above, cannot be met, then the property owner is required to meet Compliance Alternative 1. If the Lead Agency determines that the property owner cannot supply off-road equipment meeting Compliance Alternative 1, then the property owner must meet Compliance Alternative 2. If the Lead Agency determines that the property owner cannot supply off-road equipment meeting Compliance Alternative 2, then the property owner must meet Compliance Alternative 3.[1] VDECS are a Verifiable Diesel Emissions Control Strategy

C. *Clean Off-road Construction Equipment Plan.* Before starting on-site activities requiring the use of off-road equipment, the property owner shall submit a Clean Off-road Construction Equipment Plan (Plan) to the Lead Agency for review and approval. The Plan shall state, in reasonable detail, how the property owner will meet the requirements of Section A.

1. The Plan shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for every construction phase. The description may include, but is not limited to: equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel use and hours of operation. For VDECS installed, the description may include: technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date and hour meter reading on installation date.
2. The property owner shall ensure that all applicable requirements of the Plan have been incorporated into the contract specifications. The Plan shall include a certification statement that the property owner agrees to comply fully with the Plan. A signed certification statement shall be submitted to the Lead Agency before starting on-site construction activities requiring off-road equipment.
3. The property owner shall make the Plan available to the public for review on-site during working hours. The property owner shall post at the construction site a legible and visible sign summarizing the Plan. The sign shall also state that the public may ask to inspect the Plan for the project at any time during working hours and shall explain how to request to inspect the Plan. The property owner shall post at least one copy of

the sign in a visible location on each side of the construction site facing a public right-of-way.

D. *Monitoring.* After start of construction activities, the property owner shall submit reports every six months to the Lead Agency documenting compliance with the Plan. After completion of construction activities and prior to receiving a final certificate of occupancy, the property owner shall submit to the Lead Agency a final report summarizing construction activities, including the start and end dates and duration of each construction phase, and the specific information required in the Plan.

E. *Projects Exceeding Health Risk or Criteria Air Pollutant Significance Thresholds.* Projects that exceed any health risk or criteria air pollutant significance threshold with application of the items above, shall implement the following as needed to reduce health risks or criteria air pollutants to below the thresholds of significance:

1. The property owner shall ensure that all on-road heavy-duty trucks with a gross vehicle weight of 19,500 pounds or more be a model year no older than eight years old from when construction commences.

2. Any other best available technology or emission reduction strategies offered at the time that projects are submitted to the Lead Agency for review may be included.

Measure AQ-2: Clean Diesel Generators for Building Operations

All diesel generators shall have engines that meet USEPA (1) Tier 4 Final or Tier 4 Interim emission standards, or (2) Tier 2 or Tier 3 emission standards and are equipped with a California Air Resources Board Level 3 Verified Diesel Emissions Control Strategy. For each new diesel generator submitted for the project, including any associated generator pads, engine and filter specifications shall be submitted to the Lead Agency for review and approval prior to issuance of a permit for the generator. Once operational, all diesel generators and Verified Diesel Emissions Control Strategy shall be maintained in good working order in perpetuity and any future replacement of the diesel generator, and Level 3 Verified Diesel Emissions Control Strategy filters shall be required to be consistent with these emissions specifications. The operator of the facility shall maintain records of the testing schedule for each diesel generator for the life of that diesel generator and provide this information for review to the Lead Agency within three months of requesting such information.

Archeology

Measure CR-1: Assessment and Treatment of Archeological Resources Accidentally Discovered during Construction

The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in *CEQA Guidelines* Section 15064.5(a) and (c). The project sponsor shall distribute an archeological resource "ALERT" sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); or utilities firm involved in soils-disturbing activities within the project site. Prior to any soils-disturbing activities being undertaken, each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel,

including machine operators, field crew, pile drivers, supervisory personnel, etc. The project sponsor shall provide the Lead Agency with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) confirming that all field personnel have received copies of the Alert Sheet.

Should any indication of an archeological resource be encountered during any soils-disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the Lead Agency and shall immediately suspend any soils-disturbing activities in the vicinity of the discovery until the Lead Agency has determined what additional measures should be undertaken.

If the Lead Agency determines that an archeological resource may be present within the project site, the project sponsor shall retain the services of a qualified archeological consultant. The archeological consultant shall advise the Lead Agency as to whether the discovery is an archeological resource retains sufficient integrity and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the Lead Agency may require, if warranted, specific additional measures to be implemented by the project sponsor.

Measures might include preservation in situ of the archeological resource; an archeological monitoring program; an archeological testing program; or an archeological interpretation program. If an archeological interpretive, monitoring, and/or testing program is required, it shall be consistent with the Lead Agency's guidelines for such programs. The Lead Agency may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.

The project archeological consultant shall submit a confidential Final Archeological Resources Report (FARR) to the Lead Agency that evaluates the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. The project archeological consultant shall also submit an Archeological Public Interpretation Plan (APIP) if a significant archeological resource is discovered during a project. The APIP shall describe the interpretive product(s), locations or distribution of interpretive materials or displays, the proposed content and materials, the producers or artists of the displays or installation, and a long-term maintenance program. Copies of the Draft FARR and APIP shall be sent to the Lead Agency for review and approval.

Once approved by the Lead Agency, copies of the FARR shall be distributed as follows: California Archeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy, and the Lead Agency shall receive a copy of the transmittal of the FARR to the NWIC. The Lead Agency shall receive one bound copy and one unlocked, searchable PDF copy on CD of the FARR along with GIS shapefiles of the site and feature locations and copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the Lead Agency may require a different final report content, format, and distribution than that presented above.

Measure CR-2: Archeological Monitoring

Based on the reasonable potential that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of a qualified archeological consultant having expertise in California prehistoric and urban historical archeology. The archeological consultant shall undertake an archeological monitoring program. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the Lead Agency for review and comment, and shall be considered draft reports subject to revision until final approval by the Lead Agency. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the Lead Agency, the suspension of *construction* can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c).

Consultation with Descendant Communities. On discovery of an archeological site associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group an appropriate representative of the descendant group and the Lead Agency shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the Lead Agency regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archeological Resources Report shall be provided to the representative of the descendant group.

Archeological monitoring program (AMP). The archeological monitoring program shall minimally include the following provisions:

The archeological consultant, project sponsor, and Lead Agency shall meet and consult on the scope of the AMP reasonably prior to any project-related soils disturbing activities commencing. The Lead Agency in consultation with the project archeologist shall determine what project activities shall be archeologically monitored. In most cases, any soils disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the potential risk these activities pose to Archeological resources and to their depositional context;

The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource;

The Archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the Lead Agency until the Lead Agency has, in consultation with the archeological consultant, determined that project construction activities could have no effects on significant archeological deposits;

The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis

If an intact archeological deposit is encountered, all soils disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction crews and heavy equipment until the deposit is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in consultation with the Lead Agency. The archeological consultant shall immediately notify the Lead Agency of the encountered archeological deposit. The archeological consultant shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, present the findings of this assessment to the Lead Agency.

If the Lead Agency in consultation with the archeological consultant determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, the Lead Agency, in consultation with the project sponsor, shall determine whether preservation of the resource in place is feasible. If so, the proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource. If preservation in place is not feasible, a data recovery program shall be implemented, unless the Lead Agency determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.

If an archeological data recovery program is required by the Lead Agency, the archeological data recovery program shall be conducted in accord with an Archeological Data Recovery Plan (ADRP). The project archeological consultant, project sponsor, and Lead Agency shall meet and consult on the scope of the ADRP. The archeological consultant shall prepare a draft ADRP that shall be submitted to the Lead Agency for review and approval. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the ADRP shall include the following elements:

- Field Methods and Procedures. Descriptions of proposed field strategies, procedures, and operations.
- Cataloguing and Laboratory Analysis. Description of selected cataloguing system and artifact analysis procedures.
- Discard and Deaccession Policy. Description of and rationale for field and post-field discard and deaccession policies.
- Interpretive Program. Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- Security Measures. Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- Final Report. Description of proposed report format and distribution of results.

- Curation. Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains and Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and federal laws. This shall include immediate notification of the Medical Examiner for the Lead Agency's jurisdiction and, in the event of the Medical Examiner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission, which will appoint a Most Likely Descendant (MLD). The MLD will complete his or her inspection of the remains and make recommendations or preferences for treatment within 48 hours of being granted access to the site (Public Resources Code section 5097.98). The Lead Agency also shall be notified immediately upon the discovery of human remains.

The project sponsor and Lead Agency shall make all reasonable efforts to develop a Burial Agreement ("Agreement") with the MLD, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains and associated or unassociated funerary objects (as detailed in CEQA Guidelines section 15064.5(d)). The Agreement shall take into consideration the appropriate excavation, removal, recordation, scientific analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. If the MLD agrees to scientific analyses of the remains and/or associated or unassociated funerary objects, the Archeological consultant shall retain possession of the remains and associated or unassociated funerary objects until completion of any such analyses, after which the remains and associated or unassociated funerary objects shall be reinterred or curated as specified in the Agreement.

Nothing in existing State regulations or in this mitigation measure compels the project sponsor and the Lead Agency to accept treatment recommendations of the MLD. However, if the Lead Agency, project sponsor and MLD are unable to reach an Agreement on scientific treatment of the remains and/or associated or unassociated funerary objects, the Lead Agency, with cooperation of the project sponsor, shall ensure that the remains and/or associated or unassociated funerary objects are stored securely and respectfully until they can be reinterred on the property, with appropriate dignity, in a location not subject to further or future subsurface disturbance.

Treatment of historic-period human remains and of associated or unassociated funerary objects discovered during any soil-disturbing activity, additionally, shall follow protocols laid out in the project Archeological treatment document, and other relevant agreement established between the project sponsor, Medical Examiner and the Lead Agency.

Public Interpretation. If project soils disturbance results in the discovery of a significant archeological resource, the Lead Agency may require that information provided by archeological data recovery be made available to the public in the form of a non-technical, non-confidential archeological report, archeological signage and displays or another interpretive product. The project archeological consultant shall submit an Archeological Public Interpretation Plan (APIP) that describes the interpretive product(s), locations or distribution of interpretive materials or displays, the proposed content and materials, the producers or artists of the displays or installation, and a long-term maintenance program. The Draft APIP shall be sent to the Lead Agency for review and approval.

Final Archeological Resources Report. Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the Lead Agency. The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the Lead Agency that evaluates the historical of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the draft final report.

Copies of the Draft FARR shall be sent to the Lead Agency for review and approval. Once approved by the Lead Agency copies of the FARR shall be distributed as follows: California Historical Resources Information System, Northwest Information Center (NWIC) shall receive one (1) copy and the Lead Agency shall receive a copy of the transmittal of the FARR to the NWIC. The Lead Agency shall receive one bound copy and one unlocked, searchable PDF copy on CD of the FARR along with GIS shapefiles of the site and feature locations and copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest in or the high interpretive value of the resource, the Lead Agency may require a different final report content, format, and distribution than that presented above.

Measure CR-2: Archeological Testing

Based on a reasonable presumption that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of a qualified archeological consultant having expertise in California prehistoric and urban historical archeology. The archeological consultant shall undertake an archeological testing program as specified herein. In addition, the consultant shall be available to conduct an archeological monitoring and/or data recovery program if required pursuant to this measure. The archeological consultant's work shall be conducted in accordance with this measure at the direction of the Lead Agency. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the Lead Agency for review and comment and shall be considered draft reports subject to revision until final approval by the Lead Agency. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the Lead Agency, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c).

Consultation with Descendant Communities. On discovery of an archeological site associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group an appropriate representative of the descendant group and the Lead Agency shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the Lead Agency regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archeological Resources Report shall be provided to the representative of the descendant group.

Archeological Testing Program. The archeological testing program shall be conducted in accordance with the approved Archeological Testing Program (ATP). The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

The archeological consultant and the Lead Agency shall consult on the scope of the ATP reasonably prior to any project-related soils disturbing activities commencing. The archeological consultant shall prepare and submit to the Lead Agency for review and approval an ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed project, lay out what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ATP shall also identify the testing method to be used, the depth or horizonal extent of testing, and the locations recommended for testing.

Archeological Testing and Monitoring Program. If the Lead Agency in consultation with the archeological consultant determines that an archeological monitoring program shall be implemented in conjunction with the testing program an Archeological Testing and Monitoring Plan (ATMP) shall be prepared which minimally include the above as well as the following provisions:

- The archeological consultant, project sponsor, and Lead Agency shall meet and consult on the scope of the ATMP reasonably prior to any project-related soils disturbing activities commencing. The Lead Agency in consultation with the archeological consultant shall determine what project activities shall be archeologically monitored. In most cases, any soils- disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the risk these activities pose to potential Archeological resources and to their depositional context;
- The archeological consultant shall undertake a worker training program for soil-disturbing workers that will include an overview of expected resource(s), how to identify the evidence of the expected resource(s), and the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the Lead Agency until the Lead Agency has, in consultation with project archeological consultant, determined that project construction activities could have no effects on significant archeological deposits;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;

If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/ excavation/ pile driving/ construction activities and equipment until the deposit is evaluated. If in the case of pile driving or deep foundation activities (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving or deep foundation activities may affect an archeological resource, the pile driving or deep foundation activities shall be terminated

until an appropriate evaluation of the resource has been made in consultation with the Lead Agency. The archeological consultant shall immediately notify the Lead Agency of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the Lead Agency.

Archeological Data Recovery Program. The archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The archeological consultant, project sponsor, and Lead Agency shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the Lead Agency. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations.
- *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures.
- *Discard and Deaccession Policy*. Description of and rationale for field and post-field discard and deaccession policies.
- *Interpretive Program.* Consideration of an on-site/off-site public interpretive program based on the results of the archeological data recovery program.
- *Security Measures.* Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- *Final Report.* Description of proposed report format and distribution of results.
- *Curation.* Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains and Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and federal laws. This shall include immediate notification of the Medical Examiner of the Lead Agency's jurisdiction and, in the event of the Medical Examiner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission, which will appoint a Most Likely Descendant (MLD). The MLD will complete his or her inspection of the remains and make recommendations or preferences for treatment within 48 hours of being granted access to the site (Public Resources Code section 5097.98). The Lead Agency also shall be notified immediately upon the discovery of human remains.

The project sponsor and Lead Agency shall make all reasonable efforts to develop a Burial Agreement ("Agreement") with the MLD, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains and associated or unassociated funerary objects (as detailed in CEQA Guidelines section 15064.5(d)). The Agreement shall take into consideration the appropriate excavation, removal, recordation, scientific analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. If the MLD agrees to scientific analyses of the remains and/or associated or unassociated funerary objects, the Archeological consultant shall retain possession of the remains and associated or unassociated funerary objects until completion of any such analyses, after which the remains and associated or unassociated funerary objects shall be reinterred or curated as specified in the Agreement.

Nothing in existing State regulations or in this mitigation measure compels the project sponsor and the Lead Agency to accept treatment recommendations of the MLD. However, if the Lead Agency, project sponsor and MLD are unable to reach an Agreement on scientific treatment of the remains and associated or unassociated funerary objects, the Lead Agency, with cooperation of the project sponsor, shall ensure that the remains associated or unassociated funerary objects are stored securely and respectfully until they can be reinterred on the property, with appropriate dignity, in a location not subject to further or future subsurface disturbance.

Treatment of historic-period human remains and of associated or unassociated funerary objects discovered during any soil-disturbing activity, additionally, shall follow protocols laid out in the project's Archeological treatment documents, and in any related agreement established between the project sponsor, Medical Examiner and the Lead Agency.

Public Interpretation. If project soils disturbance results in the discovery of a significant archeological resource, the Lead Agency may require that information provided by archeological data recovery be made available to the public in the form of a non-technical, non-confidential archeological report, archeological signage and displays or another interpretive product. The project archeological consultant shall submit an Archeological Public Interpretation Plan (APIP) that describes the interpretive product(s), locations or distribution of interpretive materials or displays, the proposed content and materials, the producers or artists of the displays or installation, and a long-term maintenance program. Copies of the Draft APIP shall be sent to the Lead Agency for review and approval.

Final Archeological Resources Report. Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the Lead Agency. The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the Lead Agency that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Once approved by the Lead Agency, copies of the FARR shall be distributed as follows: California Archeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the Lead Agency shall receive a copy of the transmittal of the FARR to the NWIC. The Lead Agency shall receive one bound copy and one unlocked, searchable PDF copy on CD or other digital storage device of the FARR along with GIS shapefiles of the site and feature locations and copies of any formal site

recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest in or the high interpretive value of the resource, the Lead Agency may require a different final report content, format, and distribution than that presented above.

Tribal Cultural Resources

Mitigation Measure M-TCR-1: Tribal Cultural Resources Archeological Resource Preservation Plan and/or Interpretive Program

In the event of the discovery of an Archeological resource of Native American origin, the Lead Agency, the project sponsor, and the tribal representative, shall consult to determine whether preservation in place would be feasible and effective. If it is determined that preservation-in-place of the tribal cultural resource (TCR) would be both feasible and effective, then the archeological consultant shall prepare an archeological resource preservation plan (ARPP), which shall be implemented by the project sponsor during construction. The consultant shall submit a draft ARPP to the Lead Agency for review and approval.

If the Lead Agency, in consultation with the affiliated Native American tribal representatives and the project sponsor, determines that preservation-in-place of the tribal cultural resources is not a sufficient or feasible option, the project sponsor shall implement an interpretive program of the tribal cultural resource in consultation with affiliated tribal representatives. A Tribal Cultural Resources Interpretation Plan (TCRIP) produced in consultation with the Lead Agency and affiliated tribal representatives, at a minimum, and approved by the Lead Agency would be required to guide the interpretive program. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and interpretation, and educational panels or other informational displays.

Construction Vibration

Measure VIB-1: Protection of Adjacent Buildings/Structures and Vibration Monitoring During Construction

Prior to issuance of any demolition or building permit, the property owner shall submit a project-specific Pre-construction Survey and Vibration Management and Monitoring Plan to the Lead Agency for approval. The plan shall identify all feasible means to avoid damage to potentially affected buildings. The property owner shall ensure that the following requirements of the Vibration Management and Monitoring Plan are included in contract specifications.

Pre-construction Survey. Prior to the start of any ground-disturbing activity, the property owner or their designees shall engage a consultant to undertake a pre-construction survey of potentially affected buildings. If potentially affected buildings and/or structures are not potentially historic, a structural engineer or other professional with similar qualifications shall document and photograph

the existing conditions of the potentially affected buildings and/or structures. The project sponsor shall submit the survey to the Lead Agency for review and approval prior to the start of vibration-generating construction activity.

If nearby affected buildings are potentially historic, the project sponsor shall engage a historic architect or qualified historic preservation professional and a structural engineer or other professional with similar qualifications to undertake a pre-construction survey of potentially affected historic buildings. The Pre-Construction Survey shall include descriptions and photographs of both the exterior and interior of all identified historic buildings including all facades, roofs, and details of the character-defining features that could be damaged during construction, and shall document existing damage, such as cracks and loose or damaged features. The report shall also include pre-construction drawings that record the pre-construction condition of the buildings and identify cracks and other features to be monitored during construction. The historic architect or qualified historic preservation professional should be the lead author of the Pre-construction Survey if historic buildings and/or structures could be affected by the project. These reports shall be submitted to the Lead Agency for review and approval prior to the start of vibration-generating construction activity.

Vibration Management and Monitoring Plan. The property owner or their designee shall undertake a monitoring plan to avoid or reduce project-related construction vibration damage to adjacent buildings and/or structures and to ensure that any such damage is documented and repaired. The Vibration Management and Monitoring Plan shall apply to all potentially affected buildings and/or structures. Prior to issuance of any demolition or building permit, the project sponsor shall submit the Vibration Management and Monitoring Plan that lays out the monitoring program to the Lead Agency for approval. If historic buildings could be affected, the Vibration Management and Monitoring Plan shall also be submitted to the Lead Agency's preservation staff for review and approval, if applicable.

The Vibration Management and Monitoring Plan shall include, at a minimum, the following components, as applicable:

- ***Maximum Vibration Level.*** Based on the anticipated construction and condition of the affected buildings and/or structures on adjacent properties, a qualified acoustical/vibration consultant in coordination with a structural engineer (or professional with similar qualifications) and, in the case of potentially affected historic buildings/structures, a historic architect or qualified historic preservation professional, shall establish a maximum vibration level that shall not be exceeded at each building/structure on adjacent properties, based on existing conditions, character-defining features, soil conditions, and anticipated construction practices (common standards are a peak particle velocity [PPV] of 0.25 inch per second for historic and some old buildings, a PPV of 0.3 inch per second for older residential structures, and a PPV of 0.5 inch per second for new residential structures and modern industrial/commercial buildings).
- ***Vibration-generating Equipment.*** The plan shall identify all vibration-generating equipment to be used during construction (including, but not limited to: site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction).
- ***Alternative Construction Equipment and Techniques.*** The plan shall identify potential alternative equipment and techniques that could be implemented if construction vibration levels are observed in excess of the established standard (e.g., pre-drilled piles could be substituted for driven piles, if feasible, based on soil conditions, or smaller, lighter equipment could be used in some cases).

- ***Pile Driving Requirements.*** For projects that require pile driving, the project sponsor shall incorporate into construction specifications for the project a requirement that the construction contractor(s) use all feasible means to avoid or reduce damage to potentially affected buildings. Such methods may include one or more of the following:
    - Incorporate "quiet" pile-driving technologies into project construction (such as predrilling piles, using sonic pile drivers, auger cast-in-place, or drilled-displacement), as feasible; and/or
    - Ensure appropriate excavation shoring methods to prevent the movement of adjacent structures
- ***Buffer Distances.*** The plan shall identify buffer distances to be maintained based on vibration levels and site constraints between the operation of vibration-generating construction equipment and the potentially affected building and/or structure to avoid damage to the extent possible.
- ***Vibration Monitoring.*** The plan shall lay out the method and equipment for vibration monitoring. To ensure that construction vibration levels do not exceed the established standard, the acoustical consultant shall monitor vibration levels at each affected building and/or structure on adjacent properties and prohibit vibratory construction activities that generate vibration levels in excess of the standard.
    - Should construction vibration levels be observed in excess of those established in the plan, the contractor(s) shall halt construction and put alternative construction techniques identified in the plan into practice, to the extent feasible.
    - The historic architect or qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures) shall inspect each affected building and/or structure in the event the development project exceeds the established standards.
        - If vibration has damaged nearby buildings and/or structures that are not historic, the structural engineer shall immediately notify the Lead Agency and prepare a damage report documenting the features of the building and/or structure that has been damaged.
        - If vibration has damaged nearby buildings and/or structures that are historic, the historic preservation consultant shall immediately notify the Lead Agency and prepare a damage report documenting the features of the building and/or structure that has been damaged.
        - If no damage has occurred to nearby buildings and/or structures, then the historic preservation professional (if potentially affected buildings are historic) and/or structural engineer (for effects on historic and non-historic buildings) shall submit a monthly report to the Lead Agency for review. This report shall identify and summarize the vibration level exceedances and describe the actions taken to reduce vibration.
    - Following incorporation of the alternative construction techniques and/or Lead Agency review of the damage report, vibration monitoring shall recommence to ensure that vibration levels at each affected building and/or structure on adjacent properties are not exceeded.
- ***Periodic Inspections.*** The plan shall lay out the intervals and parties responsible for periodic inspections. The historic architect or qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures) shall conduct regular periodic inspections of each affected building and/or structure on adjacent properties during vibration-generating

construction activity on the project site. The plan will specify how often inspections and reporting shall occur.

- ***Repairing Damage.*** The plan shall also identify provisions to be followed should damage to any building and/or structure occur due to construction-related vibration. The building(s) and/or structure(s) shall be remediated to their pre-construction condition at the conclusion of vibration-generating activity on the site. For historic resources, should damage occur to any building and/or structure, the building and/or structure shall be restored to its pre-construction condition in consultation with the historic architect or qualified historic preservation professional and Lead Agency.

Vibration Monitoring Results Report. After construction is complete the Lead Agency shall receive a final report from the historic architect or qualified historic preservation professional (for effects on historic buildings and/or structures) and/or structural engineer (for effects on historic and non-historic buildings and/or structures). The report shall include, at minimum, collected monitoring records, building and/or structure condition summaries, descriptions of all instances of vibration level exceedance, identification of damage incurred due to vibration, and corrective actions taken to restore damaged buildings and structures. The Lead Agency shall review and approve all Vibration Monitoring Results Reports.

Noise

Measure NOI-1: Construction Noise Control

Prior to issuance of any demolition or building permit, the property owner shall submit a project-specific construction noise control plan to the Lead Agency for approval. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the construction contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall identify noise control measures to meet a performance target of [Insert Performance Standard. Example: construction activities not resulting in a noise level greater than 90 dBA at noise sensitive receptors and 10 dBA above the ambient noise level at noise sensitive receptors]. The property owner shall ensure that requirements of the construction noise control plan are included in contract specifications. If nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The plan shall also include measures for notifying the public of construction activities, complaint procedures, and a plan for monitoring construction noise levels in the event complaints are received. The construction noise control plan shall include the following measures to the degree feasible, or other effective measures, to reduce construction noise levels:

- Use construction equipment that is in good working order, and inspect mufflers for proper functionality;
- Select “quiet” construction methods and equipment (e.g., improved mufflers, use of intake silencers, engine enclosures);
- Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors;
- Prohibit the idling of inactive construction equipment for more than five minutes;

- Locate stationary noise sources (such as compressors) as far from nearby noise sensitive receptors as possible, muffle such noise sources, and construct barriers around such sources and/or the construction site.
- Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors.
- Enclose or shield stationary noise sources from neighboring noise-sensitive properties with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible; and
- Install temporary barriers, barrier-backed sound curtains and/or acoustical panels around working powered impact equipment and, if necessary, around the project site perimeter. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise.

The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures and monitoring of construction noise levels:

- Designation of an on-site construction noise manager for the project;
- Notification of neighboring noise sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g., pier drilling, pile driving, and other activities that may generate noise levels greater than 90 dBA at noise sensitive receptors) about the estimated duration of the activity;
- A sign posted on-site describing noise complaint procedures and a complaint hotline number that shall always be answered during construction;
- A procedure for notifying the Lead Agency of any noise complaints within one week of receiving a complaint;
- A list of measures for responding to and tracking complaints pertaining to construction noise. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat); and
- Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures.

The construction noise control plan shall include the following additional measures in the event of pile-driving activities:

- When pile driving is to occur within 600 feet of a noise-sensitive receptor, implement “quiet” pile-driving technology (such as pre-drilling of piles, sonic pile drivers, auger cast-in-place, or drilled-displacement, or the use of more than one pile driver to shorten the total pile-driving duration [only if such measure is preferable to reduce impacts to sensitive receptors]) where feasible, in consideration of geotechnical and structural requirements and conditions;

- Where the use of driven impact piles cannot be avoided, properly fit impact pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer; and
- Conduct noise monitoring (measurements) before, during, and after the pile driving activity.

Measure NOI-2: Fixed Mechanical Equipment Noise Control for Building Operations

Prior to approval of a building permit, the property owner shall submit documentation to the Lead Agency, demonstrating with reasonable certainty that the building's fixed mechanical equipment (such as heating, ventilation and air conditioning [HVAC] equipment) meets the following noise limits: [Insert performance standard. Example: a 5 dB increase above the ambient noise level at the property plane for residential properties or an 8 dB increase above the ambient noise level at the property plane for commercial or mixed-use properties; and interior noise limits of 55 dBA and 45 dBA for daytime and nighttime hours inside any sleeping or living room in a nearby dwelling unit on a residential property assuming windows open, respectively]. Acoustical treatments required to meet the performance standard may include, but are not limited to:

- Enclosing noise-generating mechanical equipment;
- Installing relatively quiet models of air handlers, exhaust fans, and other mechanical equipment;
- Using mufflers or silencers on equipment exhaust fans;
- Orienting or shielding equipment to protect noise sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat) to the greatest extent feasible;
- Increasing the distance between noise-generating equipment and noise-sensitive receptors; and/or
- Placing barriers around the equipment to facilitate the attenuation of noise.

Compliance with this fixed-mechanical equipment noise control for building operations does not obviate the need for the equipment to demonstrate compliance with the Lead Agency's noise ordinance throughout the lifetime of the project.

Paleontology

Measure PALEO 1: Worker Environmental Awareness Training During Ground Disturbing Construction Activities

Prior to commencing construction, the property owner or their designee (herein referred as property owner) shall ensure that all project construction workers are trained on the contents of the Lead Agency's Paleontological Resources Alert Sheet. The Paleontological Resources Alert Sheet shall be prominently displayed at the construction site, during ground disturbing activities, to provide pre-construction worker environmental awareness training regarding potential paleontological resources.

In addition, the property owner shall inform construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. As new workers arrive at the project site for ground disturbing activities, the construction supervisor shall train them.

The property owner shall submit a letter confirming the timing of the worker training to the Lead Agency. The letter shall confirm the project's location, the date of training, the location of the informational handout display and the number of participants. The letter shall be transmitted to the Lead Agency within five (5) business days of conducting the training.

Measure PALEO 2: Discovery of Unanticipated Paleontological Resources during Ground Disturbing Construction Activities

In the event of the discovery of an unanticipated paleontological resource during construction, excavations within 20 feet of the find shall temporarily be halted until the discovery is examined by a qualified paleontologist as recommended by the Society of Vertebrate Paleontology standards (SVP 2010) and Best Practices in Mitigation Paleontology (Murphey et al. 2019). Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the Lead Agency.

The qualified paleontologist shall determine: 1) if the discovery is scientifically significant; 2) the necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and 3) methods for resource recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009). The Paleontological Evaluation Letter shall be submitted to the Lead Agency for review within 30 days of the discovery.

If the qualified paleontologist determines that a paleontological resource is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist must prepare a Paleontological Impact Reduction Program (impact reduction program). The impact reduction program shall include measures to fully document and recover the resource of scientific importance. The qualified paleontologist shall submit the impact reduction program to the Lead Agency for review and approval. The impact reduction program shall be submitted to the Lead Agency for review within 10 business days of the discovery. Upon approval by the Lead Agency, ground disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities in collaboration with the Lead Agency, once work is resumed.

The impact reduction program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation of paleontological resources of scientific importance into an appropriate repository; and 4) preparation of a Paleontological Resources Report (report or paleontology report) at the

conclusion of ground disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The property owner shall be responsible for the preparation and implementation of the impact reduction program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to the Lead Agency for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with the Lead Agency.

Measure PALEO 3: Preconstruction Survey for Project Areas located in Class U (Unknown) Sensitivity Areas

For projects located in an unknown paleontological sensitivity area and where the geotechnical report either identifies the presence of sediments with the potential to yield paleontological resources or does not provide enough information to confirm the absence of sensitive sediments, the property owner will implement a Construction Spot-Check program, as outlined below. The cost for the construction spot check program will be incurred fully by the property owner.

Construction Spot-Check

A qualified paleontologist shall provide spot-checking of conditions at the site during initial ground disturbance to evaluate the potential for paleontological resources to be present.

If through field observations the sediments are determined to be unlikely to preserve fossils, then construction spot-checking shall be halted at the discretion of the qualified paleontologist in consultation with the Lead Agency. This conclusion shall be documented in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements, such as the Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009. The Paleontological Evaluation Letter shall be submitted to the Lead Agency for review within 30 days of completion of construction spot-checking.

If a paleontological resource is determined to be of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, a Paleontological Impact Reduction Program (impact reduction program) must be prepared by the qualified paleontologist engaged by the property owner. The impact reduction program shall include measures to fully document and recover the resource. The impact reduction program shall be submitted to the Lead Agency for review within 10 business days of the discovery. The impact reduction program shall be approved by the Lead Agency. Ground disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities in collaboration with the Lead Agency, once work is resumed.

The impact reduction program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation into an

appropriate repository; and 4) preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The property owner shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to the Lead Agency for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with the Lead Agency.

Ground disturbing activities in the project area shall be monitored as determined by the qualified paleontologist for the duration of such activities in consultation with the Lead Agency, once work is resumed.

Measure PALEO 4: Preconstruction Paleontological Evaluation for Projects Located in Class 3 (Moderate) Sensitivity Areas

The property owner, upon approval from the Lead Agency, shall engage a qualified paleontologist to complete a site-specific Preconstruction Paleontological Resources Evaluation (paleontology preconstruction evaluation) prior to commencing soil-disturbing activities occurring on the project site, for projects located in moderate sensitivity zones. Prior to issuance of any demolition or building permit, the property owner shall submit the Preconstruction Paleontological Evaluation to the Lead Agency for approval.

The purpose of the site-specific preconstruction evaluation is to identify early the potential presence of significant paleontological resources on the project site. At a minimum, the study shall include:

1. Project Description
2. Regulatory Environment – outline applicable federal, state and local regulations
3. Summary of Sensitivity Classification
4. Research Methods to include:
    4.1. Field studies conducted by the approved paleontologist to check for fossils at the surface and assess the exposed sediments.
    4.2. Literature Review to include an examination of geologic maps and a review of relevant geological and paleontological literature to determine the nature of geologic units in the project area.
    4.3. Locality Search to include outreach to the University of California Museum of Paleontology in Berkeley.
5. Results: to include a summary of literature review and finding of potential site sensitivity for paleontological resources; and depth of potential resources if known.
6. Recommendations for any additional measures that could be necessary to avoid or reduce any adverse impacts to recorded and/or inadvertently discovered paleontological resources, in addition to measures for Worker Environmental Awareness Training during Construction (PALEO 1) and Discovery of Unanticipated Paleontological Resources during Construction (PALEO 2). Such measures could include:

6.1. Avoidance: If the cost of fossil recovery or other impact reduction options is determined to be too high, or permanent damage to the resource caused by surface disturbance is considered to be unavoidable, given the proposed construction, it may be necessary to "avoid" or "reroute" the portion of the project that intersects the fossil locality in order to prevent adverse impacts on the resource. Avoidance should also be considered if a known fossil locality appears to contain critical scientific information that should be left undisturbed for subsequent scientific evaluation. Avoidance for later scientific research is the typical mitigation recommendation made for scientifically significant extensive paleontological discoveries.

6.2. Fossil Recovery: If isolated small, medium- or large-sized fossils are discovered within a project area during field surveys or construction monitoring, and they are determined to be scientifically significant, they should be recovered. Fossil recovery may involve simply collecting a fully exposed fossil from the ground surface, or may involve a systematic excavation, depending upon the size and complexity of the fossil discovery. Fossil excavations should be designed in such a way as to minimize construction delays while properly collecting the fossil and associated data according to professional paleontological standards.

6.3. Sampling: Scientifically significant microfossils (vertebrate, invertebrate, plant, or trace fossils) may be identified in rock matrix during surveys or monitoring, or, if they are known to occur elsewhere in the same geologic unit or type of deposit in the general area, a determination of their presence or absence may require the use of test sampling of rock matrix for screen-washing in a paleontological laboratory. In some cases, depending upon the geologic unit involved, test sampling may be appropriate even if microfossils are not visible in the field. The fossils found, if any, will then be inspected and evaluated to determine their significance and whether additional steps are necessary to reduce paleontological impacts. Such steps may include collection of additional matrix for screen-washing and other steps. The decision to sample may not be made until monitoring is occurring, because it is usually triggered by conditions in the field.

6.4. Monitoring: If significant (well-preserved, uncommon, and/or identifiable) paleontological resources are known to be present in an area, or if there is a moderate or high likelihood that subsurface fossils are present in geologic units or members thereof within a given project area based on prior field surveys, museum records, or scientific or technical literature, paleontological monitoring of construction excavations is recommended. Monitoring involves systematic inspections of graded cut slopes, trench sidewalls, spoils piles, and other types of construction excavations for the presence of fossils, and the fossil recovery and documentation of these fossils before they are destroyed by further ground disturbing actions. Standard monitoring is typically used in the most paleontologically sensitive geographic areas/geologic units (moderate, high and very high potential); while spot-check monitoring is typically used in geographic areas/geologic units of moderate or unknown paleontological sensitivity (moderate or unknown potential). The goal of monitoring is to identify scientifically significant subsurface fossils as soon as they are unearthed in order to minimize damage to them and remove them and associated contextual data from

the area of ground disturbance, thereby resulting in subsurface paleontological clearance. Microfossil sampling, macrofossil recovery, and avoidance of fossils may all occur during any monitoring program.

METROPOLITAN TRANSPORTATION COMMISSION

CERTIFIED TRANSCRIPT

In Re:

PLAN BAY AREA 2050 DEIR SCOPING MEETING

_____/

REPORTER'S TRANSCRIPT OF REMOTE PROCEEDINGS

Thursday, October 15, 2020

Taken before AMBER ABREU-PEIXOTO

Certified Shorthand Reporter No. 13546

State of California

A P P E A R A N C E S (VIA ZOOM)

STAFF:

ADAM NOELTING, EIR Project Manager
DAVE VAUTIN, AICP, Assistant Director, Major Plans
CHIRAG RABARI, Principal Planner
FRAN RUGER, Sr. Environmental Project Manager
LESLIE LARA-ENRIGUEZ, Principal Public Information Officer
URSULA VOGEL, Public Information Officer

PUBLIC COMMENTERS:
Meg
Linda Curtis
Cindy Winter
Tom Conlin
Susan Landry
Gary Germano

Thursday, October 15, 2020 10:52 a.m.

BE IT REMEMBERED that pursuant to Notice of Public Hearing, and on Thursday, October 15, 2020, commencing at the hour of 10:52 a.m., remotely via webcast, teleconference and Zoom, in the Bay Area Metro Center, before me, AMBER ABREU-PEIXOTO, CSR No. 13546, a Certified Shorthand Reporter in and for the State of California, there commenced a public hearing.

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P R O C E E D I N G S

MS. LARA-ENRIQUEZ: Thank you, Chirag. We're going to start by addressing any clarifying questions that have not yet been answered in the Q&A box and allow those who called in via phone -- which it doesn't look like we have anybody that called in just by phone -- also the opportunity to ask any clarifying questions.

So first, Ursula will go through the questions in the Q&A box. And once we have answered all of the Q&A questions, we will turn to those of you on the phone for clarifying questions.

At the designated time, you will press star 9 to

raise your hand, and we will call on you. Please don't raise your hand yet or press star 9 to be put into the cue to make comments. We're going to take the first five to ten minutes to answer any outstanding clarifying questions first.

And then I'll hand it over -- now I'm going to hand it over to my colleague, Ursula, to help coordinate the questions.

Ursula?

MS. VOGEL: Thank you so much, Leslie.

So, yes. If you have any clarifying questions now for the team, if you can please type them in the Q&A box now.

And we currently have two questions. So I will start with the first question.

This is from Meg. "Could you please discuss how you plan to address SB 743 in the EIR, and has MTC adopted a threshold of significance for vehicle miles traveled?"

I'm going to look to Adam or Dave.

MR. NOELTING: Hi, Ursula. Thank you.

You know, when it comes to 743, we appreciate the comment. It is something new that we'll be addressing.

In past EIRs, as well as this EIR, we have looked at VMT as a significance criteria. We generally look at it as a per-capita measure. And so we are still working

on the threshold of significance. And I think, from the scoping comments we receive, we'll probably be considering various things as well.

But I will just note that we generally look at 743 as a per-capita measure in the valuation of the EIR and the project.

MS. VOGEL: Thank you very much, Adam. Okay.

Next question: "Are the project objectives that will be used in alternative screening published yet?"

Dave or Adam?

MR. VAUTIN: I believe the objectives are identified in the NOP.

I think there was also a link in the chat for all attendees to look at the NOP. So I believe those are identified in the NOP, if you'd like to look at those in more detail.

MS. VOGEL: Okay. Great. Thank you. That's all I see in the Q&A box.

I do see a raised hand. And if this is a clarifying question, Linda Curtis, if you could unmute yourself, star 6, and ask your question, please.

LINDA CURTIS: (Technical difficulty/inaudible.)

-- anything specific that actually will increase the scope of our ability to drive from south to north in Mountain View, such as embedding the tracks of Caltrain so

that it doesn't hold up traffic so badly that they close the road and give up, because that's what we're facing, and that will intensify the gridlock.

MS. VOGEL: Linda, if you could repeat your first half of your question. I believe you were muted. So if you could just repeat your question.

LINDA CURTIS: I'll do my best.

I just wanted to say, I live in Mountain View. And in the north side of Mountain View, we have Google and many other large corporations. And we hope that many of them will continue working from home, as they have been, but even in that eventuality, we have so much traffic north to south.

And with Caltrain stepping up the number of trains, many of our roads that go north to south are closing because of gridlock and trains blocking the road all the time.

I'm wondering, is there any provision in the Plan to embed the rails; that is, sink the tracks so that trains can run unabated, and so can traffic of cars?

MS. VOGEL: Okay. Thank you, Linda. That might be a question for Dave or Adam.

MR. NOELTING: I'll just do a brief comment on that one.

There is some -- when it comes to Caltrain and

other rail projects across the region, there is an interest in trying to grade separate various components to separate, obviously, the rails with local traffic.

So there is some improvements that would allow for grade separations along the corridor from San Francisco all the way through south, into Santa Clara County.

MS. VOGEL: Okay. Thank you very much.

We do have one more Q&A question.

"In the NOP transportation project table, the topmost row with 290 billion for transportation, but it didn't define the mode. Can you please clarify."

MR. VAUTIN: I can take this question. This is Dave Vautin, with the Plan Bay Area team.

So just to clarify, in the NOP, that's a list of strategies. There are 35 strategies in the Final Blueprint for Plan Bay Area 2050.

And the commenter is referring to the 390 billion shown in the top row for maintaining and operating our existing system. That includes roads, freeways, bridges, public transit systems, and more.

The breakdown, in terms of mode, was included in the more-detailed investment table presented to the commission as part of their Final Blueprint action item in September.

So I would refer the commenter to that item for further information.

MS. VOGEL: Okay. Thank you so much, Dave.

We do have one more Q&A question.

"Will the methodology and common sense description, explaining how the per-capita VMT metric meets SB 743, be fully documented in the Draft EIR?"

This might be a question for Adam.

MR. NOELTING: Sure.

The EIR -- the Draft EIR does include a methodology discussion on kind of a general methodology, as well as the methodology regarding each of the different sections and criterion.

And so there will be a discussion about how the VMT metric is documented -- how it's calculated and documented in that.

MS. VOGEL: Okay. Thank you very much.

I don't see any more clarifying questions. So I will pass it back to Leslie.

Thank you.

MS. LARA-ENRIQUEZ: Great. Thank you, Ursula.

We're now going to take your comments live. So at this time, if you are ready to make a comment specifically on the scope and content of the Environmental Impact Report for Plan Bay Area 2050, please press the

"Raise Hand" button or press star 9 on your phone to be put into the cue. And I will call on you to make your comment.

As a reminder, we are particularly interested in hearing your input on two questions: Are there any alternatives you believe we should evaluate during the Draft Environmental Impact Report process?

And then, what types of mitigation measures do you think would help avoid or minimize potential environmental effects from the Plan.

So, again, to put yourself in the cue to make a comment, press the "Raise Hand" button or star 9 on your phone's keypad.

And once I call on you, please unmute yourself by pressing the microphone button in the Zoom platform or star 6 on your phone.

Again, just a reminder. When making your comment, please state your name and your organization, if applicable, for the record, to be sure -- and please be sure to speak clearly into your computer's microphone so that Amber can capture your comments accurately.

So with that, we can begin. If you could please, at this time, raise your hand to be put in the cue to make a comment related to the EIR process.

And I just want to double-check with Amber to

ensure that you are ready to get started with taking comments.

Amber, if you can unmute yourself or turn on -- thank you.

THE REPORTER: I am here, and I am ready.

MS. LARA-ENRIQUEZ: Okay. Great. Thank you so much.

So it looks like we have Cindy Winter here. We are going to start with three minutes, since we don't have a lot of folks with their hands raised.

And so, Cindy, if you could please unmute yourself and provide your comment on the EIR process.

CINDY WINTER: Can you hear me now?

MS. LARA-ENRIQUEZ: Yes, Cindy, we can hear you.

CINDY WINTER: Thank you.

My name is Cindy Winter. I live in Marin County. I'm sure that transit is intended to take many cars off the streets. But after COVID, will transit ever regain its former ridership?

Traffic congestion is a big cause of GHGs. As population increases in metropolitan areas, due to spatial limitations, roadways are -- can rarely be expanded to accommodate more cars. Yet, at the same time, our cars grow in size.

If a switch to smaller cars were mandated or

induced to revisions to infrastructure design or changes in building codes, the planet would be better off. I've read that some European cities have banned SUVs altogether. This may be a sensitive topic. Many drivers seem to see SUVs and light trucks as a kind of birthright. But I believe the younger generation is perhaps more relaxed on this issue.

Has MTC considered this means of reducing greenhouse gases?

And that's the end of my comments. Thank you.

MS. LARA-ENRIQUEZ: Thank you so much, Cindy, for your comments.

Next we have Tom Conlin. If you can please unmute yourself and state your name for the record.

Tom, are you there?

TOM CONLIN: Thank you. Forgive me. My connection seems to be slow, and it took a bit of time to unmute myself.

MS. LARA-ENRIQUEZ: No problem.

TOM CONLIN: I had a comment about alternatives for evaluation. I understand that the Bay Area's history of transit ridership has historically been very low and, in fact, has actually been going down over the last 20, 25 years.

And I'm wondering if the Plan will do a

reasonably fair job of evaluating a transformative alternative, where it -- increasing transit ridership to a much more significant fraction, especially for those corridors which are heavily congested now -- will be properly evaluated in the Plan.

And so I'd like to see an alternative that is a much more real world transformative evaluation of increasing transit ridership. And that may in fact have to address the issue that the last -- one of the speakers raised earlier, about safe transit ridership in an era post-COVID, and with other potential virus concerns.

So I would like to see that seriously studied in this PBA 2050 process.

Thank you for your consideration of my comments.

MS. LARA-ENRIQUEZ: Thank you so much, Tom, for your comment.

Next we have Susan Landry. If you can please unmute yourself.

SUSAN LANDRY: Hi. Am I unmuted?

MS. LARA-ENRIQUEZ: Yes, you are. We can hear you.

SUSAN LANDRY: Okay. Thank you.

I'm asking a question regarding the bus routes that are identified in corridors for potential high-density housing. But, especially in Santa Clara

County, VTA bus routes are being removed and eliminated.

There is no permanent requirement in the Plan 2050 that prevents these bus routes from being removed. So how is Plan 2050 going to address this, which to me is -- I see as a temporary situation for these bus routes?

MS. LARA-ENRIQUEZ: Great. Thank you so much, Susan, for your comment and question.

And to clarify, we are taking your comments now.

Adam, if you can provide some direction on -- in terms of questions, and how those will be addressed in the Draft EIR.

MR. NOELTING: Yeah. We are taking comments now about the scope and content of the EIR, as noted. If there are additional clarifying questions, we can certainly address them regarding the process today. But generally the comments today will be looked at; reviewed.

And then comments, as noted in the presentation, that are presented, would be considered then in the EIR process, as we move forward developing the document.

MS. LARA-ENRIQUEZ: Great. Thank you so much.

Are there any other folks wanting to make a comment live during our meeting today? If so, please either press the "Raise Your Hand" button or press star 9 to get in the cue.

Great. It looks like Linda has raised her hand.

So if you could please unmute yourself.

LINDA WINTER: Yes. It is I again.

I have a question. My husband and I put 96 solar panels on our roof. And in my neighborhood, a lot of high-rise construction is proceeding.

Is there anything to protect solar panels from shade of new construction being built in proximity to their structure?

Hello?

MS. LARA-ENRIQUEZ: Thank you so much, Linda.

Adam, were you going to --

MR. NOELTING: Yeah. I mean, I don't have a specific answer to that one now. That is something -- you know, the EIR does look at a number of different subject areas. We look at a lot of different considerations, in terms of the Plan.

That's a very project-specific, location-based piece. And noted in our Plan assessment is a programatic look. So it's not quite as project specific as I described in the presentation. But it does look at a number of factors.

CEQA does look at a number of different issue areas; shade, height limits. These are all considerations when we look at impacts of a project, something being implemented.

MS. LARA-ENRIQUEZ: Thanks, Adam.

Anybody else? Here we go.

Gary. One second. I'm having a little trouble here. Gary, I had to promote you to be a panelist, because it looks like you're using an older version of Zoom.

So if you can now try to unmute yourself.

GARY GERMANO: Am I unmuted?

MS. LARA-ENRIQUEZ: Yes.

GARY GERMANO: Okay. My name is Gary Germano, and I live in Sonoma, California, which is north of San Francisco. And our city -- as well as, I live in the county, just a couple of blocks outside the city limits. So it's still called "Sonoma" here -- is surrounded by mountains. That's why they call it "Sonoma Valley."

I am specifically interested, due to all the fires that we're having up this way and further north, and the mountains that are packed with trees, many of them dead in the areas that don't get cleared -- I am interested that your EIR covers the ability of the number of people here already to evacuate on the highways in and out of this valley prior to looking to adding more to it, without improving the roadways first. And I want to make that really clear.

The roadways, in my opinion, and many others, are

not sufficient as they are to handle the traffic coming out of this valley in an emergency. And so they would need to be addressed before we get off -- before we leave the home plate to head to first, to make sure that whatever we're planning to put in can also be accommodated.

Thank you very much.

MS. LARA-ENRIQUEZ: Thank you, Gary.

Are there any more folks wanting to make a comment this morning, almost afternoon?

Please go ahead and raise your hand by pressing the "Raise Hand" button or press star 9 to be put in the cue.

MS. VOGEL: Also, we do have some questions in the Q&A box. Once the comment period -- you deemed it over, can we answer some of these questions live?

I can read them out, and you or staff can answer the questions. So let me know when that time is.

MS. LARA-ENRIQUEZ: I think we can take them now, Ursula, since we did schedule the meeting through 1 o'clock. And I don't see any more folks raising their hands to make a comment. So you can go ahead and do it now.

MS. VOGEL: Okay. Great. The first question from Judy is, "How did you publicize this meeting? Is

this considered public input?"

MR. NOELTING: I can take most of this question.

The meeting was publicized through the Notice of Preparation, as well as on the MTC website. So Notice of Preparation was sent out through mail, as well as through the County Clerk's offices, as well as posted on the MTC website and shared in other locations.

It did publicize the meeting date, time, location, and format. It's also included on the MTC website.

So it is a public meeting to address and capture comments regarding the scope of the EIR. So it is a public meeting.

MR. RABARI: I would also -- and this is Chirag Rabari.

And I would also add that it was also sent to various mailing lists that we have for, you know, either interested organizations, agencies, members of the public, that have indicated, you know, an interest in either Plan Bay Area 2050, or the EIR process.

So, you know, the e-mail was sent to those individuals and also via other distributions lists.

MS. VOGEL: Okay. And just to round it out, yes, this is considered public input. Your comments here are noted by our court reporter and will be considered for the

scope. This is a scoping meeting. So the scope of the EIR. Thank you.

Next question from John. "Can you explain the relationship between your EIR and the one that would be created by the local -- a local government agency?"

MR. NOELTING: Yeah. Definitely. So this is a great question.

As noted in the presentation, this is a programmatic EIR, and it doesn't relieve local jurisdictions and others from doing -- preparing project-specific EIRs in the future.

And this does provide an opportunity, though, for local agencies, when they're approving projects and looking -- going through the process to either tier off this programmatic EIR or consider and use the mitigation measures identified within it.

MS. VOGEL: Okay. Thank you so much, Adam.

The next question, I believe Dave is going to answer. "How are the projects going to be funded with the implication of the gas taxes approved via SB 1 and the ban on sales of gasoline vehicles by 2035?"

"Also, have you considered the sharp decrease in vehicle traffic, and thus, the reduction of funding coming from the gas tax?"

MR. VAUTIN: Thank you for that question.

We do assume that the state, over time, will transition from the gas tax system to a system based on miles traveled in a revenue-neutral manner to preserve the funding stream associated with Senate Bill 1 and the gas tax that exists today. This allows us to continue to incorporate such funding into our long-range plan.

With regards to the sharp decrease in vehicle traffic, that is -- certainly we've seen here in the year 2020, with COVID-19 and the pandemic, but we do anticipate the region will recover in the years ahead; and thus, those revenues will resume and come back in the years ahead.

MS. VOGEL: Thank you, Dave.

So we have a few comments and questions. I will save the comments for the end. And then I will note to the court reporter that they are comments.

The next question is, "Whatever happened to zero population growth?" I'm not certain if this is an EIR question or a Plan question or just a general question.

MR. NOELTING: I mean, I'm going to let Dave answer part of the -- how we get to the regional forecast.

But I would just note, in terms of the EIR, one of the primary objectives is to -- you know, of the Plan, is to accommodate the forecasted regional growth and provide enough housing for that forecasted growth. So

when we look at the EIR, we do look at the forecast, and how we can accommodate that growth.

It may accommodate it differently than what the proposed Plan or the Plan Bay Area Final Blueprint is proposing ways to accommodate the growth, but it does -- we are anticipated to grow as a region.

And Dave can kind of elaborate on the regional growth forecast process.

MR. VAUTIN: The regional growth forecast for Plan Bay Area 2050 was developed over a series of months, with technical input from economic experts.

Looking into the region's future, while our challenges are very significant right now, we do anticipate slower growth in the next few years as a result of this serious recession that we've -- are all experiencing. The fundamental economic pillars of our region, we do feel, remain strong.

And so as we develop Plan Bay Area 2050, it's essential that we accommodate the region's future forecasted growth in jobs and housing and population to ensure that there is sufficient housing for people at all income levels.

MS. VOGEL: Thank you, Dave.

There's a question that everyone can potentially benefit from.

"How do we get on the e-mail list?"

I believe it's on our PlanBayArea.org website. And we can sign up -- we can sign up to have notifications for the EIR.

MS. LARA-ENRIQUEZ: I can share the link to the form on the -- in the chat box, Ursula.

MS. VOGEL: Wonderful. Thank you so much, Leslie.

Another question that maybe everyone can benefit from. "Will this" -- not that all questions we can benefit from, but a clarifying and informative question.

"Will this presentation be online for people to watch?"

The answer is yes. PlanBayArea.org. Meeting and Events. Go to Past Events.

I would say by tomorrow, this will be up and ready for your viewing. So thank you for that question.

MR. RABARI: Ursula, I would just also quickly add that a prerecorded webinar that went over much of the same content as we provided in the presentation today is also already available on the Plan Bay Area website under the Environmental Impact Report page for the scoping meeting.

And we can provide a link to that page in the chat as well. And there are directions within that

presentation about how to provide written comments through the means that Leslie had mentioned previously as well.

MS. VOGEL: Thank you, Chirag, for that reminder. Thank you.

Yes. It's already available. The content has already been recorded. So please take a look.

Next question: "Who is responsible for asking and ensuring that the individual projects are abiding by the specifics of the MTC/ABAG requirements? Is that purely local government responsibility or does MTC/ABAG have any say?"

MR. VAUTIN: So thank you for that question. It's a complicated question.

I believe you're referring, in this case, to specific transportation projects. Obviously, that's just a sliver of what Plan Bay Area 2050 is.

But one of the key aspects of federal and state regulations is that only transportation projects that are included in Plan Bay Area 2050 are allowed to proceed to construction during the Plan's lifespan. So over the next four years, before we develop a new regional, long-range plan.

Many of the other strategies to augment these projects are things where, through collaboration between the region, the state, and local governments, we'll be

working together to move them forward over the coming years.

Outside of the scope of the EIR, we're developing an Implementation Plan for Plan Bay Area 2050 that will delineate those roles and responsibilities. That effort will kick off starting next month.

MS. VOGEL: Thank you so much, Dave.

Now we have two comments that I will read, I guess, into the record.

First from Carol: "I agree the fire evacuation routes need to be improved before more people move in."

And a comment from Robert: "MTC needs a more aggressive management for Bay Area transit that puts the needs of riders first."

So seeing no more questions, I'll turn it back over to Leslie.

MS. LARA-ENRIQUEZ: Thank you so much.

So, again, we can take your comments related to the EIR process and the scope and content of the Draft Environmental Impact Report live now. If you are ready to make a comment, please raise your hand or press star 9 to be put in the cue to make your comment live.

MS. VOGEL: Leslie, we have one more question in the Q&A box that's related to the EIR.

"Will this Plan affect tribal consultation in any

way?"

MR. NOELTING: Just a giving note here. I mean, tribal consultation is part of this process. We do reach out to the various tribes across the region to determine whether they want to consult about the process. So there is a process to do that. We've engaged in some of those efforts already.

MR. RABARI: I would also just add that individual projects are still subject to tribal consultation as well.

MS. VOGEL: Okay. I guess we have one more question about the EIR.

"EIRs are designed to discover impact on communities. Given the global nature of your focus, I'm not sure how your EIR process addresses local issues."

MR. NOELTING: That's a valid point. And so we -- as noted in the presentation, it is a programmatic EIR. It does look at the whole suite and program of the strategy within the Final Blueprints. So it looks at all of the transportation projects and all of the changes to land use collectively.

It does look at the impacts a little bit differently in some cases, where it distinguishes between transportation and land use impacts. But it is the collection or whole suite of the projects and not just the

local improvements in a specific geographic area.

It does -- as noted in the presentation, it does try to look at the potential mitigation measures that may be applicable for individual projects. But as noted, it doesn't look at individual projects.

Project sponsors, as they move forward, would be required to determine whether they feel like additional CEQA analysis is necessary for their specific project.

MS. VOGEL: Thank you very much, Adam.

We have one more question.

Dave, did you have something else?

MR. VAUTIN: I'm just ready to answer the next question.

MS. VOGEL: Wonderful, Dave. Thank you so much.

"The homeless population in the Bay Area is over 30,000. Can creating transitional housing for this population be addressed in the housing element?"

MR. VAUTIN: So back to the housing element of the Final Blueprint. Treats housing like a human right and ensures that there is housing for all of our region's currently unhoused population. Not just transitional housing, but actually permanent, stable housing for those folks who currently are unhoused.

MS. VOGEL: Thank you very much, Dave.

Oh. Another question. "Where do you get input

on mitigation concepts?"

MR. NOELTING: This scoping meeting is an opportunity to identify potential mitigation measures or concepts for the EIR in consideration. And so if you have suggestions and want to -- or if you don't have them available today and you want to think about it, there are still opportunities to submit comments.

So part of the interest that we're looking at is not only just the alternatives in the scope of the EIR, but it is also mitigation measures of what can be considered in the Plan. So if you do have suggestions for those, please let us know.

And you can submit comments, either -- again, today orally or in writing, through all the mechanisms that were identified before; e-mail, fax, I believe, and by --

MS. VOGEL: Mail.

MR. NOELTING: Regular mail.

MS. LARA-ENRIQUEZ: Dave, if actually you could forward to the next slide, and we can have the information posted for how folks can make written -- detailed written comments. Thank you.

But we are still taking your oral comments now. So if you'd like to make a comment, please raise your hand.

Great. It looks like we have one.

Tom, if you could please unmute yourself.

TOM CONLIN: Thank you again for the opportunity.

Regarding mitigation measures, I was curious to know if the team working on this Plan Bay Area 2050 project is aware that Sonoma County has been talking about a vehicle miles-traveled bank as a potential component of its climate emergency action plan, or whatever they're calling that document.

And the concern, of course, is that a plan that was done on a very small basis might not be very successful.

And so the question for this group would be if that was something that would be looked at more broadly on a regional basis, or even on a statewide basis, and whether that would be something that would be appropriate for the scope for mitigation for Bay Area growth between now and 2050.

I also have a scoping comment, if it's appropriate now to ask that -- ask that matter?

MS. LARA-ENRIQUEZ: Yes. Go ahead, Tom.

TOM CONLIN: Okay. And then on scope -- and this goes back to a question that Dave Vautin answered in the chat.

But we -- because this is a programmatic EIR and

process, we really are going to be relying on this document for explaining how Bay Area's transportation impacts will connect to the -- the achievement of the state's greenhouse gas reduction goals.

And so we do hope that the scope of this project will be robust in documenting and detailing the common sense connection between the measures -- between the growth and the measures to mitigate that growth; and in particular, in VMT matters over this period as being planned for.

So I just reiterate, for the purpose of scoping at this meeting, we will be looking to this document to be robust in explaining how this planning process will help its state achieve its greenhouse gas reduction goals.

Thank you so much for your consideration of that comment.

MS. LARA-ENRIQUEZ: Thank you so much, Tom.

MS. VOGEL: Leslie, we have one more question. Can we --

MR. VAUTIN: Ursula -- Ursula, I believe the previous commenter had a question before his comment there. I just wanted to quickly respond.

So, first, thanks for the second part of your comment there.

With regards to the question that you raised on

VMT implementation -- VMT mitigation banks, I should say, we are well aware of the concept. It may be something that is really an implementation vehicle or an action that could be integrated into the Implementation Plan for Plan Bay Area 2050 to, you know, offset the VMT increases associated with the highway projects in the Plan by funding those critical transit, bicycle, and pedestrian projects that are also featured in the transportation element of the Plan.

So thank you for that comment. We're aware of the concept, and we're considering it for the Implementation Plan phase.

MS. VOGEL: Thank you very much, Dave.

We have one more question in the Q&A box, Leslie.

"Can a local EIR proceed before you are done?"

MR. NOELTING: Let me at least try to take this one.

I -- you know, I think there's two ways to look at this one, in the sense that there's two different elements of this Plan that we have focused on: One is transportation, and one is land use. Obviously, we look at it together, collectively, as the Final Blueprint.

So I think the answer is a little bit nuanced, depending on which element or which type of project you're referring to.

A transportation project, given that MTC is a regional transportation planning agency, projects must be consistent -- a transportation project that would generally go through the CEQA process generally has to be -- or has to be included in our Regional Transportation Plan before it's able to proceed forward, through the environmental review process. So in that sense, it really cannot advance before -- unless it's already included in the prior plan.

So I hope that makes some sense; that it needs to be included in our Regional Transportation Plan. A transportation project would need to be included in our transportation plan before it could move into the next phase, through the environmental process.

Land use is a bit different. So there could be land use projects that are moving forward, at a local EIR level, that could proceed before the Regional Transportation Plan, Plan Bay Area 2050 programmatic EIR assessment.

MS. LARA-ENRIQUEZ: It doesn't look like we have any more folks wanting to raise their hand. But we will be here until 1 o'clock.

We wanted to share the additional ways to comment on the EIR scope. If you could e-mail -- you could e-mail your comments to EIRcomments@BayAreaMetro.gov.

You can also use our online form, which we shared in the chat. The link is PlanBayArea.org/2050-plan/EIR-scoping-meeting. Pretty long link.

You can also send them by mail to MTC Public Information, with "Attention: EIR Comments," to 375 Beale Street, Suite 800, San Francisco, California 94105, or, old-fashioned way, 415 -- via fax: (415) 536-9800.

And just a reminder that all written comments must be received no later than October 28th.

Like I said, we will be here until 1 o'clock, taking your comments on the scope and content of the Draft EIR. If you want to make a comment, go ahead and raise your hand. Otherwise, you're welcome to leave. Thank you.

Looks like we have another comment from Tom.

Tom, if you can go ahead and unmute yourself.

TOM CONLIN: Thank you again for the opportunity.

I've been wondering about the -- to what degree this plan will investigate the impacts on communities, disadvantaged communities, communities that are experiencing -- or the whole equity and environmental justice frame that's now required in all planning in California. And so I'm anticipating you will be including something on that matter in this document.

But I'm curious, in particular, as to the matter of scope as to whether you'll be looking at jurisdictions that are where representation -- political representation is limited. I'm specifically speaking of unincorporated county areas where -- where the plan may be anticipating significant growth and whether that itself could potentially become a negative impact on vulnerable populations.

As we're aware, many communities around the Bay Area are adjacent to incorporated cities. And land tends to be cheaper in those areas. And so there is a tendency to try and sight more dense housing, affordable housing, on those parcels.

But I'm curious if the scope of this plan will explore the growth of that type of development throughout the Bay Area and whether that might be potentially a negative impact on the environmental justice and social equity.

Thank you for your consideration of my comment.

MS. LARA-ENRIQUEZ: Thank you, Tom.

MR. VAUTIN: Thanks for your comment on the scope of the EIR.

With regards to social equity, I would -- just wanted to note that Plan Bay Area 2050 also has an equity analysis underway, in compliance with Federal Title VI and

Environmental Justice requirements, but also, transcending those and exploring a broader suite of equity impacts for disadvantaged populations and communities across the region.

That work is being leaded in parallel with the development of the Draft and Final Plan and will be put out for public comment at the same juncture as the Draft EIR and Final EIR.

I would lastly note that the Final Blueprint, should it be approved, is the preferred alternative to go into the EIR process we're discussing today -- includes strategies to focus nearly all future growth within existing urban growth boundaries.

Thank you.

MR. RABARI: And I would also add that the EIR will address consistency with adopted Environmental Justice elements of city or county general plans, if any, that -- you know, many cities and counties have not yet adopted those elements.

MS. LARA-ENRIQUEZ: Thank you both.

So, again, if you would like to make an oral comment live, during our meeting here, please raise your hand and we will call on you. Thanks.

So, again, just a reminder. If you were not ready to make an oral comment here today, or you want to

provide more detailed written comments, you can submit them via e-mail to EIRcomments@BayAreaMetro.gov. You can use our online form on the PlanBayArea.org website. You can mail them in, or you can also fax them in.

We will be here until 1 o'clock. If you can -- if you think of anything, and you'd like to raise your hand to make an oral comment, please go ahead and do so. Otherwise, you're welcome to disconnect.

I also do want to mention, if you do have questions or comments not related to the EIR, you are also always welcome to e-mail us at info@PlanBayArea.org.

For the few folks that are still with us, you are still welcome to raise your hand and make a comment online live, if you have thought of something related to the EIR scope and content. Otherwise, the information is on the screen to provide additional comments via written form of either e-mail or online form, mail, or fax.

And, again, we'll be here until 1 o'clock. But otherwise, you're welcome to disconnect. And if you have any questions or comments that are not related to the EIR, you're welcome to e-mail us at info@PlanBayArea.org.

It looks like we do have a question in the Q&A box, Chirag and Adam. If you can take a look, the question is from John.

He asks, "Can you explain hydrology? What does

that entail? And will you study whether sufficient water access will be available for projects?"

MR. NOELTING: That is a great question. It is an area that we look at in the EIR.

I'm actually going to -- Fran, I don't know if you're still on the call. Maybe you can help -- maybe jump in on this one a bit. It is a topic that is addressed within the EIR.

MS. RUGER: Yes. Thanks, Adam. Fran Ruger.

Hydrology, for an EIR, generally includes water quality and it does include water supply and water structure. At a programmatic level, we're looking at it very generally.

And projects that come in the future, before their local lead agencies, will also address water supply and water quality. So that includes -- hydrology also includes drainage.

MR. NOELTING: Thank you.

MS. LARA-ENRIQUEZ: Thank you both. Thank you, John, for your question.

From John: "In the area of land use, would the EIR suggest or address changes in local zoning?"

MR. NOELTING: Let me try to answer that one.

So what the EIR will address is changes to local development plans that might be part of the Plan Bay Area

2050's Final Blueprint.

In the presentation there were a number of strategies that were outlined to accommodate future housing. Some of those do change or alter existing zoning in local jurisdictions.

So the EIR will programmatically assess what the impacts of those changes will be, assuming development occurs in those areas. And so we will look at increased density in areas, and what it means for implications -- direct impacts of that development, if you're looking at land use specifically.

I think there's other areas, too. And maybe I'll turn to Fran, if she wants to jump in on this one, too.

But I believe also, in the land use discussion, there is consistency questions about who look -- how we look at the plan and consistency with existing local plans as well.

Maybe I'll turn to Fran to help address this question.

MS. RUGER: Adam, that is correct.

In the EIR, there is usually an impact devoted to consistency with plans and regulations and ordinances.

So with the Plan Bay Area, it would be as a general discussion, in consistency with general plans and donate ordinances.

Projects, as they come forward, that propose changes to zoning or general plan designations, would also be subject to project specific CEQA review.

MS. LARA-ENRIQUEZ: Great. Thank you both.

I would like to do a last-call for live comments, since we are nearing the 1 o'clock hour.

If you'd like to make a comment now, you still have a little bit of time. So please go ahead and raise your hand, and we can take your comment live.

There was a follow-up question from John. "How are those projects brought forward and by whom?"

MR. NOELTING: A specific project would be brought forward by a -- whoever is implementing the project, the lead agency going forward with the project. So if it's land use, it would be the agency or responsible party for implementing the project.

I hope that answers the question. I mean, again, Fran, I'll turn it to you if you want to help specify or clarify if there's any nuances to the CEQA language.

MS. RUGER: No. That's correct.

In the case of land use development, it will be the -- you know, it's the same process you would go through, with or without Plan Bay Area. You know, local applicants provide their application and then lead agencies determine if the project qualifies as a project

under CEQA, and then what type of CEQA -- project-specific CEQA document needs to be prepared.

And as we discussed, there are some streamlining benefits of the programmatic EIR for Plan Bay Area. But approval of local land use projects could still happen at the local level. So city, county, schools, things like that, will be responsible for bringing those forward, preparing the CEQA document and approving the CEQA document.

MS. LARA-ENRIQUEZ: Great. Thank you.

One more question before we wrap up from John.

"We have a number of issues with the Springs Plan here in Sonoma. I know they are developing an important EIR. Is there anything relative to your work that we should be aware of, to inform that process here locally?"

MR. NOELTING: You know, I don't have a specific -- a great answer for that one.

I think the -- you know, the processes are a bit different, but very similar, in that they're preparing a local project EIR. So the specifics of that EIR will be very project specific; whereas, ours is a programmatic EIR and won't go into the details of a specific location or geographic area.

So I think, while the intent of the analyses are very similar, in terms of the scope and what's covered in

their analyses, the level of detail is going to be a bit different.

I think -- you know, some things to note -- right? If that local EIR wanted to use or kind of tier off of our programmatic EIR, it would have to wait until our programmatic EIR has been complete and certified for that to be of use for a local agency and their local process. But I think that's kind of the big picture things that I'm thinking of.

Fran, would you have any additional thoughts or any insights to this one that you'd like to add?

MS. RUGER: No. I don't think there's anything in Plan Bay Area EIR that would inform a local EIR for either a specific plan or a project.

The analyses that you do, and the topics that you address in the EIRs, would be similar.

Generally, mitigation measures that you would apply, for significant impacts, would be similar. So you'd be seeing that in your local environmental document, similar to what is in the Plan Bay Area EIR.

MR. VAUTIN: We --

MS. RUGER: MTC/ABAG doesn't have the land use authority to make, you know, those changes for implementation of the Plan.

So it would be more informative to seek those

local analyses.

MR. VAUTIN: I'll just add to what Fran said, which is, again, it's really important to remember that Plan Bay Area 2050 is a regional plan for transportation, housing, economy, and the environment. But it doesn't have local land use control.

And so we encourage the commenter and others, who are concerned about these sort of local issues, to get involved in local processes and local EIRs to really hash out future land use decisions in our cities, counties, and towns.

MS. LARA-ENRIQUEZ: Great. Thank you all.

I'm going to go ahead and close us out for today. Thank you all, who are still with us, very much for invaluable input.

If you weren't ready to make a comment today or you want to provide more-detailed comments, again, you can submit them via e-mail to our EIRcomments@BayAreaMetro.gov e-mail address, our online form, which we shared in the chat. You can send them by mail to MTC Public Information, Attention: EIR Comments, to our address, 375 Beale Street, Suite 800, San Francisco, California 941 -- excuse me -- -05, or by fax to (415) 536-9800. Let's see.

Thank you again for participating today, and sticking around with us for the two hours. If you have

any additional questions or comments that are not related to the EIR, please e-mail us at info@PlanBayArea dot.org.

We truly appreciate your participation today and all of your comments.

Thank you, and have a great day.

(WHEREUPON, the hearing concluded at 1:01 p.m.)

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CERTIFICATE OF REPORTER

I, AMBER ABREU-PEIXOTO hereby certify that said proceedings were taken in shorthand by me, a Certified Shorthand Reporter of the State of California, and were thereafter transcribed into typewriting, and that the foregoing transcript constitutes a full, true and correct report of said proceedings which took place;

That I am a disinterested person to the said action.

IN WITNESS WHEREOF, I have hereunto set my hand this 9th day of November, 2020.

Amber Abreu-Peixoto

AMBER ABREU-PEIXOTO, CSR No. 13546

From:	Roberts, Blake@DPC
To:	EIR Comments
Cc:	diane.burgis@bos.cccounty.us; sthomson@solanocounty.com; Krieg@ci.oakley.ca.us
Subject:	DPC Comment Letter on Plan Bay Area 2050 DEIR NOP
Date:	Thursday, October 29, 2020 9:17:51 AM
Attachments:	image001.png image002.png image003.png M-20-05-Plan-Bay-Area-2050_2020-10-28.pdf

External Email

Attached is a Commission comment letter on the Notice of Preparation for the Plan Bay Area 2050 Draft Environmental Impact Report (SCH #2020090519).

Please let me know if you have any questions or need anything else.

Thanks,
Blake

Blake Roberts
Senior Environmental Planner | **DELTA PROTECTION COMMISSION | STATE OF CALIFORNIA**
Coordinator **| SACRAMENTO-SAN JOAQUIN DELTA NATIONAL HERITAGE AREA**
2101 Stone Blvd., Suite 240 | West Sacramento, CA 95691
916.375.4237 office | 916.375.3962 fax | blake.roberts@delta.ca.gov | www.delta.ca.gov

*** Go to www.VisitCADelta.com to learn about events and things to do in the Delta ***

DELTA PROTECTION COMMISSION
2101 Stone Blvd., Suite 240
West Sacramento, CA 95691
(916) 375-4800 / FAX (916) 376-3962
www.delta.ca.gov

October 28, 2020

MTC Public Information
375 Beale Street, Suite 800
San Francisco, CA 94105

Re: Notice of Preparation of Plan Bay Area 2050 Draft Environmental Impact Report (SCH# 2020090519)

Dear Sir or Madam:

Thank you for providing the Delta Protection Commission (Commission) the opportunity to review the Notice of Preparation for the Draft Environmental Impact Report for the Plan Bay Area 2050 Project (Project). The Project is designed to serve as the long-range regional plan for transportation, housing, the economy, and the environment for the nine-county San Francisco Bay Area.

The Commission is a State agency charged with ensuring orderly, balanced conservation and development of Delta land resources and improved flood protection. Proposed local government projects within the Primary Zone of the Legal Delta must be consistent with the Commission's Land Use and Resource Management Plan (LURMP). Portions of Contra Costa and Solano counties are in the Primary Zone.

For those portions of Contra Costa and Solano counties that are in the Secondary Zone and outside of the Legal Delta, we submit comments under Public Resource Code Sections 29770(d) and 5852-5855 (The Great California Delta Trail Act). These sections state that the Commission may comment on projects in the Secondary Zone that impact the Primary Zone and direct the Commission to develop and adopt a plan and implementation program for a continuous regional recreational corridor extending throughout the five Delta counties linking to the San Francisco Bay Trail and Sacramento River Trail. Several of the Plan Bay Area's Priority Development Areas and Priority Production Areas fall within the Secondary Zone and could impact Primary Zone resources.

We encourage the Project EIR to consider the LURMP and its policies when assessing the Project's consistency with applicable land use plans, policies, and regulations and to discuss the Delta Trail in the recreation and transportation

setting sections. The Commission completed the Delta Trail Western Blueprint Report for Contra Costa and Solano Counties in 2010 and is currently preparing the Delta Trail Master Plan for the five-county Delta region, including Contra Costa and Solano counties. The completion of this regional trail system could help meet the guiding principles of Plan Bay Area 2050, including affordability, connection, health, and vibrancy.

We are also very interested in the preparation of the Active Transportation Plan update and would appreciate being on the mailing list once more information is available.

Thank you for the opportunity to provide input. Please contact Blake Roberts, Senior Environmental Planner, at (916) 375-4237 for any questions regarding the comments provided.

Sincerely,

Erik Vink
Executive Director

cc: Diane Burgis, Contra Costa County Board of Supervisors and Commission Member
Skip Thomson, Solano County Board of Supervisors and Commission Member
Michael Krieg, City of Oakley Councilmember and Commission Member

From: Kari Svanstrom <ksvanstrom@cityofsebastopol.org>
Sent: Thursday, November 5, 2020 5:31 PM
To: EIR Comments <eircomments@bayareametro.gov>
Subject: PBA2050 EIR Scoping comment

External Email

Thank you for the opportunity to comment on the EIR coping work for PBA2050.

I have been tracking the process throughout the project, and specifically engaged more directly with ABAG/MTC staff in the last few months.

While we support the Goals of PBA2050 and appreciate the hard work towards a sustainable future, I have some concerns related to some of the potential negative environmental impacts from the methodology that must be considered.

- Flooding hazards need to be considered. In the current methodology, additional and greatly intensified development, particularly residential development, is projected in FEMA regulatory flood plains and flood ways (100-year flood plains). Flooding is a serious issue, anticipated to get worse with climate change and more drastic swings in temperature and storms. This is evidenced by PBA2050's consideration and exclusion of intense development in areas of anticipated future sea level rise for geographies adjacent to the coast or bay, but is ignored for both existing and future flooding in other areas. This includes areas of Sonoma County, which has a combination of riverine flooding that is impacted by tidal swings (from the Russian River as well as in Petaluma) that impact the Laguna de Santa Rosa, a natural reservoir that fills with these waters every winter and, in years with significant rainfall (such as 2019), results in flooding of communities along the edge of the Laguna (such as Sebastopol, which experienced extensive impacts to the areas in flood zones in February 2019) and along the Russian River. Placing significant additional population in these existing flood hazard areas needs to be addressed and mitigated. This could be done through changes to the methodology to exclude these areas from intense development to avoid the potential environmental impacts, as has been done by PBA 2050 for areas subject to future flooding from sea level rise.
- It has come to our attention that the PBA2050 methodology also projects/plans for development within areas that have been nominated by local communities and adopted by ABAG as Priority Conservation Areas (PCAs), as well as other locally adopted/zoned Environmentally sensitive areas (environmental overlay zones, etc.). This would have a significant impact on biological resources through development within these recognized a sensitive areas, in addition to reversing the work many local communities, including Sebastopol and the Laguna Foundation, in working to restore and steward these environmental resources.
-

There are also elements that do not consider the real and intrinsic value of rural counties and communities in the Plan:

- There is an emphasis on growth percentages in rural counties and their cities (Sonoma, Napa, Solano), which have limited transit options (bus routes with 1-hour plus headways during commute times, with less frequent headways outside of these windows). Many of these areas

already have a high VMT due to the need for some of those in the community to commute to major job centers, but the inability to do this via transit. The anticipation of significant growth and intensification in rural towns and counties, especially those that currently have a balance in housing/jobs, will result in additional commuters commuting long distances/increased VMT, and increased Greenhouse Gas Emissions. Placement of significant added population in areas outside of high quality transit corridors could also result in conflicts with SB743 and BAAQMD standards, and contribute to sprawl.

- PBA2050 anticipates significant growth in unincorporated areas. For rural counties (and urban counties with large geographies that include agricultural areas such as eastern Contra Costa and Alameda Counties, this will result in additional market pressure on agricultural land through the conversion of farmland to non-agricultural uses. This would impact the sustainability of agriculture as an important element to food security as well as agricultural land preservation.
- PBA2050 does not address community-specific issues such as impacts to Public Services where Fire Depatments are mostly volunteer-staffed or infrastructure limitations such as rural road capacity, availability of sewer and municipal water, which can be exacerbated by the allocation of growth in high fire danger areas (including safety concerns such as evacuation of large swaths of the county, as has happened in Sonoma County the last 3 years in a row) and areas of flooding.

Thank you for the opportunity to comment on the project, and environmental review.

Sincerely,

Kari Svanstrom, AICP, Architect
Planning Director

City of Sebastopol | Planning Department
7120 Bodega Avenue | Sebastopol, CA 95472
(707) 823-6167 phone
www.cityofsebastopol.org

From:	Olga Bolotina
To:	EIR Comments
Cc:	Steve Birdlebough
Subject:	Sierra Club - Plan Bay Area 2050 - Comment letter
Date:	Wednesday, October 28, 2020 1:08:51 PM
Attachments:	Sierra Club_PBA 2020_Comment letter_10.28.20.pdf

External Email

Dear members of the review team,

Hope this message finds you well despite all the adversities that this year keeps bringing. Thank you for your work and for taking the time to review and give serious consideration to our comments submitted in the attached document.

Please don't hesitate to contact Steve Birdlebough, Transportation Chair for the Redwood Chapter at scbaffirm@gmail.com (707)576-6632 if you have any questions regarding our comments.

Thank you!

With warm wishes,

Olga

Olga A. Bolotina
Chair, Sierra Club SF Bay Chapter;
[redacted]

October 28, 2020

MTC Public Information
Suite 800
375 Beale Street
San Francisco 94105
Via email to: eircomments@bayareametro.gov

Re: Notice of Preparation of an Environmental Impact Report for Plan Bay Area 2050

To Whom It May Concern:

On behalf of our nearly 60,000 members in the nine Bay Area counties, the Sierra Club submits these comments and questions regarding the Notice of Preparation for the long–range regional plan for transportation, housing, the economy and the environment known as Plan Bay Area 2050.

The Sierra Club recognizes and supports the efforts by ABAG/MTC staff to achieve the Greenhouse Gas (GHG) emissions reductions required by SB 375 and the guidelines established by the Air Resources Board (ARB). It is crucial that MTC Commissioners and ABAG officials also recognize and act to achieve their regional responsibilities.

Comments and Questions

Please document for the public what has been achieved, since the adoption of Plan Bay Area 2040, to reduce GHG emissions, both in total and per capita. Please provide this information both for the Region as a whole, and by County.

Regarding the Blueprint's 35 integrated strategies (e.g., "improve interchanges and address highway bottlenecks"), please provide information for each as to the changes expected to be achieved in both GHG emissions per capita and vehicle miles traveled (VMT) by cars and light trucks.

Please also provide information about the implementation schedule for each of the 35 strategies that indicates, for each strategy, when it is to begin and when it will be

accomplished. What prioritization does MTC/ABAG place on each strategy in achieving GHG reductions? In achieving regional Equity?

By the year 2050, it is likely that increases in the number of extreme storms and extended fire seasons, together with rising sea levels and storm surges will impact important segments of the Bay Area's transportation system and adjacent communities. Please consider strategies to address such changes.

Please discuss potential benefits toward compliance with SB375 if mandatory limits are established within permitting authorities relative to jobs-housing balances and imbalances.

How will PBA 2050 incorporate other key studies underway or soon-to-be published for public comment? Examples include, but are not limited to Valley Link DEIR, California Transportation Plan, SR-37 improvements, and the High Speed Rail DEIR.

Please identify the baseline for the Building Industry Association's settlement agreement of "no net increase in inter–regional commuting." What is the current level, and how is it calculated?

Please provide information about how MTC and ABAG will work to make the Priority Development Areas (PDAs) a success as soon as possible. This includes having adequate housing built to accommodate households that want to live in the region and not facilitating any increase in interregional commuting. It also means that PDA communities achieve the criteria for designation, including dependable levels of transit service, adequate amenities, and contribute meaningfully to PBA's Vision of a Bay Area Region that is Affordable, Connected, Diverse, Healthy, and Vibrant.

PDAs almost certainly will result in significant environmental impacts if they are located on the Bay shoreline adjacent to shallow water habitats. Such developments may propose sea walls or other hard edge protections against sea level rise (SLR). Please assess these potential impacts. Also, please assess the potential impacts of already designated shoreline PDAs if they have not yet begun to be constructed and consider "avoidance and mitigation" alternatives as required by CEQA.

Existing and new PDAs that will need adaptation to SLR should consider natural solutions such as "living shorelines" and "horizontal levees" as well as other natural adaptations. The EIR should consider these adaptation tools as mitigation for the impacts that would occur with hard-edged solutions.

An essential mitigation is the development and adoption of specific criteria for PDAs that prevents the placement of PDAs in locations that are presently undeveloped but that will likely be inundated in the future. This will provide an "avoidance" alternative as required by CEQA for projects with avoidable impacts. For this purpose, such locations should be

identified using a base of 3.5 feet of sea level rise with the additional estimation of impacts that would result due to heavy rainfall, high tides and storm surges, including those under extreme storm conditions.

Given that local priorities will often diverge from regional ones, it is important that a strong regional oversight prevail. If hard-edged solutions become too prevalent there is the danger that natural solutions will be minimized and the Bay will become void of a natural shoreline. This would be an unavoidable impact since there is no mitigation for such an outcome. Please describe the means to prevent this outcome.

Please describe the criteria whereby PDAs will also improve the Jobs/Housing balance, avoid pollution and sprawl, and further Equity and Inclusion for all populations.

Will new PDAs, beyond those currently identified, be considered for the current Plan? If so, please explain.

Please provide information about what MTC and ABAG will do to make the Priority Conservation Areas (PCAs) successful, including protections of wildlife, habitat, and open space, and in addressing SLR.

The California Ocean Protection Council recently released a set of Principles for how local governments and other agencies should approach the issue of Sea Level Rise. One of the principles states that all planning efforts should "…Utilize SLR targets based on the best available science and a minimum of 3.5 feet of SLR by 2050…" (http://www.opc.ca.gov/webmaster/_media_library/2020/05/State-SLR-principles_FINAL_April-2020.pdf).

Please acknowledge that the impacts of SLR will be further exacerbated by increases in the number of extreme storms. Additionally, every-day high tides as well as King Tides and storm water runoff will add substantial flooding to the Bay's basic SLR of 3.5-feet. Such flooding will significantly impact infrastructure, housing, and the economy, in addition to impacts on shallow water habitats such as eelgrass beds, tidal flats (mudflats), salt and brackish tidal marshes, transition zones and adjacent uplands.

Areas of shallow water protect communities from flooding by reducing wave energy and thus reducing storm surges. These areas are also significant in their ability to sequester carbon and thus reduce greenhouse gasses.

Shallow water provides very productive aquatic habitats, essential for sustaining the great diversity of life that is present in and dependent upon a healthy Bay ecosystem. The Western Hemisphere Shorebird Reserve Network has identified San Francisco Bay as a shorebird habitat of hemispheric importance. Many other waterbird species, as well as fish, shellfish and other invertebrates thrive in these habitats.

Please acknowledge that SLR threatens to drown these habitats and make the Bay a dramatically much less diverse and productive aquatic ecosystem by denying these creatures living space, while threatening to release the CO2 sequestered by the Bay's tidal marshes.

Please recognize that the unavoidable extraordinary rise of Bay waters threatens shoreline communities as well as the Bay's internationally important aquatic resources. What steps will be taken to prevent any new shoreline developments from causing significant environmental impacts if they call for hard edge protection against inundation and flooding? This will, in turn, direct wave energy and erosional forces towards any adjacent shallow water habitats, including beaches, thus threatening these aquatic features with significant harm of drowning or erosion. Hard edge solutions will also prevent any landward migration of mudflats and wetlands. Such landward movement would otherwise allow these habitats to adapt to sea level rise.

Please consider acquisition of uplands adjacent to tidal marshes and flats (mudflats) in order to provide for tidal marsh transgression/migration (i.e., managed retreat) as an essential mitigation tool for PBA 2050 impacts. Identify likely funding for these purposes.

Please identify transportation policies of PBA 2050 that are likely to result in significant environmental impacts. For example, a new southern trans-Bay crossing would in all likelihood impact significant tidal flat and tidal marsh habitats including those in the Don Edwards San Francisco Bay National Wildlife Refuge. This may result in the release of sequestered Greenhouse Gasses and impact many tidal flat and tidal marsh invertebrate and wildlife species including several species listed as threatened or endangered. Any such project would likely entail substantial impacts to tidal marshes and possibly mudflats. Specify likely impacts and appropriate avoidance or mitigation measures.

Please identify any new roads along the shoreline that may have significant impacts if they require hard-edged shoreline protections. Considering a 3.5-foot SLR within the timeframe of this PBA the impacts of necessary protections or redesign of existing roads that come under the RTP (e.g., Hwy 37 in the north Bay) should be analyzed including potential avoidance and mitigation measures.

Implementing Bay-wide SLR adaptation efforts will be costly (estimates are in the billions of dollars) and well beyond the sole capacity of most local governments. Please identify the funding sources and mechanisms that are essential to implement likely SLR adaptations. In particular, identify the sources of funding essential to address the needs of the disadvantaged communities that will face Sea level rise issues.

What information will be included in the EIR to ensure that all Bay Area residents have access to adequate supplies of clean, affordable and safe water?

Future fresh water supplies for the Bay Area are highly uncertain as we face a changing climate. How will the EIR address the need for truly resilient Bay Area fresh water supplies, with multiple, redundant and diverse sources?

A central PBA objective states that we should "Reduce our Impact on the Environment." Water diversions for human use have had and continue to have significant negative impacts on the environment. How will the EIR address the negative impacts of these water diversions? What plans are included to reduce diversions by implementing well-understood policies such as water reuse, recycling and conservation?

How will the Delta Reform Act be incorporated into the regulatory framework of the DEIR and the Implementation Plan?

Alternatives Requested for Consideration

For many months, the listing of transportation programs and projects to be included in PBA 2050 was identified as "financially constrained" in accordance with federal planning requirements. Recently, an expanded project list was developed, with many proposed projects to be funded by an as-yet-unspecified "mega–measure." Please identify and evaluate a financially constrained project list.

Another alternative would be to consider a regional growth rate less than currently anticipated in the Regional Growth Framework and the RHNA assignments under review. Using population and housing-units assumptions lower than currently being considered could provide an interesting comparison and potentially improve ABAG projections, especially in post-Covid times. The work of the Embarcadero Institute has been suggested as a source for comparison. Further, housing goals should be focused on infill and density, and not contribute to sprawl.

Implementation Plan

We think it would be very helpful during the implementation of Plan Bay Area 2050 to have MTC/ABAG staff make a formal presentation to each City Council and Board of Supervisors in the Bay Area on SB 375 and its required Sustainable Communities Strategy for our region. Elected officials and other decision makers could greatly benefit from learning more about SB 375, why there is a need for that law and what it is supposed to accomplish. Further, MTC/ABAG staff could discuss lessons learned from the first two four–year SCSs and why they were considered not successful, according to the Air Resources Board. Are presentations to local jurisdictions anticipated as part of the Implementation Plan? If not, why not?

The Sierra Club looks forward to your incorporating these issues and concerns into the Environmental Impact Report for Plan Bay Area 2050 as well as into the Implementation Plan Report. We appreciate your attention to our comments. If you have any questions, or

desire any clarification of these matters, please contact us via Steve Birdlebough, Transportation Chair for the Redwood Chapter at scbaffirm@gmail.com (707)576-6632.

Sincerely,

Bruce Rienzo, Chair Loma Prieta Chapter

Olga Bolotina, Chair San Francisco Bay Chapter

Victoria Brandon, Chair Redwood Chapter

From:	Joshua Quigley
To:	EIR Comments; Adam Noelting
Cc:	Allison Chan; Shelana deSilva; Zoe Siegel
Subject:	Plan Bay Area 2050 Draft EIR Comment Letter from Together Bay Area, Save The Bay, & Greenbelt Alliance
Date:	Wednesday, October 28, 2020 2:11:42 PM
Attachments:	Outlook-2hci3uqx.png PBA 2050 EIR Comment Letter.pdf

External Email

Attached is a joint comment letter from Together Bay Area, Save The Bay, and the Greenbelt Alliance for the Plan Bay Area 2050 Draft EIR. Please contact me with any questions related to this letter or its contents.

Thanks,

Josh Quigley
Policy Manager,
Save The Bay
www.saveSFbay.org | @saveSFbay

Join the Bay Day Trail Challenge
October 1 - 31

October 28, 2020

Therese McMillan, Executive Director
Metropolitan Transportation Commission
375 Beale Street, Suite 800
San Francisco, CA 94105

Ms. McMillan:

Climate change and the associated increasing risks, such as sea level rise and catastrophic wildfire, must be addressed decisively as we look to the future of the Bay Area and assess both the opportunities and challenges of growth in the coming decades. We learned through the Horizon Futures analysis that Plan Bay Area 2040's failure to prioritize climate adaptation left much of our region susceptible to climate hazards. Plan Bay Area (PBA) 2050 offers an opportunity to correct this problem.

Our organizations have reviewed the draft Plan Bay Area 2050 Blueprint, and we appreciate the fact that the Metropolitan Transportation Commission (MTC) has included environmental considerations among the core strategies of the plan. PBA 2050 includes many critically important policies that will make the Bay Area far better suited to meet the needs of future growth. However, for PBA 2050, climate adaptation and mitigation must be a driving criterion for all decision-making, including housing, transportation, and environmental programs, funding, and the development of implementation actions.

MTC's Environmental Impact Report (EIR) for PBA 2050 should explicitly evaluate and prioritize projects that meet our region's needs for housing, transportation, and jobs in ways that anticipate and mitigate climate risks. For example, transportation infrastructure is particularly susceptible to climate impacts, and funding should be prioritized for projects that realize the compatible benefits of transportation efficiency and climate resilience. Additionally, housing development projects that do not take into account the risk of inland flooding, urban heat, and wildfire in the wildland-urban interface, will put communities at greater risk.

This emphasis on projects that provide climate resilience enhancements should also focus on natural solutions rather than an over-reliance on engineering. Natural solutions provide multiple benefits beyond the immediate risk they are designed to address. For example, wetland restoration not only provides flood protection, but also creates wildlife habitat, provides outdoor recreation opportunities, and sequesters carbon. These types of complementary benefits make natural solutions a more versatile tool for climate resilience.

Therefore, we recommend and request that the EIR's reasonable range of alternatives for meeting the project's objectives should include a "climate smart" alternative that incorporates

climate mitigation and adaptation measures into all PBA 2050 strategies. This alternative should include, but not be limited to, the following:

- **Plan for additional sea-level rise.**
    - Utilize the California Ocean Protection Council's *Strategic Plan to Protect Protect California's Coast and Ocean 2020–2025* which includes a target to "ensure California's coast is resilient to at least 3.5 feet of sea-level rise by 2050."

- **Prioritize catastrophic wildfire prevention and mitigation.**
    - Foster effective regional wildfire planning and coordination, as wildfires do not distinguish between municipal boundaries.
    - Utilize forest health actions and active ecological management of fuels in the wildland-urban interface to reduce wildfire risk.
    - Create effective defensible space around structures and promote home hardening.
    - Avoid building outside of the Urban Growth Boundary and in fire-prone areas.

- **Utilize high value conservation lands for both adaptation and mitigation purposes**,
    - Use and expand urban growth boundaries as fire reduction strategies.
    - Review and update the One Bay Area Grant program and increase funding.
    - Leverage existing conservation information and analysis into MTC/ABAG processes, including Bay Area Greenprint and Conservation Lands Network.
    - Implement Regional Advance Mitigation Planning.

- **Implement urban greening strategies.**
    - Include an urban greening strategy that utilizes nature-based, multi-benefit infrastructure to protect inland/upstream communities from flooding and climate-induced wildfires, and that generate co-benefits such as clean drinking water, food security, improved air quality, wildfire resilience, carbon sequestration, urban habitat, beautification, and educating communities about their connection to the Bay.
    - For example, creating alternative/active transportation corridors, public access, and outdoor recreation projects improves quality of life overall in the Bay Area, while greening our streets, providing habitat for native species, and in some cases attenuating stormwater to protect communities and infrastructure from floods.

- **Set significant greenhouse gas (GHG) reduction targets.**
    - Commit to net negative GHG emissions by 2030.
    - Estimate the GHG emissions reduction benefits of natural and working lands and urban greening projects; incorporate into GHG reduction strategy.
    - Don't rely on employer mandated work-from-home policies to meet these goals.
    - Prioritize multi-benefit projects that connect communities to transit via active transportation corridors and sustainable trails, for example.

- **Overhaul the Priority Conservation Area program.**
    - Revamp the PCA program to have a broader and integrated impact on adaptation regionally, and to enable MTC to prioritize projects benefiting communities of concern (COCs), including implementing PBA environmental policies.
    - Increase the frequency of the PCA grant cycle, and double its funding to $38 million to truly prioritize projects that implement PBA environmental policies.
    - Consider re-structuring the PCA program to emulate the CA Strategic Growth Council's Sustainable Agricultural Land Conservation funding Program (SALC) to link strategic protection and restoration of natural and working lands with climate mitigation, adaptation, and resilience.

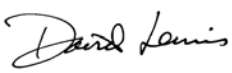
In addition to better preparing the region for climate change, this "climate smart" alternative should also enhance equity within the Bay Area. Pollution and climate risk are not equitably distributed, with COCs shouldering a larger burden of the health and safety risks. By planning for and mitigating these risks in all elements, a "climate smart" PBA 2050 has the opportunity to foster a more equitable Bay Area.

There is also a significant financial justification for expanding mitigation into all aspects of PBA 2050's strategies. The costs to taxpayers to fund mitigation upfront rather than emergency response in the face of disaster is significantly lower. A 2017 report by the National Institute of Building Sciences found that for every dollar invested in disaster mitigation by federal agencies, society saves six dollars. When considering the scale of investment that PBA 2050 is proposing, "climate smart" projects will be safer long-term investments than projects that fail to fully assess and actively reduce the overall risk of catastrophic damage to the Bay Area from climate change.

The changes to our environment and the risks to our communities due to climate change do not exist in distinct silos. Therefore our strategies for mitigating them must be similarly cross-disciplinary. By considering a "climate smart" alternative, MTC will demonstrate the ways in which PBA 2050 can better accommodate the reality of climate change in the Bay Area over the next 30 years. Taken together, the strategies in this "climate smart" alternative will better meet PBA 2050's goals of providing for a future that is affordable, connected, healthy, diverse, and vibrant for all.

Sincerely,

Annie Burke
Executive Director
TOGETHER Bay Area



David Lewis
Executive Director
Save The Bay

Amanda Brown-Stevens
Executive Director
Greenbelt Alliance

From:	CCCR
To:	EIR Comments
Subject:	Citizens Committee to Complete the Refuge scoping comments for Plan Bay Area 2050
Date:	Wednesday, October 28, 2020 3:06:16 PM
Attachments:	CCCR scoping comments.pdf

External Email

Dear Plan Bay Area 2050 Staff,
Please find attached scoping comments submitted on behalf of the Citizens Committee to Complete the Refuge the the Plan Bay Area 2050 draft environmental impact report.

We would appreciate it if you could add our email address to the list of interested parties and that we be kept informed of any future opportunities for public review and comment periods.

We would also appreciate acknowledgement of receipt of our comment letter.

Respectfully,
Carin High
CCCR Co-Chair

Citizens Committee to Complete the Refuge

P.O. Box 23957, San Jose, CA 95153 Tel: 650-493-5540 Email: cccrrefuge@gmail.com wwsw.bayrefuge.org

Comment letter submitted via electronic mail only to: eircomments@bayareametro.gov

MTC Public Information
Attn: EIR Comments
375 Beale Street, Suite 800
San Francisco, CA 94105

Re: Draft Environmental Impact Report for Plan Bay Area 2050 (*Regional Transportation Plan/Sustainable Communities Strategy for the Nine-County San Francisco Bay Area)*

Dear Mr. Noelting,

The Citizens Committee to Complete the Refuge appreciates the opportunity to provide scoping comments for the Draft Environmental Impact Report (DEIR) for Plan Bay Area 2050 (PBA 2050). CCCR applauds elements of the Draft Plan Bay Area that recognize societal inequities and strategies that focus on resolving economic, transportation and quality of life challenges that face large segments of Bay Area residents.

The Citizens Committee to Complete the Refuge (CCCR) has a long-standing interest in the protection, restoration, and acquisition of San Francisco Bay wetlands; as such the focus of our comments is on biological resources and in particular on the interface of Plan Bay Area 2050 with lands along the edges of San Francisco Bay.

CCCR was originally formed in 1965 by a group of citizens who became alarmed at the degradation of the Bay and its wetlands. We joined together, and with the support of Congressman Don Edwards, requested that Congress establish a wildlife refuge. The process took seven long years and in 1972 legislation was passed to form the San Francisco Bay National Wildlife Refuge, the first national wildlife refuge in an urban area. In 1988, Congress authorized expansion of the refuge boundary to potentially double the original size. Our membership is approximately 2,000 people and we have the support of 40 local and national organizations-- including open space advocates, hunters and environmental groups.

Our organization has taken an active interest in the protection of the baylands of San Francisco Bay, the health and biodiversity of San Francisco Bay ecosystems, protection of wetlands and endangered species and the habitats that support them, the watersheds that support Bay ecosystems and public education regarding the value of these resources. As such, the focus of our comments center on biological resource issues that have only been briefly hinted at in the preceding Horizon and Blueprint documents, but require consideration in the DEIR even at a programmatic level of review. We appreciate and commend the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) for incorporating an “Environment Element” into the 2050 Plan Bay Area document and that issues such as conservation and climate change will be considered within the Environment Element.

Tiering off the Plan Bay Area 2050 Programmatic DEIR:

The October 15, 2020 scoping presentation, available online states:

> "The EIR will assess and disclose the potential environmental effects of implementing the strategies encompassing the Final Blueprint for Plan Bay Area 2050 adopted by MTC and ABAG in September, and as described earlier in the presentation.
>
> Specifically, the EIR will assess the potential direct and indirect environmental impacts of implementing the regional pattern of household and employment growth and implementing the transportation and resilience investments.
>
> The EIR will present a programmatic assessment of Plan Bay Area 2050 focusing on the set of strategies or projects encompassing the Final Blueprint. Individual strategy or project impacts will not be addressed in detail, rather the focus of the EIR will be on Plan Bay Area 2050's entire program of strategies and projects. While the analysis in the EIR will not assess project specific impacts of individual strategies or projects the EIR will provide the environmental analysis and mitigation that is intended to address the range of impacts and mitigation associated with individual projects. [emphasis added]

The Notice of Preparation (NOP) requests, "If you represent an agency that may rely upon the EIR for project approval and/or tiering, MTC and ABAG are particularly interested in what information may be helpful for these purposes."

The 2050 DEIR should clarify the extent to which it is anticipated local planning entities and agencies will be able to "tier" off the DEIR for future California Environmental Quality Act (CEQA) environmental reviews. The DEIR should identify if there are situations under which a local planning entity or agency could rely upon the programmatic DEIR such that the public and regulatory and resource agencies might be precluded from reviewing and commenting on projects identified through the Plan Bay Area 2050 process (e.g. through the use of an exemption or EIR addendum).

Climate Change:

One of the most catastrophic threats to existing communities, infrastructure and ecosystems of the Bay Area is climate change. Unlike earthquakes, the threat of climate change related issues such as sea level rise, can be anticipated and to some degree, avoided or mitigated.

Plan Bay Area 2040 evaluated the impacts of 2' of sea level rise by 2050. In September 2020, MTC and ABAG released a document entitled, "*Plan Bay Area 2050 and Sea Level Rise Adaptation: How is MTC/ABAG integrating this critical issue into the next-generation regional plan*?" The document identifies "Adapt to Sea Level Rise" as one of the key environmental strategies that will be integrated to "ensure the region recognizes and addresses future shoreline flooding challenges." There are sea level rise exposures proposed for 2' of sea level rise by 2050 and 3' of sea level rise to account for annual storm and king tide events. The 3' of sea level rise is assumed to "determine where proactive adaptation actions were most needed to inform the financial need for future adaptation."

In April 2020, a document developed by State and regional agencies was released by the California Ocean Protection Council (OPC), "*Making California's Coast Resilient to Sea-Level Rise: Principles for Aligned State Action.*" One of the guiding principles identified is the adoption of a "minimum SLR estimate of 3.5 feet by 2050" for planning purposes. The background section of this document states, "California's coast faces a significant risk of experiencing SLR up to 1.0 feet by 2030 and 7.6 feet by 2100." Therefore, for the thirty-year planning window proposed for Plan Bay Area 2050, we recommend 3.5' of sea level rise be utilized to assess financial need for future adaptation for existing development and infrastructure, and for development that can be constructed in a manner that can be resilient to greater sea level rise or

can be relocated. For proposed transportation projects, we urge MTC/ABAG to evaluate the 7.6' sea level rise anticipated by the OPC guidance document. Furthermore, ground subsidence, low elevations of roadways and infrastructure, and paving of watershed lands, means that flooding will come from upland areas as well. It should be expected that major roadways, rail, BART, etc. due to the costs in time and money of implementing these projects, and the disruption and financial burdens that would result should transit projects require relocation, that such projects would have a service life of greater than 30 years.

The Plan Bay Area 2050 workshop that introduced the Environment Element of the plan, emphasized that the four core areas – housing, transportation, economy and environment – are inextricably linked. Looking at an issue such as sea level rise, one can see how sea level rise can have a cascade effect that not only impacts mobility throughout the Bay Area, the communities where we live and the Bay Area's economy, it also has significant and adverse environmental ramifications for natural resources such as tidal marshes and the Bay's diverse ecosystems – adverse ramifications that will be seriously exacerbated if siting of housing, work places, transit, recreational facilities, etc. do not take into consideration the need for tidal marshes to move upslope as sea level rises. Protection of baylands is crucial to the health and vitality of San Francisco Bay, yet the significance of losing these vital habitats is barely discussed in the Horizon and Blueprint documents, these documents fail to adequately consider the adverse impacts of sea level rise particularly where development or infrastructure restricts the ability of baylands to migrate upslope.

The DEIR should evaluate the impacts of sea level rise not only on Priority Development Areas (PDAs), Priority Production Areas (PPAs), transit and recreational facilities, but also on the ability of tidal marshes to move upslope. The DEIR should assess whether elements of the Plan such as PDAs, PPAs, etc. restrict the ability of tidal marshes to migrate upslope.

The Plan Bay Area 2050 website has a map titled "Plan Bay Area 2050 Growth Geographies." That map depicts a conceptual mapping of the Priority Development Areas, Priority Production Areas, Transit Rich Areas, High Resource Areas with Basic Bus Service and other transit information. The fine print in the legend states in part, "The following areas are excluded from the map: Wildland urban interface areas; Areas of unmitigated sea level rise (i.e. areas at risk from sea level rise through year 2050 that lack mitigation strategies in Plan Bay Area 2050 Environment Element)..." Mapping that depicts "areas at risk from sea level rise through year 2050" and 2100 should be included in the DEIR. Decision-makers and the public should be provided this information to understand the magnitude of risks posed by locating PDAs and PPAs in areas vulnerable to flood risk, and to weigh those risks and costs of future protection when there is already so much existing infrastructure that is at risk of sea level rise inundation that already requires costly mitigation measures to remediate that risk.

Nature-based sea level rise adaptation:

We commend Plan Bay Area 2050 for discussing nature-based solutions (in the September 2020 sea level rise document mentioned above) as a means of providing sea level rise resilience for Bay Area communities. The DEIR should include a discussion of nature-based sea level rise solutions as described in the Bayland Ecosystem Habitat Goals Update and the San Francisco Bay Shorelines Adaptation Atlas. Since Plan Bay Area 2050 is a regional roadmap for transit, housing and development within the Bay Area, and is a document that will be referred to by local planning entities, the DEIR should also include a brief description of Operational Landscape Units as described in the Adaptation Atlas to emphasize the fact that nature-based solutions must be selected to address the needs of the specific region being studied as opposed to a one-size fits all approach.

As Plan Bay Area 2050 is a regional roadmap for transit, housing and development within the Bay Area the DEIR should also discuss the necessity of coordinating sea level rise adaptation throughout the region. The CHARG website states:

> "The effects of climate change and sea level rise in San Francisco Bay pose a significant regional challenge. As a sheltered estuary, in contrast to the open coast, flooding and local actions along one part of the shoreline can affect water levels in other parts of the Bay, all the way to the Sacramento-San Joaquin Delta. Adapting to sea level changes without a complete picture of our interconnectedness could create unintended flooding with ecological, economic, and social consequences. Coordinating adaptation solutions will ultimately benefit all communities connected to the Bay."

The July 2020, "*Plan Bay Area 2050 Draft Blueprint: Key Findings,"* states on page 20, entitled "Draft Blueprint: Sea Level Rise Projections," that there will be "100,000 acres of marsh adaptation projects." Where does this figure come from? Is this figure of 100,000 acres the figure that was set as a target for tidal marsh restoration in the original Bay Goals Project? The DEIR should discuss whether this figure is adequate to protect the 89,000 units identified to be at risk and the 166,000 jobs threatened, or if additional marsh restoration/adaptation will be required, and how this will be tracked?

While on this page of the document (p. 20 of the July 2020 findings), we would like to reiterate that the 2020 OPC guidance recommends planning for 3.5' of sea level rise by 2050, not 2'. Are all major highway and rail corridors protected at 3.5' of sea level rise? And what of the OPC guidance of planning for 7.6' of sea level rise by 2100?

Bay Crossing Concepts:

The November 2019 "Crossings Transformative Investments for an Uncertain Future," reviewed seven potential Bay transit crossings, Figure 2 of the document provided a map of Crossing Concepts and included, but did not evaluate a Dumbarton Rail project, SMART to Richmond and Solano County, a possible replacement of the Richmond-San Rafael Bridge and State Route 37 elevation and widening project. Of the seven crossings projects analyzed, it appears Crossing Concepts 3, 4, and 5 are the preferred concepts. We reiterate our earlier comments that it is inappropriate to evaluate sea level rise resilience based upon a thirty-year project lifespan – resilience should instead be analyzed at least to the end of the century – 2100. If that is the case, the anticipated estimates utilized of 1', 2' and 3' of sea level rise are woefully inadequate to assess the resilience of a Crossing Concept. The OPC document referenced earlier recommends planning for sea level rise of 7.6' by 2100, at minimum, this is the figure that should be utilized for transit projects, PDAs, PPAs and PTAs.

The Crossings document, poses the question, "Do the proposed crossings align with Horizon's Guiding Principles? Under the criteria of "Healthy" the table states:

> "The region's natural resources, open space, clean water and clean air are conserved – the region actively reduces its environmental footprint and protects residents from environmental impacts."

In the column next to the text above, the table states," Does the project significantly increase emissions or collisions?" While emissions relate to the question of clean air and thus are appropriately considered under the Environment Element, what is the relationship of "collisions" to the environment? Also, why is there no mention of the potential impacts to natural resources, open space and clean water?

The DEIR should assess the direct and indirect impacts of each of the Crossing Concepts to be considered, on the natural environment. While we recognize that this is a programmatic level EIR and individual projects will not be evaluated, the DEIR still needs to provide information for decision-makers and the public regarding the impacts to habitats, species and the Bay ecosystem, to help inform the selection of an appropriate Crossing Concept. An appropriate Crossing Concept cannot be determined without consideration of its impacts to Bay Area biological resources. Failure to do so, denies decision-makers and the public the opportunity to assess the impacts of this regional plan will have on ecosystem services provided by tidal wetland systems. Furthermore, it should not be assumed that impacts to biological resources can be mitigated.

Biological Resources:

Horizon Perspective 3 "Regional Growth Strategies" states one of its five principles is "The region's natural resources, open space, clean water and clean air are conserved – the region actively reduces its environmental footprint and protect residents from environmental impacts." The PBA 2050 DEIR should describe how natural resources, including biodiversity and clean water will be conserved under PBA 2050.

Under "challenges" mentioned in this paper, nothing is mentioned about the challenge of preserving tidal wetlands or the biodiversity of the Bay as sea level rises. The challenge of preserving tidal wetland systems and the services they provide as well as preserving the biodiversity of the Bay as sea level rises should be discussed within the DEIR. The siting of PDAs, PPAs, transit projects and recreational elements of the Plan should be evaluated to determine whether these areas will restrict the upslope migration of tidal wetlands on undeveloped shorelines.

The DEIR for Plan Bay Area 2040 provided maps depicting the approximate locations of sensitive biological resources and critical habitat for listed species within the nine Bay Area counties. Appendix K of that document included tables that provided worse-case scenario estimates of acreages of critical species habitat that intersects growth footprints by county and Transit Priority Areas (TPAs) and indicated the species and acreages of intersection (Table K-5). Appendix K also provided a list of transportation projects that intersect California Natural Diversity Data Base (CNDDB) special-status species occurrences by County (Table K-2), provided estimates of acreage of intersection per project (Table K-3), acreages of impacts of land use growth footprints that overlap with NWI-mapped wetland features by county (Table K-6), estimates of worst-case scenario impacts to NWI-mapped features by transit project (no table identification), acres of essential connectivity areas that intersect transportation projects (Table K-10). The information provided in Appendix K of the 2040 Plan Bay Area EIR is useful in understanding the magnitude of impacts to Bay Area biological resources, but not the significance of those impacts.

Mapping similar to that which provided the worst-case scenario estimates in Appendix K of the 2040 Plan Bay Area EIR, should be provided in the 2050 DEIR. This would allow decision-makers and the public to assess the significance of the regional impacts and provide comments regarding avoidance and mitigation. As an example, the table that describes worst-case scenario estimates of impacts to water features, reports a total of approximately 2,600 acres of impacts to Estuarine and Marine Deepwater, however, the project labels provide little insight into where within the Bay ecosystem these impacts may occur and because the projects are reported by county we have no quick assessment of the overall impact of a proposed project – as an example, 90 acres of impacts are estimated for the "North Bay Ferry Service Enhancement" in Solano County, approximately 220 acres of impacts are estimated for "North Bay Ferry Service" in San Francisco County, and approximately 350 acres of impacts are estimated for "North Bay Ferry Service" in Contra Costa County, totaling approximately 660 acres of potential impacts from the "North Bay Ferry Service" within the Bay. Because the information is provided only as numbers in a table, we don't know if these acreages include impacts to potential diving duck habitat, areas frequented by marine mammals, areas that support eelgrass beds, etc. so the significance of these impacts cannot be ascertained, measures that could avoid impacts to sensitive species or habitats cannot be provided, and appropriate mitigation measures suggested. We have selected the ferry service project as an example because it is a regional transit strategy that has yet to provide avoidance or mitigation measures at the project level for potentially significant adverse impacts to aquatic resources (e.g. erosion of tidal marsh due wave action created by the ferries), or disturbance to marine mammal and birds including listed and protected species. If this is a transit strategy that is incorporated into Plan Bay Area 2050 as a means of reducing greenhouse gas emissions, then standards for avoidance and mitigation measures need to be provided at the programmatic level. Providing maps that depict the intersection of PDAs, PPAs, PTAs, etc. with sensitive habitats, species, connectivity corridors, etc. in addition to the format utilized in Appendix K, will provide a more complete picture of the potential impacts that might arise as well as cumulative impacts of the regional plan on Bay Area biological resources, and will enable agencies and the public to provide more substantive comments.

Objective #9 of the Draft Blueprint, "Reduce Our Impact on the Environment" is an admirable objective and one CCCR fully supports. However, the strategies are largely silent on one of our greatest concerns, that of preserving the biodiversity of the Bay's ecosystems and ensuring they are sustainable into the future particularly in light of ever-increasing rates of predicted sea level rise on the bayward side and by hardscape and development on the landward side. Without the ability to migrate upslope these tidal wetland systems will drown. Though five strategies are listed under "Environmental Strategies," there is only one that is not human centric – "Protect High-Value Conservation Lands." The Blueprint says this is to be accomplished through provision of "strategic matching funds to help conserve high-priority natural and agricultural lands, including but not limited to Priority Conservation Areas." [emphasis added] The DEIR should discuss how "high-priority natural lands" will be identified. What criteria would be used to determine if sites are "high-priority" natural lands? Undeveloped sites along the edges of the Bay that could support tidal marsh migration should be considered "high-priority natural lands." Sites that support critical habitat, or have been identified in U.S. Fish and Wildlife Service recovery plans should be considered "high-priority natural lands." Sites that are located within identified connectivity corridors should be considered "high-priority natural lands."

As we have stated in comments regarding the Draft Blueprint, one of the major concerns we have had with previous iterations of Plan Bay Area has been the emphasis on PCAs as the focus of resource protection. MTC describes PCAs as "areas of importance for conservation to retain and enhance the natural environment that are key to the quality of life enjoyed by the region's residents and visitors and the region's ecological diversity." Sadly, the PCA identification process has proven inadequate and many areas of importance for conservation have not been identified as PCAs. We have commented that the PCA framework was established through a fundamentally flawed process, based more on political consensus than science. It has been a process that has left some of the Bay Area's more important natural and remaining undeveloped lands unprotected from increasing threats from urban development. The PCA process has failed to identify as PCAs baylands and wildlife habitats identified and documented by scientists and federal, state and regional resource agencies as being regionally significant to the health of the San Francisco Bay Estuary - baylands that also face imminent threats of urban development. Specific important sites for protection and restoration are well documented in the:

- *Baylands Ecosystem Habitat Goals* (and update) - a report of recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project (originally published in 1999 US EPA and SFBRWQCB and updated in 2015),
- *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* published by the U.S. Fish and Wildlife Service in 2013 – a report that identified lands important for tidal marsh habitat and listed and rare species of that ecosystem,
- the 2012 Comprehensive Conservation Plan by U.S. Fish and Wildlife Service and the approved Potential Additions boundary for the Don Edwards San Francisco Bay National Wildlife Refuge.

The March 2020 final report for *Adapting to Rising Tides Bay Regional Sea Level Rise Vulnerability and Adaptation Study*, recognizes the limitations of PCAs in the following Key Takeaway:

> "PCAs only contribute to a portion of the recreation, ecosystem services, and agricultural uses in the Bay Area. Lands within the Bay Area Protected Areas Database and natural lands outside of PCAs that do not have any protected status offer more recreation than PCAs, more groundwater recharge and peak flow retention that PCAs, and more brown pelican, depressional wetlands, heron & egret habitat, lagoon, native oyster, pinniped, playa, Ridgway's rail, rocky intertidal, sandy gravel beaches, southern sea otter, transition zone, tidal flat, tidal marsh, and vernal pool habitat than PCAs."[emphasis added]

The report further states under a discussion of "Limitations" of PCAs that:

> "...because PCAs are locally nominated by jurisdictions, they also represent places that local jurisdictions are willing to forego development. This may not always overlap with the areas within these cities or counties that are most important for conservation, restoration, or preservation." [emphasis added]

It is crucial if we are to ensure the long-term sustainability of the Bay's ecosystems and biodiversity that the Blueprint and Plan Bay Area 2050 look beyond the political constructs of PCAs when determining lands that are worthy of protection.

We are encouraged that the Draft Blueprint acknowledges that lands that have not been labeled as Priority Conservation Areas (PCAs) may have high conservation value, however as we have stated above, the Blueprint provides no description of how lands worthy of protection will be identified – this should be described in the DEIR. Furthermore, no metrics have been provided that assess whether the guiding principle of ensuring the region's natural resources are conserved is being met.

The Equity and Performance Outcomes" document (Appendix C of the July 10, 2020 Plan Bay Area 2050 Draft Blueprint: Key Findings) assigns $15 billion to Protection of High-Value Conservation Lands. The DEIR may or may not be the appropriate place to discuss how this figure was determined and how these funds would be allocated, but this information should be provided either in the EIR or in a separate document.

Within the "Environment Element" it is not clear whether natural resources and recreational features are viewed as co-joined features or as separate and potentially conflicting land uses. If we take public access trails as an example, there are some places that deserve better access, but at this point "feasible" access should include consideration of the effects of public access on habitat. Trails are not habitat, even with green edges. Trails promote anthropogenic stress. And trails could become obstacles to baylands upslope migration if not appropriately sited. Not all trail uses are compatible with each other, for example care is needed to provide commuter bicycle trails away from where people are viewing wildlife. Another recreational facility strategy that could be employed is to avoid construction of new hardscaped recreational facilities and associated infrastructure in areas that could support future upslope migration by tidal wetland systems, e.g. avoid the construction of paved surfaces, buildings, etc. and instead utilize such areas for passive recreation or soccer fields or other forms of recreation that don't require the construction of hardscaped features, provided the area could be converted to use for tidal marsh migration as sea level rises. The *Adapting to Rising Tides* program did an admirable job of taking an initial assessment of the impacts of sea level rise on public access facilities. The DEIR should analyze at a programmatic level the impacts of public access facilities to determine whether they present obstacles to baylands migration as sea level rises.

Alternatives and additional issues to be considered:

Blueprint 2050 presents a high-growth plan which increases stress on natural environments and threatens the quality of life and equity for people who live here. The big question then is what would orderly growth look like and can orderly growth be described in one or a few alternative options for the EIR to consider.

Alternatives analyzed should include plans for different levels of telework/telecommuting levels: 40% and 60%. (for work that can be done remotely). This has the effect of prioritizing essential service workers for the use of the transportation network by eliminating unnecessary trips.

Another alternative to consider is that new commercial office development is not permitted in areas that have a shortage of housing relative to employment.

One very important strategy would be to have a moratorium on all development in areas in the currently revised flood zones until such time as a local jurisdiction has a funded, approved plan to adapt to sea level rise. (this could be a condition for a county receiving any MTC financial support) That would focus attention on doing the hard work of planning these changes.

Alternatives considered should promote development of new offices in the East Bay where existing facilities and existing transit can be a hub for new commercial development.

Transit alternatives should plan for use of highway bridges and freeways to carry express rapid bus transit at least during commute hours.

Transit alternatives could consider monorails and light rails adjacent or over existing freeways if new sections of transit are needed.

The DEIR should measure and minimize the net new pavement of each alternative to protect water quality and to avoid exacerbating urban heat island effects. A recent Green Streets Symposium provides a compelling vision: "Urban areas of the Bay Area are fully integrated into a "no net impact" system with the larger natural environment. This includes an integrated water system that follows the call to "slow it, spread it, sink it" and brings together the planning for storm water drainage, drought concerns, and flood prevention. No net climate change emissions means we reduce single occupancy vehicle use and promote walking, biking, transit or other shared low- or zero emission vehicles. Human-caused emissions are offset by a rich canopy of trees, grasslands, and chaparral in our open spaces surrounding the urban area and integrated throughout our urban areas along with gardens and greening of infrastructure especially street grids. Air flows are slowed and softened by tree canopies, our soil systems are protected by and enriched with natural compost." (See http://transportchoice.org). Does Plan Bay Area 2050 allocate sufficient space to assure that "The region's natural resources, open space, clean water and clean air are conserved"? That goal is in several Plan Bay Area 2050 documents and should be considered in the DEIR.

The DEIR should estimate the fiscal load for the MTC plans. The Blueprint appears to look at MTC financials but not costs of the various subsidized transit agencies. These agencies are now in dire straits and expanding their services should not happen until they are financially viable. As funds are available emphasize better bus service to low income neighborhoods that need them.

The DEIR should estimate the full community costs for sea level rise adaptation at 3.5 feet of rise plus storm surges. The Blueprint 2050 states: "Nearly all homes at risk of sea level rise are protected by Draft Blueprint resilience investments." The total budget for this is shown as about $17 billion which is far below other estimates ranging from $50 to $100 billion for the Bay Area. Perhaps part of the discrepancy is that Bay Plan 2050 uses a low rise number: "All major highway and rail corridors protected at 2 feet of sea level rise" which is inconsistent with the OPC State Guidance of planning for 3.5' of sea level rise by 2050 and 7.6' of sea level rise by 2100.

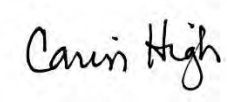
We feel that the Bay Plan 2050 as now drafted presents too much growth and too much in the wrong places. We urge the planners to devise orderly, sustainable alternatives.

In conclusion, we commend the Plan Bay Area 2050 team for adding an "Environment Element" to this iteration of the plan. However, the metrics that have been suggested do not adequately ensure that natural resources will be conserved. We commend the team for recommending nature-based solutions whenever possible to provide sea level rise resilience. We strongly believe that new infrastructure and transit projects should be evaluated for sea level rise resilience to 2100 and for 7.6' of sea level rise.

Thank you for the opportunity to provide comments. We request that we be kept informed of any future opportunities for public review of Plan Bay Area 2050 documents and comment periods.

Respectfully submitted,

Carin High



CCCR Co-Chair

Gail Raabe

CCCR Co-Chair

From:	David Schonbrunn
To:	EIR Comments
Cc:	Therese W. McMillan
Subject:	TRANSDEF"s scoping comments
Date:	Wednesday, October 28, 2020 4:59:07 PM
Attachments:	2020 RTP Scoping Comments.pdf

External Email

Please accept the attached file as TRANSDEF's scoping comments on the RTP EIR.

An email indicating receipt would be much appreciated.

—David

David Schonbrunn, President
Transportation Solutions Defense and Education Fund (TRANSDEF)
P.O. Box 151439
San Rafael, CA 94915-1439

415-370-7250 cell & office

David@Schonbrunn.org
www.transdef.org
www.occupymtc.org
@occupymtc
www.nomegatax.org/

Transportation Solutions Defense and Education Fund

P.O. Box 151439 San Rafael, CA 94915 415-331-1982

October 28, 2020
By E-Mail to:
eircomments@bayareametro.gov

Therese McMillan, Executive Director
Metropolitan Transportation Commission
375 Beale Street, Suite 800
San Francisco, CA 94105

Re: 2020 RTP/SCS Scoping Comments

Dear Ms. McMillan:

The Transportation Solutions Defense and Education Fund, TRANSDEF, is an environmental non-profit advocating the regional planning of transportation, land use and air quality. Our focus in recent years has been on reducing the impacts of transportation on climate change. Since 1994, we have participated intensively in every MTC Regional Transportation Plan process, as demonstrated by our last set of comments.

As the only organization to have submitted an RTP alternative that was modeled in an RTP EIR, TRANSDEF is willing to bring its expertise to the development of a new alternative. Our 2005 Smart Growth Alternative demonstrated that we know how to outperform a staff alternative. If staff has any interest in such assistance, please contact us as per our letterhead.

TRANSDEF's long-standing criticisms of MTC's RTP funding choices have centered on them being 1). highway-focused, leading inevitably to ever-increasing VMT, and 2). megaproject-focused on the transit side, leading to huge expenditures with little resulting transit mode shift. TRANSDEF has argued for decades on the need for tolling and the need for prioritizing a cost-effective transit network. Instead, MTC put its dollars into Express Lanes and BART projects, leaving the region without the transit alternatives needed to successfully support tolling.

Given that background, TRANSDEF is experiencing déjà vu from the current NOP proposals to "Implement Per-Mile Tolling on Congested Freeways with Transit Alternatives" and "Transform Aging Malls and Office Parks into Neighborhoods" (which had been the land use strategy of our 2005 Alternative—no existing neighborhoods were densified). Is MTC now listening? Or is it now being forced to do logical things since all other options have failed?

Reduced-Emissions Alternative

In lieu of offering a fully developed Alternative (we will, if invited to do so), we offer a list of the elements needed to reduce or eliminate the growth in VMT and GHG emissions. Note that these are consistent with the policy direction of the draft 2050 California Transportation Plan:

1. Amend the Countywide Transportation Plan Guidelines to make them mandatory rather than voluntary. Require counties to submit plans that show zero VMT increases in the future as a condition for RTP funding. The RTP cannot reduce future VMT growth without the active cooperation of counties and cities.
2. Prioritize the funding of person-travel over vehicular travel. In particular:
    a. Eliminate all project funding for Express Lanes and highway capacity additions.
    b. Revert existing Express Lanes to HOV-2 status only.
    c. Develop automated enforcement of HOV occupancy standards.
    d. Make HOV networks continuous by converting mixed-flow lanes. (Seek authorizing legislation as part of Plan.)
    e. Swap available highway funding not needed for basic maintenance with sales tax counties for money eligible to be spent on transit operations.
    f. Adopt a regional Transit First policy.
3. Eliminate funding for megaprojects with low-public benefits, including specifically Valley Link, BART extensions, and a Second BART tube.
4. Offer express buses in HOV lanes (as had been promised early on). See TransForm's REX proposal for service ideas.
5. Add the SJRRC's 2019 Altamont Corridor Vision, an Altamont Corridor Rail Project consistent with the preferred alternatives on p. 5-1 of the 2011 Preliminary Alternatives Analysis, with the following features:
    - 20-minute headways for the peak period and 30 minutes off-peak.
    - Service to Downtown San Francisco via the Dumbarton Rail Bridge and DTX.
    - A new ROW from Stockton to Sacramento, allowing one-seat rides from Sacramento to San Jose and San Francisco.
    - Amtrak San Joaquin trains westbound from Stockton are rerouted to San Jose via this new line, greatly increasing the ridership.
    - Travel time from Stockton to San Jose is 1:00.
    - CA HSR assumed to not be functional in this corridor during the Plan period.
    - This project could attract significant private-sector rail-operator funding.
6. Significantly higher transit speeds are key to productivity and carrying large passenger loads at reasonable operating costs. Achieve 50% higher transit speeds by:
    - Widespread use of traffic signal priority for buses

- Arterial HOV lanes where needed to bypass congestion
- Automated enforcement of transit lanes, with all fines going directly to the transit operator.

7. In identifying PDAs, TRAs, and HRAs, do not rely on the definitions in current Transit Priority Area law. They are inconsistent with survey data, which find that people are unwilling to walk more than 1/4 mile to a bus stop, or more than 1/2 mile to a rail stop or multi-route bus stop.
8. Transit should not be considered high-enough quality to support enhanced densities, unless:

   (i) It has average service intervals of no more than 15 minutes during the three peak hours between 6 a.m. to 10 a.m., inclusive, and the three peak hours between 3 p.m. and 7 p.m., inclusive, on Monday through Friday.

   (ii) It has average service intervals of no more than 20 minutes during the off-peak hours between 6 a.m. to 10 p.m., inclusive, on Monday through Friday.

   (iii) It has average service intervals of no more than 30 minutes during the hours of 8 a.m. to 10 p.m., inclusive, on Saturday and Sunday.
9. Land Use principles:
   - No public subsidies for the operation or construction of parking within PDAs.
   - The conditioning of funding for PDAs on enactment of specified parking and other policy reforms.
   - Required unbundling of the parking from leases and residential purchase agreements.
   - Encouragement for the permitting of micro-apartments and Junior Second Units.
10. Increasing the out-of-pocket cost of urban driving, while reducing the cost of taking transit:
    - Mixed-flow lane freeway tolling during congested periods.
    - A parking charge on all commercial parking spaces, including privately owned ones. This could conceivably be achieved through public funding of the installation of parking management hardware: gates and access controls. This would enable excellent administration of employee commuter benefit programs.
    - Impose a regional transportation mitigation fee on all new development in the region, based on additional auto trips and VMT added to the regional network. If the fee is high enough, it will increase the desirability of developing close to transit and decrease interest in greenfield sites. An Indirect Source Mitigation Fee, being considered by BAAQMD, would serve this function if high enough.

- After LACMTA entered into a consent decree with the Bus Riders Union, bus fares were very substantially reduced. Bus ridership went up dramatically. Conversely, after the consent decree expired, fares rose and ridership dropped. TRANSDEF proposes to test whether price sensitivity is different in the Bay Area. We propose cross-subsidizing fares from the revenues received through roadway and parking pricing, with a target of reducing fares by 80%.

Bay Area Transit Assessment District Fiscal Alternative

This proposal is intended to address the following problems:

1) Bay Area transit districts need a reliable continuing source of revenue. Reliance on fare box revenue leaves districts open to ridership-depleting events (e.g., COVID-19)

2) The Bay Area needs a way to reduce VMT, especially commuter VMT, which is one of the biggest components in total VMT.

3) Work from home would reduce VMT, but would also reduce fare box revenue.

4) MTC does not appear to have the legal authority to mandate work from home. Also, a backlash against MTC's mandate has made that politically difficult.

However, there could be ways to incentivize employers to support work from home (most employees seem to be already willing to work from home, to avoid the commute).

The Proposal:

Obtain State legislation establishing an employer-based regional transit assessment district. Employers with more than 100 employees would be required to participate.

Employers would be charged a special assessment on a per-employee basis, with revenue going to fund the transit districts used by that employer's employees (distributed county-by-county based on home addresses of employee using a formula devised through an engineer's report). In return, employees would receive a transit pass usable on all public transit districts in the Bay Area.

Employers with less than 100 employees could participate on a voluntary basis, using the same formula and receiving the same benefit.

Employers would be charged the assessment regardless of whether employees actually use transit, so long as they commute to & from employer.

Employers would file an annual statement with MTC, indicating the number of employees subject to the following exemptions:

1) Employees living within ½ mile of the employer would be exempted from the employee/contractor count.

2) Employees that work from home would be exempted from the employee/contractor count proportional to % of days worked from home – e.g., employees working from home 3 days out of 5 would count as 40% of an employee.

Assessments would be determined based on employer filings (W-2 and 1099-MISC) with the Franchise Tax Board. FTB would send a report to each county's assessor with the total number of that county's employee and contractor filings by that employer. MTC would prepare the engineer's report, which would be approved and collected on a county-by-county basis along with property tax. MTC would rebate to employers the assessments for the exempted employees, after receiving necessary documentation and certifications.

Proceeds would be delivered to MTC, which would allocate them to transit agencies based on county-level commuter ridership.

Regional Growth Forecast

TRANSDEF believes the Regional Growth Forecast to be ludicrous. We wonder whether future growth was inflated just to make per capita VMT numbers look less bad. MTC's demonstrated inability to manage a regional transportation network, coupled with political dynamics that disfavor residential development, strongly suggest that adding 2.7 million people and 1.4 million jobs to the region would result in a complete breakdown of civic functioning. This obviously unconstrained modeling has produced meaningless numbers. Because this is not a realistic set of demographic assumptions, the Plan should be based on Department of Finance projections instead.

GHG Emissions Significance Threshold

1. The last two RTPs have used a significance threshold ["a net increase in direct and indirect GHG emissions in 2040 when compared to existing conditions"] that relied on a faulty methodology in evaluating GHG emissions. The purpose of an EIR is to evaluate the impacts of a Project on the environment. However, those EIRs used an EMFAC output that relied on assumed state-level emissions reductions, including Pavley regulations, that **are not a result of the "implementation of the proposed Plan**."

Those emissions reductions are entirely unrelated to the Project, and therefore should not be counted in evaluating the impact of the Project. When those emissions reductions are removed from the GHG emissions calculation, the Project will be seen to result in an increase in GHG emissions, rather than a reduction. MTC is hereby warned that using this faulty methodology a third time will result in a legal challenge.

2. To fulfill its SB 375 mandate, the EIR must analyze whether "Implementation of the proposed Plan could result in a net increase in direct and indirect GHG emissions from cars and light duty trucks in 2040 when compared to existing conditions." Like the previous comment, this analysis must exclude state-level emissions reductions, including Pavley regulations, as well as "Climate Initiatives" that have no impact on emissions from cars and light duty trucks.

3. In evaluating the significance threshold "Implementation of the proposed Plan could substantially conflict with the goal of SB 32 to reduce statewide GHG emissions to 40

percent below 1990 levels by 2030," the EIR needs to take a quantitative rather than a qualitative approach. The threshold asks, in effect, whether the Project's emissions reduction trend is steep enough to result in attainment of the State target. The mere assertion that a downward trend would occur is not an adequate response. It will need to be backed up by analysis showing how steep the Project's emissions reductions would be, compared to the trend needed to attain the State target.

4. The significance threshold for the last RTP, "Implementation of the proposed Plan could result in a significant increase in per capita VMT compared to existing conditions. A significant increase in per capita VMT is defined as greater than 5 percent" is no longer valid. SB 743 gives great emphasis to VMT as a central planning criterion. There is no provision in SB 743 for a *de minimus* increase in VMT. Any increase in per capita VMT beyond zero is a significant impact.

Conclusion

TRANSDEF is committed to achieving GHG emissions reductions and VMT reductions at the regional level. The principles and policies described above represent many of the insights that have occurred to us as we have watched the Bay Area's mobility decline year after year under MTC's leadership. It is clear to us that MTC has taken a direction that hasn't worked. The Alternatives described above represent our best thinking as to what can be done to change that direction. Hopefully MTC is listening this time. We stand ready to provide whatever further inputs might be needed or useful.

Sincerely,

/s/ DAVID SCHONBRUNN

David Schonbrunn,
President

From:	Hayley Currier
To:	EIR Comments
Cc:	Jonathan Kass; Ian Griffiths; Adina Levin
Subject:	EIR Scoping comment re: Plan Bay Area 2050
Date:	Wednesday, October 28, 2020 6:47:15 PM
Attachments:	Comments for EIR Notice of Preparation for PlanBayArea 2050.pdf

External Email

Good evening,

Attached, please find our comment letter regarding the EIR Scoping for Plan Bay Area 2050.

Hayley Currier, Policy Advocacy Manager
(pronouns: she/her)

TransForm
560 14th Street, Suite 400, Oakland, CA 94612
415.659.8624

TransForm has a new executive director! Read all about it.

Sign up for our emails at www.TransFormCA.org. Follow us on Twitter, Instagram, Facebook, and LinkedIn, too.

October 28, 2020

To: MTC Staff
Via email: eircomments@bayareametro.gov

Comments for EIR Notice of Preparation for PlanBayArea 2050

Dear MTC Staff,

Given the climate crisis that is unfolding, with impacts that we are experiencing with every wildfire season, it is important for the EIR analysis for PlanBayArea 2050 to include robust analysis and viable strategies to reduce greenhouse gas emissions.

To this end, following are several comments for consideration in conducting the Environmental Review for PlanBayArea 2050.

Analysis and alternatives to the telework mandate.

One of the proposed strategies to reduce GHG emissions is a 60% telework mandate. A variety of concerns have been raised about the utility of this strategy in reducing GHG. If many employees are required to work from home, this is likely to encourage people to relocate to places with larger homes that have more space for a home office. Such places tend to be less dense, less walkable, and more car-dependent. A large majority of trips are non-commute trips. Therefore, a telework mandate that results in residents spending far more time in auto-oriented environments could reduce commute driving while increasing non-commute driving.

Comment 1: Please study the impact of a 60% telework mandate on non-commute VMT and GHG, with modeling assumptions about where people live if they are required to work from home most of the time. Please also assess additional commute VMT that will result from employees moving further from their worksite and thus increasing the length of their work trip on the days that they commute. Finally please assess GHG impacts from the telework mandate that may fall outside of the surface transportation category, including increased air travel (e.g., for employees who live a long distance from their work site but fly in periodically) and building energy efficiency impacts of more decentralized work places (e.g., air conditioning in 100 homes rather than in a single office building).

A telework mandate is inflexible, and does not take into account the variety of ways to reduce car commuting. If applied rigorously to all jobs that can be done by telework, it could require people who

commute by transit, walking and bicycling to work from home. MTC staff have explained that the telework mandate is not intended to apply to people who take transit, or use active transportation. Therefore, a “mode share requirement” or “drive alone trip cap” should be equivalent to a telework mandate that does not apply to non-drive alone modes. However, staff commented that a higher number would be needed for a requirement that covered all non-drive alone modes.

Comment 2: Please analyze the level of non-drive alone mode share that would reduce GHG to the same level as the telework requirement and assess what additional policies could equivalently reduce drive alone rates in the absence of a broad 60% telework mandate.

Recent research by Seamless Bay Area and Voices for Public Transportation has shown that there is a high correlation between the level of public transit service and the level of transit ridership. Metropolitan Toronto, which is comparable to the Bay Area in a variety of ways, provided 55% more transit service hours than the Bay Area before Covid. See:
https://www.seamlessbayarea.org/blog/2020/9/21/new-report-shows-importance-of-restoring-and-expanding-transit-service-post-pandemic

The level of transit service can be improved by increasing funding for service, implementing more efficient service design, and infrastructure and policy changes that allow for existing service to be faster and more reliable.

Comment 3: Please analyze the level of transit ridership, and GHG emissions and VMT reduction associated with increased levels of service, such as on par with service hours provided in Toronto. In addition, please analyze VMT and GHG reduction impacts from policies that make it easier and faster to implement bus priority including transit-only lanes and signal priority.

Alternatives to highway widening

The current PlanBayArea blueprint includes a set of highway widening projects intended to relieve congestion. These projects are expected to generate additional VMT and GHG, and move us further away from meeting our state-mandated GHG reduction goals. Highway widening induces driving demand and increases VMT, and does not provide sustainable congestion relief. The analysis must evaluate the GHG and VMT increase caused by the $11 billion in highway widening projects, and consider the cost of mitigation for that increase, in evaluating whether these projects are actually possible to achieve under the GHG and fiscal constraint of PlanBayArea.

Comment 4: Please analyze alternatives that minimize highway widening including conversion of existing lanes to HOV or express lanes to the greatest extent possible and transit investments that could reduce VMT and GHG for the same amount of money.

Converting highway lanes to express lanes to prioritize transit and other high occupancy vehicles, while raising money to increase transit service on these corridors, is a huge opportunity to utilize existing infrastructure to move more people with fewer cars and lower GHG emissions. When analyzing the Express Lane and Express Bus network strategy, the financial cost as well as the GHG and VMT increase or decrease of highway widening, lane conversion, and increased transit service on express lanes should be considered.

Comment 5: Please analyze alternatives that prioritize lane conversion in building out the express lane network, as well as alternatives that fund higher levels of transit service on these corridors.

The PlanBayArea blueprint plans to restore transit service to 2019 levels by 2035, while spending significant funding on VMT and GHG-inducing highway widening projects. The EIR analysis should evaluate the VMT and GHG impacts of prioritizing new highway projects and other new investments over ensuring service levels return to 2019 levels, and that transit service levels are increased. Since transit service and transit ridership are so closely correlated, deprioritizing funding for transit service, especially over funding for highway projects, will likely have problematic VMT and GHG impacts, which must be measured in the analysis.

Comment 6: Please analyze alternatives that bring transit service levels up to 2019 levels on a faster timeline, while not funding highway widening.

Thank you for your consideration.

Hayley Currier
TransForm

Adina Levin
Friends of Caltrain

Jonathon Kass
SPUR

Ian Griffiths
Seamless Bay Area

From:	Jonathon Kass
To:	EIR Comments
Subject:	NOP comments
Date:	Wednesday, October 28, 2020 4:53:33 PM
Attachments:	Memo on NOP for PBA2050.pdf

External Email

Please find attached.

Best,
Jonathon

--
Jonathon Kass
Interim Transportation Policy Director
[redacted]
jkass@spur.org

SPUR
Join | Get Newsletters | Twitter | LinkedIn

From:	Jonathon Kass
To:	EIR Comments
Subject:	Re: NOP comments
Date:	Wednesday, October 28, 2020 9:35:34 PM
Attachments:	Memo on NOP for PBA2050.pdf

External Email

It appears that I attached the wrong copy of my letter. Here is the corrected copy. Apologies.

Best,
Jonathon

On Wed, Oct 28, 2020 at 4:53 PM Jonathon Kass <jkass@spur.org> wrote:

> Please find attached.
>
> Best,
> Jonathon
>
> --
> Jonathon Kass
> Interim Transportation Policy Director
> [redacted]
> jkass@spur.org

--
Jonathon Kass
Interim Transportation Policy Director
[redacted]
jkass@spur.org

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October 28, 2020

To: MTC Staff
Via email: eircomments@bayareametro.gov

Comments for EIR Notice of Preparation for Plan Bay Area 2050

Dear MTC Staff,

In addition to requests submitted in a separate joint letter with other advocacy organizations, SPUR requests that the EIR analysis for Plan Bay Area 2050 evaluate the impact of a regional parking tax on off-street parking spaces. The analysis should evaluate the tax both for its potential revenue as a means to fund the best-performing strategies to reduce VMT and GHG emissions, and for its impact as an additional disincentive to single occupant vehicle use.

Sincerely,

Jonathon Kass

SPUR

From: [redacted]
To: EIR Comments
Subject: Please evaluate how Gov Newsom signing SB 288 will impact 2050
Date: Monday, September 28, 2020 4:12:59 PM

External Email

Please evaluate in the DEIR how Governor Newsom signing SB 288 by Sept 30 2020 will improve GHG reduction outcomes and the Climate and social equity in Plan Bay Area 2050 by more rapidly increasing safe infrastructure for biking and walking and transit.

Thank you.

Jean Severinghaus
[redacted]

From: [redacted]
To: MTC-ABAG Info
Cc: [redacted]
Subject: Oct 6, 2020 public comment
Date: Thursday, October 1, 2020 3:02:26 PM

External Email

Dear RAWG
Re: Public comment input for the Oct 6,2020 RAWG webcast meeting.
It is difficult to ensure there is time for all public inputs or that they are incorporated in detail during online meeting. So I prefer to provide my input by email prior to the meeting. I did read though the packet of information provided for that meeting.
My input is regarding items ***missing*** from the EIR.
Everyone is focused on the path forward and the environment consequences.
What I did not see on page 10, Environment Issues Areas, is any evaluation and environment consequences of area that are abandoned or omitted. For example
1) Refuel, repair, and maintenance yard and facilities are notorious for contaminated soil from fuel, grease and other hydrocarbons used for Caltrans combustion locomotive engines. Will the EIR incorporate remediation activities for public transportation facilities that are not reused?
2a) Will the EIR consider mitigating the hazards and biological impacts of high voltage electrical power wires impacting local wildlife and birds. Distorted magnetic direction for birds, electrocution by touching wires, or RF arcing on nearby metallic objects?
2b) There may also be environment impact to people wearing pacemakers, oxygen delivery systems or other medical devices.
3) Beyond detrimental effects, will the EIR consider and ***require*** alternative ***positive*** impacts that could plan to be incorporated to improve the operating and living conditions of people living in the impacted zones?
Examples: Requiring implementation of green infrastructure medians, right of ways, and cisterns to capture grey water for reuse on plants?
Mandatory percentage of walking or bicycle ridership
Hosting carbon neutral business, retail, and restroom facilities?
Solar generation on unused car port and people protection bus and train stop shelters?
Regards
Gary Trott, Ph.D.

F om f l on behalf of
To EIR Comments
Subject EIR Scop ng Mee ings Submiss on
Date day Octobe 2 2020 3 33 25 M

Ex ernal Ema l

Submi ted on Friday October 2 2020 - 3 33 pm
Submi ted by anonymous user
Submi ted alues are

Name V cki DeSmet
County Sonoma
Agency/Organizat on Fr ends of Nor h Sonoma
Would you like to remain informed of future Plan Bay Area EIR-related acti ties? Yes
Email
Address
City
Sta e CA
ZIP code
Comment It is so disappointing to see the Springs Specific Plan included as one of your PDAs desp te our attempts to communicate why we should not be included as a PDA. The Springs Spec fic Plan has not yet e en been appro ed as a specific plan and will likely be tied up in years of litigat on. The Springs Specific Plan is located in a high fire zone wi h minimal escape routes with limi ed wa er resources and it sits outside of the City of Sonoma's urban grow h boundary two areas which are supposed o be excluded according to the footnotes on your map. It s quite dysfunctional that MTC continues to include us in sp te of being informed of the Coun y's lack of public input and these charac er s ics hat disqualify our neighborhood as a PDA. Truly o er thir y percent of the ema ls recei ed from he ent re Bay Area on feedback on the Plan 2050 were from residents within the Spr ngs Spec fic Plan who oiced concerns o er being ncluded. Is nobody reading his feedback? Our local Super isors appro ed our neighborhood as a PDA without any input from the public or the people that li e here. Doesn't that ma ter? Is anybody reading the feedback and comments you are ge ting?

The results of this submiss on may be iewed at

From: Pacheco, Kalin M@DOT
To: EIR Comments
Subject: NOP 2020-00183
Date: Friday, October 9, 2020 10:45:44 AM

External Email

Hello,

I've had to opportunity to look at your NOP. From a transportation modeling perspective, you'll definitely need to run multiple scenarios as they relate to changes in population, demographics, land use, and traffic congestion utilizing a regional travel demand model. You'll need to include metrics and performance measures to address VMT, passenger and freight congestion, a mode choice model that takes into account C/AV, electric vehicles (passenger and truck), and TNCs.

Thank you,

Kalin Pacheco
Chief, Statewide Modeling Branch
Office of Multi-Modal System Planning
Transportation Planning
(916) 654-6943 (Office)
(916) 307-0852 (Cell)

From: [redacted]
To: EIR Comments
Cc: [redacted]
Subject: Urgent comments on PBA2050 EIR Scoping
Date: Monday, October 12, 2020 3:17:03 PM
Attachments: Climate-Adapted Planning Exec Summ.docx
Climate-adapted Planning.docx

External Email

I will not be able to participate in your upcoming Meeting on Oct. 15, 2020 regarding PBA2050 EIR Scoping. So I am submitting my comments in the two attachments below.

I am a Physicist, who has been studying Climate Change since the early 1990s, and I am a resident of a community in Sonoma County that has been identified for high-density housing in a PDA (Priority Development Area). I am also a resident next to the City of Sonoma, and have been living with the fear of wildfire, growing in our County for the last three years.

MTC policies expressed in PBA2050 have failed to recognize the dangers of living next to forested areas, leaving us dependent upon County government to do so. But Planning efforts in Sonoma County depend heavily upon funding from MTC. So if MTC is comfortable with ignoring wildfire safety issues, so is the County. MTC should be the adult in the room, but has depended upon its County children to assure our safety. The result is now that we are NOT safe. We do NOT feel safe.

Please distribute and read my white paper, at least the Executive Summary. I urge your attention and concern.

Thank you.

Paul D. Rockett, PhD

Climate-Adapted Regional Planning 1.0

Executive Summary

Paul D. Rockett, PhD
Rockett Global Co.
October 15, 2020

A crisis of Climate vs. Policy is upon us. Current policies on regional-housing and -planning attempt to solve the year 2006 problem of limiting the growth of Greenhouse Gases (GHGs) in the atmosphere, as if a changed climate were something in the future. However, the New Climate is already here and we must accept and adapt to the new conditions, which have rendered the 2006 solutions dangerous and impotent. In the face of extended wildfires and flooding, the Metropolitan Transit Commission (MTC) is developing Plan Bay Area 2050 (PBA2050), based upon 14-year-old climate conditions and policies. But the Climate on the ground has obviously shifted. The transit-centered, high-density housing approach of MTC closes their eyes to the new climate, and encourages the building of highly populated, death traps in wildfire areas.

Transit-center based housing was originally designed for urban areas, where extensive public transportation served many local residents. However, the same policy has been applied by MTC to rural counties, such as Napa and Sonoma. In these counties housing is built right up to and within wildland and forest. Little public transportation exists, and in order to fit the urban policy to rural areas, MTC redefined "transit centers" as bus stops. Sonoma County has placed its two MTC-requested and approved Priority Development Areas (PDAs) close to land that either burned from wildfires or which came within 0.5 mile of a wildfire in the past three years. No requirements were added by the County or were demanded by MTC to protect their future occupants from fire dangers. Neither was any insistence provided for adequate water supply for firefighting or for fire evacuation access. None. Neither MTC nor Sonoma County (in which I live) are utilizing the California Climate Adaptation Plan[1] to identify "associated hazards in specific areas" esp. wildfires.

The drought of 2011-2017 initiated a waterfall of natural disasters, including rampant wildfires and intense flooding in well-populated, but rural counties, including Sonoma and Napa. These should not be unexpected conditions. Climate scientists have long been predicting these phenomena as a result of global warming. Many parts of the US have already exceeded a 1.5° C rise in annual yearly temperature, including the Bay Area.[2]

The MTC is pursuing its 2006 goals of reducing GHG emissions by placing tens of thousands of future residents in danger of loss of life and limb in coming wildfires. Further, their attempt to

[1] https://www.caloes.ca.gov/HazardMitigationSite/Documents/APG2-FINAL-PR-DRAFTAccessible.pdf
[2] https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf

constrain passenger travel, by placing housing close to jobs is becoming OBE (Overcome by Events). The Coronavirus pandemic is building in dramatic changes to our work habits., which are expected to become the new norm. Placing housing next to work areas will only address the GHGs of those workers still driving to work; many will now work from home. And to seal this case, Governor Newsom has announced a plan to eliminate the gasoline engine in California by 2035. Thus these efforts to reduce GHGs by cutting commute trips will become meaningless, since most workers, if they still commute will be driving electric cars. California already provides one-third of its electrical energy from renewable sources. By 2035 that number will have grown to well over 50%.

The results of this crisis of conflict between Climate & Policy are obvious. The MTC is driving the Bay Area to a housing plan that is 1) deeply dangerous for the residents of rural Northern California, and 2) will fail to reduce GHGs as imagined.

A new approach is needed that recognizes the new climate in which we now live. After all, "This is a climate damn emergency," exclaimed Gov. Newsom in Sept. 2020. This article's new Climate-Adapted Regional Planning model must modify the old policies, as follows:

1. All Counties facing wildfire or flooding must evaluate their local hazards and designate new zones within which housing will be designed to sustain disasters with minimum loss of life and property. This replaces the vulnerable and impotent transit-centered high-density housing policy.
2. While "sprawl" was previously seen negatively, it now must be recast as "Defensive Expanse" policy, enabling lower-density well-defended housing in the vicinity of basic services.
3. Any attempts at high-density housing must be accompanied by a detailed analysis of fire and flood survival capability, requiring the assurance of survival services, before development begins.
4. Lastly, mandatory solar panel installation must be placed, first on every new house and building (and later retrofitted onto every house and building) to reduce GHG emissions, provide energy for new population growth, and protect against safety power outages to prevent Climate-driven natural disasters.

The far more rapid advance of Climate Change should be seen for what it is – present and here for the long term. I urge the MTC to seriously modify their scoping plan for Plan Bay Area 2050 Priority Area Development. It is imperative that you account for the New Climate, and devise policies that will safely remove GHGs without endangering the lives of our future residents.

Climate-Adapted Regional-Planning 1.0

Paul D. Rockett, PhD
Rockett Global Co.
October 15, 2020

I. The Problem

A crisis of Climate vs. Policy is upon us. Current policy on regional-housing and -planning attempts to solve the year 2006 problem of limiting the growth of Greenhouse Gases (GHGs) in the atmosphere, as if a changed climate were something in the future. However, the New Climate is already here and we must accept and adapt to the new conditions, which have rendered the 2006 solutions dangerous and impotent. Just look around: wildfires from San Diego, CA to Vancouver, BC, Canada, multiyear droughts, shrinking underground water levels, and increasing levels of winter floods. In the face of this the Metropolitan Transit Commission (MTC) is developing Plan Bay Area 2050 (PBA2050), based upon 14-year-old climate conditions and policies, but the Climate on the ground has obviously shifted. MTC and Bay Area Counties continue their arcane practice of reducing GHGs at all costs, by reducing passenger car commutes via high-density transit-located housing. It is true that the reduction of GHGs is crucial for the survival of humanity upon this planet. Yet within 15 years most cars in California will be all-electric, and the pandemic has initiated a new norm of working from home. Reducing commute miles will only minimally reduce GHG emissions, since many if not most workers will be working from home. Thus the 2006 housing approach will no longer offer an impactful solution for GHGs. Especially in rural counties, the extreme weather conditions under which we must now live are perilously inconsistent with the high density housing solutions offered by MTC and Bay Area Counties..

Transit-center based housing was originally designed for urban areas, where extensive public transportation served many local residents. However, the same policy has been applied by MTC to rural counties, such as Napa and Sonoma. In these counties housing is built right up to and within wildland and forest. Little public transportation exists, and in order to fit the urban policy to rural areas, MTC redefined “transit centers” as bus stops. If one bus makes a one-time morning and evening stop, this has become a “transit center” next to which, high-density housing should be built in developments called Priority Development Areas (PDAs). The County of Sonoma has placed its two PDAs in areas close to land that either burned from wildfires or which came within 0.5 mile of a wildfire in the past three years. No requirements were added by the County or were demanded by MTC to protect their future occupants from fire dangers. Neither was any insistence provided for adequate water supply for firefighting or for fire evacuation access. None. MTC (and consequently Bay Area Counties) continue to ignore their own guidelines and requirements regarding wildfire dangers. Neither MTC nor Sonoma County

(in which I live) are utilizing the California Climate Adaptation Plan[1] to identify "associated hazards in specific areas" esp. wildfires.

As the Glass Fire approached Oakmont in Sonoma County in September 2020, it took four hours to evacuate the 27,000 residents, using the only two exits onto US12. This problem applies explicitly to both "Priority Development Areas (PDAs).'' Both areas were accepted by the MTC under PBA2050 without comment. The Santa Rosa Airport Industrial Area PDA is within 0.8 miles of where the Nun's Fire reached in 2017, and the Springs Specific Plan PDA abuts forest wildland with a High Fire Danger designation from Cal Fire, just 0.5 miles from where the Tubbs fire stopped in 2017.

This brings us to the last unfortunate feature of MTC processes. If the County offers an area for a PDA, MTC does not question whether these areas violate MTC's own explicit prohibitions, esp. as regards fire hazards. The MTC money going to the Counties appears to be the primary driver of this unhealthy relationship, not public safety.

II. Present MTC and Bay Area County Approach

Bills AB32 and SB375 lead today's regional planning and were designed to reduce California's Greenhouse Gas (GHG) emissions to 1990 levels by 2020. The first AB32 goal was reached in 2016. SB375 required the further reduction of GHG emissions to levels at least 40% below 1990 levels, to be followed by a return to AB32's commitment to a reduction of 80% of 1990 levels by 2050. For the greater Bay Area it became the job of the MTC to contribute towards SB375 GHG reductions esp. from passenger vehicles, which generate ~28% of all state GHG emissions.[2] Regional Planners took this target and accomplished their task by:

1) requiring most new housing to be high-density and to be located in public transit areas,
2) preventing housing "sprawl" at low densities,
3) adding incentives for the increase of public transportation, and
4) providing significant design funds for Counties and Cities to meet MTC goals.

The drought of 2011-2017 initiated a waterfall of natural disasters. By 2014 60% of California was under "Extreme Drought." Forests were parched, and grasslands were dry as a bone. This was followed in October of 2017 by one of the largest wildfires in California history, starting near Calistoga in Napa County and blown by 70-80 mph winds to Santa Rosa in Sonoma County and then south to Glen Ellen, destroying 8900 buildings, killing 44 people, and costing over $14 B. That fire came within 0.5 miles of my house in Sonoma. The Climate that MTC was chartered to avoid, had already arrived. Each year since then the fire season lasted longer and began earlier, as evidenced by the 2020 wildfires, the largest ever seen in California, exceeding 4 million acres of land, and beginning in earnest in August, not October.

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[1] https://www.caloes.ca.gov/HazardMitigationSite/Documents/APG2-FINAL-PR-DRAFTAccessible.pdf
[2] https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf

Climate scientists are not shocked by these occurrences. For decades predictions of a warming climate have been clarified, analyzed, and communicated by the IPCC (Intergovernmental Panel on Climate Change) and others. In 2018 the IPCC recommended that we cut GHG emissions to avoid exceeding a global +1.5° C temperature rise.[3] In August 2019 the Washington Post analyzed temperature data in the US and determined that many areas of the US had already warmed above 1.5° C, including the Bay Area.[4]

The MTC is pursuing its 2006 goals of reducing GHG emissions by placing tens of thousands of future residents in danger of dying in coming wildfires. The original plans did not intend this. Yet by not paying attention to how rapidly our local Climate is changing, they are financially rewarding Bay Area Counties, that build high density housing in areas that are likely to be enveloped in wildfires in the next few decades. The burning of the town of Paradise came from bad planning and few exits; similar tragedies will flow from these misguided policies.

Further, MTC's attempt to constrain passenger travel, by placing housing close to jobs is becoming OBE (Overcome by Events). The Coronavirus pandemic is building in dramatic changes to our work habits., which are expected to become the new norm. Working from home will continue well after a vaccine appears in 2021. Office space in the cities will likely languish. Placing housing next to work areas will only address the GHGs of the remaining workers still driving to work. And to seal this case, Governor Newsom has announced a plan to eliminate the gasoline engine in California by 2035. Thus all these efforts to reduce GHGs by cutting commute trips will become meaningless, since most workers, if they still commute will be driving electric cars.

The results of this crisis of conflict between Climate & Policy are obvious. The MTC is driving the Bay Area to a housing plan that is 1) deeply dangerous for the residents of rural Northern California, and 2) will fail to reduce GHGs as imagined.

III. The Solution

It should now be clear that forcing high density housing near rural bus stops can create a death trap for residents in the New California Climate. "This is a climate damn emergency," said Gov. Newsom in Sept. 2020. From 2019 to 2020 the number of wildfires in California doubled during the Jan.-May time period. Drought, wildfires, pest infestation, and floods regularly endanger a significant fraction of land in California, esp. those in rural counties.

This is not rocket science. The MTC guidance for regional planning of new housing in rural Counties and in urban Counties adjacent to forest areas should change to the following:

A. Counties that have been or may be subject to wildfires and/or floods must designate hazard areas over a future ten-year window, with at least three levels of hazard (high,

[3] https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf
[4] https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-america/

moderate, and low) and associate constraints on building in each area. Since the development of all such regional housing designs will be funded by MTC, these designations must include public notice, participation, and review. These areas cannot be based upon Cal Fire maps, since Cal Fire only maps forest areas, not areas that proceed out of the forest.

B. New housing development must be put on hold until such areas are designated. The concept of high-density housing near transit centers should be re-evaluated in recognition that the gasoline engine will be disappearing within 15 years, and massive numbers of employees are now and will continue working in their houses, not commuting to distant workplaces.
    a. "Sprawl" should take on a positive value as a means of reducing the speed with which a wildfire may spread, rather than a source of added GHGs.
    b. The new concept will create "Defensive Expanse" to slow the approach and danger of wildfires, and will design in emergency escape routes.
    c. High-density housing should be placed close to services, such as food, basic household goods, and electricity sources, as long as that location is primarily in low fire danger areas. Centering such housing near mass transit should be constrained to urban Counties, and not applied to rural Counties.
    d. Any plans for high-density housing must require detailed analysis of future wildfire and flood protection, regardless of location within endangered Counties. This should include emergency evacuation access, assuring sufficient water availability and pressure to support fire fighting efforts, raising houses above ground in potential flood areas, raising critical arterial roads above expected flood stages, and efficient water delivery and usage.
    e. Mandatory solar panel installation should be included in ALL future residential and commercial development, which will both cut GHG emissions from fossil fuel power sources and will protect against safety power outages during natural disasters.

IV. Conclusion

In spite of the many prior efforts by the State of California to identify areas for needed Climate Adaptation, MTC and the Bay Area Counties continue to pursue important goals (reduction of traffic generated GHGs) with arcane and dangerous solutions (transit-centered high-density housing). Changes on the ground have voided the utility of compacting people in small areas and moving them close to their office workspaces. Wildfires have now more than doubled the scorched area in California in 2020 from that seen in 2017. The California Adaptation Planning Guide did not expect this to occur until the end of the century.

The far more rapid advance of Climate Change should be seen for what it is – present and here for the long term. I urge the MTC to seriously modify their scoping plan for Plan Bay Area 2050 Priority Area Development. It is imperative that you account for the New Climate, and devise policies that will safely remove GHGs without endangering the lives of our future residents.

From: [redacted]
To: EIR Comments; EIR Comments
Cc: [redacted]
Subject: EIR Scoping
Date: Tuesday, October 13, 2020 10:50:25 AM
Attachments: 1-fire zone.pdf
2-VOMWD.pdf
3-WSA.pdf
4-Streetlight DATA.pdf

External Email

My name is Victoria DeSmet. My home of 28 years falls within Sonoma County's proposed Springs Specific Plan, one of the PDAs included in Plan Bay Area 2050. I am writing to request that in your environmental impact report you include an extensive review of:
1. potential for wildfires,
2. water supply and water availability to fight fires resulting from wildfires or potential earthquakes, and
3. evacuation routes.

Today is the 13th of October and my "to go" evacuation bags have been packed and ready by the back door since the end of August. My home borders Cal Fire moderate and high fire severity zones (attachment 1). During the Nuns fire of 2017, we had to evacuate our home for over a week. The fire came within ½ mile of my home and if not for a fire-break created by a brave man on a tractor, many of us would have lost our homes. We have had the power shut off for PGE public safety events so many times we have purchased a gas-powered generator, as have many of my neighbors. On August 19th, 2020, Valley of the Moon Water District sent water customers notices asking us to conserve water during these fire conditions because the water used for fighting fires was at risk (attachment 2). VOMWD's reduced capacity to fight fires is explained in the Water Supply Assessment for Sonoma County's Springs Specific Plan (attachment 3).

If you had been in my neighborhood the night we were asked to evacuate during the 2017 Nuns fire, you would have experienced the terror of being caught in a traffic jam with fire approaching. One neighbor told me it took her 45 minutes to go six blocks. My neighborhood is located below the hills South of Santa Rosa and West of Napa County. This fire season we had smoke and fires approaching us from two directions! Science magazine published an article in August 2019, describing a study conducted by StreetLight Data, a San Francisco-based traffic analytics company. Fetters Hot Springs, which is included in the Springs Specific Plan, was identified as one of the worst 100 places in the Nation to evacuate from a hazardous event (attachment 4).

As an environmental alternative, I am proposing that you remove Sonoma County's Springs Specific Plan for PDA consideration, as it is too dangerous to add additional residents to this area. Any increase in density puts us all at risk of becoming another fire statistic, like the town of Paradise.

Thank you,
Victoria DeSmet
[redacted]

CAL FIRE HAZARD SEVERITY ZONES in
State Responsibility Area (SRA)

- Moderate

- High

- (Dead)End of Michael Drive (it does not continue)

-(Dead) End of Donald

-Proposed high density housing

EMERGENCY WATER CONSERVATION DURING CURRENT FIRE CONDITIONS

[redacted]

VOMWD Customer Service <customerservice@vomwd.org>
To: [redacted]

Aug 19 at 3:56 PM

Dear Vickie,

EMERGENCY WATER CONSERVATION DURING CURRENT FIRE CONDITIONS

- As you are probably aware, there are several wildfires burning in Sonoma County and as your water provider we are urging all of our customers to take immediate water conservation steps.
- This is an emergency situation: The largest of these wildfires could threaten the source of our water that comes from the Russian River. The more water we can store for domestic and firefighting purposes, the better prepared we will be during this emergency.
- For that reason, we are urging the following steps be taken immediately:

o Turn off all outdoor water for irrigation
(Irrigation accounts for a large portion of water usage in summer)

o Reduce indoor water use as much as possible
(Take fewer and shorter showers, flush toilets only for solids, postpone laundry washing, wait to run the dishwasher until it's full)

o Postpone washing of vehicles and other outdoor water uses

o Turn off auto-fill valves to pools, spas, decorative fountains and ponds, or delay adding water manually

o Set water softening systems to bypass auto-regeneration cycles for the duration of the emergency

o Use a bucket to catch and reuse water when washing fruits and vegetables and when waiting for hot water from faucets, showers, and tubs. Use for watering potted or in-ground plants inside or outside your home, or for toilet flushing by pouring into the toilet bowl.

Now, more than ever, our water is precious. Help us conserve every drop!

For more information, visit Sonomawater.org/fire.
For Sonoma County Emergency information, visit www.socoemergency.org
To find out more about Sonoma Water's system, visit www.sonomawater.org/water-supply

Thanks for caring about your water use,
Valley of the Moon Water District

APPENDIX G: WATER SUPPLY ASSESSMENT

A. EXECUTIVE SUMMARY

The Water Supply Assessment (WSA) will provide information for use in the California Environmental Quality Act (CEQA) analysis for the proposed Springs Specific Plan (Specific Plan). The requirements for the WSA are described in the California Water Code Sections 10910 through 10915, amended by the enactment of Senate Bill 610 (SB 610) in 2002. SB 610 requires an assessment of whether available water supplies are sufficient to serve the demand generated by the new projects, as well as the reasonably foreseeable cumulative demand during normal year, single dry year, and multiple dry year conditions over the next 20 years.

This WSA builds on previous water demand projections created as part of the 2015 Urban Water Management Plan (UWMP) Water Demand Analysis and Water Conservation Measures Update worked on in conjunction with the eight other Sonoma-Marin Saving Water Partnership (SMSWP) Water Contractors and completed in July 2015. The projected demands with active and passive conservation savings from the SMSWP study were approved by Valley of the Moon Water District (the District) and presented in the 2015 UWMP submitted by the District in June 2016, after approval by its Board of Directors on June 7th. The supply information contained herein is based on the 2015 UWMP. [1]

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[1] ~~However, while~~While the foregoing is accurate, the circumstances of the District's water supply have changed in 2019. The District lost its emergency water supply from the Sonoma Development Center (SDC). The use was authorized by the SWRCB on July 3, 2002 for fire or facility failure. The agreement with ~~the Center~~SDC was in place by December 2002 and existed until September 2019 when the State's General Services Department decided to close the SDC water treatment plant~~at the Center eliminating that supply. Without that water~~In the absence of that supply, the District ~~only has~~can produce only 450 gallons per minute (gpm)~~pm~~ through its local supply sources, which is insufficient to pressurize its system and fill its tanks, in the event the Sonoma Aqueduct (Aqueduct) is damaged and Sonoma Water deliveries to the District are curtailed. ~~which is not enough water to pressurize its system and fill its tanks IF the Sonoma Aqueduct is damaged and cannot deliver water.~~ The District's immediately available emergency water supply ~~position may have been~~was further ~~eroded~~reduced in ~~October-November~~Fall 2019 when ~~it had to cease~~ the use of one ~~of its well's~~well, providing ~~that was~~ 20% of the~~its~~ local supply, was taken out of service due to damage. The District will be ~~video the well in December 2019~~evaluating the well in Winter 2019/Spring 2020 to determine if the well can be repaired, and~~d if so,~~ how long~~i~~, if repaired, the well~~t~~ can reasonably remain in production.

The District is diligently acting to develop alternative local sources of water. Without the Spring Specific Plan (SSP), the District requires over 800 gpm to ~~just~~ provide drinking water and basic sanitation. Further, b~~B~~ased on the tests ~~from then SCWA reflected~~described ~~-~~at page 48 in the 2015 UWMP ~~at page 48~~, the District ~~needs over~~ requires in excess of 1700 gpm to have a survivable level of water including basic fire flow. Given the conservation achieved by District residents ~~achieved~~ since 2015, the District is comfortable in stating that for current customers 1500 gpm ~~will~~is required to provide service adequate for~~allow~~ human health, sanitation, and fire flow - if service through the ~~a~~Aqueduct is interrupted for any significant time. If the District's damaged well can be used for several more years, then the addition of another 400 gpm of new local water over the District's total current wells' production would allow current customers to have drinking water and sanitation with no outside use and little or no fire flow.

Additionally, the ~~Plan~~SSP will impact water service to~~the~~ existing homes along the crest of the hills above it, the top of the District's Zone 1. Currently, t~~T~~he~~o~~se homes ~~all currently~~ have lower service pressure and available fire flow than that provided in other Zones and the balance of Zone 1. Allowing building ~~along the route of~~as proposed in the SSP~~Plan~~, e.g. on Verano Ave, ~~before~~in advance of the District

SCIENCE

Data Pinpoints 14 California Towns Where an Emergency Escape Could Be a Problem

By Jeremy Siegel Aug 22, 2019

Vehicle abandoned by fleeing residents of the Butte County town of Paradise during the Camp Fire in November 2018. *(Josh Edelson/AFP–Getty Images)*

California has the second-largest number of small communities with limited evacuation routes when compared to other states, according to a new nationwide analysis of towns with populations under 40,000.

The study, conducted by San Francisco-based traffic analytics company StreetLight Data, identified 100 communities across the country with the most limited means of escaping

disasters like wildfires and hurricanes. It found that 14 of those communities are in California, second only to Florida's 20.

The study comes on the heels of the deadliest and most destructive blaze in California history, last November's Camp Fire, which killed 86 people and put into perspective some of the challenges facing rural communities with limited escape routes.

When the fast-moving blaze swept through Paradise — a Butte County town of roughly 27,000 — on an early Thursday morning, fleeing residents ended up caught in gridlocked traffic along Skyway, the main route out of town. Many people abandoned their vehicles and fled on foot. Some were found dead in their cars.

The new analysis marks an attempt to highlight the potential for similar situations in other small towns, according to StreetLight's Chief Technical Officer Paul Friedman.

"Transportation infrastructure, and sharing information about transportation options, is one part of the complex requirements of disaster and evacuation preparation," Friedman said. "We hope this data can be a useful support to those working in this challenging field."

In order to identify evacuation-challenged communities, StreetLight analyzed location data points from smartphones and GPS navigation devices in cars and trucks to identify trends in what routes people tend to use to exit their communities. They calculated which communities face the greatest challenges by determining what percentage of a population's daily trips take only one main exit, while also taking into account the number of alternative exits and the total population of an area, according to U.S. Census data.

What's not included in the analysis is the potential for natural disasters in a given area, according to StreetLight CEO Laura Schewel.

"This is purely the transportation data, because that's where we're really the experts, and we want to stay in our lane," she said. "What we hope is that this data can be mixed with people who have expertise about other risk factors ... and be part of the full picture of data-driven evacuation preparedness."

The Bay Area is, for the most part, absent from the list, though that's likely due in part to the study's methodology.

StreetLight identified some small communities in the region with limited evacuation routes, including Ladera, a development adjacent to Portola Valley, near the Alpine Road exit off Interstate 280 on the edge of Silicon Valley, and Fetters Hot Springs, on Highway 12 just north of the town of Sonoma.

But because the analysis was limited to communities with populations under 40,000, larger towns and cities that may have areas with limited escape routes are missing from the list.

Oakland, for example, has some areas with the potential for both limited exit routes and high risk for fire.

During the East Bay Hills fire in October 1991, which killed 25 people, congestion was a major problem. A report on the blaze conducted by the U.S. Fire Administration found that as some roads were blocked down due to the spread of the fire, others "became clogged with cars and pedestrians." As in Paradise, some victims died after being trapped on narrow, blocked roads.

StreetLight's Schewel said the company chose to analyze only small towns because it feels those communities will benefit most from the research.

"We figured if we're going to put a bunch of information on the internet for free, the small towns who don't have the resources to do their own studies might get the most benefit out of that type of exercise," she said.

Schewel said this type of analysis could be conducted for a larger population center like Oakland, but in that case, it might be more helpful to analyze the area in smaller sections.

It's also important to note, Schewel said, that there's no silver bullet for evacuation planning.

"Data-driven planning is important, but we want to be very clear that this is not a magical robot that tells evacuation professionals what to do," she said. "It's — we hope — a helpful extra tool in the toolkit."

In essence, Schewel said, an emergency manager in a small town that's on the list could use the data from the analysis as a launching point for drawing up wildfire evacuation routes.

The following is a list of the California communities among the 100 most evacuation-limited in the country, according to StreetLight, in order:

Limited Evacuation Routes

The 14 California communities rated as having the most limited evacuation routes based on analysis on data from smartphones and GPS devices.

Coto de Caza	Orange	15,294	3
Bell Canyon	Ventura	2,049	2
Lompico	Santa Cruz	1,137	2
Ladera	San Mateo	1,426	2
Temescal Valley	Riverside	22,542	5
Knights Landing	Yolo	1,006	2
Coronado	San Diego	24,582	7
Oak Park	Ventura	13,811	4
Pine Canyon	Monterey	1,816	3
Fetters Hot Springs	Sonoma	4,099	3
Los Osos	San Luis Obispo	14,259	4
Brooktrails	Mendocino	3,251	4
Lake California	Tehama	3,054	4
Fillmore	Ventura	14,923	4

Chart: Dan Brekke/KQED • Source: StreetLight Data • Get the data • Created with Datawrapper

California's two most evacuation-constrained communities — Coto de Caza in Orange County and Bell Canyon in Ventura County — are both in the southern portion of the state and are both at-risk for wildfire: Coto de Caza is surrounded by burnable open space; Bell Canyon was hit hard by the Woolsey Fire in 2018.

From: [redacted]
To: EIR Comments
Subject: Plan Bay Area 2050
Date: Tuesday, October 13, 2020 10:39:23 PM

External Email

Dear ABAG and MTC-
Please include fire/emergency evacuation plans in your analysis. It appears that Sonoma County wants to use this report to supersede their attempt to include areas that would not otherwise be candidates for growth due to safety concerns. We need to smart about building housing and being able to keep the residents safe. The wildfires have shown that Planners of the past thought that engineers could outsmart nature.

We, the average citizens, need to understand how Planning for the future will allow for safe housing and housing that will allow residents to work from home (as necessitated by the Covid-19 pandemic); therefore, housing unit size and dense housing complexes need to be re-thought.

The report should be forthright and clear now matter the conclusion. It may be that with the knowledge of recent events that the conclusion is there are very few smart, safe places to build and we need to consider the Bay Area saturated and we need to remodel and revise rather than grow. Some of the past policies in the Bay Area have pushed development at any and all costs we want to expect an honest report that uses science and scientific methodology that can be clearly articulated, it should not be obfuscated in legalese or "Planner" jargon.

Those of us who own property in a county and live elsewhere need our voices heard but we are at a disadvantage as we can not select the elected representatives. We need an assurance the the Planning process is fair and ethical - show us the code of conduct required of everyone who has a chance to work on the Plan Bay Area 2050.

Thank you for your time and attention to the details.

Sincerely,

Andrew Lipsett

From: [redacted]
To: [redacted]
Subject: Plan Bay Area EIR Scoping comment
Date: Monday October 19 2020 5:20:17 PM

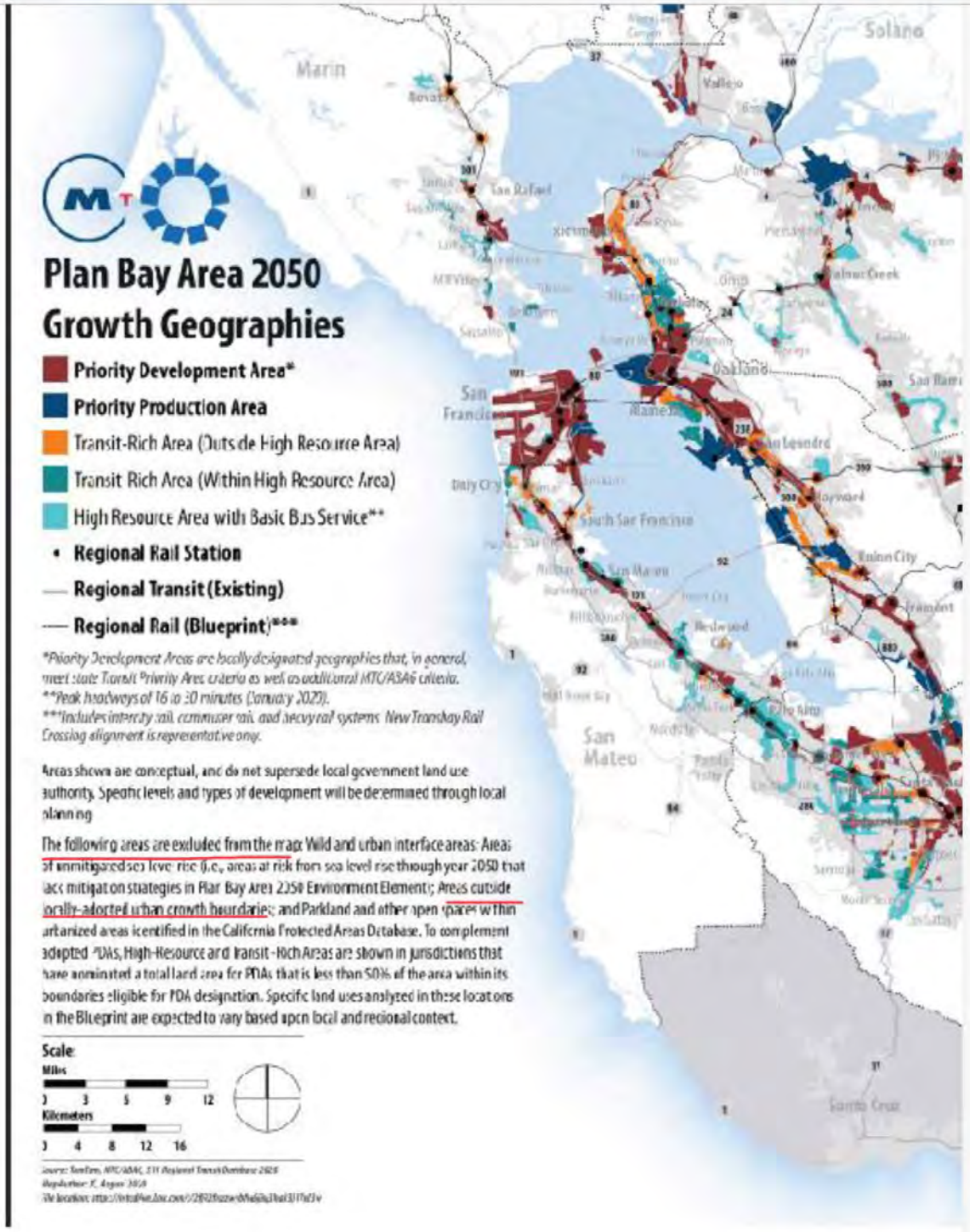
External Email

My name is Victoria DeSmet. My home of 28 years falls within Sonoma County s proposed Springs Specific Plan, one of the PDAs included in Plan Bay Area 2050.

I am writing to request that in your environmental impact report you include a review of **whether any proposed PDAs fall outside of any urban growth boundaries.**

In the legend of your very own map included below, it states the following areas are *excluded* from the map....*areas outside of locally-adopted urban growth boundaries*. Sonoma County s proposed Springs Specific Plan falls directly outside of the City of Sonoma s urban growth boundary. In fact, one entire border of the Springs Specific Plan is contiguous with the City of Sonoma s city limits and the City s urban growth boundary.

Thank you very much for your detailed review.
Victoria DeSmet



Plan Bay Area 2050 Growth Geographies

- **Priority Development Area***
- **Priority Production Area**
- Transit-Rich Area (Outside High Resource Area)
- Transit Rich Area (Within High Resource Area)
- High Resource Area with Basic Bus Service**
- • **Regional Rail Station**
- — **Regional Transit (Existing)**
- — **Regional Rail (Blueprint)*****

*Priority Development Areas are locally designated geographies that, in general, meet state Transit Priority Area criteria as well as additional MTC/ABAG criteria.
**Peak headways of 16 to 20 minutes (January 2023).
***Includes intercity rail, commuter rail, and heavy rail systems. New Transbay Rail Crossing alignment is representative only.

Areas shown are conceptual, and do not supersede local government land use authority. Specific levels and types of development will be determined through local planning.

The following areas are excluded from the map: Wild and urban interface areas; Areas of unmitigated sea level rise (i.e., areas at risk from sea level rise through year 2050 that lack mitigation strategies in Plan Bay Area 2050 Environment Element); Areas outside locally-adopted urban growth boundaries; and Parkland and other open spaces within urbanized areas identified in the California Protected Areas Database. To complement adopted PDAs, High-Resource and Transit-Rich Areas are shown in jurisdictions that have nominated a total land area for PDAs that is less than 50% of the area within its boundaries eligible for PDA designation. Specific land uses analyzed in these locations in the Blueprint are expected to vary based upon local and regional context.

Scale

Miles
0 3 5 9 12

Kilometers
0 4 8 12 16

Source: TomTom, MTC/ABAG, 511 Regional Transit Database 2020
Map author: K. Argow 2020
Web location: https://bayareametro.github.io/2050-plan-maps/final/PDA.html

From: [redacted]
To: info@planbayarea.org
Subject: Plan Bay Area 2050 EIR-NOP comments 10-20-2020
Date: Tuesday, October 20, 2020 10:45:42 PM
Attachments: Plan Bay Area 2050 EIR-NOP comments 10-20-2020.pdf

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External Email

Dear Plan Bay Area 2050 Staff;
Thank you for the invitation to comment on the NOP for Plan Bay Area EIR.
Yours,
Bill Mayben

Plan Bay Area 2050 EIR-NOP, Public Comments October 20, 2020

Bill Mayben
Fairfield, CA

Dear Plan Bay Area 2050 Staff;

Thank you for the opportunity to speak to your coming EIR.

PBA 2050 contemplates, over the coming 30 years, the addition of approximately two million people, their residences, transportation, infrastructure, as well as public, commercial, and retail facilities to provide jobs, goods and services for their lives around the SF Bay. The related EIR is intended to address the inevitable sum total of the environmental consequences of these changes, and strategies to avoid or minimize consequences to the environment. Note that in coordinating agencies, the Federal Government is included, and that an NEPA will need to be filed in addition to the EIR.

The project duration is challenging, and no review could fail to realize that this EIR will cover a period of time in which our environment has already begun to change dramatically. Historically, an EIR relates to a brief slice of time, during which the environment is assumed to be the same during development as it was during the EIR process. This cannot be true within the 30 year timeframe of PBA 2050.

Our temperature is increasingly hotter, sea levels are rising and will continue well into the future, our rainfall will continue to lessen, spiked with periodic floods, native plants, animals and insects are increasingly under habitat and extinction pressures, runaway forest fires will continue to be a fact of life, ocean and bay warming and acidification will pressure marine life, storms will become even more frequent and severe, and we will be subject to waves of climate refugees from regions which will become inhospitable.

A thin distinction now exists between defining and designing mitigation of environmental impacts of an EIR, and the necessary mitigation of climate change impacts as a component of The Plan. Based on the effects of climate change, our environment is now moving from being passively subject to human development, to dramatically and unavoidably impacting human development with a whole new set of challenges; from being the field upon which the game is played, to being a player in the game. PBA 2050 will inherit a number of climate change conditions over the course of the 30 year period, of a magnitude which The Plan will not

have created; but which will nevertheless have to be addressed in order to proceed.

Climate change science has ascertained two unavoidable facts. Mitigation dollars spent in the early stages of these environmental changes will have much greater effect, greater value, than mitigation dollars contemplated in the future; until such future time when mitigation dollars will not have any real effect, little value, and we will be forced by dire circumstances to fall back onto increasingly urgent adaptation strategies.

Our obligation to mitigate is for more than the environment; it also has very much to do with the human principles of resilience and sustainability. This is not business as usual.

Significant currently projected project induced environmental effects which are additive to any climate change effects, are suggested below. I will discuss a series of potential alternatives at the end:

Heat: This comes from a number of known development and population effects. Increases in paved area and structural land coverage add to the "heat island" effects. Increasing heat generation from sources such as heating and air conditioning, manufacturing, transportation, and jet aircraft; add to the known global atmospheric heat increases from climate change. New concrete accounts for 8% of worldwide CO2 emissions. 50% of this is from its manufacture, and 50% from the chemical process of curing. Contemplating development of infrastructure, buildings and residences over the next 30 years, this adds a tremendous amount of CO2 to our atmosphere; one of the most destructive greenhouse gasses contributing to global warming and climate change.

Air Pollution: Primary air pollution impacts are to air and water, and secondarily the organisms that live in that water, and the organisms who breathe that air, including us. Air pollution includes dust, but now will include the particulate material from wildfires, as well as a long list of toxic airborne pollutants from its incineration of manmade structures and systems.

California is now using 17 million gallons of gas per day. I noted the scope of The Plan states in relation to transportation; it will "maintain existing system". This does not define what will run on these roadways. Following that statement, and if vehicle greenhouse gas emissions are allowed to continue and increase, then the known effects must be mitigated. Diesel particulate from trucking, and bunker oil

from ocean shipping settles on both land and water. It is toxic to humans and animals alike.

There are a number of studies, and citations of our 7 major oil refineries. These were established starting in 1915, and have grown into enormous facilities. Our best efforts have not been enough to provide confident public health and safety in living and working with these facilities in our midst. In the meantime; PBA 2050 proposed growth will exacerbate the toxic effects of these plants, and the heat they generate, and the number of people living around them.

Traffic congestion exacerbates air pollution. The Plan cites the resolution of traffic congestion and transit overcrowding as "challenges" going forward. The EIR will require us to provide solutions to the addition to millions of additional "vehicle trips per day". Commonly, traffic engineers define residential traffic patterns as based on 6 to 10 vehicle trips per day per household. Using the lowest number, would this indicate the potential of growing to an estimated 12 million additional vehicle trips per day over the next thirty years? This would be on top of our present estimated 51 million vehicle trips per day. That is a challenge.

Water Pollution: Increased paving and roofs accelerate rainwater runoff, transporting turbidity and toxic deposits into receiving waters and the Bay. Wildfire soot and ash carry toxic residues into domestic and natural water; both airborne and with rain runoff and floodwaters; threatening humans, plants and wildlife alike. Diesel particulate from trucking, and bunker oil burning from shipping settles on both land and water. It is toxic to the marine environment and difficult to remove from domestic water reservoirs; and is toxic to humans, animals and plants alike; as are auto emissions. Chemical runoff from landscapes, golf courses, refineries, and a myriad of other sources, threatens natural life in our receiving waters. While we have done better at controlling this, it is still at issue.

Sea Level Rise: One feature discussed in the Blueprint, is the reassurance that The Plan will be "protecting 98% of all at risk housing units through 2050 with new, resilient infrastructure." This sounds like seawalls. Seawalls are a tempting solution for sea level rise, as they can hold back rising water for an extended period of time, for any structures. They do so at a cost. They disrupt the vital ecological functions of the Bay's natural shoreline. The reason extensive efforts have been put into restoring Bay marshes and shoreline; is in recognition of the vital link shoreline ecology provides in promulgating the natural Bay biosphere.

The soils surrounding the Bay are subject to liquefaction, so seawalls may be subject to rupture during an earthquake; creating catastrophic flooding; antithetical to their purpose.

Surrounding at risk structures with seawalls fundamentally changes both the biological and aesthetic aspects of the Bay. This strategy is now vague, needing to be explicit in the plan, and would have to be delineated in the EIR, with mitigation and alternatives examined. Businesses also are inevitably going to want to erect seawalls to protect their facilities; so The Plan will also need to evaluate impacts of the projected 30 year total scope of seawall use around the Bay, as well as the resulting changed function and appearance of the Bay. Sea level rise is relentless, and will not stop in 2050, so could seawalls be described as a delaying tactic?

PBA 2050 may not be considered a conscious, professional 30 year development plan if it destroyed the aesthetic and biological presence of our Bay; the reason we live here, by surrounding it with seawalls in order to carry out the improvements, and if it is contemplated, it needs to be so stated and explicitly mapped to be evaluated.

Wildfire: This is another area where environmental concerns and human activities converge. Without an effective mitigation plan for wildfire dangers in the aforementioned hotter, dryer, and more populated Bay Area; there is proven increased danger to lives, flora and fauna, and property. Wildfires have recently multiplied in size and numbers due to stronger winds and dryer conditions combined with the buildup of combustible plant materials. Faced with resulting firestorms; firefighting has fallen back to alerting threatened inhabitants and populations, and managing as much as possible the direction of fires until conditions allow for safe intervention. Beyond this, the residue of wildfire is proving to be highly toxic, containing a number of complex chemical components such as benzene as well as enormous quantities of conventional greenhouse gas emissions. This secondarily endangers human and marine life as well as domestic water reservoirs.

Extensive, hot forest fires affect the quality of what little water we retain. With rainstorms we get the other shoe dropping; toxic mud and ash flows into receiving waters. Future development will exacerbate fire risks with greater numbers of people and intensified proximity of development to natural areas.

Wildfire crosses over into several areas of environmental concerns; air pollution, water pollution (both domestic and Bay as well as ocean water), species loss, and threats to development and human lives. We should not discount the fact that it has and will happen in the Bay Area counties.

Native landscape and associated species: Progressively increasing heat and drought-like conditions most affect the native species that are unable to easily move elsewhere. We are in the midst of an extinction event of major proportions. Those that cannot adapt are likely to be replaced by other plants and organisms, progressively changing our biosphere. We are already being overrun by opportunistic exotic plants, and pests.

While we may say that The Plan would not exacerbate this problem, accepting the continuation of oil refining and fossil fuel use in the Bay Area for 30 years, for example, would add considerable CO2 burden to the local atmospheric warming and water pollution, verses zero added, and a zero baseline without them; along with other cited effects on the environment.

Noise pollution: Maybe you no longer notice the constant noise, but your body does. This will increase with further development. Our three international airports are surrounded by our cities. All of these were outside town at one point, managing propeller driven aircraft. Has anyone noticed human encroachment now surrounding these airports? Vehicular traffic is congested at certain times of day; however is otherwise constant. Commerce and manufacturing create their own backdrop of noise. The addition of 2 million people and associated development will only compound noise pollution.

Demo and removal of flooded and unusable commercial, residential, and infrastructure improvements:

On dry land, completed developments are seldom significantly toxic. Underwater, or in occasionally inundated sites, these same improvements will be unsightly and frequently detrimental to marine organisms, and should be removed. They will also create a displeasing aesthetic at our shoreline. Over time the loss of residential units to flooding, in addition to any other built improvements and infrastructure, will need to be removed. Without this, and resorting to seawalls and dikes, which are inevitably temporary; we need to be conscious of the future appearance of our Bay. This is a climate change phenomena PBA 2050 will inherit to carry out the Plan.

Asphalt pavement: Asphalt pavement has been proven to continue to off gas hydrocarbon emissions during summers, practically forever. Additionally, it is a prime source of surface heat buildup, adding to the "heat island" effect in cities and neighborhoods.

Potential Mitigation measures:

Much of what we need to do under the aegis of mitigation is more establishing and extending our human resilience and sustainability as it is to some objective preservation of, or obligation to, our environment . To accomplish this, the EIR as a useful tool, should incorporate specific periodic updates to reset mitigation measures, or adaptation measures, in line with inevitable resets to the Plan itself, to address the actual progression of climate change over the course of 30 years. This would be a mitigation measure in itself.

For example, if we are saving the fish, the act is as much preserving a source of food as it is concern for the species. Our efforts to extend the presence of trees and plants is as much for the heat buffering effects and oxygen generation they provide us as it is for aesthetics and concern for species preservation. In evaluating mitigation alternatives and solutions, our background question should be "How are we planning to provide reliable resilience and sustainability otherwise?" or for instance, "Could a healthy Bay provide farmed fish to add jobs and insure food security?"

DECENTRALIZATION: The overarching simplest solution to mitigate the environmental impacts of PBA 2050 development essentially within the SF Bay basin; would be decentralization. While PBA 2050 is held out as a Regional plan; it mostly addresses those urbanized parts of the designated nine regional counties that are closest to the Bay. The assumption that 30 years of future growth needs to be essentially focused within this area, needs to itself be carefully re-examined under the circumstances. The way in which we have organized our work and family lives needs to evolve. It is no longer 1958.

A significant amount of the Bay Area work force and their housing and associated needs, excepting jobs, are already located outside this finite area. What has not been done is to encourage the decentralization of jobs and associated infrastructure to accommodate more people without the need for commuting; and in turn enhancing the quality of life for people in all of these locations. This

strategy more easily falls within the 5 goals of PBA 2050; Affordable, Connected, Diverse, Healthy, and Vibrant; while also reducing the environmental impacts created from almost exclusively concentrated Bay basin development.

The Bay basin is a constrained location within which to focus intense development; surrounded by steep clay hillsides generally poor for development; fronting a bay that will continue to gain in elevation, steadily reducing usable development land; and as stipulated in the Plan, holding to present county and city limits while preserving all natural areas. This seems like a progressively compressed development scenario, similar to the effects on an island subject to sea level rise and an increasing population. Growth will be vertical and expensive.

Note that a broadly subscribed and committed 30 year decentralization strategy involving all of the area of the 9 Bay Area Counties, would effectively resolve much of the PBA 2050 Blueprint stated ongoing or continuing unmet Plan "Challenges" 1 through 5; namely:

1. Continued inability to resolve the present affordable housing shortage
2. Unresolved traffic congestion and transit overcrowding
3. Continued displacement of low-income individuals and families.
4. Excess Greenhouse Gas Emissions beyond all efforts to mitigate
5. Lack of broad, multi-sector job growth outside a few industries.

Note that as the Blueprint admits that these 5 areas are unresolved even at the planning level, the EIR would already need to address specific alternatives.

This leads me back to our mitigation alternatives, starting with decentralization. If we were to fully engage the 30 year capacity of the accessible area of the nine counties, decentralizing jobs, workers and their employers; their residences and supporting improvements into smaller but digitally connected, non-commuting communities could resolve most of recognized Plan issues; providing resolution to the 5 Challenges cited in the Plan, in addition to reducing many, if not most of the foreseen EIR mitigation requirements, or extending those requirements at a more attainable pace. Our intent would be to vastly reduce commuting and transportation, impacts on housing availability and cost, air and water quality and availability, impacts on the environment generally, and employing affordable conventional construction verses expensive mid to high rise construction costs in the crowded Bay basin. Tim Snelson puts it well: "While the collective progression of civilizations over centuries is still largely measured by the ability to build bigger,

faster and taller, we have come to the point where we must put the limits on ourselves and apply our forces to the challenge of building sustainably, above all else, or risk destroying the very future that will hold our legacy."

Decentralized, the Bay Area would have the funds to reorder long-range regional functionality without the added costs and pressure of substantial annual growth in addition.

The population and commercial increase capability of the "back forty" of the 9 Bay Area Counties is a multi-pronged study in itself, but the potential is clear. It is important to realize that with the climate changes that are coming our way; we would be more resilient decentralized. Food security would be enhanced. We would have a broader ability to resolve climate refugee emergencies; we could have cleaner air and water, and healthier lives at a slower pace.

Committed decentralization is the most naturally resilient and sustainable long-term growth strategy.

HEAT REDUCTION: Reducing the concentration of 2 million additional residents would disburse and reduce the associated air conditioning electrical load of residences, traffic and buildings, as well as the atmospheric heat load that air conditioning adds.

Local ecological communities would benefit from less air pollution. More vegetation means better air and cooler temperatures, so they form the natural mitigation to rising heat at ground level.

The pandemic has proven that we have the ability to operate effectively with a disbursed work force. Excess, unnecessary office space could be converted to residential use, as well as the associated parking lots and garages, helping to resolve costs and availability of land to build for 2 million people. Instead of adding freeways, we could remove some.

AIR POLLUTION: As to fossil fuels, the sooner we grow out of them the better. San Francisco is thinking forward by moving to eliminate the use of natural gas. New concrete structures and their CO2 emissions could be vastly reduced in favor of engineered wood. Given that our three regional airports are threatened by rising bay water levels, and are surrounded by development; and that the most severe fossil fuel emissions of a passenger jet are on takeoff; dumping those emissions directly into our low level atmosphere all day, every day; perhaps we

should consider alternatives. I have the opinion that the only reason air travel is affordable for most of us, is that the airlines are not required to clean up after themselves. The same is true for fossil fuel vehicles, actually. We are far beyond the era where this excess is tolerable. We are told that we cannot intervene in passenger and freight jet engine pollution, because it is a Federal matter. Note that we were told the same thing in the late 60's and early 70's regarding smog caused by automobile emissions. We have been able to carve out a "California model" in air pollution law; and now our skies are at least largely smog free. I see no difference regarding jet aircraft emissions; in which everyone could benefit from a California model. This is a legal matter.

California SB 100 is written into law to end our use of fossil fuels. PBA 2050 should consider evoking, and aligning itself with the law and rational guidance on the subject, and as direct mitigation of the effects fossil fuels are required. Should we continue to allow these 100 plus year old refineries in our midst, despite the known health and atmospheric detriments?

TRAFFIC CONGESTION: Beyond this, it is inconceivable that we can support continued ubiquitous employment of personal vehicles, be they gas or electric. The logistics no longer work. Only effective public transportation, fully subscribed, can allow us to function; is sustainable and resilient. NEV's (neighborhood electric vehicles), electric bikes and motorcycles, self-driving cabs are all potential solutions for local movement. Rental vehicles could become common alternatives for trips where the destination is not served. If vehicles paid their actual, full, unsubsidized costs of operation, they would not be desirable. Communities could be saved from total domination by the automobile if transportation planning were dedicated to removing automobile commuters. The biggest hurtle could be "established economic interests". Switching to electric vehicles will vastly reduce air pollution.

SOCIAL INEQUITIES:

I am struck with how difficult it is for the Bay Area to resolve its current affordable housing and homeless problems, even before adding 70,000 more people per year, for 30 years. Does the intended addition of 2 million residences include housing our existing homeless populations, or are we proposing to extend our current lack of affordable housing and homeless populations? These problems and their underlying sources need to be resolved, and incorporated within The Plan. Homelessness stands out in stark contrast to the stated goals of PBA 2050.

The excessive costs of housing are largely attributable to the control of overlapping bureaucracies issuing fees, requirements, regulations, codes and delays that depart from reason, as well as the cost of land. Is housing as important as commerce?

The economy has permanently changed, yet our residential and commercial building requirements proceed as though it has not. Now it is expected that taxpayers subsidize the difference in order to create affordability. This must change.

NATIVE PLANT AND ANIMAL EXTINCTION: The added improvements will increase survival pressures on our native plant and organisms. At the same time, we need more greenscape; so ongoing native plant promulgation and planting programs meet both needs. We should promote native plant landscaping to support the biosphere. This will also save water, which will be very important in the future.

WATER POLLUTION: Thought needs to be given now to inevitable future droughts; and how we handle our entire water cycle. Special consideration needs to be given to water conservation and protecting reservoirs potentially in the path of wildfire. We need to double down on our monitoring of oil refinery and shipping discharges. We need to encourage electric transportation alternatives. We need to codify the use of permeable pavement. Sewage, agricultural, and industrial discharge standards need to be re-examined. We need to prepare for periodic flooding, with associated sediment, and mud flows.

WILDFIRE: Wildfire threats to densely populated areas deserve, in our era of high winds and resulting firestorms, require a specific programmed prevention and remediation plan for all Bay Area counties.

SEA LEVEL RISE: The San Francisco Bay Shoreline Adaptation Atlas provides planning surrounding the fact of rising sea levels at 30 distinct geographic areas; and could serve as a reference document to the EIR, with addendum outlining any Plan areas that are not covered in the Atlas.

We need to plan for more sea level rise rather than less. The exponential growth of climate change has taught us that events are now frequently more severe sooner than even climate scientists have predicted. If we plan for more sea level rise, we have made an investment; if we plan for too little we have created a crisis.

There are many aspects to this issue, one that will become a feature of Bay Area life for decades upon decades to come. Flooded buildings and infrastructure will need to be demoed and removed, along with any toxins.

We need to seriously consider a policy of not fighting sea level rise. We will spend far more money than an intelligent retreat to higher ground, relocating future development well above the rising sea level, coupled with decentralization; keeping in mind that sea level rise will continue decades beyond 2050.

As to mitigation, both Sausalito and Oakland have successful houseboat communities that are structured, managed, effectively served with all utilities, safe, and offer affordable housing alternatives for many individuals and families. They are located in waterfront areas that would otherwise be unused, and fit nicely in their setting. Because they are floating, they provide a solution to sea level rise threats to bayside communities, rising along with rising waters.

Airports would probably be, incidentally, some of the first facilities that have no solution to sea level rise except seawalls. The other solution is considering consolidating them to a long-term alternate location. Mountaintop?

Progressively, thought needs to be given to the identification and potential relocation of vulnerable historic structures in the path of flooding.

NOISE POLLUTION: Noise from automobiles and trucking, trains and busses, jet aircraft to seagoing freighters will increase with population and commercial ventures. Each of these sources needs to have a plan, progressively over 30 years, to contain noise. Allowable noise levels can be further stipulated by law. It should be noted that switching to electric vehicles will vastly reduce noise pollution.

ASPHALT PAVING: To help curtail ongoing atmospheric pollution by this type of paving, consider banning it. Permeable paving allows rainwater to percolate into the ground, both providing needed groundwater and slowing runoff.

Thanks to the Plan Bay Area, Association of Bay Area Governments, the Metropolitan Transportation Commission; and the many agency and citizen participants for their hard work in planning for our future.

Very Truly Yours,

Bill Mayben

From: [redacted]
To: EIR Comments
Subject: Public comment for Notice of Preparation for Plan Bay Area 2050 EIR
Date: Thursday, October 22, 2020 7:54:45 AM

External Email

Please address the following issues in the EIR:

- What elements are included in the EIR that ensure that all Bay Area residents have access to adequate supplies of clean, affordable and safe water?
- Future water supplies for the Bay Area are highly uncertain as we face a changing climate. How does the EIR address the need for truly resilient Bay Area water supplies, with multiple, redundant and diverse sources of water supply?
- Water diversions for human use have had and continue to have significant negative impacts on the environment. How does the EIR address the negative impacts of these water diversions? What plans are included to reduce diversions by implementing well-understood policies such as water reuse, recycling and conservation?
- California law currently requires that a sustainable water supply be assured before approval of any new development of 500 units or more, potentially resulting in smaller housing developments – the vast majority – losing their water. What alternatives should be considered for this high level?
- The Bay Area needs to build more housing without using more water. What specific incentives are being examined to ensure that new development does not increase total water demand?

Please let me know if you have any questions or need additional information.
Thank you.

William L. Martin
San Francisco, CA [redacted]
[redacted]

From: [redacted]
To: EIR Comments
Subject: Plan Bay Area 2050
Date: Thursday, October 22, 2020 9:04:04 AM

External Email

Greetings,

California's Delta Reform Act of 2009 has as a major goal protecting, restoring, and enhancing the Delta ecosystem, and specifically reducing our reliance on the Sacramento-San Joaquin for water supplies. As Tuolumne River water flows ultimately into the Delta, how will we accommodate projected growth in the Bay Area, while simultaneously reducing our reliance on Tuolumne River water?

Thanks for your consideration,

Heinrich Albert
[redacted]

From: [redacted]
To: info@planbayarea.org
Subject: PBA 2050 EIR-NOT public comments: Fast-Growing Mini-Forests Spring up in Europe to Aid Climate
Date: Thursday, October 22, 2020 6:04:01 PM

External Email

https://getpocket.com/explore/item/fast-growing-mini-forests-spring-up-in-europe-to-aid-climate?utm_source=pocket-newtab

From:	Plan BayArea Info
To:	EIR Comments
Subject:	FW: San Francisco Bay Area Region Report - Reg_Report-SUM-CCCA4-2018-005_SanFranciscoBayArea_ADA.pdf
Date:	Friday, October 23, 2020 9:01:32 AM

Dave Vautin, AICP
Assistant Director, Major Plans
dvautin@bayareametro.gov - (415) 778-6709

BAY AREA METRO | BayAreaMetro.gov
Metropolitan Transportation Commission
Association of Bay Area Governments

From: Bill Mayben [redacted]
Sent: Friday, October 23, 2020 6:17 AM
To: info@planbayarea.org
Subject: San Francisco Bay Area Region Report - Reg_Report-SUM-CCCA4-2018-005_SanFranciscoBayArea_ADA.pdf

External Email

https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-005_SanFranciscoBayArea_ADA.pdf

Dear PBA 2050 Staff;

Attached is a link to the most recent State of California Climate Assessment, to provide the full document as public comments to the EIR-NOP.

Thanks,

Bill Mayben

From:	Adam Noelting
To:	EIR Comments
Subject:	Fw: PBA 2050 EIR, What have we learned from the Pandemic
Date:	Friday, October 23, 2020 11:07:57 AM
Attachments:	PBA 2050 EIR, What have we learned from the Pandemic.docx

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From: Bill Mayben [redacted]
Sent: Friday, October 23, 2020 9:40 AM
To: Adam Noelting <ANoelting@bayareametro.gov>
Subject: PBA 2050 EIR, What have we learned from the Pandemic

Dear Adam,
This morning I considered changes wrought by the pandemic. It is not over yet! Some of these changes will affect how we move forward, and endure. For example, after the 2008 recession I witnessed corporations realizing that whole levels of middle management were no longer necessary, were irrelevant to how business had evolved with technology. Those middle management jobs never came back, so there is precedence for permanent change from crisis. It forces us to see ourselves in another light.

I speculated about this in relation to PBA 2050; both in what changes might further, and what of them may impede the planning and development. I know you have a lot coming at you; much of which constantly requires looking at issues with new eyes, so hopefully this exercise helps. This draft follows on comments and speculation I recently forwarded on the NOT.

Best Regards,

Bill Mayben

What have we learned from the Pandemic? 10-23-2020

Potential Enduring Pandemic Effects on Plan Bay Area 2050

Bill Mayben

The Coronavirus pandemic has had dramatic effects on many aspects of Bay Area life since March of 2020. It is important to review, in the midst of an EIR, and contemplating the launch of the Blueprint beyond the planning stage, what of these effects may endure, and to what extent they may affect the Plan. The following is a speculative outline, a draft for the purposes of discussion. I urge you to make your own notes. There have been advantages and disadvantages of the pandemic. Many of these areas overlap:

As to the 5 goals:

Affordability:

Remote work has changed the map of many employment conventions. Some have said the rental population of SF has been reduced by 20% in favor of other locations. Business property manager are looking at empty office buildings and realizing they may no longer require that much space. Some of these will be filled with other businesses; some of them may languish on the market, and could potentially be converted to residential if cities are willing to provide the entitlements. This in turn could reduce the impacts of 70,000 new residential units' footprints per year for 30 years, as contemplated in the plan. Short term, rents of existing residential spaces has been reduced. We have seen that housing prices are irretrievably connected to wages and salaries, and cost of living. Below, in Population and Housing, I ask "Can we move housing to a level of importance equal to or exceeding commerce?"

Connected:

The pandemic has revealed vulnerabilities in public transportation; which itself is a plan backbone for the reduction of other impacts going forward 30 years. Gas powered or electric, we cannot endure the roadway congestion, so there needs to be some re-engineering around the potential of: a reoccurrence of this virus; another virus; or a series of viruses. Transportation is an obvious vulnerability. Beyond transportation, how do communities become connected, and increase their resilience?

Diverse:

Working families lack the resources to endure the economic effects of the pandemic. Reports are that people of color are more vulnerable to the virus, economic dislocation, unemployment, homelessness, and ultimately either pushed out of our economic life or out of the Bay Area. It is a given that the goal of Diversity is seriously impacted by the pandemic, and may take the longest to reverse.

Healthy:

While it may be true that the pandemic has lessened the crowding, noise and associated stresses in the Bay area; and improved air quality; it has revealed vulnerabilities in our health care system; financing, space, equipment reserves, and personnel. These vulnerabilities would also apply to any regional emergency, such as an earthquake; or a wave of climate refugees; and need to be looked at regionally. Health is a broader topic. Our economically disadvantaged and homeless are far more likely to suffer from the pandemic, and lack the personal resources to obtain proper treatment. This unsolved societal problem has been exacerbated, and enlarged, by the pandemic. Is it time to include all of this population in the plan? Can we go forward with a class of untouchables, rather than take responsibility for setting the conditions of homelessness? These conditions need to be identified and resolved regionally as part of PBA 2050.

Vibrant:

The pandemic has starkly ended many small businesses, some of which have been active for over 75 years. This affects economic vibrancy as well as cultural. We have failed to organize ourselves to attend to these core elements through our crisis. Jobs have been impacted, expertise has been lost, and services have been diminished. This is an issue of leadership and community cohesion. Same with the arts, which have suffered immeasurably. It appears that we need additional societal institutions if we are to be reliably sustainable and resilient.

As to Resilience and Sustainability:

What has been demonstrated is that we are resilient and our way of live sustainable within what appears to be a relatively narrow band of assumptions. Now we are faced with expanding our assumptions. During the pandemic we have also faced the effects of wildfires; bringing us closer to realizing that we also face environmental threats that are new, and require new thinking, new action, new levels of planning and organization; so in this sense the pandemic has been multi-faceted; economic threats, medical threats, environmental threats, mobility threats. Threats as basic as food and shelter are primary concerns. Based on world populations, and the extent of this pandemic and others; we need to explore the potential of a warmer, dryer, more populated earth having frequent viral emergencies. We need to get much better at this. All of us have been shocked at the speed and extent to which our society came unraveled.

As to certain Issue areas of the EIR:

Air Quality: We saw our air quality dramatically improve. This was heartening; that succeeding in a transition from fossil fuels could completely transform the Bay Area.

Cultural Resources: Unfortunately the arts, drama, theater, even movies, cuisine and public interaction of almost any type have been seriously impacted. Going forward, we need to realize the importance in preserving our cultural features.

Energy: As our energy use diminished, we would see a reduction in atmospheric heat, air quality, and health benefits. It became apparent that renewable resources have a shot at replacing fossil fuels; even sooner if we were to conserve.

Greenhouse Gasses: The reduction in greenhouse gasses has been palpable. In this sense the pandemic has shown us that life can be vastly improved if we desire it. It has shown us that we need not wait 30 years for it to improve; it could happen practically overnight. I noted in my EIR-NOT comments that jet passenger aircraft emissions are greatest on takeoff; which are all deposited at ground level and low altitude. We have 3 International airports in our living rooms.

Land Use and Planning: If we are willing to change with potential remote work, we could provide for some of the planned 2 million added residents by reuse of excess office space. It also fits that decentralization, which is essentially what happened with many remote workers, can lessen all of the identified impacts of the proposed PBA 2050 growth. How does PBA 2050 carry our past forward? How is that an advantage and where is it unsustainable?

Noise: See comments above on Greenhouse gases.

Population and Housing: See comments on Land Use and Planning. Has the pandemic shown us the importance of housing security to our cultural and economic sustainability? Can we move housing to a level of importance equal to or exceeding commerce? PBA 2050 is a dynamic plan for Bay Area future growth and development, against a backdrop of community resistance to change. The change we envision cannot all occur on new dirt; outside existing communities. So it seems accentuated by the pandemic that change is good as long as it occurs elsewhere. This does not work. The pandemic has had a leveling influence, showing the extent that we need each other.

Public Services: We have been jolted into witnessing that we are entering an era where Business is not Usual. We need to be cautious in our planning assumptions going forward. Public services relate to resources toward sustainability, including the management of supply chain dynamics, transportation, communication, water, power, fire and police, health care, emergency services, elder care, the disabled, education, etc. All of these have been impacted during the pandemic, to some extent.

Transportation and Traffic: There were almost instant shift in confidence in public transportation, which we should note. In retrospect we should have seen this coming and provided a plan of action to preserve use of this vital resource.

Utilities and Other Service Systems: See Public Services, above.

From:	Plan BayArea Info
To:	EIR Comments
Subject:	FW: Comments for PBA2050 EIR-NOT :The Hill: Opinion | We need improved climate-resilient infrastructure
Date:	Monday, October 26, 2020 6:07:57 PM

Dave Vautin, AICP
Assistant Director, Major Plans
dvautin@bayareametro.gov - (415) 778-6709

BAY AREA METRO | BayAreaMetro.gov
Metropolitan Transportation Commission
Association of Bay Area Governments

From: Bill Mayben [redacted]
Sent: Friday, October 16, 2020 6:07 PM
To: info@planbayarea.org
Subject: Comments for PBA2050 EIR-NOT :The Hill: Opinion | We need improved climate-resilient infrastructure

External Email

Dear PBA Staff;
This article encircles newly emerging issues we face to provide the "Resilience and Sustainability" aspects of the plan.
Bill Mayben

Opinion | We need improved climate-resilient infrastructure
Our ability to supply essential services to citizens is becoming so endangered it's threatening our national security.

Read in The Hill: https://apple.news/AT4PfkqfhSiGvpRb9PUoK4w

[redacted]

Sent from my iPhone

From: Gary DeSmet
To: EIR Comments
Cc: Vicki DeSmet
Subject: Scoping Request, MTC"s Plan Bay Area 2050 for PDA
Date: Wednesday, October 28, 2020 4:55:35 PM

External Email

MTC's Plan Bay Area 2050, PDA's

Re: Scoping Request for EIR
From: Gary DeSmet

The PDA approved for Sonoma Valley by MTC and now under EIR investigation.

Hello, my name is Gary DeSmet. My home is within the proposed Springs Specific Plan, now under EIR review as part of Plan Bay Area 2050.

Please add the following to your EIR work for the above-mentioned.

1.GD
a) What is the jobs situation right now in Sonoma Valley?
b) What number of unfilled job positions exist today in Sonoma Valley?
c) Is there a lack of workers today for an oversupply of existing unfilled jobs?
d) How do you describe today's available jobs? High skill (please be specific)? Manual labor (ie: landscape, restaurant, hotel…)? Other?

2.GD
a) In 10-year intervals through 2050, what is the predicted jobs situation in Sonoma Valley?
b) What is the prediction for additional housing without the PDA (under existing conditions) during those 10-year intervals through 2050?
c) In 10-year intervals through 2050, what is the gap between predicted unfilled jobs and predicted housing, without the PDA (that is, under existing conditions)?

3.GD
a) In 10-year intervals through 2050 (but beginning on January 1, 2020, as baseline), what is the predicted adjustment to remote work numbers ('remote work' being a job done from home)? Please express as a % of jobs, in addition to numbers of jobs.
b) Please assess the changing need, due to the quickly evolving remote work situation, for Sonoma Valley to provide suburban housing for commuting workers to distant jobs, for example in San Francisco.
c) Please assess the regional number of office spaces which will convert to housing units during those 10-year intervals through 2050. Calabasas, for example, already has office-to-housing conversion on its City Council agenda.
d) How does regional office-to-housing conversion change the equations applied to the claimed need for Sonoma Valley to provide housing for commuting workers?

Thank you,

Gary DeSmet
[redacted]

From: [redacted]
To: EIR Comments
Subject: Comments for Plan Bay Area 2050 Scoping process
Date: Wednesday, October 28, 2020 5:20:07 PM
Attachments: PBA NOP Comments Piras.pdf

External Email

Please consider the attached comments and questions. Thank you in advance for your consideration.

PATRISHA ("Pat") PIRAS

Phone: [redacted] **Fax:** [redacted] **Email:** [redacted]

October 28, 2020 Via email to: eircomments@bayareametro.gov

MTC Public Information
Suite 800
375 Beale Street
San Francisco 94105

Re: Notice of Preparation of an Environmental Impact Report
for Plan Bay Area 2050

To Whom It May Concern:

Hardly a day goes by without one or more articles in the popular or government press sounding an alarm about impending financial impacts of climate change or sea level rise. It is critical that the upcoming Plan Bay Area (PBA) 2050 and its related Environmental Impact Report (EIR) be based on reasonable financial assumptions and projections that will pass muster for credibility by both the general public and key government oversight agencies such as the California Air Resources Board (ARB) and the US Department of Transportation (DOT).

These comments are submitted solely by an individual, and they focus on the financial impacts of environmental, equity, and policy decisions and actions that may occur in the context of PBA 2050. While some may consider that climate change and sea level rise will not evidence themselves until towards the longer-range phases of the Plan, it is also clear that the current Covid-19 pandemic is already seriously affecting local, regional and statewide economies, particularly with regard to governmental revenues including but not limited to sales taxes.

Although MTC and ABAG officials do not technically have a legal fiduciary responsibility to public members of the community, they do have a moral obligation to exercise their positions in a prudent and responsible way to "do no harm." This should include their roles for advocacy and project selection. Because of the considerable level of future financial uncertainty during the timeframe of proposed PBA 2050, it is recommended that a DEIR Alternative be considered and evaluated that is truly financially constrained, and relies solely on revenues that are already enacted by local voters and the Legislature. This means it should not "assume" a hypothetical "mega-tax-measure" or the kinds of supplemental "mega projects," newly added into the Blueprint list, that would presumably be partially funded by such questionably sustainable impositions on the public. The DEIR should also lay out a realistic and believable timeline for a recovery of transit service ridership, both with and without the potential "strategy" that

would require extended periods of employee tele-working for some future period for certain-sized corporations.

Please note that the publications cited in these comments and footnotes are fully incorporated by reference as submittals regarding the proposed PBA 2050 and its pending DEIR. How do MTC and ABAG plan to address the concerns that they identify, both environmentally and regarding the financial impacts resulting therefrom?

On September 17, 2020, *Moody's Investors Service, Inc.* published a research report entitled "*State and Local Government – US: Sea level rise increases credit risk for coastal states and local governments*."[1] While the article is focused on East Coast locales, its message is a significant caution to California and the Bay Area – the same concerns apply here as well. In particular, since the "self-help" County Transportation Agencies rely so heavily on issuance of bonds and debt as way to "advance" their capital projects, how can this mechanism be reliably continued into the future, up to the 2050 timeframe? The DEIR should include a Financial Assessment that fully incorporates realistic Climate Change and Sea Level Rise expectations, and their impacts.

Even just today, a webinar was presented by the University of California Berkeley's Center for Law, Energy, & the Environment (CLEE) entitled "*Climate Risks to the US Financial System: Urgent & Decisive Action Needed*."[2] Much of the session focused on a recent report by the Climate-Related Market Risk Subcommittee of the US Commodity Futures Trading Commission.[3] Among the "tools" identified by prudent investment managers are carbon pricing and fossil fuel divestment – how will financial policies such as these affect transportation revenues? The panelists agreed that "there is no place to hide" from the risks of Climate Change, which must be dealt with "sooner rather than later" – how will the DEIR responsibly treat such financial impacts?

---

[1] Summary available at https://www.moodys.com/research/Moodys-Rising-sea-level-signals-need-for-state-and-local--PBM_1245928 . The full report is available (to subscribers only) at http://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBM_1233702 . The report was the subject of an article by *MarketWatch* on October 14, 2020, available at: https://www.marketwatch.com/amp/story/within-20-years-rising-sea-levels-will-hit-nearly-every-coastal-county-and-their-bonds-11602694138

[2] https://www.law.berkeley.edu/research/clee/events/climate-risks-to-the-us-financial-system-urgent-decisive-action-needed/

[3] https://www.cftc.gov/sites/default/files/2020-09/9-9-20%20Report%20of%20the%20Subcommittee%20on%20Climate-Related%20Market%20Risk%20-%20Managing%20Climate%20Risk%20in%20the%20U.S.%20Financial%20System%20for%20posting.pdf

I hope that these thoughts and questions are helpful to moving PBA 2050 towards the "transformative" Plan for the Region's future that it deserves to be. Thank you for your consideration of these comments, and for the work you do.

Sincerely,

Patrisha Piras

From: [redacted]
To: EIR Comments; info@bayarea.gov
Subject: EIR COMMENTS
Date: Wednesday, October 28, 2020 11:51:47 PM

External Email

Memo from Ken Bukowski

[redacted]

RE: Plan Bay Area -2050 (Plan)

EQUITY.- TRANSPORTATION INVESTMENTS

Transportation is the mechanism used in our economy to circulate money. It is the movement of Pedestrians, goods, and vehicles (PGV) from one place to another..

FINANCIAL RESPONSIBILITY FOR THE USE OF PROPERTY

The value and use of land is determined by transportation access. For property owners access to PGV is essential for the property to be used and developed. Transportation investments provide the necessary transportation facilities (TF) which bring PGV access to the location of a subject property

. Real property cannot be used without PGV access It is an essential utility, A cost of conducting business on the property..It is no different than providing other utilities such as water and electric service to a subject property/ TThese are costs which the subject property owner should be responsible for..

The law allows "assessment districts" to be created to pay for such costs.This EIR should evaluate the amount of money which would be collected if property owners became financially responsible for such costs. Is there any good reason why the pubic is paying the full cost of PGV access.

As it exists right now the the public is unnecessarily providing an on-going subsidy to private property owners for PGV access. the creation of every new or expanded TF puts the public further in debt, not just for the capital cost, but also for the lifetime maintenance thereof. The approval of every TF should identify the full amount of the public obligations and how they will be paid.

In many locations assessment districts are the only way aTF will be accomplished. How and why were decisions made for the public to pay these costs? Asking for new taxes to subsidize property owners should be considered a gift o publiv money. The Staff should consider this option before asking for new taxes. the funds should be managed for the public interest.

The Plan discriminates against the low income population in several ways.The transportation improvements stated above increase the value and use of real estate. This is a major cause of higher rents which adversely impacts low income people. It is a major factor causing the displacement.

FREE PUBLIC TRANSIT

This is a real social justice issue. How can we have so much public resources to subsidie the use of private property, and no funds to make public transit free.. It should be the highest priority.

It's the best way to encourage more transit use. It's good for the economy. it causes people to go places and spend more money.. It would provide an economic benefit to everyone who uses transit. it is boost to small restaurants

collecting a fare for public transit denies equal opportunity. It demoralizes people.ad destroys any incentive to be productive. It a major cause for the homeless camps,If you can't pay for transit are you going to even try? Your quality of life is sacrificed. It affects the well being of many people Acess to PGC is ust as important for low income [ep[;ens all the time the question of paying or ood or transportation is a co. liable transportation should be available to everyone.

The consequences of not providing free transit :
It demoralizes individuals. It forces many people to stay in one location. People with nothing else to do create lots of crime. If they can;t work they learn to be career criminals.Once they have a police record . It causes shoplifting, vehicle break-ins. it creates unhealthy people. causing emergency room visits. it causes domestic problems. it impairs the quality of life and it's bad for the economy. anything whih impairs the movement of PGV is bad for the economy.

COST OF COLLECTING A FARE FOR TRANSIT

we have Clipper. which has over $400,million annual budget. it is antiquated. people just want to use a bank card for everything. Why is it necessary to manage an account to use transit.? we have the capital cost of fare collection equipment.. maintenance thereof. We have surveillance cameras, technology costs to connect the equipment. , the cost of issuing tickets. printing fees and maintaining an inventory. the costs for governing boards to raise transit fares, public notices, Staff time, accountants and attorneys. bank fees for each transaction, qualifying people for reduced fares.

The result is increased crime, robbery, shoplifung, vehicle break-insr, pnhandling and etc. The policies for fare evasion make no sense. Is someone a criminal because they can't afford to go anywhere. They probably can't afford to pay the fine anyway.

Distance based fares, such as Bart, also discriminate. iductive

the transportation improvemnts.In the sa,e way property owners must depend on transportation access, the same is true for every individual. Each person who cannot pay for access to punlic transit they are deboed For every peron who cannot pay for public y
is an essential issue to evaluate. rbecome asubsidizing passage of any trasportation tax measure does not serve th public interet. Insteadsrught now

The EIR should evaluate the increased value of th transportation improvements to get a full understanding
The lawallows TF provide direct financial bebfit to all You won't get water or electrivty svice

funds which allows PGV trafficland to be used, and to earn money from such use.

The transportation projects included in the Plan provides extraordinary financial benefits to the owners of real estate. Why are we allowing propert owners to escape financial responsibilityfor their use of land

It appears the locally elexte oficials and the public have little undwrstanding of transportation and land use connection. It seems their influence has nade the Bay Area the most expensive place to live. The Bay Areahas the highest fares for pubic transit in the region. Many belueve the teanspotation investments, controlled by he MTC Staff has creayed theconomic divide.

In our econom transportation is the mechanism used for the circulation of money. It is the movement of pedestrians, goods and vehicles PGV from one place to another. Transportation facilities provde a flow of PGV traffic to all the real property in the immediate vicinity of the improvement. The capacity of the TF and the volume of PGV traffic determines how much money can be generated by a subject oroperty, and thereby determies how it can be used, and its value.

Every TF provides a direct financial bebefit to the adjacent property owners. Providing access to Tfisactually a public utility very similar to provomg water and electricity. Providing those services is the responsibility of the property owners. It is a direct cost for the use of the land. Providing those utilities also requires capital investments and on-going maintenace toprovide uninterrupted access.

We are allowing propertu owners to escape financial responsibility for theiruse of private propety. Is there any goodreason why the public is paying to provide transportation access to pricate property. We could and should crate an assessment district for every transportation facility. An assessment engineer is hired to evaluat the benefit provided to ach individual oner. Once created, each owner pays their ahare of the benefit until the total amount of the investment is repaid. This hasto be an essential component of the Plan.

As it exists the public paying the total cost of TF. The cost of proving and maintainining transpotation access to real property consumes all the available transportation funds. This is te reason why thereare so many tax measures for transpotation.

The Plan we are considering for adoption sdoes not include any mention of using assessment distructs to recover the transpotation invetments. This EIR should include an analysis of how propry values increase from such investments.

Lack of Disclosure= If we know the use of real property requires PGV access why isn't that cost ever mentioned when TF are approved? Every tax dollar spent on a TF is a huge public expense and a lifetime obligation to maintain. The public should be made fully aware of the anticipated costs. Even if there isa willingness for the public to pay, we still need to know what commitment is being made woth each project

Free Public Transit – Tasit exists the MTC Transportation Investments discrininate Against Low Income People in the Bay Area.. Equal opportunity cannot exist for those can;t afford to pay for public transit. Reliabletransportation access is essential for the conduct of persinal business.

This is mor essential than providing than providig a free utiity service for prr owners. Failure to provide free access to public transit creates homeless camps, causes people to be non-productive, it demoralizes the self esteem, and worst of all it creates crime, and unsanitary conditions It causes people to et sick, tips to the emergeny room and etc, It is also a problem for people who are the victis of the crimes being crated.

. Local goernments are forced topay increased costs for police, pubic works, and ambulanceservces for hospital visits. where. It creates crime, unsanitary conditions, panhandling, and problems with requent hospital visits. Don't we want to provide the ability for everyone to e productive. ?

How is it, we can't provide millions of pulic money to subsidize transportation axxess to propeety owners, and then not provide acces to low inclome people in our communities. Even peple who are ot hoeless must make decisios whther o eat or pay for transit. We have a very follish agressie program for fare evasion. Is someone a crininal because they need to o somewhere and don't have thmoey.How does making someone a criminal and be in ebt to pay a fine help the problem. When you consider the cost of dollecting a fare, it is simply noy worth it. Qualifying someone for a means base fare is an insult.

We could totally eliminate th $400 million annua budget for Clipper. We have just increasec the fre for public transit by requiribg th use of a clipper card/ Whyis this system even necessary. Why can't people just use their bank ar to pay the fare.? Why do they gave to maintain a searate acount.. What group of people are more likley to lose their clipper card and have to pay anothr $3 to replace it. Fee public transit would eliminate many other costs. The cost of ticket machines, printing tickets, public hearing for inreases in fares. The cost of prosecuting individuals for fae evasion. We could also eliminate the public liability for apprehending offenders.

Free public transit is the best way to eliminate vehicle traffic, and it is great for the economy. It encourages people to go out and spend their money.

Access to transportation should be universal right. it is certainly a higher priority than subsidizing property owners. Itis real important to reanalyze the invstment policies to provide real equity.

EXPRESS LANES , VEHICLE TOLLS and CONGESTION PRICING all discriminate against low income people. Why does anyone deserve more privilege to use public facilities paid for by everyone than anyone ese? Where is the equirty?

Don't we recognize that anything which impairs the movement og PGV is bad for the economy. if people don't move money does not circulate

the legal definition of discrimination should inlude evonomic class.

The above issues which deserve analysis As it exists this Plan is not ready to move forward.. .f It is highly doubtful these comments will make any real difference.

this is submitted at the 11th hour on October 28, 2020i

Best:

KEN BUKOWSKI

REGIONAL Video YouTube Channel

Emeryville Property Owners Association
Consultant- Government Affairs

Former Mayor-City Councilmember
City of Emeryville

Videographer
[redacted]

From:	Leslie Lara-Enríquez
To:	EIR Comments
Subject:	Correspondence received via USPS
Date:	Thursday, October 29, 2020 5:24:11 PM
Attachments:	DeSmet_10132020_USPS.pdf

Attached.

Leslie Lara-Enríquez (hablo español)
Principal Public Information Officer, Engagement
llara-enriquez@bayareametro.gov

BAY AREA METRO | BayAreaMetro.gov
Association of Bay Area Governments | abag.ca.gov
Metropolitan Transportation Commission | mtc.ca.gov

Bay Area Metro Center | 375 Beale Street | Suite 800
San Francisco, CA 94105
D: 415-778-5258 | **C:** 510-325-5051

MTC Public Information
Attn: EIR Comments
375 Beale Street, Suite 800
San Francisco, CA 94105

October 13, 2020

Dear MTC,

My name is Victoria DeSmet. My home of 28 years falls within Sonoma County's proposed Springs Specific Plan, one of the PDAs included in Plan Bay Area 2050. I am writing to request that in your environmental impact report you include an extensive review of:
1. potential for wildfires,
2. water supply and **water availability to fight fires** resulting from wildfires or potential earthquakes, and
3. evacuation routes.

Today is the 13th of October and my "to go" evacuation bags have been packed and ready by the back door since the end of August. My home borders Cal Fire moderate and high fire severity zones (attachment 1). During the Nuns fire of 2017, we had to evacuate our home for over a week. The fire came within ½ mile of my home and if not for a fire-break created by a brave man on a tractor, many of us would have lost our homes. We have had the power shut off for PGE public safety events so many times we have purchased a gas-powered generator, as have many of my neighbors. On August 19th, 2020, Valley of the Moon Water District sent water customers notices asking us to conserve water during these fire conditions because the water used for fighting fires was at risk (attachment 2). VOMWD's reduced capacity to fight fires is explained in the Water Supply Assessment for Sonoma County's Springs Specific Plan (attachment 3).

If you had been in my neighborhood the night we were asked to evacuate during the 2017 Nuns fire, you would have experienced the terror of being caught in a traffic jam with fire approaching. One neighbor told me it took her 45 minutes to go six blocks. My neighborhood is located below the hills South of Santa Rosa and West of Napa County. This fire season we had smoke and fires approaching us from two directions! Science magazine published an article in August 2019, describing a study conducted by StreetLight Data, a San Francisco-based traffic analytics company. Fetters Hot Springs, which is included in the Springs Specific Plan, was identified as one of the worst 100 places in the Nation to evacuate from a hazardous event (attachment 4).

As an environmental alternative, I am proposing that you remove Sonoma County's Springs Specific Plan for PDA consideration, as it is too dangerous to add additional residents to this area. Any increase in density puts us all at risk of becoming another fire statistic, like the town of Paradise.

Thank you,
Victoria DeSmet

Victoria DeSmet

[redacted]

Attachment 1

CAL FIRE HAZARD SEVERITY ZONES in
State Responsibility Area (SRA)

- Moderate

- High

- (Dead)End of Michael Drive (it does not continue)

-(Dead) End of Donald

-Proposed high density housing

Attachment 2

EMERGENCY WATER CONSERVATION DURING CURRENT FIRE CONDITIONS

joy2bake@sbcglo.../Inbox

VOMWD Customer Service <customerservice@vomwd.org>
To: [redacted]et

Aug 19 at 3:56 PM

Dear Vickie,

EMERGENCY WATER CONSERVATION DURING CURRENT FIRE CONDITIONS

- As you are probably aware, there are several wildfires burning in Sonoma County and as your water provider we are urging all of our customers to take immediate water conservation steps.
- This is an emergency situation: The largest of these wildfires could threaten the source of our water that comes from the Russian River. The more water we can store for domestic and firefighting purposes, the better prepared we will be during this emergency.
- For that reason, we are urging the following steps be taken immediately

o Turn off all outdoor water for irrigation
(Irrigation accounts for a large portion of water usage in summer)

o Reduce indoor water use as much as possible
(Take fewer and shorter showers, flush toilets only for solids, postpone laundry washing, wait to run the dishwasher until it's full)

o Postpone washing of vehicles and other outdoor water uses

o Turn off auto-fill valves to pools, spas, decorative fountains and ponds, or delay adding water manually

o Set water softening systems to bypass auto-regeneration cycles for the duration of the emergency

o Use a bucket to catch and reuse water when washing fruits and vegetables and when waiting for hot water from faucets, showers, and tubs. Use for watering potted or in-ground plants inside or outside your home, or for toilet flushing by pouring into the toilet bowl.

Now, more than ever, our water is precious. Help us conserve every drop!

For more information, visit Sonomawater.org/fire.
For Sonoma County Emergency information, visit www.socoemergency.org
To find out more about Sonoma Water's system, visit www.sonomawater.org/water-supply

Thanks for caring about your water use,
Valley of the Moon Water District

APPENDIX G: WATER SUPPLY ASSESSMENT

Attachment 3

A. EXECUTIVE SUMMARY

The Water Supply Assessment (WSA) will provide information for use in the California Environmental Quality Act (CEQA) analysis for the proposed Springs Specific Plan (Specific Plan). The requirements for the WSA are described in the California Water Code Sections 10910 through 10915, amended by the enactment of Senate Bill 610 (SB 610) in 2002. SB 610 requires an assessment of whether available water supplies are sufficient to serve the demand generated by the new projects, as well as the reasonably foreseeable cumulative demand during normal year, single dry year, and multiple dry year conditions over the next 20 years.

This WSA builds on previous water demand projections created as part of the 2015 Urban Water Management Plan (UWMP) Water Demand Analysis and Water Conservation Measures Update worked on in conjunction with the eight other Sonoma-Marin Saving Water Partnership (SMSWP) Water Contractors and completed in July 2015. The projected demands with active and passive conservation savings from the SMSWP study were approved by Valley of the Moon Water District (the District) and presented in the 2015 UWMP submitted by the District in June 2016, after approval by its Board of Directors on June 7th. The supply information contained herein is based on the 2015 UWMP. [1]

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[1] ~~However, while~~While the foregoing is accurate, the circumstances of the District's water supply have changed in 2019. The District lost its emergency water supply from the Sonoma Development Center (SDC). The use was authorized by the SWRCB on July 3, 2002 for fire or facility failure. The agreement with ~~the Center~~SDC was in place by December 2002 and existed until September 2019 when the State's General Services Department decided to close the SDC water treatment plant~~at the Center eliminating that supply. Without that water~~In the absence of that supply, the District ~~only has~~can produce only 450 gallons per minute (gpm)~~pm~~ through its local supply sources, which is insufficient to pressurize its system and fill its tanks, in the event the Sonoma Aqueduct (Aqueduct) is damaged and Sonoma Water deliveries to the District are curtailed. ~~which is not enough water to pressurize its system and fill its tanks IF the Sonoma Aqueduct is damaged and cannot deliver water.~~ The District's immediately available emergency water supply ~~position may have been~~was further ~~eroded~~reduced in ~~October-November~~Fall 2019 when ~~it had to cease~~ the use of one ~~of its well's~~well, providing ~~that was~~ 20% of ~~the~~its local supply, was taken out of service due to damage. The District will be ~~video the well in December 2019~~evaluating the well in Winter 2019/Spring 2020 to determine if the well can be repaired, and~~d if so~~, how long~~i~~, if repaired, the well~~l~~t can reasonably remain in production.

The District is diligently acting to develop alternative local sources of water. Without the Spring Specific Plan (SSP), the District requires over 800 gpm to ~~just~~ provide drinking water and basic sanitation. Further, b~~B~~ased on the tests ~~from then SCWA reflected~~described ~~at~~ page 48 in the 2015 UWMP ~~at page 48~~, the District ~~needs over~~ requires in excess of 1700 gpm to have a survivable level of water including basic fire flow. Given the conservation achieved by District residents ~~achieved~~ since 2015, the District is comfortable in stating that for current customers 1500 gpm ~~will~~is required to provide service adequate for~~allow~~ human health, sanitation, and fire flow ~~-~~ if service through the ~~a~~Aqueduct is interrupted for any significant time. If the District's damaged well can be used for several more years, then the addition of another 400 gpm of new local water over the District's total current wells' production would allow current customers to have drinking water and sanitation with no outside use and little or no fire flow.

Additionally, the ~~Plan~~SSP will impact water service to~~the~~ existing homes along the crest of the hills above it, the top of the District's Zone 1. Currently, t~~T~~heose homes ~~all currently~~ have lower service pressure and available fire flow than that provided in other Zones and the balance of Zone 1. Allowing building ~~along the route of~~as proposed in the SSP~~Plan~~, e.g. on Verano Ave, ~~before~~in advance of the District

Attachment 4.1

SCIENCE

Data Pinpoints 14 California Towns Where an Emergency Escape Could Be a Problem

By Jeremy Siegel Aug 22, 2019

Vehicle abandoned by fleeing residents of the Butte County town of Paradise during the Camp Fire in November 2018. *(Josh Edelson/AFP–Getty Images)*

California has the second-largest number of small communities with limited evacuation routes when compared to other states, according to a new nationwide analysis of towns with populations under 40,000.

The study, conducted by San Francisco-based traffic analytics company StreetLight Data, identified 100 communities across the country with the most limited means of escaping

disasters like wildfires and hurricanes. It found that 14 of those communities are in California, second only to Florida's 20.

The study comes on the heels of the deadliest and most destructive blaze in California history, last November's Camp Fire, which killed 86 people and put into perspective some of the challenges facing rural communities with limited escape routes.

When the fast-moving blaze swept through Paradise — a Butte County town of roughly 27,000 — on an early Thursday morning, fleeing residents ended up caught in gridlocked traffic along Skyway, the main route out of town. Many people abandoned their vehicles and fled on foot. Some were found dead in their cars.

The new analysis marks an attempt to highlight the potential for similar situations in other small towns, according to StreetLight's Chief Technical Officer Paul Friedman.

"Transportation infrastructure, and sharing information about transportation options, is one part of the complex requirements of disaster and evacuation preparation," Friedman said. "We hope this data can be a useful support to those working in this challenging field."

In order to identify evacuation-challenged communities, StreetLight analyzed location data points from smartphones and GPS navigation devices in cars and trucks to identify trends in what routes people tend to use to exit their communities. They calculated which communities face the greatest challenges by determining what percentage of a population's daily trips take only one main exit, while also taking into account the number of alternative exits and the total population of an area, according to U.S. Census data.

What's not included in the analysis is the potential for natural disasters in a given area, according to StreetLight CEO Laura Schewel.

"This is purely the transportation data, because that's where we're really the experts, and we want to stay in our lane," she said. "What we hope is that this data can be mixed with people who have expertise about other risk factors ... and be part of the full picture of data-driven evacuation preparedness."

The Bay Area is, for the most part, absent from the list, though that's likely due in part to the study's methodology.

StreetLight identified some small communities in the region with limited evacuation routes, including Ladera, a development adjacent to Portola Valley, near the Alpine Road exit off Interstate 280 on the edge of Silicon Valley, and Fetters Hot Springs, on Highway 12 just north of the town of Sonoma.

But because the analysis was limited to communities with populations under 40,000, larger towns and cities that may have areas with limited escape routes are missing from the list.

Oakland, for example, has some areas with the potential for both limited exit routes and high risk for fire.

During the East Bay Hills fire in October 1991, which killed 25 people, congestion was a major problem. A report on the blaze conducted by the U.S. Fire Administration found that as some roads were blocked down due to the spread of the fire, others "became clogged with cars and pedestrians." As in Paradise, some victims died after being trapped on narrow, blocked roads.

StreetLight's Schewel said the company chose to analyze only small towns because it feels those communities will benefit most from the research.

"We figured if we're going to put a bunch of information on the internet for free, the small towns who don't have the resources to do their own studies might get the most benefit out of that type of exercise," she said.

Schewel said this type of analysis could be conducted for a larger population center like Oakland, but in that case, it might be more helpful to analyze the area in smaller sections.

It's also important to note, Schewel said, that there's no silver bullet for evacuation planning.

"Data-driven planning is important, but we want to be very clear that this is not a magical robot that tells evacuation professionals what to do," she said. "It's — we hope — a helpful extra tool in the toolkit."

In essence, Schewel said, an emergency manager in a small town that's on the list could use the data from the analysis as a launching point for drawing up wildfire evacuation routes.

The following is a list of the California communities among the 100 most evacuation-limited in the country, according to StreetLight, in order:

Limited Evacuation Routes

The 14 California communities rated as having the most limited evacuation routes based on analysis on data from smartphones and GPS devices.

Coto de Caza	Orange	15,294	3
Bell Canyon	Ventura	2,049	2
Lompico	Santa Cruz	1,137	2
Ladera	San Mateo	1,426	2
Temescal Valley	Riverside	22,542	5
Knights Landing	Yolo	1,006	2
Coronado	San Diego	24,582	7
Oak Park	Ventura	13,811	4
Pine Canyon	Monterey	1,816	3
Fetters Hot Springs	Sonoma	4,099	3
Los Osos	San Luis Obispo	14,259	4
Brooktrails	Mendocino	3,251	4
Lake California	Tehama	3,054	4
Fillmore	Ventura	14,923	4

Chart: Dan Brekke/KQED · Source: StreetLight Data · Get the data · Created with Datawrapper

California's two most evacuation-constrained communities — Coto de Caza in Orange County and Bell Canyon in Ventura County — are both in the southern portion of the state and are both at-risk for wildfire: Coto de Caza is surrounded by burnable open space; Bell Canyon was [illegible] by the Woolsey Fire in 2018.

Appendix C

Biological Resources Data

Table C-1 Special-Status Species Evaluated for Plan Bay Area 2050

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Plants						
Pink sand-verbena	*Abronia umbellata* var. *breviflora*	—	—	1B.1	—	Foredunes and interdunes with sparse cover.
San Mateo thorn-mint	*Acanthomintha duttonii*	E	E	1B.1	—	Chaparral, valley and foothill grassland.
Blasdale's bent grass	*Agrostis blasdalei*	—	—	1B.2	—	Coastal dunes, coastal bluff scrub, coastal prairie.
Franciscan onion	*Allium peninsulare* var. *franciscanum*	—	—	1B.2	—	Cismontane woodland, valley and foothill grassland.
Sharsmith's onion	*Allium sharsmithiae*	—	—	1B.3	—	Cismontane woodland, chaparral. Rocky, serpentine slopes.
Sonoma alopecurus	*Alopecurus aequalis* var. *sonomensis*	E	—	1B.1	—	Wet areas, marshes, and riparian banks, with other wetland species.
Napa false indigo	*Amorpha californica* var. *napensis*	—	—	1B.2	—	Broadleafed upland forest, chaparral, cismontane woodland.
Large-flowered fiddleneck	*Amsinckia grandiflora*	E	E	1B.1	—	Cismontane woodland, valley and foothill grassland.
Bent-flowered fiddleneck	*Amsinckia lunaris*	—	—	1B.2	—	Cismontane woodland, valley and foothill grassland, coastal bluff scrub.
Anderson's manzanita	*Arctostaphylos andersonii*	—	—	1B.2	—	Open sites, redwood forest.
Mt. Diablo manzanita	*Arctostaphylos auriculata*	—	—	1B.3	—	Chaparral, cismontane woodland.
Baker's manzanita	*Arctostaphylos bakeri* ssp. *bakeri*	—	R	1B.1	—	Broadleafed upland forest, chaparral. Often on serpentine.
The Cedars manzanita	*Arctostaphylos bakeri* ssp. *sublaevis*	—	R	1B.2	—	In serpentine chaparral and Sargent cypress woodland; typically in canyons and on slopes.
Vine Hill manzanita	*Arctostaphylos densiflora*	—	E	1B.1	—	Chaparral. Acid marine sand.
Franciscan manzanita	*Arctostaphylos franciscana*	E	E	1B.1	—	Chaparral.
San Bruno Mountain manzanita	*Arctostaphylos imbricata*	—	E	1B.1	—	Chaparral, coastal scrub.
Konocti manzanita	*Arctostaphylos manzanita* ssp. *elegans*	—	—	1B.3	—	Chaparral, cismontane woodland, lower montane coniferous forest. Volcanic soils.
Contra Costa manzanita	*Arctostaphylos manzanita* ssp. *laevigata*	—	—	1B.2	—	Chaparral. Rocky slopes.
Mt. Tamalpais manzanita	*Arctostaphylos montana* ssp. *montana*	—	—	1B.3	—	Chaparral, valley and foothill grassland.
Presidio manzanita	*Arctostaphylos montana* ssp. *ravenii*	E	E	1B.1	—	Chaparral, coastal prairie, coastal scrub.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Montara manzanita	*Arctostaphylos montaraensis*	—	—	1B.2	—	Chaparral, coastal scrub.
Pacific manzanita	*Arctostaphylos pacifica*	—	E	1B.2	—	Coastal scrub, chaparral.
Pallid manzanita	*Arctostaphylos pallida*	T	E	1B.1	—	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub.
Kings Mountain manzanita	*Arctostaphylos regismontana*	—	—	1B.2	—	Broadleaved upland forest, chaparral, north coast coniferous forest.
Rincon Ridge manzanita	*Arctostaphylos stanfordiana* ssp. *decumbens*	—	—	1B.1	—	Chaparral, cismontane woodland.
Marin manzanita	*Arctostaphylos virgata*	—	—	1B.2	—	Broadleafed upland forest, closed-cone coniferous forest, chaparral, north coast coniferous forest. On sandstone or granitic soils.
Marsh sandwort	*Arenaria paludicola*	E	E	1B.1	—	Freshwater marsh, marsh and swamp, wetland.
Clara Hunt's milk-vetch	*Astragalus claranus*	E	T	1B.1	—	Cismontane woodland, valley and foothill grassland, chaparral.
Coastal marsh milk-vetch	*Astragalus pycnostachyus* var. *pycnostachyus*	—	—	1B.2	—	Coastal dunes, marshes and swamps, coastal scrub.
Jepson's milk-vetch	*Astragalus rattanii* var. *jepsonianus*	—	—	1B.2	—	Commonly on serpentine in grassland or openings in chaparral.
Ferris' milk-vetch	*Astragalus tener* var. *ferrisiae*	—	—	1B.1	—	Subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil.
Alkali milk-vetch	*Astragalus tener* var. *tener*	—	—	1B.2	—	Alkali playa, valley and foothill grassland, vernal pools.
Heartscale	*Atriplex cordulata* var. *cordulata*	—	—	1B.2	—	Chenopod scrub, valley and foothill grassland, meadows, and seeps.
Brittlescale	*Atriplex depressa*	—	—	1B.2	—	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools.
Lesser saltscale	*Atriplex minuscula*	—	—	1B.1	—	Chenopod scrub, playas, valley and foothill grassland.
Vernal pool smallscale	*Atriplex persistens*	—	—	1B.1	—	Vernal pools, wetland.
Big-scale balsamroot	*Balsamorhiza macrolepis*	—	—	1B.2	—	Chaparral, valley and foothill grassland, cismontane woodland.
Sonoma sunshine	*Blennosperma bakeri*	E	E	1B.1	—	Vernal pools, valley and foothill grassland.
Point Reyes blennosperma	*Blennosperma nanum* var. *robustum*	—	R	1B.2	—	On open coastal hills in sandy soil.
Big tarplant	*Blepharizonia plumosa*	—	—	1B.1	—	Valley and foothill grassland.
Mt. Day rockcress	*Boechera rubicundula*	—	—	1B.1	—	Chaparral. Rocky slopes.
Watershield	*Brasenia schreberi*	—	—	2B.3	—	Aquatic, from water bodies both natural and artificial in California.
Narrow-anthered brodiaea	*Brodiaea leptandra*	—	—	1B.2	—	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland.
Twisted horsehair lichen	*Bryoria spiralifera*	—	—	1B.1	—	North coast coniferous forest. Usually on conifers.
Thurber's reed grass	*Calamagrostiis crassiglumis*	—	—	2B.1	—	Coastal scrub, marshes, and swamps.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Mt. Diablo fairy-lantern	*Calochortus pulchellus*	—	—	1B.2	—	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland.
The Cedars fairy-lantern	*Calochortus raichei*	—	—	1B.2	—	On serpentine. Usually on shaded slopes, but also on barrens and talus.
Tiburon mariposa-lily	*Calochortus tiburonensis*	T	T	1B.1	—	On open, rocky, slopes in serpentine grassland.
Small-flowered calycadenia	*Calycadenia micrantha*	—	—	1B.2	—	Rocky talus or scree; sparsely vegetated areas. Occasionally on roadsides and sometimes on serpentine.
Santa Cruz Mountains pussypaws	*Calyptridium parryi* var. *hesseae*	—	—	1B.1	—	Chaparral, cismontane woodland. Sandy or gravelly openings.
Coastal bluff morning-glory	*Calystegia purpurata* ssp. *saxicola*	—	—	1B.2	—	Coastal dunes, coastal scrub, coastal bluff scrub, north coast coniferous forest.
Swamp harebell	*Campanula californica*	—	—	1B.2		Bogs and marshes in a variety of habitats; uncommon where it occurs.
Chaparral harebell	*Campanula exigua*	—	—	1B.2		Rocky sites, usually on serpentine in chaparral.
Sharsmith's harebell	*Campanula sharsmithiae*	—	—	1B.2		Chaparral. Serpentine barrens.
Seaside bittercress	*Cardamine angulate*	—	—	2B.1		North coast coniferous forest, lower montane coniferous forest. Wet areas, streambanks.
California sedge	*Carex californica*	—	—	2B.2		Meadows, drier areas of swamps, marsh margins.
Bristly sedge	*Carex comosa*	—	—	2B.1	—	Marshes and swamps, coastal prairie, valley and foothill grassland.
Bristle-stalked sedge	*Carex leptalea*	—	—	2B.2	—	Mostly known from bogs and wet meadows
Lyngbye's sedge	*Carex lyngbyei*	—	—	2B.2	—	Marshes and swamps (brackish or freshwater).
Northern meadow sedge	*Carex praticola*	—	—	2B.2	—	Moist to wet meadows.
Deceiving sedge	*Carex saliniformis*	—	—	1B.2	—	Coastal prairie, coastal scrub, meadows and seeps, marshes, and swamps (coastal salt).
Tiburon paintbrush	*Castilleja affinis* var. *neglecta*	E	T	1B.2	—	Valley and foothill grassland. Rocky serpentine sites.
Humboldt Bay owl's-clover	*Castilleja ambigua* var. *humboldtiensis*	—	—	1B.2	—	Marshes and swamps.
Mead's owls-clover	*Castilleja ambigua* var. *meadii*	—	—	1B.1	—	Vernal pools, meadows, and seeps. Soils of volcanic origin and tend to have high clay content and be gravelly.
Point Reyes paintbrush	*Castilleja leschkeana*	—	—	1A	—	Coastal marshes and swamps.
Mendocino Coast paintbrush	*Castilleja mendocinensis*	—	—	1B.2	—	Often on sea bluffs or cliffs in coastal bluff scrub or prairie.
Pink creamsacs	*Castilleja rubicundula* var. *rubicundula*	—	—	1B.2	—	Openings in chaparral or grasslands, on serpentine.
Pitkin Marsh paintbrush	*Castilleja uliginosa*	—	E	1A	—	Last known remaining plant died in 1987; was known from overgrown freshwater marsh.
Lemmon's jewelflower	*Caulanthus lemmonii*	—	—	1B.2	—	Pinyon and juniper woodland, valley and foothill grassland.
Rincon Ridge ceanothus	*Ceanothus confusus*	—	—	1B.1	—	Closed-cone coniferous forest, chaparral, cismontane woodland.
Nicasio ceanothus	*Ceanothus decornutus*	—	—	1B.2	—	Maritime chaparral; serpentinite, rocky, sometimes clay.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Calistoga ceanothus	*Ceanothus divergens*	—	—	1B.2	—	Chaparral.
Coyote ceanothus	*Ceanothus ferrisiae*	E	E	1B.1	—	Chaparral, valley and foothill grassland, coastal scrub.
Vine Hill ceanothus	*Ceanothus foliosus* var. *vineatus*	—	—	1B.1	—	Chaparral.
Mt. Vision ceanothus	*Ceanothus gloriosus* var. *porrectus*	—	—	1B.3	—	Low shrub in a variety of habitats on Point Reyes; sandy soils.
Mason's ceanothus	*Ceanothus masonii*	—	—	1B.2	—	Serpentine ridges or slopes in chaparral or transition zone.
Holly-leaved ceanothus	*Ceanothus purpureus*	—	—	1B.2	—	Chaparral, cismontane woodland.
Sonoma ceanothus	*Ceanothus sonomensis*	—	—	1B.2	—	Chaparral.
Congdon's tarplant	*Centromadia parryi* ssp. *congdonii*	—	—	1B.1	—	Valley and foothill grassland.
Pappose tarplant	*Centromadia parryi* ssp. *parryi*	—	—	1B.2	—	Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland.
Dwarf soaproot	*Chlorogalum pomeridianum* var. *minus*	—	—	1B.2	—	Chaparral on serpentine.
Point Reyes salty bird's-beak	*Chloropyron maritimum* ssp. *palustre*	—	—	1B.2	—	Coastal salt marsh.
Hispid salty bird's-beak	*Chloropyron molle* ssp. *Hispidum*	—	—	1B.2	—	Alkali playa, Meadow and seep, wetland.
Soft salty bird's-beak	*Chloropyron molle* ssp. *molle*	E	R	1B.2	—	Coastal salt marsh.
Palmate-bracted salty bird's-beak	*Chloropyron palmatum*	E	E	1B.1	—	Chenopod scrub, valley and foothill grassland.
San Francisco Bay spineflower	*Chorizanthe cuspidata* var. *cuspidata*	—	—	1B.2	—	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub.
Woolly-headed spineflower	*Chorizanthe cuspidata* var. *villosa*	—	—	1B.2	—	Sandy places near the beach.
Robust spineflower	*Chorizanthe robusta* var. *robusta*	E	E	1B.1	—	Cismontane woodland, coastal dunes, coastal scrub, chaparral.
Sonoma spineflower	*Chorizanthe valida*	E	E	1B.1	—	Coastal prairie.
Bolander's water-hemlock	*Cicuta maculata* var. *bolanderi*	—	—	2B.1	—	Marshes and swamps, fresh or brackish water.
Franciscan thistle	*Cirsium andrewsii*	—	—	1B.2	—	Coastal bluff scrub, broadleaved upland forest, coastal scrub, coastal prairie.
Mt. Hamilton fountain thistle	*Cirsium fontinale* var. *campylon*	—	—	1B.2	—	Cismontane woodland, chaparral, valley and foothill grassland.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Crystal Springs fountain thistle	*Cirsium fontinale* var. *fontinale*	E	E	1B.1	—	Valley and foothill grassland, chaparral, cismontane woodland, meadows, and seeps.
Suisun thistle	*Cirsium hydrophilum* var. *hydrophilum*	E	E	1B.1	—	Marshes and swamps.
Mt. Tamalpais thistle	*Cirsium hydrophilum* var. *vaseyi*	—	—	1B.2	—	Broadleafed upland forest, chaparral, meadows, and seeps.
Compact cobwebby thistle	*Cirsium occidentale* var. *compactum*	—	—	1B.2	—	Chaparral, coastal dunes, coastal prairie, coastal scrub.
Lost thistle	*Cirsium praeteriens*	—	—	1A	—	Little information exists on this plant; it was collected from the Palo Alto area at the turn of the 20th Century.
Raiche's red ribbons	*Clarkia concinna* ssp. *raichei*	—	—	1B.1	—	Coastal bluff scrub.
Presidio clarkia	*Clarkia franciscana*	E	E	1B.1	—	Coastal scrub, valley and foothill grassland.
Vine Hill clarkia	*Clarkia imbricata*	E	R	1B.1	—	Chaparral, valley and foothill grassland. Acidic, sandy soil.
Round-headed Chinese-houses	*Collinsia corymbosa*	—	—	1B.2	—	Coastal dunes.
San Francisco collinsia	*Collinsia multicolor*	—	—	1B.2	—	Closed-cone coniferous forest, coastal scrub.
Mt. Diablo bird's-beak	*Cordylanthus nidularius*	—	R	1B.1	—	Grassy or rocky areas within serpentine chaparral.
Pennell's bird's-beak	*Cordylanthus tenuis* ssp. *capillaris*	E	R	1B.2	—	In open or disturbed areas on serpentine within forest or chaparral.
Serpentine cryptantha	*Cryptantha dissita*	—	—	1B.2	—	Serpentine outcrops in chaparral.
Hoover's cryptantha	*Cryptantha hooveri*	—	—	1A	—	Valley and foothill grassland, inland dunes.
Peruvian dodder	*Cuscuta obtusiflora* var. *glandulosa*	—	—	2B.2	—	Marsh and swamp, wetland.
Mendocino dodder	*Cuscuta pacifica* var. *papillata*	—	—	1B.2	—	Interdune depressions. Annual parasitic vine.
Livermore tarplant	*Deinandra bacigalupii*	—	CE	1B.1	—	Meadows and seeps.
Baker's larkspur	*Delphinium bakeri*	E	E	1B.1	—	Broadleafed upland forest, coastal scrub, valley and foothill grassland.
Hospital Canyon larkspur	*Delphinium californicum* ssp. *Interius*	—	—	1B.2	—	Chaparral, cismontane woodland, coastal scrub, meadow and seep.
Golden larkspur	*Delphinium luteum*	E	R	1B.1	—	Chaparral, coastal prairie, coastal scrub.
Recurved larkspur	*Delphinium recurvatum*	—	—	1B.2	—	Chenopod scrub, cismontane woodland, valley and foothill grassland.
Western leatherwood	*Dirca occidentalis*	—	—	1B.2	—	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland.
Dwarf downingia	*Downingia pusilla*	—	—	2B.2	—	Valley and foothill grassland (mesic sites), vernal pools.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Santa Clara Valley dudleya	*Dudleya abramsii* ssp. *setchellii*	E	E	1B.1	—	Valley and foothill grassland, cismontane woodland.
Koch's cord moss	*Enthosthodon kochii*	—	—	1B.3	—	Moss growing on soil on riverbanks.
Lime Ridge eriastrum	*Eriastrum ertterae*	—	—	1B.1	—	Openings or edges; alkaline or semi-alkaline, sandy.
Greene's narrow-leaved daisy	*Erigeron greenei*	—	—	1B.2	—	Chaparral.
Serpentine daisy	*Erigeron serpentinus*	—	—	1B.3	—	Chaparral. Serpentine seeps.
Supple daisy	*Erigeron supplex*	—	—	1B.2	—	Usually in grassy sites.
The Cedars buckwheat	*Eriogonum cedrorum*	—	—	1B.3	—	Serpentine. Barren rock and talus steep slopes.
Tiburon buckwheat	*Eriogonum luteolum* var. *caninum*	—	—	1B.2	—	Chaparral, valley and foothill grassland, cismontane woodland, coastal prairie.
Snow Mountain buckwheat	*Eriogonum nervulosum*	—	—	1B.2	—	Dry serpentine outcrops, balds, and barrens.
Ben Lomond buckwheat	*Eriogonum nudum* var. *decurrens*	—	—	1B.1	—	Ponderosa pine sandhills in Santa Cruz County.
Antioch Dunes buckwheat	*Eriogonum nudum* var. *psychicola*	—	—	1B.1	—	Interior dunes.
Mt. Diablo buckwheat	*Eriogonum truncatum*	—	—	1B.1	—	Chaparral, coastal scrub, valley and foothill grassland.
San Mateo woolly sunflower	*Eriophyllum latilobum*	E	E	1B.1	—	Cismontane woodland, coastal scrub, lower montane coniferous forest.
Hoover's button-celery	*Eryngium aristulatum* var. *hooveri*	—	—	1B.1	—	Vernal pools.
Loch Lomond button-celery	*Eryngium constancei*	E	E	1B.1	—	Volcanic ash flow vernal pools.
Jepson's coyote-thistle	*Eryngium jepsonii*	—	—	1B.2	—	Vernal pools, valley and foothill grassland.
Tuolumne button-celery	*Eryngium pinnatisectum*	—	—	1B.2	—	Volcanic soils; vernal pools and mesic sites within other natural communities.
Delta button-celery	*Eryngium racemosum*	—	E	1B.1	—	Seasonally inundated floodplain on clay.
Spiny-sepaled button-celery	*Eryngium spinosepalum*	—	—	1B.2	—	Some sites on clay soil of granitic origin; vernal pools, within grassland.
Sand-loving wallflower	*Erysimum ammophilum*	—	—	1B.2	—	Sandy openings.
Contra Costa wallflower	*Erysimum capitatum* var. *angustatum*	E	E	1B.1	—	Inland dunes.
Bluff wallflower	*Erysimum concinnum*	—	—	1B.2	—	Coastal bluff scrub, coastal dunes, coastal prairie.
Coast fawn lily	*Erythronium revolutum*	—	—	2B.2	—	Bogs and fens, broadleafed upland forest, north coast coniferous forest. Mesic sites, streambanks.
Diamond-petaled California poppy	*Eschscholzia rhombipetala*	—	—	1B.1	—	Valley and foothill grassland.
San Joaquin spearscale	*Extriplex joaquinana*	—	—	1B.2		Chenopod scrub, alkali meadow, playas, valley and foothill grassland.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Minute pocket moss	*Fissidens pauperculus*	—	—	1B.2	—	North coast coniferous forest.
Hillsborough chocolate lily	*Fritillaria biflora* var. *ineziana*	—	—	1B.1	—	Cismontane woodland, valley and foothill grassland.
Talus fritillary	*Fritillaria falcata*	—	—	1B.2	—	On shale, granite, or serpentine talus.
Marin checker lily	*Fritillaria lanceolata* var. *tristulis*	—	—	1B.1	—	Coastal bluff scrub, coastal scrub, coastal prairie.
Fragrant fritillary	*Fritillaria liliacea*	—	—	1B.2	—	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland.
Adobe-lily	*Fritillaria pluriflora*	—	—	1B.2	—	Chaparral, cismontane woodland, foothill grassland.
Roderick's fritillary	*Fritillaria roderickii*	—	E	1B.1	—	Grassy slopes, mesas.
Blue coast gilia	*Gilia capitata* ssp. *chamissonis*	—	—	1B.1	—	Coastal dunes, coastal scrub.
Pacific gilia	*Gilia capitata* ssp. *pacifica*	—	—	1B.2	—	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.
Woolly-headed gilia	*Gilia capitata* ssp. *tomentosa*	—	—	1B.1	—	Coastal bluff scrub, valley and foothill grassland.
Dark-eyed gilia	*Gilia millefoliata*	—	—	1B.2	—	Coastal dunes.
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	—	—	1B.2	—	Clay soils. Usually in vernal pools, sometimes on lake margins.
Toren's grimmia	*Grimmia torenii*	—	—	1B.3	—	Openings, rocky, boulder and rock walls, carbonate, volcanic.
Hall's harmonia	*Harmonia hallii*	—	—	1B.2	—	Open, rocky areas within chaparral.
Diablo helianthella	*Helianthella castanea*	—	—	1B.2	—	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland.
Congested-headed hayfield tarplant	*Hemizonia congesta* ssp. *congesta*	—	—	1B.2	—	Valley and foothill grassland.
Short-leaved evax	*Hesperevax sparsiflora* var. *brevifolia*	—	—	1B.2	—	Coastal bluff scrub, coastal dunes, coastal prairie.
Butano Ridge cypress	*Hesperocyparis abramsiana* var. *butanoensis*	T	E	1B.2	—	Closed-cone coniferous forest, lower montane coniferous forest, chaparral. Sandstone.
Pygmy cypress	*Hesperocyparis pygmaea*	—	—	1B2	—	On podzol-like blacklock soil in pygmy cypress forest community.
Two-carpellate western flax	*Hesperolinon bicarpellatum*	—	—	1B.2	—	Serpentine barrens at edge of chaparral.
Brewer's western flax	*Hesperolinon breweri*	—	—	1B.2	—	Chaparral, cismontane woodland, valley and foothill grassland.
Marin western flax	*Hesperolinon congestum*	T	T	1B.1	—	Chaparral, valley and foothill grassland.
Drymaria-like western flax	*Hesperolinon drymarioides*	—	—	1B.2	—	Serpentine soils, mostly within chaparral.
Sharsmith's western flax	*Hesperolinon sharmithiae*	—	—	1B.2	—	Chaparral. Serpentine substrates.
Tehama County western flax	*Hesperolinon tehamense*	—	—	1B.3	—	Serpentine barrens in chaparral.
Water star-grass	*Heteranthera dubia*	—	—	2B.2	—	Marshes and swamps.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Woolly rose-mallow	*Hibiscus lasiocarpos* var. *occidentalis*	—	—	1B.2	—	Marshes and swamps (freshwater).
Loma Prieta hoita	*Hoita strobilina*	—	—	1B.1	—	Chaparral, cismontane woodland, riparian woodland.
Santa Cruz tarplant	*Holocarpha macradenia*	T	E	1B.1	—	Coastal prairie, coastal scrub, valley and foothill grassland.
Kellogg's horkelia	*Horkelia cuneata* var. *sericea*	—	—	1B.1	—	Closed-cone coniferous forest, coastal scrub, coastal dunes, chaparral.
Point Reyes horkelia	*Horkelia marinensis*	—	—	1B.2	—	Coastal dunes, coastal prairie, coastal scrub.
Thin-lobed horkelia	*Horkelia tenuiloba*	—	—	1B.2	—	Broadleaved upland forest, chaparral, valley and foothill grassland.
Island rock lichen	*Hypogymnia schizidiata*	—	—	1B.3	—	On bark and wood of hardwoods and conifers.
Carquinez goldenbush	*Isocoma arguta*	—	—	1B.1	—	Valley and foothill grassland.
Santa Lucia dwarf rush	*Juncus luciensis*	—	—	1B.2	—	Vernal pools, ephemeral drainages, wet meadow habitats, and streamsides.
Small groundcone	*Kopsiopsis hookeri*	—	—	2B.3	—	North coast coniferous forest.
Burke's goldfields	*Lasthenia burkei*	E	E	1B.1	—	Vernal pools, meadows, and seeps.
Baker's goldfields	*Lasthenia californica* ssp. *bakeri*	—	—	1B.2	—	Closed-cone coniferous forest, coastal scrub, meadows and seeps, marshes, and swamps.
Perennial goldfields	*Lasthenia californica* ssp. *macrantha*	—	—	1B.2	—	Coastal bluff scrub, coastal dunes, coastal scrub.
Alkali-sink goldfields	*Lasthenia chrysantha*	—	—	1B.1	—	Vernal pools. Alkaline soils.
Contra Costa goldfields	*Lasthenia conjugens*	E	E	1B.1	—	Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland.
Coulter's goldfields	*Lasthenia glabrata* ssp. *coulteri*	—	—	1B.1	—	Usually found on alkaline soils in playas, sinks, and grasslands.
Delta tule pea	*Lathyrus jepsonii* var. *jepsonii*	—	—	1B.2		Freshwater and brackish marshes.
Marsh pea	*Lathyrus palustris*	—	—	2B.2	—	Moist coastal areas.
Beach layia	*Layia carnosa*	E	E	1B.1	—	Coastal dunes, coastal scrub.
Colusa layia	*Layia septentrionalis*	—	—	1B.2	—	Chaparral, cismontane woodland, ultramafic, valley and foothill grassland.
Legenere	*Legenere limosa*	—	—	1B.1	—	Vernal pools.
Heckard's pepper-grass	*Lepidium latipes* var. *heckardii*	—	—	1B.2	—	Grassland, and sometimes vernal pool edges. Alkaline soils.
Coast yellow leptosiphon	*Leptosiphon croceus*	—	CE	1B.1	—	Coastal bluff scrub, coastal prairie.
Jepson's leptosiphon	*Leptosiphon jepsonii*	—	—	1B.2	—	Chaparral, cismontane woodland.
Rose leptosiphon	*Leptosiphon rosaceus*	—	—	1B.1	—	Coastal bluff scrub.
Mt. Hamilton coreopsis	*Leptosyne hamiltonii*	—	—	1B.2	—	On steep shale talus with open southwestern exposure.
Crystal Springs lessingia	*Lessingia arachnoidea*	—	—	1B.2	—	Coastal sage scrub, valley and foothill grassland, cismontane woodland.

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		FESA	CESA	CRPR	Other	
San Francisco lessingia	*Lessingia germanorum*	E	E	1B.1	—	Coastal scrub.
Smooth lessingia	*Lessingia micradenia* var. *glabrata*	—	—	1B.2	—	Chaparral, cismontane woodland.
Tamalpais lessingia	*Lessingia micradenia* var. *micradenia*	—	—	1B.2	—	Chaparral, valley and foothill grassland.
Mason's lilaeopsis	*Lilaeopsis masonii*	—	R	1B.1	—	Freshwater and brackish marshes, riparian scrub.
Coast lily	*Lilium maritimum*	—	—	1B.1	—	Historically in sandy soil, often on raised hummocks or bogs; today mostly in roadside ditches
Pitkin Marsh lily	*Lilium pardalinum* ssp. *pitkinense*	E	E	1B.1	—	Cismontane woodland, meadows and seeps, marshes and swamps.
Ornduff's meadowfoam	*Limnanthes douglasii* ssp. *ornduffii*	—	—	1B.1	—	Meadows and seeps, agricultural fields.
Point Reyes meadowfoam	*Limnanthes douglasii* ssp. *sulphurea*	—	E	1B.2	—	Vernally wet depressions in open rolling, coastal prairies and meadows; typically in dark clay soil.
Sebastopol meadowfoam	*Limnanthes vinculans*	E	E	1B.1	—	Meadows and seeps, vernal pools, valley and foothill grassland.
Delta mudwort	*Limosella australis*	—	—	2B.1	—	Riparian scrub, marshes and swamps.
Mt Hamilton lomatium	*Lomatium observatorium*	—	—	1B.2	—	Open to partially shaded openings in *Pinus coulteri*-oak woodland. Sedimentary Franciscan rocks and volcanic soils.
Cobb Mountain lupine	*Lupinus sericatus*	—	—	1B.2	—	In stands of knobcone pine-oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine.
Tidestrom’s lupine	*Lupinus tidestromii*	E	E	1B.1	—	Partially stabilized dunes, immediately near the ocean.
Showy golden madia	*Madia radiata*	—	—	1B.1	—	Valley and foothill grassland, cismontane woodland.
Indian Valley bush-mallow	*Malcothamnus aboriginum*	—	—	1B.2	—	Granitic outcrops and sandy bare soil, often in disturbed soils.
Arcuate bush-mallow	*Malacothamnus arcuatus*	—	—	1B.2	—	Chaparral, cismontane woodland.
Davidson’s bush-mallow	*Malacothamnus davidsonii*	—	—	1B.2	—	Sandy washes.
Hall's bush-mallow	*Malacothamnus hallii*	—	—	1B.2	—	Chaparral, coastal scrub.
Oregon meconella	*Meconella oregana*	—	—	1B.1	—	Open, moist places.
Marsh microseris	*Microseris paludosa*	—	—	1B.2		Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland.
Northern curly-leaved monardella	*Monardella sinuata* ssp. *nigrescens*	—	—	1B.2	—	Coastal dunes, coastal scrub, chaparral, lower montane coniferous forest.
Woodland woollythreads	*Monolopia gracilens*	—	—	1B.2	—	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, north coast coniferous forest.
Lime Ridge navarretia	*Navarretia gowenii*	—	—	1B.1	—	Chaparral. On calcium carbonate-rich soil with high clay content.

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		FESA	CESA	CRPR	Other	
Baker's navarretia	*Navarretia leucocephala* ssp. *bakeri*	—	—	1B.1	—	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest.
Few-flowered navarretia	*Navarretia leucocephala* ssp. pauciflora	E	T	1B.1	—	Volcanic ash flow, and volcanic substrate vernal pools.
Many-flowered navarretia	*Navarretia leucocephala* ssp. *plieantha*	E	E	1B.2	—	Vernal pools.
Shining navarretia	*Navarretia nigelliformis* ssp. *radians*	—	—	1B.2	—	Cismontane woodland, valley and foothill grassland, vernal pools.
Porter's navarretia	*Navarretia paradoxinota*	—	—	1B.3	—	Serpentinite, openings, vernally mesic, often drainages.
Prostrate vernal pool navarretia	*Navarretia prostrata*	—	—	1B.1	—	Coastal scrub, valley and foothill grassland, vernal pools, meadows and seeps.
Marin County navarretia	*Navarretia rosulata*	—	—	1B.2	—	Dry, open rocky places; can occur on serpentine.
Colusa grass	*Neostapfia colusana*	T	E	1B.1	—	Usually in the bottoms of large, or deep vernal pools; adobe soils.
Antioch Dunes evening-primrose	*Oenothera deltoides* ssp. *howellii*	E	E	1B.1	—	Interior dunes.
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	T	E	1B.1	—	Vernal pools, wetland.
Kellman's bristle moss	*Orthotrichum kellmanii*	—	—	1B.2	—	Sandstone outcrops with high calcium concentrations from eroded boulders out of non-calcareous sandstone bedrock. Rock outcrops in small openings within dense chaparral with overstory of scattered *Pinus attenuata*.
Geysers panicum	*Panicum acuminatum* var. *thermale*	—	E	1B.2	—	Usually around moist, warm soil in the vicinity of hot springs.
Dudley's lousewort	*Pedicularis dudleyi*	—	R	1B.2	—	Deep shady woods of older coast redwood forests; also in maritime chaparral.
Sonoma beardtongue	*Penstemon newberryi* var. *sonomensis*	—	—	1B.3	—	Crevices in rock outcrops and talus slopes.
Santa Cruz Mountains beardtongue	*Penstemon rattanii* var. *kleei*	—	—	1B.2	—	Sandy shale slopes; sometimes in the transition between forest and chaparral.
White-rayed pentachaeta	*Pentachaeta bellidiflora*	E	E	1B.1	—	Valley and foothill grassland, cismontane woodland.
San Benito pentachaeta	*Pentachaeta exilis* ssp. *aeolica*	—	—	1B.2	—	Grassy areas.
North Coast phacelia	*Phacelia insularis* var. *continentis*	—	—	1B.2	—	Open maritime bluffs, sandy soil, sometimes rocky habitats.
Mt. Diablo phacelia	*Phacelia phacelioides*	—	—	1B.2	—	Adjacent to trails, on rock outcrops and talus slopes; sometimes on serpentine.
Monterey pine	*Pinus radiata*	—	—	1B.1	—	Closed-cone coniferous forest, cismontane woodland.

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		FESA	CESA	CRPR	Other	
White-flowered rein orchid	*Piperia candida*	—	—	1B.2	—	Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg.
Point Reyes rein orchid	*Piperia elegans* ssp. *decurtata*	—	—	1B.1	—	Coastal bluff scrub, coastal prairie.
Choris' popcornflower	*Plagiobothrys chorisianus* var. *chorisianus*	—	—	1B.2	—	Chaparral, coastal scrub, coastal prairie.
San Francisco popcornflower	*Plagiobothrys diffusus*	—	E	1B.1	—	Valley and foothill grassland, coastal prairie.
Hairless popcornflower	*Plagiobothrys glaber*	—	—	1A	—	Meadows and seeps, marshes and swamps.
Bearded popcornflower	*Plagiobothrys hystriculus*	—	—	1B.1	—	Vernal pools, valley and foothill grassland.
Petaluma popcornflower	*Plagiobothrys mollis* var. *vestitus*	—	—	1A	—	Valley and foothill grassland, marshes and swamps.
Calistoga popcornflower	*Plagiobothrys strictus*	E	T	1B.1	—	Meadow and seep, valley and foothill grassland, vernal pool, wetland.
Hooked popcornflower	*Plagiobothrys uncinatus*	—	—	1B.2	—	Sandstone outcrops and canyon sides; often in burned or disturbed areas.
Warty popcornflower	*Plagiobothrys verrucosus*	—	—	2B.1	—	Chaparral. Shale substrate.
North Coast semaphore grass	*Pleuropogon hooverianus*	—	T	1B.1	—	Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments.
Napa blue grass	*Poa napensis*	E	E	1B.1	—	Meadows and seeps, valley and foothill grassland.
Oregon polemonium	*Polemonium carneum*	—	—	2B.2	—	Coastal prairie, coastal scrub, lower montane coniferous forest.
Eel-grass pondweed	*Potamogeton zosteriformis*	—	—	2B.2	—	Ponds, lakes, streams.
Hickman's cinquefoil	*Potentilla hickmanii*	E	E	1B.1	—	Coastal bluff scrub, closed-cone coniferous forest, meadows and seeps, marshes and swamps.
Cunningham Marsh cinquefoil	*Potentilla uliginosa*	—	—	1A	—	Found in permanent, oligotrophic wetlands.
California alkali grass	*Puccinellia simplex*	—	—	1B.2	—	Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools.
Tamalpais oak	*Quercus parvula* var. *tamalpaisensis*	—	—	1B.3	—	Lower montane coniferous forest.
Angel's hair lichen	*Ramalina thrausta*	—	—	2B.1	—	On dead twigs and other lichens.
White beaked-rush	*Rhynchospora alba*	—	—	2B.2	—	Freshwater marshes and sphagnum bogs.
California beaked-rush	*Rhynchospora californica*	—	—	1B.1	—	Freshwater marsh, lower montane coniferous forest, marsh and swamp, meadow and seep, wetland.
Brownish beaked-rush	*Rhynchospora capitellata*	—	—	2B.2	—	Lower montane coniferous forest, marsh and swamp, meadow and seep, upper montane coniferous forest, wetland.
Round-headed beacked-rush	*Rhynchospora globularis*	—	—	2B.2	—	Freshwater marsh, marsh and swamp, wetland.
Sanford's arrowhead	*Sagittaria sanfordii*	—	—	1B.2	—	In standing or slow-moving freshwater ponds, marshes, and ditches.
Adobe sanicle	*Sanicula maritima*	—	R	1B.1		Meadows and seeps, valley and foothill grassland, chaparral, coastal prairie.
Rock sanicle	*Sanicula saxatilis*	—	R	1B.2	—	Bedrock outcrops and talus slopes in chaparral or oak woodland habitat.
Marsh skullcap	*Scutellaria galericulata*	—	—	2B.2	—	Swamps and wet places.

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		FESA	CESA	CRPR	Other	
Chaparral ragwort	*Senecio aphanactis*	—	—	2B.2		Chaparral, cismontane woodland, coastal scrub.
Point Reyes checkerbloom	*Sidalcea calycosa* ssp. *rhizomata*	—	—	1B.2	—	Marshes and swamps.
Napa checkerbloom	*Sidalcea hickmanii* ssp. *napensis*	—	—	1B.1	—	Chaparral. Rhyolitic substrates.
Marin checkerbloom	*Sidalcea hickmanii* ssp. *viridis*	—	—	1B.1	—	Chaparral, Ultramafic
Keck's checkerbloom	*Sidalcea keckii*	E	—	1B.1	—	Grassy slopes in blue oak woodland.
Purple-stemmed checkerbloom	*Sidalcea malviflora* ssp. *purpurea*	—	—	1B.2	—	Broadleafed upland forest, coastal prairie.
Marsh checkerbloom	*Sidalcea oregana* ssp. *hydrophila*	—	—	1B.2	—	Wet soil of streambanks, meadows.
Kenwood Marsh checkerbloom	*Sidalcea oregana* ssp. *valida*	E	E	1B.2	—	Edges of freshwater marshes.
Scouler's catchfly	*Silene scouleri* ssp. *scouleri*	—	—	2B.2	—	Coastal bluff scrub, coastal prairie, valley and foothill grassland.
San Francisco campion	*Silene verecunda* ssp. *verecunda*	—	—	1B.2	—	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie.
Long-styled sand-spurrey	*Spergularia macrotheca* var. *longistyla*	—	—	1B.2	—	Marshes and swamps, meadows and seeps. Alkaline soils.
Santa Cruz microseris	*Stebbinsoseris decipiens*	—	—	1B.2	—	Open areas in loose or disturbed soil, usually derived from sandstone, shale or serpentine, on seaward slopes.
Metcalf Canyon jewelflower	*Streptanthus albidus* ssp. *albidus*	E	E	1B.1	—	Valley and foothill grassland.
Most beautiful jewelflower	*Streptanthus albidus* ssp. *peramoenus*	—	—	1B.2	—	Chaparral, valley and foothill grassland, cismontane woodland.
Mount Burdell jewelflower	*Streptanthus anomalus*	—	—	1B.1	—	Grassy openings, serpentinite.
Tamalpias jewelflower	*Streptanthus batrachopus*	—	—	1B.3	—	Talus serpentine outcrops.
Socrates Mine jewelflower	*Streptanthus brachiatus* ssp. *brachiatus*	—	—	1B.2	—	Serpentine areas and serpentine chaparral.
Freed's jewelflower	*Streptanthus brachiatus* ssp. *hoffmanii*	—	—	1B.2	—	Serpentine rock outcrops, primarily in geothermal development areas.
Mt. Hamilton jewelflower	*Streptanthus callistus*	—	—	1B.3	—	Open talus slopes on shale with gray pine and/or black oak.
Hoffman's bristly jewelflower	*Streptanthus glandulosus* ssp. *hoffmanii*	—	—	1B.3	—	Moist, steep rocky banks, in serpentine and non-serpentine soil.

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		FESA	CESA	CRPR	Other	
Tiburon jewelflower	*Streptanthus glandulosus* ssp. *niger*	E	E	1B.1	—	Shallow, rocky serpentine slopes.
Mt. Tamalpais bristly jewelflower	*Streptanthus glandulosus* ssp. *pulchellus*	—	—	1B.2	—	Chaparral, valley and foothill grassland.
Green jewelflower	*Streptanthus hesperidis*	—	—	1B.2	—	Openings in chaparral or woodland; serpentine, rocky sites.
Mt. Diablo jewelflower	*Streptanthus hispidus*	—	—	1B.3	—	Valley and foothill grassland, chaparral. Talus or rocky outcrops.
Three Peaks jewelflower	*Streptanthus morrisonii* ssp. *elatus*	—	—	1B.2	—	Chaparral. Serpentine barrens, outcrops, and talus.
Dorr's Cabin jewelflower	*Streptanthus morrisonii* ssp. *hirtiflorus*	—	—	1B.2	—	Chaparral and closed-cone coniferous forest. On the serpentine barrens at the head of Austin Creek.
Kruckeberg's jewelflower	*Streptanthus morrisonii* ssp. *kruckebergii*	—	—	1B.2	—	Scattered serpentine outcrops near the Lake/Napa County line.
Morrison's jewelflower	*Streptanthus morrisonii* ssp. *morrisonii*	—	—	1B.2	—	Serpentine outcrops in the Austin Creek area.
Slender-leaved pondweed	*Stuckenia filiformis* ssp. *alpina*	—	—	2B.2	—	Marshes and swamps.
California seablite	*Suaeda californica*	E	E	1B.1	—	Marshes and swamps.
Suisun Marsh aster	*Symphyotrichum lentum*	—	—	1B.2	—	Marshes and swamps (brackish and freshwater).
Whiteworm lichen	*Thamnolia vermicularis*	—	—	2B.1	—	On rocks derived from Wilson Ranch formation sandstone.
Beaked tracyina	*Tracyina rostrata*	—	—	1B.2	—	Open grassy meadows within oak woodland and grassland habitats.
Napa bluecurls	*Trichostema ruygtii*	—	—	1B.2	—	Often in open, sunny areas. Also has been found in vernal pools.
Two-fork clover	*Trifolium amoenum*	E	E	1B.1	—	Valley and foothill grassland, coastal bluff scrub.
Santa Cruz clover	*Trifolium buckwestiorum*	—	—	1B.1	—	Moist grassland. Gravelly margins.
Saline clover	*Trifolium hydrophilum*	—	—	1B.2	—	Marshes and swamps, valley and foothill grassland, vernal pools.
Pacific Grove clover	*Trifolium polyodont*	—	R	1B.1	—	Along small springs and seeps in grassy openings.
San Francisco owl's-clover	*Triphysaria floribunda*	—	—	1B.2	—	Coastal prairie, coastal scrub, valley and foothill grassland.
Coastal triquetrella	*Triquetrella californica*	—	—	1B.2	—	Coastal bluff scrub, coastal scrub.
Caper-fruited tropidocarpum	*Tropidocarpum capparideum*	—	—	1B.1	—	Valley and foothill grassland.
Crampton's tuctoria or Solano grass	*Tuctoria mucronate*	E	E	1B.1	—	Clay bottoms of drying vernal pools and lakes in valley grassland.
Oval-leaved viburnum	*Viburnum ellipticum*	—	—	2B.3	—	Chaparral, cismontane woodland, lower montane coniferous forest.
Invertebrates						
Lange's metalmark butterfly	*Apodemia mormo langei*	E	—	—	—	Interior dunes.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Crotch bumble bee	*Bombus crotchii*	—	CE	—	—	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.
Western bumble bee	*Bombus occidentalis*	—	CE	—	—	Bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and suitable overwintering sites for the queens.
Conservancy fairy shrimp	*Branchinecta conservatio*	E	—	—	—	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.
Longhorn fairy shrimp	*Branchinecta longiantenna*	E	—	—	—	Valley and foothill grassland, vernal pool, wetland. Endemic to the eastern margin of the Central Coast mountains in seasonally astatic grassland vernal pools. Inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	—	—	—	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools.
San Bruno elfin butterfly	*Callophrys mossii bayensis*	E	—		—	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County.
Monarch	*Danaus plexippus*	—	—	—	—	Closed-cone coniferous forest. Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	—	—	—	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra caerulea*).
Delta green ground beelte	*Elaphrus viridis*	T	—	—	—	Vernal pool, wetland. Restricted to the margins of vernal pools in the grassland area between Jepson Prairie and Travis Air Force Base. Prefers the sandy mud substrate where it slopes gently into the water, with low-growing vegetation, 25-100 percent cover.
Smith's blue butterfly	*Euphilotes enoptes smithi*	E	—	—	—	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties. Hostplant: *Eriogonum latifolium* and *Eriogonum parvifolium* are utilized as both larval and adult foodplants.
Bay checkerspot butterfly	*Euphydryas editha bayensis*	T	—	—	—	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay.
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	—		—	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.
Mission blue butterfly	*Plebejus icarioides missionensis*	E	—	—	—	Inhabits grasslands of the San Francisco peninsula.
Callippe silverspot butterfly	*Speyeria callippe callippe*	E	—	—	—	Restricted to the northern coastal scrub of the San Francisco peninsula.
Behren's silverspot butterfly	*Speyeria zerene behrensii*	E	—	—	—	Restricted to the Pacific side of the Coast Ranges, from Point Arena to Cape Mendocino, Mendocino County. Inhabits coastal terrace prairie habitat. Foodplant is *Viola* spp.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Myrtle's silverspot butterfly	*Speyeria zerene myrtleae*	E	—	—	—	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County.
California freshwater shrimp	*Syncaris pacifica*	E	E	—	—	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy.
Zayante band-winged grasshopper	*Trimerotropis infantilis*	E	—	—	—	Chaparral, interior dunes. Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem). Mostly on sand parkland habitat but also in areas with well-developed ground cover and in sparse chaparral with grass.
Fish						
Sacramento perch	*Archoplites interruptus*	—	—	—	SSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley.
Tidewater goby	*Eucyclogobius newberryi*	E	—	—	SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.
Delta smelt	*Hypomesus transpacificus*	T	E	—	—	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay.
Russian River tule perch	*Hysterocarpus traski pomo*	—	—	—	SSC	Low elevation streams of the Russian River system.
Navarro roach	*Lavinia symmetricus navarroensis*	—	—	—	SSC	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams.
Gualala roach	*Lavinia symmetricus parvipinnis*	—	—	—	SSC	Found only in the Gualala River.
Tomales roach	*Lavinia symmetricus* ssp. *2*	—	—	—	SSC	Tributaries to Tomales Bay.
Monterey roach	*Lavinia symmetricus subditus*	—	—	—	SSC	Tributaries to Monterey Bay, specifically the Salinas, Pajaro, and San Lorenzo drainages.
Hardhead	*Mylopharodon conocephalus*	—	—	—	SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River.
Coho salmon - central California coast ESU	*Oncorhynchus kisutch*	E	E	—	—	Aquatic.
Steelhead - central California coast DPS	*Oncorhynchus mykiss irideus*	T	—	—	—	Aquatic, Sacramento/San Joaquin flowing waters
Steelhead - south-central California coast DPS	*Oncorhynchus mykiss irideus*	T	—	—	—	Aquatic, Sacramento/San Joaquin flowing waters
Steelhead - Central Valley DPS	*Oncorhynchus mykiss irideus*	T	—	—	—	Aquatic, Sacramento/San Joaquin flowing waters
Sacramento splittail	*Pogonichthys macrolepidotus*	—	—	—	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes.
Longfin smelt	*Spirinchus thaleichthys*	C	T	—	SSC	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Eulachon	*Thaleichthys pacificus*	T	—	—	—	Eulachon range from Monterey Bay, California, to the Bering Sea and Pribilof Islands. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris
Amphibians and Reptiles						
Western pond turtle	*Actinemys marmorata*	—	—	—	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation.
California tiger salamander	*Ambystoma californiense*	T/E	T	—	—	Central Valley DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered.
Santa Cruz black salamander	*Aneides niger*	—	—	—	SSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara counties. Adults found under rocks, talus, and damp woody debris.
Northern California legless lizard	*Anniella pulchra*	—	—	—	SSC	Sandy or loose loamy soils under sparse vegetation.
California glossy snake	*Arizona elegans occidentalis*	—	—	—	SSC	Patchily distributed from the eastern portion of San Francisco bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular Ranges south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.
California giant salamander	*Dicamptodon ensatus*	—	—	—	SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County.
Blunt-nosed leopard lizard	*Gambelia silus*	E	—	—	FP	Chenopod scrub. Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts; they do not excavate their own burrows.
San Joaquin coachwhip	*Masticophis flagellum ruddocki*	—	—	—	SSC	Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.
Alameda whipsnake	*Masticophis lateralis euryxanthus*	T	T	—	—	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats.
Coast horned lizard	*Phrynosoma blainvillii*	—	—	—	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.
Foothill yellow-legged frog	*Rana boylii*	—	E	—	SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.
California red-legged frog	*Rana draytonii*	T	—	—	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.
Western spadefoot	*Spea hammondii*	—	—	—	SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands.
Red-bellied newt	*Taricha rivularis*	—	—	—	SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County. Lives in terrestrial habitats, juveniles generally

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
						underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.
Giant gartersnake	*Thamnophis gigas*	T	T	—	—	Marsh and swamp, riparian scrub, wetland. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.
San Francisco gartersnake	*Thamnophis sirtalis tetrataenia*	E	E	—	FP	Vicinity of freshwater marshes, ponds, and slow-moving streams in San Mateo County and extreme northern Santa Cruz County.
Birds						
Tricolored blackbird	*Agelaius tricolor*	—	T	—	SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.
Grasshopper sparrow	*Ammodramus savannarum*	—	—	—	SSC	Valley and foothill grassland. Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.
Golden eagle	*Aquila chrysaetos*	—	—	—	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert.
Short-eared owl	*Asio flammeus*	—	—	—	SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields.
Long-eared owl	*Asio otus*	—	—	—	SSC	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.
Burrowing owl	*Athene cunicularia*	—	—	—	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.
Marbled murrelet	*Brachyramphus marmoratus*	T	E	—	—	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas fir.
Swainson's hawk	*Buteo swainsoni*	—	T	—	—	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.
Western snowy plover	*Charadrius alexandrinus nivosus*	T	—	—	SSC	Sandy beaches, salt pond levees and shores of large alkali lakes.
Northern harrier	*Circus hudsonius*	—	—		SSC	Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	T	E		—	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.
Yellow rail	*Coturnicops noveboracensis*	—	—	—	SSC	Summer resident in eastern Sierra Nevada in Mono County. Fresh-water marshlands.
Black swift	*Cypseloides niger*	—	—	—	SSC	Coastal belt of Santa Cruz and Monterey Counties, central and southern Sierra Nevada, San Bernardino, and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf and forages widely

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
White-tailed kite	*Elanus leucurus*	—	—	—	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.
American peregrine falcon	*Falco peregrinus anatum*	D	D	—	FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.
Tufted puffin	*Fratercula cirrhata*	—	—	—	SSC	Protected deep water coastal communities. Open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs. Requires sod or earth into which the birds can burrow, on island cliffs or grassy island slopes.
Saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	—	—	—	SSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes.
California condor	*Gymnogyps californianus*	E	E	—	—	Chaparral, valley and foothill grassland. Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost or nest.
Bald eagle	*Haliaeetus leucocephalus*	D	E	—	FP	Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.
Yellow-breasted chat	*Icteria virens*	—	—	—	SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.
Loggerhead shrike	*Lanius ludovicianus*	—	—	—	SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, riparian woodlands, desert oases, scrub, and washes.
California black rail	*Laterallus jamaicensis coturniculus*	—	T	—	FP	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays.
Song sparrow ("Modesto" population)	*Melospiza melodia*	—	—	—	SSC	Emergent freshwater marsh dominated by tules, and cattails; willow riparian scrub; valley oak riparian woodland with dense understory; and along vegetated irrigation canals and levees.
Suisun song sparrow	*Melospiza melodia maxillaris*	—	—	—	SSC	Resident of brackish-water marshes surrounding Suisun Bay.
Alameda song sparrow	*Melospiza melodia pusillula*	—	—	—	SSC	Resident of salt marshes bordering south arm of San Francisco Bay.
San Pablo song sparrow	*Melospiza melodia samuelis*	—	—	—	SSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays.
Ashy storm-petrel	*Oceanodroma homochroa*	—	—	—	SSC	Protected deep water coastal communities. Colonial nester on off-shore islands. Usually nests on driest part of islands. Forages over open ocean. Nest sites on islands are in crevices beneath loosely piled rocks or driftwood, or in caves.
California brown pelican	*Pelecanus occidentalis californicus*	D	D	—	FP	Colonial nester on coastal islands just outside the surf line. Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Roosts communally.
Purple martin	*Progne subis*	—	—	—	SSC	Broadleaved upland forest and lower montane coniferous forest.
California Ridgway's rail	*Rallus obsoletus obsoletus*	E	E	—	FP	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.
Bank swallow	*Riparia riparia*	—	T		—	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Black skimmer	*Rynchops niger*	—	—	—	SSC	Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.
Yellow warbler	*Setophaga petechia*	—	—	—	SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada.
California least tern	*Sternula antillarum browni*	E	E	—	FP	Nests along the coast from San Francisco Bay south to northern Baja California.
Northern spotted owl	*Strix occidentalis caurina*	T	T	—	—	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.
Least Bell's vireo	*Vireo bellii pusillus*	E	E	—	—	Riparian forest, riparian scrub, riparian woodland. Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	—	—	—	SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds.
Mammals						
Pallid bat	*Antrozous pallidus*	—	—	—	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.
Point Arena mountain beaver	*Aplodontia rufa nigra*	E	—	—	—	Coastal areas of Point Arena with springs or seepages. North-facing slopes of ridges and gullies with friable soils and thickets of undergrowth.
Point Reyes mountain beaver	*Aplodontia rufa phaea*	—	—	—	SSC	Coastal scrub, Meadow and seep.
Sonoma tree vole	*Arborimus pomo*	—	—	—	SSC	North coast fog belt from Oregon border to Sonoma County. In Douglas fir, redwood, and montane hardwood-conifer forests. Feeds almost exclusively on Douglas fir needles. Will occasionally take needles of grand fir, hemlock or spruce.
Ringtail	*Bassariscus astutus*	—	—	—	FP	Riparian habitats, forest habitats, and shrub habitats in lower to middle elevations. Usually found within 0.6 mile of a permanent water source.
Townsend's big-eared bat	*Corynorhinus townsendii*	—	—	—	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites.
Southern sea otter	*Enhydra lutris nereis*	T	T	—	FP	Nearshore marine environments from about Año Nuevo, San Mateo County to Point Sal, Santa Barbara County.
Western mastiff bat	*Eumops perotis californicus*	—	—	—	SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral.
Western red bat	*Lasiurus blossevillii*	—	—	—	SSC	Roosts primarily in trees, 2 to 40 ft above ground, from sea level up through mixed conifer forests.
San Pablo vole	*Microtus californicus sanpabloensis*	—	—	—	SSC	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay.
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	—	—	—	SSC	Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats.

Common Name	*Scientific Name*	Status				Habitat Associations
		FESA	CESA	CRPR	Other	
Big free-tailed bat	*Nyctinomops macrotis*	—	—	—	SSC	Low-lying arid areas in Southern California.
Mountain lion	*Puma concolor*	—	CT	—	—	Mountain lions inhabit a wide range of ecosystems, including mountainous regions, forests, deserts, and wetlands. Mountain lions establish and defend large territories and can travel large distances in search of prey or mates. The Central Coast and Southern California Evolutionarily Significant Units (ESUs) were granted emergency listing status in April of 2020, and CDFW is currently reviewing a petition to list these ESUs as threatened under CESA. These ESUs include portions of Solano, Contra Costa, Marin, San Francisco, Alameda, Santa Clara, and San Mateo Counties.
Salt-marsh harvest mouse	*Reithrodontomys raviventris*	E	E	—	FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries.
Alameda Island mole	*Scapanus latimanus parvus*	—	—	—	SSC	Only known from Alameda Island. Found in a variety of habitats, especially annual and perennial grasslands.
Suisun shrew	*Sorex ornatus sinuosus*	—	—	—	SSC	Tidal marshes of the northern shores of San Pablo and Suisun bays.
Salt-marsh wandering shrew	*Sorex vagrans halicoetes*	—	—	—	SSC	Salt marshes of the south arm of San Francisco Bay.
American badger	*Taxidea taxus*	—	—	—	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.
San Joaquin kit fox	*Vulpes macrotis mutica*	E	T	—	—	Annual grasslands or grassy open stages with scattered shrubby vegetation.
Point Reyes jumping mouse	*Zapus trinotatus orarius*	—	—	—	SSC	Coastal scrub, marsh and swamp, meadow and seep, valley and foothill grassland. Primarily in bunch grass marshes on the uplands of Point Reyes. Also present in coastal scrub, grassland, and meadows. Eats mainly grass seeds with some insects and fruit taken. Builds grassy nests on ground under vegetation and burrows in winter.

Status:

Federal Endangered Species Act (FESA):
E = Endangered
T = Threatened
D = Delisted

California Endangered Species Act (CESA):
CE = Candidate Endangered
CT = Candidate Threatened
D = Delisted
E = Endangered
R = Rare
T = Threatened

California Rare Plant Rank (CRPR) category descriptions:
1A = Plants presumed extinct in California and rare/extinct elsewhere
1B = Plants considered rare or endangered in California and elsewhere
2A = Plants presumed extirpated in California, but more common elsewhere
2B = Plants considered rare or endangered in California, but more common elsewhere.

CRPR Threat Ranks:
.1 Seriously threatened in California (> 80 percent of occurrences threatened and/or high degree and immediacy of threat)
.2 Moderately threatened in California (20 to 80 percent of occurrences threatened/moderate degree and immediacy of threat)
.3 Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Other:

FP = California Department of Wildlife Fully Protected

SSC = California Department of Fish and Wildlife Species of Special Concern

Source: CNDDB 2020, CNPS 2020, USFWS 2020

Appendix D

Climate Change, Greenhouse Gases, and Energy Land Use Emissions Modeling Details

APPENDIX D

LAND USE EMISSIONS

Land use-related emissions included in this analysis consist of CO_2, CH_4, and N_2O emissions from a range of direct and indirect sources composed of:

- natural gas combustion for heating and cooking (e.g., furnaces, water heaters, stoves);
- fuel use in landscaping equipment;
- indirect electricity generation for buildings, water and wastewater treatment, and water supply and conveyance; and
- methane emissions from anerobic decomposition of organic solid waste in landfills.

Emissions from natural gas use, landscaping equipment, water use, and waste emissions were calculated using default assumptions within CalEEMod. BAAQMD prohibits any wood-burning devices, such as wood-burning fireplaces or stoves, from being installed in new construction under BAAQMD Regulation 6 Rule 3 Section 6-3-306. Thus, it was assumed that any new development would not operate wood-burning stoves and any new fireplaces would use natural gas instead of wood. The distribution of fireplaces included in new residential units was based on default CalEEMod assumptions for single and multi-family units.

Emissions from electricity generation for new land uses were estimated based on emission factors from Pacific Gas and Electric (PG&E) forecasts, local Community Choice Aggregation (CCA) programs, and the Renewable Portfolio Standard and SB 100 targets for the State's renewable energy mix (PG&E 2015). **Table 1** below shows the emission factors used to estimate the emissions from electricity use within each County and for the existing and proposed Plan buildout years, 2015 and 2050, respectively. These emission factors are based on the CCA program or utility that best represent the emissions associated with the electricity purchased in a county. Not all CCA programs, especially those adopted by cities, may be reflected in these emission factors.

Table E-1: Electricity Emission Factors

County/Counties	Applicable CCA Program or Utility	Year	Percent Renewable Mix	Lb CO_2e/MWh[1]
Marin and Napa	Marin Clean Energy	2015	50%	200
		2050	100%	0
Sonoma	Sonoma Clean Power	2015	36%	370
		2050	100%	0
San Francisco	Clean Power San Francisco	2015	30%	410
		2050	100%	0
San Mateo	Peninsula Clean Energy	2015	30%	410
		2050	100%	0
Santa Clara	Silicon Valley Clean Energy	2015	30%	410
		2050	100%	0
Contra Costa, Alameda, and Solano	Pacific Gas and Electric Default	2015	30%	410
		2050	100%	0

Notes: Whole numbers have been rounded (between 0 and 10 to the nearest whole number, between 11 and 999 to the nearest 10, between 1,000 and 1,000,000 to the nearest 100, above 1,000,000 to the nearest 1,000). Figures may not sum due to independent rounding. Emissions are annualized by multiplying by 300 to take account for the fact that there is less traffic on weekends.

1 Based on CO2, CH4, and N20 emission factors using global warming potentials from IPCC's Fifth Annual Report (IPCC 2014). CO2 emission factors for CCA programs and 2050 calendar years based on combining PG&E's non-renewable factor with the CCA's reported renewable mix. The PG&E non-renewable factor (578 lb CO2/MWh) was calculated from PG&E's reported emission factor and renewable mix for 2015 (405 lb CO2/MWh with a 30 percent renewable mix). CH4 and N2O emission factors were calculated using the same approach, but with emission factors from EPA's eGRID 2014 summary tables for CAMX region, which assumes a renewable factor of 27.3 percent (EPA 2017).

Source: Data compiled by MTC and ABAG in 2021; The Climate Registry 2021; PG&E 2016; MCE 2015; MCE 2012; SCP 2016; PCE 2017; SVCE 2016; EPA 2017; IPCC 2014

The energy intensity rates (e.g., therms per 1,000 square feet) for new land uses built between 2015 and 2050 were assumed to meet 2019 Title 24 standards, which became effective in 2020 (CEC 2021). The most recent version of CalEEMod, 2016.3.2, applies the 2013 Title 24 standards to new construction, which have been adjusted to reflect the 2019 Title 24 standards. The State has approved 2019 Title 24 standards however, making estimates in this analysis conservative. Based on CEC estimates, this analysis assumes that residential buildings compliant with 2019 Title 24 standards would consume 7 percent (respectively) less energy (electricity and natural gas combined) from lighting, heating, cooling, ventilation, and water heating than residential buildings compliant with 2016 Title 24 standards, with no change assumed in nonresidential buildings (CEC 2020). For modeling 2050 scenarios, models were run assuming zero electricity emissions factors due to the 2045 carbon neutrality target under SB 100. Otherwise, energy intensity rates for land uses removed between 2015 and 2050 were assumed to have CalEEMod's "historical" energy intensity rates. This assumes that areas from which the land uses would be removed would be redeveloped to accommodate the anticipated new development under the Plan. These represent energy usage rates reflecting 2005 Title 24 standards (CAPCOA 2016b: 31). The changes in land use under 2015 and 2050 conditions under the proposed Plan are summarized in Table 3.4-5 in Section 3.4, "Air Quality."

Appendix E

Greenhouse Gas Reduction and Targets from Land Use and Transportation, Calculations of Plan-Adjusted Target for 2030

GHG Target Setting for Plan Bay Area 2050

2017 Scoping Plan Table 3: Estimated Change in ghg emissions by sector (mmtCo2e)		2030 Scoping Plan Ranges		
	1990	Low Scenario	High Scenario	% change from 1990
Agriculture	26	24	25	-8 to -4
Residential and Commercial	44	38	40	-14 to -9
Electric Power	108	30	53	-72 to -51
High GWP	3	8	11	167 to 267
Industrial	98	83	90	-15 to -8
Recycling and Waste	7	8	9	14 to 29**
Transportation (Including TCU)	152	103	111	-32 to -27
Natural Working Lands Net Sink*	-7***	TBD		TBD
Sub Total	431	294	339	-32 to -21
Cap-and-Trade Program	n/a	34	79	n/a
Total	431	260	260	-40

notes from CARB Scoping Plan

* Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

** The SLCP will reduce emissions in this sector by 40 percent from 2013 levels. However, the 2030 levels are still higher than the 1990 levels as emissions in this sector have grown between 1990 and 2013.

Baseline Comparison Year	2015

Sector Reduction Targets Relative to 2015

Statewide Emissions (MMT CO2e)

	2015 [1]	**2030 Low Scenario**	**2030 High Scenario**	**% Change from 2015 (low)**	**% Change from 2015 (high)**
Land Use Target (excluding Cap and Trade, High GWP, and Industrial)	132	76	102	-43%	-23%
Transportation Target	171	103	111	-40%	-35%
Total	303	179	213		

[1] See next page for detailed emission sector selections from the state's 2015 GHG inventory.

Sector Percent Targets Relative to 2015 for the Low Scoping Plan Scenario [1]

Statewide Emissions (MMT CO2e)

	2030 Target	**2040 Target [2]**	**2050 Target [3]**
Land Use Target (excluding cap and trade, high GWP)	-43%	-64%	-85%
Transportation Target	-40%	-60%	-79%
Total			

[1] The Low scenario is the most conservative Scoping Plan scenario and assumes the least reductions at the statewide-level from the Cap and Trade program.

[2] Interpolated

[3] Calculated from the 2030 target based on a ratio of the statewide targets between 2050 and 2030 (80%/40%=2)

Plan Bay Area Custom GHG Targets Relative to 2015

Regional Emissions (MT CO2e)

	Baseline Inventory [1]	**SECTOR-SPECIFIC MASS TARGETS**		
Inventory-Specific Emissions Reduction Targets	**2015**	**2030**	**2040**	**2050**
Land Use Target (excluding cap and trade, high GWP)	28,140,000	16,140,873	10,141,309	4,141,746
Transportation Target	20,094,000	12,108,854	8,116,281	4,123,708
Total	48,234,000	28,249,727	18,257,591	8,265,454
Weighted target		-41%	-62%	-83%
Reduction needed from 2015		19,984,273	29,976,409	39,968,546

[1] Based on the land use (electricity, building, waste management and transportation emissions reported in BAAQMD's 2017 Clean Air Plan. (rounded)

GHG Emission Inventory Summary [2000 - 2018]
Inventory Accounting: Included
Measurement: CO2Eq
GWP: AR4
Unit: million tonnes

Main Secto	Sub Sector Level 1	Sub Sector Level 2	Sub Sector Level 3	Main Activity	Activity Subset	GHG	2015		Included in Target Setting Calculations?
Agriculture	Ag Energy Use	Livestock	None	Fuel combustion	Natural gas	N2O	0.000047531		No
Agriculture	Manure Management	Poultry	Poultry without bedding	Livestock population	Hens 1+ yr	N2O	0.014020036		No
Agriculture	Manure Management	Poultry	Poultry without bedding	Livestock population	Other chickens	CH4	1.17075E-05		No
Agriculture	Manure Management	Poultry	Poultry without bedding	Livestock population	Other chickens	N2O	2.49128E-05		No
Agriculture	Manure Management	Poultry	Poultry without bedding	Livestock population	Pullets	CH4	0.002282563		No
Agriculture	Manure Management	Poultry	Poultry without bedding	Livestock population	Pullets	N2O	0.00377572		No
Agriculture	Ag Residue Burning	Orchard & Vineyard	None	Crop acreage burned	Almond	CH4	0.017852883		No
Agriculture	Ag Residue Burning	Orchard & Vineyard	None	Crop acreage burned	Almond	N2O	0.036377158		No
Agriculture	Ag Residue Burning	Field Crops	None	Crop acreage burned	Barley	CH4	0.000127328		No
Agriculture	Ag Residue Burning	Field Crops	None	Crop acreage burned	Barley	N2O	0.000122895		No
Agriculture	Ag Residue Burning	Field Crops	None	Crop acreage burned	Corn	CH4	0.000288733		No
Agriculture	Ag Residue Burning	Field Crops	None	Crop acreage burned	Corn	N2O	0.00019668		No
Agriculture	Ag Residue Burning	Field Crops	None	Crop acreage burned	Rice	CH4	0.001614623		No
Agriculture	Ag Residue Burning	Field Crops	None	Crop acreage burned	Rice	N2O	0.00534618		No
Agriculture	Ag Residue Burning	Orchard & Vineyard	None	Crop acreage burned	Walnut	CH4	0.006903978		No
Agriculture	Ag Residue Burning	Orchard & Vineyard	None	Crop acreage burned	Walnut	N2O	0.010036014		No
Agriculture	Ag Residue Burning	Field Crops	None	Crop acreage burned	Wheat	CH4	0.00174209		No
Agriculture	Ag Residue Burning	Field Crops	None	Crop acreage burned	Wheat	N2O	0.001140982		No
Agriculture	Ag Soil Management	Liming	None	Dolomite applied to soils	NA	CO2	0.000767113		No
Agriculture	Ag Soil Management	Liming	None	Limestone applied to soils	NA	CO2	0.170355443		No
Agriculture	Histosol Cultivation	Not Specified	Direct	Drained histosols	NA	N2O	0.149074202		No
Agriculture	Ag Soil Management	Fertilizer	Direct	Nitrogen applied in fertilizer	Organic fertilizers	N2O	0.022018624		No
Agriculture	Ag Soil Management	Fertilizer	Direct	Nitrogen applied in fertilizer	Synthetic fertilizers	N2O	1.323086952		No
Agriculture	Ag Soil Management	Crop Residues	Direct	Nitrogen in crop residues	NA	N2O	0.28079199		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in managed manure	Beef cattle	N2O	0.087364004		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in managed manure	Dairy cows	N2O	0.708922809		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in managed manure	Dairy heifers	N2O	0.168723607		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in managed manure	Poultry	N2O	0.05554419		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in managed manure	Sheep, goat, horse	N2O	0.01739879		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in managed manure	Swine	N2O	0.002185562		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in unmanaged man	Beef cattle	N2O	0.714494217		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in unmanaged man	Dairy cows	N2O	0.263434146		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in unmanaged man	Dairy heifers	N2O	0.051498363		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in unmanaged man	Poultry	N2O	0.000799743		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in unmanaged man	Sheep, goat, horse	N2O	0.162688064		No
Agriculture	Ag Soil Management	Manure	Direct	Nitrogen in unmanaged man	Swine	N2O	0.000945822		No
Agriculture	Ag Soil Management	Fertilizer	Indirect	Nitrogen applied in fertilizer	Organic fertilizers	N2O	0.009357915		No

Agriculture	Ag Soil Management	Fertilizer	Indirect	Nitrogen applied in fertilizer	Synthetic fertilizers	N2O	0.609003886		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in managed manure	Beef cattle	N2O	0.037129697		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in managed manure	Dairy cows	N2O	0.301292185		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in managed manure	Dairy heifers	N2O	0.073417157		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in managed manure	Poultry	N2O	0.023606279		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in managed manure	Sheep, goat, horse	N2O	0.007394483		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in managed manure	Swine	N2O	0.000928866		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in unmanaged man	Beef cattle	N2O	0.151830017		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in unmanaged man	Dairy cows	N2O	0.055979747		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in unmanaged man	Dairy heifers	N2O	0.010943394		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in unmanaged man	Poultry	N2O	0.000169949		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in unmanaged man	Sheep, goat, horse	N2O	0.069142437		No
Agriculture	Ag Soil Management	Manure	Indirect	Nitrogen in unmanaged man	Swine	N2O	0.000201001		No
Agriculture	Rice Cultivation	Field Crops	None	Rice crop area	NA	CH4	0.671672065		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Dairy calves	CH4	0.259591505		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Dairy cows	CH4	6.304156713		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Dairy replacements 0-12 mon	CH4	0.237626083		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Dairy replacements 12-24 mo	CH4	0.843959795		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Beef calves	CH4	0.071101643		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Beef cows	CH4	1.407816578		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Beef replacements 0-12 mont	CH4	0.040697583		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Beef replacements 12-24 mor	CH4	0.108799745		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Bulls	CH4	0.172708905		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Heifer feedlot	CH4	0.178404533		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Heifer stockers	CH4	0.173616613		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Steer feedlot	CH4	0.286774865		No
Agriculture	Enteric Fermentation	Cattle	None	Livestock population	Steer stockers	CH4	0.382424018		No
Agriculture	Enteric Fermentation	Other Livestock	None	Livestock population	Sheep	CH4	0.12		No
Agriculture	Enteric Fermentation	Other Livestock	None	Livestock population	Goats	CH4	0.01605		No
Agriculture	Enteric Fermentation	Other Livestock	None	Livestock population	Horses	CH4	0.34670552		No
Agriculture	Enteric Fermentation	Other Livestock	None	Livestock population	Swine	CH4	0.0035625		No
Agriculture	Manure Management	Cattle	Anaerobic digester	Livestock population	Dairy cows	CH4	0.042744845		No
Agriculture	Manure Management	Cattle	Anaerobic digester	Livestock population	Dairy cows	N2O	0.00673334		No
Agriculture	Manure Management	Cattle	Anaerobic lagoon	Livestock population	Dairy cows	CH4	8.421257495		No
Agriculture	Manure Management	Cattle	Anaerobic lagoon	Livestock population	Dairy cows	N2O	0.328619798		No
Agriculture	Manure Management	Cattle	Daily spread	Livestock population	Dairy cows	CH4	0.010441268		No
Agriculture	Manure Management	Cattle	Daily spread	Livestock population	Dairy cows	N2O	0.013669111		No
Agriculture	Manure Management	Cattle	Daily spread	Livestock population	Dairy heifers	CH4	0.00139334		No
Agriculture	Manure Management	Cattle	Daily spread	Livestock population	Dairy heifers	N2O	0.002551565		No
Agriculture	Manure Management	Cattle	Deep pit	Livestock population	Dairy cows	CH4	0.006626033		No
Agriculture	Manure Management	Cattle	Deep pit	Livestock population	Dairy cows	N2O	0.000590129		No
Agriculture	Manure Management	Cattle	Dry lot	Livestock population	Dairy heifers	CH4	0.033820723		No
Agriculture	Manure Management	Cattle	Dry lot	Livestock population	Dairy heifers	N2O	0.446959472		No
Agriculture	Manure Management	Cattle	Liquid/slurry	Livestock population	Dairy cows	CH4	1.29227026		No
Agriculture	Manure Management	Cattle	Liquid/slurry	Livestock population	Dairy cows	N2O	0.200368495		No
Agriculture	Manure Management	Cattle	Liquid/slurry	Livestock population	Dairy heifers	CH4	0.007291243		No
Agriculture	Manure Management	Cattle	Liquid/slurry	Livestock population	Dairy heifers	N2O	0.001581397		No

Agriculture	Manure Management	Cattle	Pasture	Livestock population	Dairy cows	CH4	0.00199253		No
Agriculture	Manure Management	Cattle	Pasture	Livestock population	Dairy heifers	CH4	0.000358038		No
Agriculture	Manure Management	Cattle	Solid storage	Livestock population	Dairy cows	CH4	0.072042548		No
Agriculture	Manure Management	Cattle	Solid storage	Livestock population	Dairy cows	N2O	0.090777237		No
Agriculture	Manure Management	Cattle	Dry lot	Livestock population	Feedlot - heifers 500+ lbs	CH4	0.009593783		No
Agriculture	Manure Management	Cattle	Dry lot	Livestock population	Feedlot - heifers 500+ lbs	N2O	0.099441289		No
Agriculture	Manure Management	Cattle	Dry lot	Livestock population	Feedlot - steers 500+ lbs	CH4	0.017923388		No
Agriculture	Manure Management	Cattle	Dry lot	Livestock population	Feedlot - steers 500+ lbs	N2O	0.195923795		No
Agriculture	Manure Management	Cattle	Liquid/slurry	Livestock population	Feedlot - heifers 500+ lbs	CH4	0.003447073		No
Agriculture	Manure Management	Cattle	Liquid/slurry	Livestock population	Feedlot - heifers 500+ lbs	N2O	0.000434871		No
Agriculture	Manure Management	Cattle	Liquid/slurry	Livestock population	Feedlot - steers 500+ lbs	CH4	0.003447073		No
Agriculture	Manure Management	Cattle	Liquid/slurry	Livestock population	Feedlot - steers 500+ lbs	N2O	0.000434871		No
Agriculture	Manure Management	Cattle	Pasture	Livestock population	Not on feed - beef cows	CH4	0.0470941		No
Agriculture	Manure Management	Cattle	Pasture	Livestock population	Not on feed - bulls 500+ lbs	CH4	0.005777435		No
Agriculture	Manure Management	Cattle	Pasture	Livestock population	Not on feed - calves <500 lbs	CH4	0.017117613		No
Agriculture	Manure Management	Cattle	Pasture	Livestock population	Not on feed - heifers 500+ lbs	CH4	0.010320283		No
Agriculture	Manure Management	Cattle	Pasture	Livestock population	Not on feed - steers 500+ lbs	CH4	0.014252953		No
Agriculture	Manure Management	Other Livestock	Dry lot	Livestock population	Sheep	CH4	0.003287983		No
Agriculture	Manure Management	Other Livestock	Dry lot	Livestock population	Sheep	N2O	0.022255236		No
Agriculture	Manure Management	Other Livestock	Pasture	Livestock population	Sheep	CH4	0.00728431		No
Agriculture	Manure Management	Other Livestock	Dry lot	Livestock population	Goats	CH4	0.000095615		No
Agriculture	Manure Management	Other Livestock	Dry lot	Livestock population	Goats	N2O	0.001135201		No
Agriculture	Manure Management	Other Livestock	Pasture	Livestock population	Goats	CH4	0.001099573		No
Agriculture	Manure Management	Other Livestock	Dry lot	Livestock population	Horses	CH4	0.005062605		No
Agriculture	Manure Management	Other Livestock	Dry lot	Livestock population	Horses	N2O	0.024636137		No
Agriculture	Manure Management	Other Livestock	Pasture	Livestock population	Horses	CH4	0.058219953		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - breeding	CH4	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - breeding	N2O	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - market < 50 lbs	CH4	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - market < 50 lbs	N2O	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - market 120-179 lbs	CH4	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - market 120-179 lbs	N2O	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - market 180+ lbs	CH4	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - market 180+ lbs	N2O	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - market 50-119 lbs	CH4	No Data		No
Agriculture	Manure Management	Swine	Anaerobic digester	Livestock population	Swine - market 50-119 lbs	N2O	No Data		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - breeding	CH4	0.002954798		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - breeding	N2O	0.00010436		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - market < 50 lbs	CH4	0.00322214		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - market < 50 lbs	N2O	0.000160831		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - market 120-179 lbs	CH4	0.00898405		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - market 120-179 lbs	N2O	0.000428941		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - market 180+ lbs	CH4	0.009350105		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - market 180+ lbs	N2O	0.000446404		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - market 50-119 lbs	CH4	0.004783605		No
Agriculture	Manure Management	Swine	Anaerobic lagoon	Livestock population	Swine - market 50-119 lbs	N2O	0.000228387		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - breeding	CH4	0.000741213		No

Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - breeding	N2O	5.62922E-05		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - market < 50 lbs	CH4	0.000806528		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - market < 50 lbs	N2O	8.67478E-05		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - market 120-179 lbs	CH4	0.002248778		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - market 120-179 lbs	N2O	0.000231367		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - market 180+ lbs	CH4	0.002340405		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - market 180+ lbs	N2O	0.000240784		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - market 50-119 lbs	CH4	0.001197375		No
Agriculture	Manure Management	Swine	Deep pit	Livestock population	Swine - market 50-119 lbs	N2O	0.000123193		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - breeding	CH4	0.000176938		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - breeding	N2O	0.000019072		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - market < 50 lbs	CH4	0.00019253		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - market < 50 lbs	N2O	2.93828E-05		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - market 120-179 lbs	CH4	0.000536815		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - market 120-179 lbs	N2O	7.83442E-05		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - market 180+ lbs	CH4	0.000558688		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - market 180+ lbs	N2O	8.15328E-05		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - market 50-119 lbs	CH4	0.00028583		No
Agriculture	Manure Management	Swine	Liquid/slurry	Livestock population	Swine - market 50-119 lbs	N2O	0.00004172		No
Agriculture	Manure Management	Swine	Pasture	Livestock population	Swine - breeding	CH4	8.2625E-06		No
Agriculture	Manure Management	Swine	Pasture	Livestock population	Swine - market < 50 lbs	CH4	9.0175E-06		No
Agriculture	Manure Management	Swine	Pasture	Livestock population	Swine - market 120-179 lbs	CH4	2.51425E-05		No
Agriculture	Manure Management	Swine	Pasture	Livestock population	Swine - market 180+ lbs	CH4	2.61675E-05		No
Agriculture	Manure Management	Swine	Pasture	Livestock population	Swine - market 50-119 lbs	CH4	1.33875E-05		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - breeding	CH4	0.00000552		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - breeding	N2O	1.14432E-05		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - market < 50 lbs	CH4	0.000006025		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Distillate	CH4	0.00369581		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - market < 50 lbs	N2O	1.76416E-05		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Distillate	CO2	3.644560498		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - market 120-179 lbs	CH4	0.0000168		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Distillate	N2O	0.008810817		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - market 120-179 lbs	N2O	4.70244E-05		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Ethanol	CH4	0.00000775		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - market 180+ lbs	CH4	1.74825E-05		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - market 180+ lbs	N2O	4.89316E-05		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Ethanol	N2O	0.000018476		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - market 50-119 lbs	CH4	0.000008945		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Gasoline	CH4	0.000101885		No
Agriculture	Manure Management	Swine	Solid storage	Livestock population	Swine - market 50-119 lbs	N2O	0.000025032		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Gasoline	CO2	0.096912917		No
Agriculture	Manure Management	Poultry	Anaerobic lagoon	Livestock population	Hens 1+ yr	CH4	0.056869608		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Gasoline	N2O	0.0002429		No
Agriculture	Manure Management	Poultry	Anaerobic lagoon	Livestock population	Hens 1+ yr	N2O	0.002372408		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Kerosene	CH4	2.725E-07		No
Agriculture	Manure Management	Poultry	Anaerobic lagoon	Livestock population	Other chickens	CH4	0.00007855		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Kerosene	CO2	0.000274104		No

Agriculture	Manure Management	Poultry	Anaerobic lagoon	Livestock population	Other chickens	N2O	4.2018E-06		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Kerosene	N2O	6.556E-07		No
Agriculture	Manure Management	Poultry	Anaerobic lagoon	Livestock population	Pullets	CH4	0.015315455		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Natural gas	CH4	3.4175E-06		No
Agriculture	Manure Management	Poultry	Anaerobic lagoon	Livestock population	Pullets	N2O	0.000638912		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Natural gas	CO2	0.007246745		No
Agriculture	Manure Management	Poultry	Pasture	Livestock population	Broilers	CH4	0.000049625		No
Agriculture	Ag Energy Use	Not Specified	None	Fuel combustion	Natural gas	N2O	4.0826E-06		No
Agriculture	Manure Management	Poultry	Pasture	Livestock population	Turkeys	CH4	6.87725E-05		No
Agriculture	Ag Energy Use	Crop Production	None	Fuel combustion	Natural gas	CH4	0.000258428		No
Agriculture	Manure Management	Poultry	Poultry with bedding	Livestock population	Broilers	CH4	0.00491288		No
Agriculture	Ag Energy Use	Crop Production	None	Fuel combustion	Natural gas	CO2	0.548070805		No
Agriculture	Manure Management	Poultry	Poultry with bedding	Livestock population	Broilers	N2O	0.005232373		No
Agriculture	Ag Energy Use	Crop Production	None	Fuel combustion	Natural gas	N2O	0.000308043		No
Agriculture	Manure Management	Poultry	Poultry with bedding	Livestock population	Turkeys	CH4	0.006808543		No
Agriculture	Ag Energy Use	Livestock	None	Fuel combustion	Natural gas	CH4	3.98875E-05		No
Agriculture	Manure Management	Poultry	Poultry with bedding	Livestock population	Turkeys	N2O	0.009497677		No
Agriculture	Ag Energy Use	Livestock	None	Fuel combustion	Natural gas	CO2	0.084592567		No
Agriculture	Manure Management	Poultry	Poultry without bedding	Livestock population	Hens 1+ yr	CH4	0.008475653		No
Commercia	Not Specified	Not Specified	None	Fuel storage	Coal	CH4	No Data		Yes - Land Use
Commercia	Landscape	Fertilizer	Direct	Commercial use of nitrogen f	Synthetic fertilizers	N2O	0.434009405		Yes - Land Use
Commercia	Landscape	Fertilizer	Indirect	Commercial use of nitrogen f	Synthetic fertilizers	N2O	0.141053055		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-134a	0.084516289		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-152a	0.031938358		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-43-10r	0.000423612		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Fire Protection	CF4	0.000311119		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Fire Protection	HFC-125	0.00309715		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Fire Protection	HFC-227ea	0.025576782		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Fire Protection	HFC-236fa	0.001801116		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Foams	HFC-134a	0.023107942		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Foams	HFC-245fa	0.028723404		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-125	3.55927705		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-134a	1.548719744		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-143a	2.563473033		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-152a	4.14532E-05		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-236fa	0.064698912		No
Commercia	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-32	0.32069709		No
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Crude oil	CH4	No Data		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Crude oil	CO2	No Data		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Crude oil	N2O	No Data		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Digester gas	CH4	5.15375E-05		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Digester gas	N2O	0.000120958		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Distillate	CH4	0.00000015		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Distillate	CO2	0.000148054		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Distillate	N2O	3.576E-07		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Jet fuel	CH4	No Data		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Jet fuel	CO2	No Data		Yes - Land Use

Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Jet fuel	N2O	No Data		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Kerosene	CH4	No Data		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Kerosene	CO2	No Data		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Kerosene	N2O	No Data		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Landfill gas	CH4	0.000010685		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Landfill gas	N2O	2.50618E-05		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Natural gas	CH4	0.00024422		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Natural gas	CO2	0.517943494		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Natural gas	N2O	0.000291116		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Propane	CH4	2.5E-09		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Propane	CO2	1.2427E-06		Yes - Land Use
Commercia	Communication	Other Message Communicatio	None	Fuel combustion	Natural gas	CH4	0.00004358		Yes - Land Use
Commercia	CHP: Commercial	Useful Thermal Output	None	Fuel combustion	Propane	N2O	0		Yes - Land Use
Commercia	Communication	Other Message Communicatio	None	Fuel combustion	Natural gas	CO2	0.092422987		Yes - Land Use
Commercia	Communication	Other Message Communicatio	None	Fuel combustion	Natural gas	N2O	5.19414E-05		Yes - Land Use
Commercia	Communication	Radio Broadcasting Stations	None	Fuel combustion	Natural gas	CH4	0.00000246		Yes - Land Use
Commercia	Communication	Radio Broadcasting Stations	None	Fuel combustion	Natural gas	CO2	0.005218099		Yes - Land Use
Commercia	Communication	Radio Broadcasting Stations	None	Fuel combustion	Natural gas	N2O	2.9204E-06		Yes - Land Use
Commercia	Communication	Telephone & Cell Phone Servic	None	Fuel combustion	Natural gas	CH4	0.00000362		Yes - Land Use
Commercia	Communication	Telephone & Cell Phone Servic	None	Fuel combustion	Natural gas	CO2	0.007675835		Yes - Land Use
Commercia	Communication	Telephone & Cell Phone Servic	None	Fuel combustion	Natural gas	N2O	0.000004321		Yes - Land Use
Commercia	Communication	U.S. Postal Service	None	Fuel combustion	Natural gas	CH4	4.2125E-06		Yes - Land Use
Commercia	Communication	U.S. Postal Service	None	Fuel combustion	Natural gas	CO2	0.008936159		Yes - Land Use
Commercia	Communication	U.S. Postal Service	None	Fuel combustion	Natural gas	N2O	5.0362E-06		Yes - Land Use
Commercia	Domestic Utilities	Sewerage Systems	None	Fuel combustion	Natural gas	CH4	No Data		Yes - Land Use
Commercia	Domestic Utilities	Sewerage Systems	None	Fuel combustion	Natural gas	CO2	No Data		Yes - Land Use
Commercia	Domestic Utilities	Sewerage Systems	None	Fuel combustion	Natural gas	N2O	No Data		Yes - Land Use
Commercia	Domestic Utilities	Water Supply	None	Fuel combustion	Natural gas	CH4	0.000106988		Yes - Land Use
Commercia	Domestic Utilities	Water Supply	None	Fuel combustion	Natural gas	CO2	0.226897934		Yes - Land Use
Commercia	Domestic Utilities	Water Supply	None	Fuel combustion	Natural gas	N2O	0.000127514		Yes - Land Use
Commercia	Education	College	None	Fuel combustion	Natural gas	CH4	0.000219205		Yes - Land Use
Commercia	Education	College	None	Fuel combustion	Natural gas	CO2	0.464891923		Yes - Land Use
Commercia	Education	College	None	Fuel combustion	Natural gas	N2O	0.000261286		Yes - Land Use
Commercia	Education	School	None	Fuel combustion	Natural gas	CH4	0.000175983		Yes - Land Use
Commercia	Education	School	None	Fuel combustion	Natural gas	CO2	0.373226184		Yes - Land Use
Commercia	Education	School	None	Fuel combustion	Natural gas	N2O	0.000209762		Yes - Land Use
Commercia	Food Services	Food & Liquor	None	Fuel combustion	Natural gas	CH4	0.000223375		Yes - Land Use
Commercia	Food Services	Food & Liquor	None	Fuel combustion	Natural gas	CO2	0.473733937		Yes - Land Use
Commercia	Food Services	Food & Liquor	None	Fuel combustion	Natural gas	N2O	0.000266263		Yes - Land Use
Commercia	Food Services	Restaurant	None	Fuel combustion	Natural gas	CH4	0.000868815		Yes - Land Use
Commercia	Food Services	Restaurant	None	Fuel combustion	Natural gas	CO2	1.842582074		Yes - Land Use
Commercia	Food Services	Restaurant	None	Fuel combustion	Natural gas	N2O	0.001035639		Yes - Land Use
Commercia	Health Care	Not Specified	None	Fuel combustion	Natural gas	CH4	0.000689223		Yes - Land Use
Commercia	Health Care	Not Specified	None	Fuel combustion	Natural gas	CO2	1.461704792		Yes - Land Use
Commercia	Health Care	Not Specified	None	Fuel combustion	Natural gas	N2O	0.000821556		Yes - Land Use
Commercia	Hotels	Not Specified	None	Fuel combustion	Natural gas	CH4	0.000337448		Yes - Land Use
Commercia	Hotels	Not Specified	None	Fuel combustion	Natural gas	CO2	0.715658091		Yes - Land Use

Commercia	Hotels	Not Specified	None	Fuel combustion	Natural gas	N2O	0.00040224		Yes - Land Use
Commercia	National Security	Not Specified	None	Fuel combustion	Natural gas	CH4	0.00006196		Yes - Land Use
Commercia	National Security	Not Specified	None	Fuel combustion	Natural gas	CO2	0.13140231		Yes - Land Use
Commercia	National Security	Not Specified	None	Fuel combustion	Natural gas	N2O	7.38444E-05		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Coal	CH4	No Data		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Coal	CO2	No Data		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Coal	N2O	No Data		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Distillate	CH4	0.001570675		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Distillate	CO2	1.548894579		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Distillate	N2O	0.003744489		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Ethanol	CH4	8.7875E-06		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Ethanol	N2O	2.09494E-05		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Gasoline	CH4	0.00011553		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Gasoline	CO2	0.109889877		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Gasoline	N2O	0.000275412		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Kerosene	CH4	3.5125E-06		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Kerosene	CO2	0.003522744		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Kerosene	N2O	8.3738E-06		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	LPG	CH4	0.00060015		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	LPG	CO2	0.50396596		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	LPG	N2O	0.001430758		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Natural gas	CH4	0.001220488		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Natural gas	CO2	2.588411014		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Natural gas	N2O	0.001454836		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Residual fuel oil	CH4	0.000000305		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Residual fuel oil	CO2	0.000304155		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	7.152E-07		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Wood (wet)	CH4	0.00258		Yes - Land Use
Commercia	Not Specified	Not Specified	None	Fuel combustion	Wood (wet)	N2O	0.00403641		Yes - Land Use
Commercia	Offices	Not Specified	None	Fuel combustion	Natural gas	CH4	0.00022894		Yes - Land Use
Commercia	Offices	Not Specified	None	Fuel combustion	Natural gas	CO2	0.485535609		Yes - Land Use
Commercia	Offices	Not Specified	None	Fuel combustion	Natural gas	N2O	0.000272908		Yes - Land Use
Commercia	Retail & Wholesale	Refrigerated Warehousing	None	Fuel combustion	Natural gas	CH4	0.000032415		Yes - Land Use
Commercia	Retail & Wholesale	Refrigerated Warehousing	None	Fuel combustion	Natural gas	CO2	0.068745028		Yes - Land Use
Commercia	Retail & Wholesale	Refrigerated Warehousing	None	Fuel combustion	Natural gas	N2O	3.86506E-05		Yes - Land Use
Commercia	Retail & Wholesale	Retail	None	Fuel combustion	Natural gas	CH4	0.000357108		Yes - Land Use
Commercia	Retail & Wholesale	Retail	None	Fuel combustion	Natural gas	CO2	0.757354474		Yes - Land Use
Commercia	Retail & Wholesale	Retail	None	Fuel combustion	Natural gas	N2O	0.000425663		Yes - Land Use
Commercia	Retail & Wholesale	Warehousing	None	Fuel combustion	Natural gas	CH4	0.000106863		Yes - Land Use
Commercia	Retail & Wholesale	Warehousing	None	Fuel combustion	Natural gas	CO2	0.226636631		Yes - Land Use
Commercia	Retail & Wholesale	Warehousing	None	Fuel combustion	Natural gas	N2O	0.000127395		Yes - Land Use
Commercia	Transportation Services	Airports	None	Fuel combustion	Natural gas	CH4	3.33825E-05		Yes - Land Use
Commercia	Transportation Services	Airports	None	Fuel combustion	Natural gas	CO2	0.070799483		Yes - Land Use
Commercia	Transportation Services	Airports	None	Fuel combustion	Natural gas	N2O	0.000039783		Yes - Land Use
Commercia	Transportation Services	Transportation	None	Fuel combustion	Natural gas	CH4	0.000229893		Yes - Land Use
Commercia	Transportation Services	Transportation	None	Fuel combustion	Natural gas	CO2	0.487554952		Yes - Land Use
Commercia	Transportation Services	Transportation	None	Fuel combustion	Natural gas	N2O	0.000274041		Yes - Land Use

Commercia	Transportation Services	Water Transportation	None	Fuel combustion	Natural gas	CH4	2.0925E-06		Yes - Land Use
Commercia	Transportation Services	Water Transportation	None	Fuel combustion	Natural gas	CO2	0.004437812		Yes - Land Use
Commercia	Transportation Services	Water Transportation	None	Fuel combustion	Natural gas	N2O	2.5032E-06		Yes - Land Use
Electricity (	Specified Imports	Arizona	Aligned Microgrid (AZ)	Electricity generation	Distillate	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Simpson (WA)	Electricity generation	Primary fuel: Biomass	N2O	0.003217029		Yes - Land Use
Electricity (	Specified Imports	Arizona	Aligned Microgrid (AZ)	Electricity generation	Distillate	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Sumas Power Plant (WA)	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Aligned Microgrid (AZ)	Electricity generation	Distillate	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Sumas Power Plant (WA)	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Apache Station (AZ)	Electricity generation	Primary fuel: Coal	CH4	0.000144945		Yes - Land Use
Electricity (	Specified Imports	Washington	Sumas Power Plant (WA)	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Apache Station (AZ)	Electricity generation	Primary fuel: Coal	CO2	0.049374845		Yes - Land Use
Electricity (	Specified Imports	Washington	Transalta Centralia Genera	Electricity generation	Primary fuel: Coal	CH4	1.4375E-06		Yes - Land Use
Electricity (	Specified Imports	Arizona	Apache Station (AZ)	Electricity generation	Primary fuel: Coal	N2O	0.000251214		Yes - Land Use
Electricity (	Specified Imports	Washington	Transalta Centralia Genera	Electricity generation	Primary fuel: Coal	CO2	0.000497271		Yes - Land Use
Electricity (	Specified Imports	Arizona	Arlington Valley Energy Fa	Electricity generation	Primary fuel: Natural Gas	CH4	0.00000654		Yes - Land Use
Electricity (	Specified Imports	Washington	Transalta Centralia Genera	Electricity generation	Primary fuel: Coal	N2O	2.5032E-06		Yes - Land Use
Electricity (	Specified Imports	Arizona	Arlington Valley Energy Fa	Electricity generation	Primary fuel: Natural Gas	CO2	0.014016663		Yes - Land Use
Electricity (	Specified Imports	Washington	Weyerhaeuser Long View (	Electricity generation	Primary fuels: Biomass, Coal a	CH4	0.00000001		Yes - Land Use
Electricity (	Specified Imports	Arizona	Arlington Valley Energy Fa	Electricity generation	Primary fuel: Natural Gas	N2O	7.8076E-06		Yes - Land Use
Electricity (	Specified Imports	Washington	Weyerhaeuser Long View (	Electricity generation	Primary fuels: Biomass, Coal a	CO2	7.025E-07		Yes - Land Use
Electricity (	Specified Imports	Arizona	Canyon State Electric (AZ)	Electricity generation	Primary fuel: Biomass	CH4	0.000000965		Yes - Land Use
Electricity (	Specified Imports	Arizona	Canyon State Electric (AZ)	Electricity generation	Primary fuel: Biomass	CO2	4.6215E-06		Yes - Land Use
Electricity (	Specified Imports	Washington	Weyerhaeuser Long View (	Electricity generation	Primary fuels: Biomass, Coal a	N2O	2.98E-08		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Dave Johnston (WY)	Electricity generation	Primary fuel: Coal	CH4	2.5E-09		Yes - Land Use
Electricity (	Specified Imports	Washington	Weyerhaeuser Long View (	Electricity generation	Primary fuels: Biomass, Coal a	N2O	2.98E-08		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Dave Johnston (WY)	Electricity generation	Primary fuel: Coal	CH4	2.5E-09		Yes - Land Use
Electricity (	Specified Imports	Arizona	Canyon State Electric (AZ)	Electricity generation	Primary fuel: Biomass	N2O	2.2648E-06		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Dave Johnston (WY)	Electricity generation	Primary fuel: Coal	CO2	1.0734E-06		Yes - Land Use
Electricity (	Specified Imports	Arizona	Cholla Power Station (AZ)	Electricity generation	Coal	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Dave Johnston (WY)	Electricity generation	Primary fuel: Coal	N2O	0		Yes - Land Use
Electricity (	Specified Imports	Arizona	Cholla Power Station (AZ)	Electricity generation	Coal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Jim Bridger (WY)	Electricity generation	Primary fuel: Coal	CH4	0.00000011		Yes - Land Use
Electricity (	Specified Imports	Arizona	Cholla Power Station (AZ)	Electricity generation	Coal	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Jim Bridger (WY)	Electricity generation	Primary fuel: Coal	CO2	3.80999E-05		Yes - Land Use
Electricity (	Specified Imports	Arizona	Gila River Power Station (A	Electricity generation	Primary fuel: Natural Gas	CH4	0.00001299		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Jim Bridger (WY)	Electricity generation	Primary fuel: Coal	N2O	1.788E-07		Yes - Land Use
Electricity (	Specified Imports	Arizona	Gila River Power Station (A	Electricity generation	Primary fuel: Natural Gas	CO2	0.027998152		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Laramie River (WY)	Electricity generation	Primary fuel: Coal	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Gila River Power Station (A	Electricity generation	Primary fuel: Natural Gas	N2O	0.000015496		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Laramie River (WY)	Electricity generation	Primary fuel: Coal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Griffith Energy (AZ)	Electricity generation	Primary fuel: Natural Gas	CH4	0.00002396		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Laramie River (WY)	Electricity generation	Primary fuel: Coal	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Griffith Energy (AZ)	Electricity generation	Primary fuel: Natural Gas	CO2	0.051650067		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Naughton (WY)	Electricity generation	Primary fuel: Coal	CH4	0.000000045		Yes - Land Use
Electricity (	Specified Imports	Arizona	Griffith Energy (AZ)	Electricity generation	Primary fuel: Natural Gas	N2O	2.85484E-05		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Naughton (WY)	Electricity generation	Primary fuel: Coal	CO2	1.54797E-05		Yes - Land Use
Electricity (	Specified Imports	Arizona	Harquahala Generating Pro	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Naughton (WY)	Electricity generation	Primary fuel: Coal	N2O	8.94E-08		Yes - Land Use

Electricity (	Specified Imports	Arizona	Harquahala Generating Pro	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Wyodak (WY)	Electricity generation	Primary fuel: Coal	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Harquahala Generating Pro	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Wyodak (WY)	Electricity generation	Primary fuel: Coal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	MCAS Yuma Microgrid MC	Electricity generation	Distillate	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Wyoming	Wyodak (WY)	Electricity generation	Primary fuel: Coal	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	MCAS Yuma Microgrid MC	Electricity generation	Distillate	CO2	No Data		Yes - Land Use
Electricity (	Unspecified Imports	CAISO	None	Electricity generation	Unspecified sources	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	MCAS Yuma Microgrid MC	Electricity generation	Distillate	N2O	No Data		Yes - Land Use
Electricity (	Unspecified Imports	CAISO	None	Electricity generation	Unspecified sources	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Mesquite Generating Stati	Electricity generation	Primary fuel: Natural Gas	CH4	1.625E-07		Yes - Land Use
Electricity (	Unspecified Imports	CAISO	None	Electricity generation	Unspecified sources	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Mesquite Generating Stati	Electricity generation	Primary fuel: Natural Gas	CO2	0.264506142		Yes - Land Use
Electricity (	Unspecified Imports	Other	None	Electricity generation	Unspecified sources	CH4	0.00528649		Yes - Land Use
Electricity (	Specified Imports	Arizona	Mesquite Generating Stati	Electricity generation	Primary fuel: Natural Gas	N2O	2.086E-07		Yes - Land Use
Electricity (	Unspecified Imports	Other	None	Electricity generation	Unspecified sources	CO2	11.21158695		Yes - Land Use
Electricity (	Specified Imports	Arizona	Navajo (AZ)	Electricity generation	Primary fuel: Coal	CH4	0.007040425		Yes - Land Use
Electricity (	Unspecified Imports	Other	None	Electricity generation	Unspecified sources	N2O	0.006301508		Yes - Land Use
Electricity (	Specified Imports	Arizona	Navajo (AZ)	Electricity generation	Primary fuel: Coal	CO2	2.382984651		Yes - Land Use
Electricity (	Specified Imports	Arizona	Navajo (AZ)	Electricity generation	Primary fuel: Coal	N2O	0.012206914		Yes - Land Use
Electricity (	Specified Imports	Arizona	Ocotillo (AZ)	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Ocotillo (AZ)	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Ocotillo (AZ)	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Red Hawk (AZ)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Red Hawk (AZ)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Red Hawk (AZ)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Saguaro (AZ)	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Saguaro (AZ)	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Saguaro (AZ)	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Southpoint Energy Center	Electricity generation	Primary fuel: Natural Gas	CH4	0.00031469		Yes - Land Use
Electricity (	Specified Imports	Arizona	Southpoint Energy Center	Electricity generation	Primary fuel: Natural Gas	CO2	0.679950598		Yes - Land Use
Electricity (	Specified Imports	Arizona	Southpoint Energy Center	Electricity generation	Primary fuel: Natural Gas	N2O	0.000375122		Yes - Land Use
Electricity (	Specified Imports	Arizona	Springerville (AZ)	Electricity generation	Primary fuel: Coal	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Springerville (AZ)	Electricity generation	Primary fuel: Coal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Caithness Dixie Valley (NV)	Electricity generation	Primarily Geothermal	CO2	0.03381349		Yes - Land Use
Electricity (	Specified Imports	Arizona	Springerville (AZ)	Electricity generation	Primary fuel: Coal	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Steamboat Hills Geotherm	Electricity generation	Primarily Geothermal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Stotz Southern Generation	Electricity generation	Primary fuel: Biomass	CH4	9.825E-07		Yes - Land Use
Electricity (	Specified Imports	Utah	Blundell (UT)	Electricity generation	Primarily Geothermal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Stotz Southern Generation	Electricity generation	Primary fuel: Biomass	CO2	4.7074E-06		Yes - Land Use
Electricity (	Specified Imports	Arizona	Stotz Southern Generation	Electricity generation	Primary fuel: Biomass	N2O	2.2946E-06		Yes - Land Use
Electricity (	Specified Imports	Arizona	Sundance (AZ)	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Sundance (AZ)	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	Sundance (AZ)	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	West Phoenix (AZ)	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	West Phoenix (AZ)	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Arizona	West Phoenix (AZ)	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use

Electricity (	Specified Imports	Arizona	Yucca/Yuma Axis (AZ)	Electricity generation	Primary fuel: Natural Gas	CH4	0.000083765		Yes - Land Use
Electricity (	Specified Imports	Arizona	Yucca/Yuma Axis (AZ)	Electricity generation	Primary fuel: Natural Gas	CO2	0.179799933		Yes - Land Use
Electricity (	Specified Imports	Arizona	Yucca/Yuma Axis (AZ)	Electricity generation	Primary fuel: Natural Gas	N2O	0.000100545		Yes - Land Use
Electricity (	Specified Imports	Arizona	Yuma Cogeneration Associ	Electricity generation	Primary fuel: Natural Gas	CH4	5.1125E-06		Yes - Land Use
Electricity (	Specified Imports	Arizona	Yuma Cogeneration Associ	Electricity generation	Primary fuel: Natural Gas	CO2	0.010903816		Yes - Land Use
Electricity (	Specified Imports	Arizona	Yuma Cogeneration Associ	Electricity generation	Primary fuel: Natural Gas	N2O	0.000006109		Yes - Land Use
Electricity (	Specified Imports	California Tribal	Desert View Power (CA Tri	Electricity generation	Primary fuel: Biomass	CH4	0.004153805		Yes - Land Use
Electricity (	Specified Imports	California Tribal	Desert View Power (CA Tri	Electricity generation	Primary fuel: Biomass	CO2	0.00306557		Yes - Land Use
Electricity (	Specified Imports	California Tribal	Desert View Power (CA Tri	Electricity generation	Primary fuel: Biomass	N2O	0.006498426		Yes - Land Use
Electricity (	Specified Imports	Canada	Armstrong Woodwaste Co	Electricity generation	Primary fuel: Biomass	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Canada	Armstrong Woodwaste Co	Electricity generation	Primary fuel: Biomass	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Canada	Armstrong Woodwaste Co	Electricity generation	Primary fuel: Biomass	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Canada	Prince George Pulp & Pape	Electricity generation	Primary fuel: Biomass	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Canada	Prince George Pulp & Pape	Electricity generation	Primary fuel: Biomass	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Canada	Prince George Pulp & Pape	Electricity generation	Primary fuel: Biomass	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Colorado	Craig (CO)	Electricity generation	Primary fuel: Coal	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Colorado	Craig (CO)	Electricity generation	Primary fuel: Coal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Colorado	Craig (CO)	Electricity generation	Primary fuel: Coal	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Colorado	Rawhide (CO)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Colorado	Rawhide (CO)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Colorado	Rawhide (CO)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Bennett Mountain Power (	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Bennett Mountain Power (	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Bennett Mountain Power (	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Evander Andrews Power C	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Evander Andrews Power C	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Evander Andrews Power C	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Langley Gulch Power Plant	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Langley Gulch Power Plant	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Idaho	Langley Gulch Power Plant	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Mexico	La Rosita (MEX)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Mexico	La Rosita (MEX)	Electricity generation	Primary fuel: Natural Gas	CO2	1.278111342		Yes - Land Use
Electricity (	Specified Imports	Mexico	La Rosita (MEX)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Mexico	Termoelectrica de Mexical	Electricity generation	Primary fuel: Natural Gas	CH4	0.00067471		Yes - Land Use
Electricity (	Specified Imports	Mexico	Termoelectrica de Mexical	Electricity generation	Primary fuel: Natural Gas	CO2	1.430926703		Yes - Land Use
Electricity (	Specified Imports	Mexico	Termoelectrica de Mexical	Electricity generation	Primary fuel: Natural Gas	N2O	0.000804242		Yes - Land Use
Electricity (	Specified Imports	Montana	Colstrip (MT)	Electricity generation	Primary fuel: Coal	CH4	1.3025E-06		Yes - Land Use
Electricity (	Specified Imports	Montana	Colstrip (MT)	Electricity generation	Primary fuel: Coal	CO2	0.000473761		Yes - Land Use
Electricity (	Specified Imports	Montana	Colstrip (MT)	Electricity generation	Primary fuel: Coal	N2O	2.2648E-06		Yes - Land Use
Electricity (	Specified Imports	Montana	Hardin Generating Project	Electricity generation	Primary fuel: Coal	CH4	0.000017355		Yes - Land Use
Electricity (	Specified Imports	Montana	Hardin Generating Project	Electricity generation	Primary fuel: Coal	CO2	0.006006229		Yes - Land Use
Electricity (	Specified Imports	Montana	Hardin Generating Project	Electricity generation	Primary fuel: Coal	N2O	0.000030098		Yes - Land Use
Electricity (	Specified Imports	Nebraska	Whelan Energy Center (NE	Electricity generation	Primary fuel: Coal	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Nebraska	Whelan Energy Center (NE	Electricity generation	Primary fuel: Coal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Nebraska	Whelan Energy Center (NE	Electricity generation	Primary fuel: Coal	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Apex Generating Station (N	Electricity generation	Primary fuel: Natural Gas	CH4	0.000471505		Yes - Land Use
Electricity (	Specified Imports	Nevada	Apex Generating Station (N	Electricity generation	Primary fuel: Natural Gas	CO2	1.017201694		Yes - Land Use

Electricity (	Specified Imports	Nevada	Apex Generating Station (N	Electricity generation	Primary fuel: Natural Gas	N2O	0.000562028		Yes - Land Use
Electricity (	Specified Imports	Nevada	Chuck Lenzie Station (NV)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Chuck Lenzie Station (NV)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Chuck Lenzie Station (NV)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Clark Station (NV)	Electricity generation	Primary fuel: Natural Gas	CH4	0.000000045		Yes - Land Use
Electricity (	Specified Imports	Nevada	Clark Station (NV)	Electricity generation	Primary fuel: Natural Gas	CO2	0.000096921		Yes - Land Use
Electricity (	Specified Imports	Nevada	Clark Station (NV)	Electricity generation	Primary fuel: Natural Gas	N2O	5.96E-08		Yes - Land Use
Electricity (	Specified Imports	Nevada	El Dorado Energy (NV)	Electricity generation	Primary fuel: Natural Gas	CH4	0.00039493		Yes - Land Use
Electricity (	Specified Imports	Nevada	El Dorado Energy (NV)	Electricity generation	Primary fuel: Natural Gas	CO2	0.878582446		Yes - Land Use
Electricity (	Specified Imports	Nevada	El Dorado Energy (NV)	Electricity generation	Primary fuel: Natural Gas	N2O	0.000470751		Yes - Land Use
Electricity (	Specified Imports	Nevada	Fort Churchill Station (NV)	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Fort Churchill Station (NV)	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Transmission and Distribution	Not Specified	None	Electricity transmitted	NA	SF6	0.04661004		No
Electricity (	Specified Imports	Nevada	Fort Churchill Station (NV)	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Frank Tracy Station (NV)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Frank Tracy Station (NV)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Frank Tracy Station (NV)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Fredonia Generating Statio	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Fredonia Generating Statio	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Fredonia Generating Statio	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Harry Allen Station (NV)	Electricity generation	Primary fuel: Natural Gas	CH4	0.00000015		Yes - Land Use
Electricity (	Specified Imports	Nevada	Harry Allen Station (NV)	Electricity generation	Primary fuel: Natural Gas	CO2	0.000324132		Yes - Land Use
Electricity (	Specified Imports	Nevada	Harry Allen Station (NV)	Electricity generation	Primary fuel: Natural Gas	N2O	1.788E-07		Yes - Land Use
Electricity (	Specified Imports	Nevada	Mohave (NV)	Electricity generation	Primary fuel: Coal	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Mohave (NV)	Electricity generation	Primary fuel: Coal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Mohave (NV)	Electricity generation	Primary fuel: Coal	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Reid Gardner (NV)	Electricity generation	Primary fuel: Coal	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Reid Gardner (NV)	Electricity generation	Primary fuel: Coal	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Reid Gardner (NV)	Electricity generation	Primary fuel: Coal	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Silverhawk Station (NV)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Silverhawk Station (NV)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Nevada	Silverhawk Station (NV)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	New Mexico	Four Corners (NM)	Electricity generation	Primary fuel: Coal	CH4	0.00000027		Yes - Land Use
Electricity (	Specified Imports	New Mexico	Four Corners (NM)	Electricity generation	Primary fuel: Coal	CO2	0.000091121		Yes - Land Use
Electricity (	Specified Imports	New Mexico	Four Corners (NM)	Electricity generation	Primary fuel: Coal	N2O	4.768E-07		Yes - Land Use
Electricity (	Specified Imports	New Mexico	San Juan (NM)	Electricity generation	Primary fuel: Coal	CH4	0.005560055		Yes - Land Use
Electricity (	Specified Imports	New Mexico	San Juan (NM)	Electricity generation	Primary fuel: Coal	CO2	1.933442702		Yes - Land Use
Electricity (	Specified Imports	New Mexico	San Juan (NM)	Electricity generation	Primary fuel: Coal	N2O	0.0096462		Yes - Land Use
Electricity (	Specified Imports	Oregon	Boardman (OR)	Electricity generation	Primary fuel: Coal	CH4	0.00057617		Yes - Land Use
Electricity (	Specified Imports	Oregon	Boardman (OR)	Electricity generation	Primary fuel: Coal	CO2	0.199780582		Yes - Land Use
Electricity (	Specified Imports	Oregon	Boardman (OR)	Electricity generation	Primary fuel: Coal	N2O	0.000999254		Yes - Land Use
Electricity (	Specified Imports	Oregon	Carty Generating Station ((	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Carty Generating Station ((	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Carty Generating Station ((	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Coyote Springs I (OR)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Coyote Springs I (OR)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Coyote Springs I (OR)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use

Electricity (	Specified Imports	Oregon	Hermiston Power (OR)	Electricity generation	Primary fuel: Natural Gas	CH4	0.000108243		Yes - Land Use
Electricity (	Specified Imports	Oregon	Hermiston Power (OR)	Electricity generation	Primary fuel: Natural Gas	CO2	0.235007679		Yes - Land Use
Electricity (	Specified Imports	Oregon	Hermiston Power (OR)	Electricity generation	Primary fuel: Natural Gas	N2O	0.000129034		Yes - Land Use
Electricity (	Specified Imports	Oregon	Klamath Falls Cogen (OR)	Electricity generation	Primary fuel: Natural Gas	CH4	0.000104938		Yes - Land Use
Electricity (	Specified Imports	Oregon	Klamath Falls Cogen (OR)	Electricity generation	Primary fuel: Natural Gas	CO2	0.226362071		Yes - Land Use
Electricity (	Specified Imports	Oregon	Klamath Falls Cogen (OR)	Electricity generation	Primary fuel: Natural Gas	N2O	0.0001251		Yes - Land Use
Electricity (	Specified Imports	Oregon	Klamath Peaking (OR)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Klamath Peaking (OR)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Klamath Peaking (OR)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Port Westward 2 (OR)	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Port Westward 2 (OR)	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Port Westward 2 (OR)	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Port Westward I (OR)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Port Westward I (OR)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Port Westward I (OR)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Oregon	Seneca Sustainable Energy	Electricity generation	Primary fuel: Biomass	CH4	0.000592628		Yes - Land Use
Electricity (	Specified Imports	Oregon	Seneca Sustainable Energy	Electricity generation	Primary fuel: Biomass	N2O	0.000927167		Yes - Land Use
Electricity (	Specified Imports	Pacific Northwest	Bonneville Power Administ	Electricity generation	Primarily Hydropower	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Pacific Northwest	Bonneville Power Administ	Electricity generation	Primarily Hydropower	CO2	0.143671991		Yes - Land Use
Electricity (	Specified Imports	Pacific Northwest	Bonneville Power Administ	Electricity generation	Primarily Hydropower	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Pacific Northwest	PacifiCorp (PNW)	Electricity generation	Primary fuel: Coal	CO2	0.520476642		Yes - Land Use
Electricity (	Specified Imports	Pacific Northwest	Powerex (PNW)	Electricity generation	Primarily Hydropower	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Pacific Northwest	Powerex (PNW)	Electricity generation	Primarily Hydropower	CO2	0.246561748		Yes - Land Use
Electricity (	Specified Imports	Pacific Northwest	Powerex (PNW)	Electricity generation	Primarily Hydropower	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Pacific Northwest	Tacoma Power (PNW)	Electricity generation	Primarily Hydropower	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Utah	Bonanza (UT)	Electricity generation	Primary fuel: Coal	CH4	3.5525E-06		Yes - Land Use
Electricity (	Specified Imports	Utah	Bonanza (UT)	Electricity generation	Primary fuel: Coal	CO2	0.001202554		Yes - Land Use
Electricity (	Specified Imports	Utah	Bonanza (UT)	Electricity generation	Primary fuel: Coal	N2O	6.1686E-06		Yes - Land Use
Electricity (	Specified Imports	Utah	Currant Creek (UT)	Electricity generation	Primary fuel: Natural Gas	CH4	5.2075E-06		Yes - Land Use
Electricity (	Specified Imports	Utah	Currant Creek (UT)	Electricity generation	Primary fuel: Natural Gas	CO2	0.011234795		Yes - Land Use
Electricity (	Specified Imports	Utah	Currant Creek (UT)	Electricity generation	Primary fuel: Natural Gas	N2O	6.1984E-06		Yes - Land Use
Electricity (	Specified Imports	Utah	Gadsby (UT)	Electricity generation	Primary fuel: Natural Gas	CH4	3.75E-08		Yes - Land Use
Electricity (	Specified Imports	Utah	Gadsby (UT)	Electricity generation	Primary fuel: Natural Gas	CO2	8.06351E-05		Yes - Land Use
Electricity (	Specified Imports	Utah	Gadsby (UT)	Electricity generation	Primary fuel: Natural Gas	N2O	2.98E-08		Yes - Land Use
Electricity (	Specified Imports	Utah	Hunter (UT)	Electricity generation	Primary fuel: Coal	CH4	0.00000003		Yes - Land Use
Electricity (	Specified Imports	Utah	Hunter (UT)	Electricity generation	Primary fuel: Coal	CO2	9.7629E-06		Yes - Land Use
Electricity (	Specified Imports	Utah	Hunter (UT)	Electricity generation	Primary fuel: Coal	N2O	5.96E-08		Yes - Land Use
Electricity (	Specified Imports	Utah	Huntington (UT)	Electricity generation	Primary fuel: Coal	CH4	1.4925E-06		Yes - Land Use
Electricity (	Specified Imports	Utah	Huntington (UT)	Electricity generation	Primary fuel: Coal	CO2	0.000505162		Yes - Land Use
Electricity (	Specified Imports	Utah	Huntington (UT)	Electricity generation	Primary fuel: Coal	N2O	2.5926E-06		Yes - Land Use
Electricity (	Specified Imports	Utah	Intermountain (UT)	Electricity generation	Primary fuel: Coal	CH4	0.030898853		Yes - Land Use
Electricity (	Specified Imports	Utah	Intermountain (UT)	Electricity generation	Primary fuel: Coal	CO2	10.50247662		Yes - Land Use
Electricity (	Specified Imports	Utah	Intermountain (UT)	Electricity generation	Primary fuel: Coal	N2O	0.05357897		Yes - Land Use
Electricity (	Specified Imports	Utah	Lake Side (UT)	Electricity generation	Primary fuel: Natural Gas	CH4	0.000101503		Yes - Land Use
Electricity (	Specified Imports	Utah	Lake Side (UT)	Electricity generation	Primary fuel: Natural Gas	CO2	0.218936896		Yes - Land Use
Electricity (	Specified Imports	Utah	Lake Side (UT)	Electricity generation	Primary fuel: Natural Gas	N2O	0.000120988		Yes - Land Use
Electricity (	Specified Imports	Utah	Nebo Power Station (UT)	Electricity generation	Primary fuel: Natural Gas	CH4	0.00000311		Yes - Land Use

Electricity (	Specified Imports	Utah	Nebo Power Station (UT)	Electricity generation	Primary fuel: Natural Gas	CO2	0.006714529		Yes - Land Use
Electricity (	Specified Imports	Utah	Nebo Power Station (UT)	Electricity generation	Primary fuel: Natural Gas	N2O	3.6952E-06		Yes - Land Use
Electricity (	Specified Imports	Utah	Trans-Jordan Generating S	Electricity generation	Primary fuel: Biomass	CH4	2.42025E-05		Yes - Land Use
Electricity (	Specified Imports	Utah	Trans-Jordan Generating S	Electricity generation	Primary fuel: Biomass	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Utah	Trans-Jordan Generating S	Electricity generation	Primary fuel: Biomass	N2O	5.67988E-05		Yes - Land Use
Electricity (	Specified Imports	Utah	West Valley (UT)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Utah	West Valley (UT)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Utah	West Valley (UT)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Chehalis (WA)	Electricity generation	Primary fuel: Natural Gas	CH4	0.00000024		Yes - Land Use
Electricity (	Specified Imports	Washington	Chehalis (WA)	Electricity generation	Primary fuel: Natural Gas	CO2	0.000519001		Yes - Land Use
Electricity (	Specified Imports	Washington	Chehalis (WA)	Electricity generation	Primary fuel: Natural Gas	N2O	0.000000298		Yes - Land Use
Electricity (	Specified Imports	Washington	Encogen Generation Statio	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Encogen Generation Statio	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Encogen Generation Statio	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Ferndale Generating Statio	Electricity generation	Natural gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Ferndale Generating Statio	Electricity generation	Natural gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Ferndale Generating Statio	Electricity generation	Natural gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Goldendale Generating Sta	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Goldendale Generating Sta	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Goldendale Generating Sta	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Grays Harbor Energy Facilit	Electricity generation	Primary fuel: Natural Gas	CH4	1.175E-07		Yes - Land Use
Electricity (	Specified Imports	Washington	Grays Harbor Energy Facilit	Electricity generation	Primary fuel: Natural Gas	CO2	0.00025383		Yes - Land Use
Electricity (	Specified Imports	Washington	Grays Harbor Energy Facilit	Electricity generation	Primary fuel: Natural Gas	N2O	0.000000149		Yes - Land Use
Electricity (	Specified Imports	Washington	Kettle Falls (WA)	Electricity generation	Primary fuel: Biomass	CH4	0.003048048		Yes - Land Use
Electricity (	Specified Imports	Washington	Kettle Falls (WA)	Electricity generation	Primary fuel: Biomass	CO2	0.002615245		Yes - Land Use
Electricity (	Specified Imports	Washington	Kettle Falls (WA)	Electricity generation	Primary fuel: Biomass	N2O	0.004768209		Yes - Land Use
Electricity (	Specified Imports	Washington	Longview Washington Pulp	Electricity generation	Primary fuels: Biomass, Coal a	CH4	0.000110633		Yes - Land Use
Electricity (	Specified Imports	Washington	Longview Washington Pulp	Electricity generation	Primary fuels: Biomass, Coal a	CO2	0.002227117		Yes - Land Use
Electricity (	Specified Imports	Washington	Longview Washington Pulp	Electricity generation	Primary fuels: Biomass, Coal a	N2O	0.000360967		Yes - Land Use
Electricity (	Specified Imports	Washington	Mint Farm Generating Stat	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Mint Farm Generating Stat	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Mint Farm Generating Stat	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Nippon Paper Cogen (WA)	Electricity generation	Primary fuel: Biomass	CH4	0.000484205		Yes - Land Use
Electricity (	Specified Imports	Washington	Nippon Paper Cogen (WA)	Electricity generation	Primary fuel: Biomass	CO2	0.000541078		Yes - Land Use
Electricity (	Specified Imports	Washington	Nippon Paper Cogen (WA)	Electricity generation	Primary fuel: Biomass	N2O	0.000757993		Yes - Land Use
Electricity (	Specified Imports	Washington	River Road (WA)	Electricity generation	Primary fuel: Natural Gas	CH4	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	River Road (WA)	Electricity generation	Primary fuel: Natural Gas	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	River Road (WA)	Electricity generation	Primary fuel: Natural Gas	N2O	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Roosevelt Biogas (WA)	Electricity generation	Primary fuel: Biomass	CH4	0.000141453		Yes - Land Use
Electricity (	Specified Imports	Washington	Roosevelt Biogas (WA)	Electricity generation	Primary fuel: Biomass	CO2	No Data		Yes - Land Use
Electricity (	Specified Imports	Washington	Roosevelt Biogas (WA)	Electricity generation	Primary fuel: Biomass	N2O	0.000331942		Yes - Land Use
Electricity (	Specified Imports	Washington	Sierra Pacific Burlington (W	Electricity generation	Primary fuel: Biomass	CH4	0.001256435		Yes - Land Use
Electricity (	Specified Imports	Washington	Sierra Pacific Burlington (W	Electricity generation	Primary fuel: Biomass	N2O	0.001965697		Yes - Land Use
Electricity (	Specified Imports	Washington	Simpson (WA)	Electricity generation	Primary fuel: Biomass	CH4	0.001266808		Yes - Land Use
Electricity (	Specified Imports	Washington	Simpson (WA)	Electricity generation	Primary fuel: Biomass	CO2	0.002378249		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Tires	N2O	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Waste oil	CH4	No Data		Yes - Land Use

Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Waste oil	CO2	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Waste oil	N2O	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel storage	Coal	CH4	0.000767575		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Associated gas	CH4	0.000523945		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Associated gas	CO2	0.227105532		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Associated gas	N2O	0.000124922		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Biomass	CH4	0.021756368		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Biomass	N2O	0.04378514		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Biomethane	CH4	0.00001984		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Biomethane	N2O	2.36612E-05		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Crude oil	CH4	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Crude oil	CO2	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Crude oil	N2O	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Digester gas	CH4	6.42625E-05		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Digester gas	N2O	0.000150818		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Distillate	CH4	1.7025E-06		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Distillate	CO2	0.001679594		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Distillate	N2O	4.0528E-06		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Jet fuel	CH4	2.47375E-05		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Geothermal power	Geothermal	CH4	0.0849705		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Jet fuel	CO2	0.023820546		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Geothermal power	Geothermal	CO2	0.97771462		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Jet fuel	N2O	5.89742E-05		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Geothermal power	Geothermal	N2O	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Kerosene	CH4	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Geothermal power	Geothermal	N2O	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Kerosene	CH4	No Data		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Geothermal power	Geothermal	CH4	0.0421445		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Kerosene	CO2	No Data		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Geothermal power	Geothermal	CO2	0.01216299		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Kerosene	N2O	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Acid gas control	NA	CO2	0.00059941		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Landfill gas	CH4	0.00178223		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Acid gas control	NA	CO2	0.00238783		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Landfill gas	N2O	0.00418246		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	MSW	CH4	0.00103173		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	MSW	CO2	0.241651394		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	MSW	N2O	0.008106315		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Natural gas	CH4	0.00988095		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Natural gas	CO2	21.12595996		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Natural gas	N2O	0.011778092		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Petroleum coke	CH4	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Petroleum coke	CO2	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Petroleum coke	N2O	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Propane	CH4	0.0000021		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Propane	CO2	0.002160737		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Propane	N2O	5.1256E-06		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Refinery gas	CH4	0.00020056		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Refinery gas	CO2	0.153828044		Yes - Land Use

Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Refinery gas	N2O	0.000478141		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Waste oil	CH4	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Waste oil	CO2	No Data		Yes - Land Use
Electricity (	Merchant Owned	Not Specified	None	Fuel combustion	Waste oil	N2O	No Data		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Biomass	CH4	No Data		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Biomass	N2O	No Data		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Biomethane	CH4	0.000143445		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Biomethane	N2O	0.000170992		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Digester gas	CH4	0.000036155		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Digester gas	N2O	8.48406E-05		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Distillate	CH4	0.00002413		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Distillate	CO2	0.023796183		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Distillate	N2O	0.000057514		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Landfill gas	CH4	0.000064325		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Landfill gas	N2O	0.000150967		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Natural gas	CH4	0.006377468		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Natural gas	CO2	13.82768152		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Natural gas	N2O	0.00760195		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Propane	CH4	0.00000085		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Propane	CO2	0.000713342		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Propane	N2O	2.0264E-06		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Refinery gas	CH4	No Data		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Refinery gas	CO2	No Data		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Refinery gas	N2O	No Data		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Residual fuel oil	CH4	0.000000265		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Residual fuel oil	CO2	0.000271023		Yes - Land Use
Electricity (	Utility Owned	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	6.258E-07		Yes - Land Use
Electricity (	Transmission and Distribution	Not Specified	None	Electricity transmitted	NA	SF6	0.0910518		No
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Crude oil	CH4	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Crude oil	CO2	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Crude oil	N2O	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Digester gas	CH4	0.000276198		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Digester gas	N2O	0.00064815		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Distillate	CH4	3.725E-07		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Distillate	CO2	0.000368057		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Distillate	N2O	0.000000894		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Jet fuel	CH4	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Jet fuel	CO2	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Jet fuel	N2O	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Kerosene	CH4	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Kerosene	CO2	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Kerosene	N2O	No Data		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Landfill gas	CH4	5.5825E-06		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Landfill gas	N2O	0.000013112		Yes - Land Use

Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Natural gas	CH4	0.000646188		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Natural gas	CO2	1.370434836		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Natural gas	N2O	0.00077027		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Propane	CH4	3.75E-08		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Propane	CO2	3.12015E-05		Yes - Land Use
Electricity (	CHP: Commercial	Not Specified	None	Fuel combustion	Propane	N2O	8.94E-08		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Associated gas	CH4	0.003063605		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Associated gas	CO2	1.142495734		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Associated gas	N2O	0.000598265		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Biomass	CH4	0.006383643		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Biomass	N2O	0.009987291		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Biomethane	CH4	0.000001885		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Biomethane	N2O	0.000002235		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Coal	CH4	0.000424328		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Coal	CO2	0.151314834		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Coal	N2O	0.000735702		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Crude oil	CH4	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Crude oil	CO2	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Crude oil	N2O	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Digester gas	CH4	0.00012769		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Digester gas	N2O	0.000299669		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Distillate	CH4	2.925E-07		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Distillate	CO2	0.000321444		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Distillate	N2O	6.854E-07		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Kerosene	CH4	0.000000055		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Kerosene	CO2	5.88106E-05		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Kerosene	N2O	1.192E-07		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Landfill gas	CH4	0.00002599		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Landfill gas	N2O	6.10006E-05		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	MSW	CH4	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	MSW	CO2	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	MSW	N2O	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Natural gas	CH4	0.00461564		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Natural gas	CO2	9.821601625		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Natural gas	N2O	0.005473992		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Petroleum coke	CH4	0.000377308		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Petroleum coke	CO2	0.515202185		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Petroleum coke	N2O	0.000899513		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Propane	CH4	8.7525E-06		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Propane	CO2	0.007432096		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Propane	N2O	0.00002086		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Refinery gas	CH4	0.001300058		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Refinery gas	CO2	0.96642843		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Refinery gas	N2O	0.003099349		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Land Use

Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Tires	CH4	No Data		Yes - Land Use
Electricity (	CHP: Industrial	Not Specified	None	Fuel combustion	Tires	CO2	No Data		Yes - Land Use
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Associated gas	CH4	0.0000024		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Associated gas	CO2	0.006221115		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Associated gas	N2O	2.8608E-06		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Catalyst coke	CH4	0.00341021		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel storage	Coal	CH4	0.00636374		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Catalyst coke	CO2	4.600049652		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Catalyst coke	N2O	0.008129649		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Digester gas	CH4	No Data		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel storage	Coal	CH4	0.00927361		No
Industrial	Manufacturing	Not Specified	None	Fuel storage	Coal	CH4	3.23175E-05		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Digester gas	N2O	No Data		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Distillate	CH4	6.6375E-06		No
Industrial	Manufacturing	Chemicals & Allied Products	Fugitives	Fugitive emissions	NA	CH4	0.008773665		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Distillate	CO2	0.006546083		No
Industrial	Manufacturing	Construction	Fugitives	Fugitive emissions	NA	CH4	0.003442868		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Distillate	N2O	1.57642E-05		No
Industrial	Manufacturing	Electric & Electronic Equip.	Fugitives	Fugitive emissions	NA	CH4	0.000248713		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Ethanol	CH4	No Data		No
Industrial	Manufacturing	Food Products	Fugitives	Fugitive emissions	NA	CH4	0.003143388		No
Industrial	Manufacturing	Not Specified	Fugitives	Fugitive emissions	NA	CH4	0.021123658		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Ethanol	N2O	No Data		No
Industrial	Manufacturing	Plastics & Rubber	Fugitives	Fugitive emissions	NA	CH4	0.001567263		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Gasoline	CH4	0.000001905		No
Industrial	Manufacturing	Primary Metals	Fugitives	Fugitive emissions	NA	CH4	0.000589815		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Gasoline	CO2	0.001783846		No
Industrial	Manufacturing	Pulp & Paper	Fugitives	Fugitive emissions	NA	CH4	0.00352366		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Gasoline	N2O	4.5296E-06		No
Industrial	Manufacturing	Storage Tanks	Fugitives	Fugitive emissions	NA	CH4	0.001162848		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	LPG	CH4	0.000001955		No
Industrial	Not Specified	Not Specified	Fugitives	Fugitive emissions	NA	CH4	0.337059598		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	LPG	CO2	0.001601859		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	LPG	N2O	4.6786E-06		No
Industrial	Oil & Gas: Production & Processi	Processing	Fugitives	Fugitive emissions	NA	CH4	0.153943098		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Natural gas	CH4	0.000961733		No
Industrial	Oil & Gas: Production & Processi	Processing	Fugitives	Fugitive emissions	NA	CO2	0.141886867		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Natural gas	CO2	2.851767409		No
Industrial	Oil & Gas: Production & Processi	Production	Fugitives	Fugitive emissions	NA	CH4	1.31331128		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Natural gas	N2O	0.001152366		No
Industrial	Oil & Gas: Production & Processi	Production	Fugitives	Fugitive emissions	NA	CO2	0.271819181		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Petroleum coke	CH4	0.00028461		No
Industrial	Oil & Gas: Production & Processi	Storage	Fugitives	Fugitive emissions	NA	CH4	0.158233315		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Petroleum coke	CO2	0.368789478		No
Industrial	Petroleum Marketing	Process Losses	Fugitives	Fugitive emissions	NA	CH4	0.00135299		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Petroleum coke	N2O	0.000678516		No
Industrial	Petroleum Marketing	Storage Tanks	Fugitives	Fugitive emissions	NA	CH4	0.00223254		No

Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Process gas	CH4	0.00091091		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Process emissions	NA	CH4	0.00103169		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Process gas	CO2	1.037115524		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Process emissions	NA	CO2	0.147113203		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Process gas	N2O	0.002288461		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Process emissions	NA	N2O	0.000246178		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Refinery gas	CH4	0.017686873		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Flaring	NA	CH4	0.004872083		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Refinery gas	CO2	13.48303337		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Flaring	NA	CO2	0.075614671		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Refinery gas	N2O	0.04229219		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Flaring	NA	N2O	0.000235629		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Residual fuel oil	CH4	No Data		No
Industrial	Petroleum Refining and Hydroge	Process Losses	Fugitives	Fugitive emissions	NA	CH4	0.034927615		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Residual fuel oil	CO2	No Data		No
Industrial	Petroleum Refining and Hydroge	Process Losses	Fugitives	Fugitive emissions	NA	CO2	0.000359038		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	No Data		No
Industrial	Petroleum Refining and Hydroge	Process Losses	Fugitives	Fugitive emissions	NA	N2O	1.192E-07		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Associated gas	CH4	0.00128431		No
Industrial	Petroleum Refining and Hydroge	Storage Tanks	Fugitives	Fugitive emissions	NA	CH4	0.001344635		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Associated gas	CO2	3.346208708		No
Industrial	Petroleum Refining and Hydroge	Not Specified	None	Acid gas control	NA	CO2	0.268267733		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Associated gas	N2O	0.001530886		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Distillate	CH4	0.000110993		No
Industrial	Transmission and Distribution	Natural Gas	Natural gas storage	Fugitive emissions	NA	CH4	0.112985953		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Distillate	CO2	0.109454292		No
Industrial	Transmission and Distribution	Natural Gas	Natural gas storage	Fugitive emissions	NA	CO2	0.001935352		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Distillate	N2O	0.000264594		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Natural gas	CH4	0.006483498		No
Industrial	Transmission and Distribution	Natural Gas Pipelines	Fugitives	Fugitive emissions	NA	CH4	3.938696215		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Natural gas	CO2	13.75020078		No
Industrial	Transmission and Distribution	Natural Gas Pipelines	Fugitives	Fugitive emissions	NA	CO2	0.00275607		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Natural gas	N2O	0.007728332		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Residual fuel oil	CH4	No Data		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Residual fuel oil	CO2	No Data		No
Industrial	Oil & Gas: Production & Processi	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	No Data		No
Industrial	Transmission and Distribution	Natural Gas Pipelines	None	Fuel combustion	Natural gas	CH4	0.000444483		No
Industrial	Transmission and Distribution	Natural Gas Pipelines	None	Fuel combustion	Natural gas	CO2	0.942656365		No
Industrial	Transmission and Distribution	Natural Gas Pipelines	None	Fuel combustion	Natural gas	N2O	0.000529814		No
Industrial	Transmission and Distribution	Non Natural Gas Pipelines	None	Fuel combustion	Natural gas	CH4	0.00002831		No
Industrial	Transmission and Distribution	Non Natural Gas Pipelines	None	Fuel combustion	Natural gas	CO2	0.060038332		No
Industrial	Transmission and Distribution	Non Natural Gas Pipelines	None	Fuel combustion	Natural gas	N2O	3.37336E-05		No
Industrial	Manufacturing	Primary Metals	None	Fuel combustion	Natural gas	CH4	0.000222865		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Clinker production	NA	CO2	4.692989279		No
Industrial	Manufacturing	Primary Metals	None	Fuel combustion	Natural gas	CO2	0.472652357		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Lime	Lime production	NA	CO2	0.05856123		No
Industrial	Manufacturing	Primary Metals	None	Fuel combustion	Natural gas	N2O	0.000265667		No

Industrial	Manufacturing	Chemicals & Allied Products	Nitric Acid	Nitric acid production	NA	N2O	0.0330035		No
Industrial	Landfills	Not Specified	None	Landfill gas generation	Landfill gas	CH4	8.40259388		Yes - Land Use
Industrial	Manufacturing	Chemicals & Allied Products	Fuel Use	Fuel combustion	Natural gas	CH4	0.002774385		No
Industrial	Manufacturing	Primary Metals	Lead Smelting	Process emissions	NA	CO2	0.04730127		No
Industrial	Manufacturing	Chemicals & Allied Products	Fuel Use	Fuel combustion	Natural gas	CO2	5.88391728		No
Industrial	Not Specified	Not Specified	None	Fuel consumption	Lubricants	CO2	0.797781603		No
Industrial	Landfills	Not Specified	None	Landfill gas generation	Landfill gas	N2O	0.09714049		Yes - Land Use
Industrial	Manufacturing	Chemicals & Allied Products	Fuel Use	Fuel combustion	Natural gas	N2O	0.003307055		No
Industrial	Solid Waste Treatment	Composting	None	Feedstock processed	NA	CH4	0.22362926		Yes - Land Use
Industrial	Manufacturing	Printing & Publishing	None	Fuel combustion	Natural gas	CH4	2.32025E-05		No
Industrial	Solvents & Chemicals	Evaporative losses	Fugitives	Fugitive emissions	NA	CO2	0.243401345		No
Industrial	Manufacturing	Printing & Publishing	None	Fuel combustion	Natural gas	CO2	0.049207171		No
Industrial	Manufacturing	Electric & Electronic Equip.	Semiconductors & Related	Semiconductor manufacture	NA	C2F6	0.01836466		No
Industrial	Solid Waste Treatment	Composting	None	Feedstock processed	NA	N2O	0.102002331		Yes - Land Use
Industrial	Manufacturing	Printing & Publishing	None	Fuel combustion	Natural gas	N2O	2.76544E-05		No
Industrial	Manufacturing	Electric & Electronic Equip.	Semiconductors & Related	Semiconductor manufacture	NA	C3F8	0.013291799		No
Industrial	Wastewater Treatment	Domestic Wastewater	Anaerobic Digesters	Biogas production	NA	CH4	0.026284973		No
Industrial	Manufacturing	Pulp & Paper	None	Fuel combustion	Natural gas	CH4	0.000182565		No
Industrial	Manufacturing	Electric & Electronic Equip.	Semiconductors & Related	Semiconductor manufacture	NA	C4F8	0.01550459		No
Industrial	Wastewater Treatment	Domestic Wastewater	Centralized Anaerobic	California population	NA	CH4	0.363758775		No
Industrial	Manufacturing	Pulp & Paper	None	Fuel combustion	Natural gas	CO2	0.387181631		No
Industrial	Manufacturing	Electric & Electronic Equip.	Semiconductors & Related	Semiconductor manufacture	NA	CF4	0.011124167		No
Industrial	Wastewater Treatment	Domestic Wastewater	Effluent Emissions	California population	NA	N2O	0.807172217		No
Industrial	Manufacturing	Pulp & Paper	None	Fuel combustion	Natural gas	N2O	0.000217629		No
Industrial	Manufacturing	Electric & Electronic Equip.	Semiconductors & Related	Semiconductor manufacture	NA	HFC-23	0.02227844		No
Industrial	Wastewater Treatment	Domestic Wastewater	Plant Emissions	California population	NA	N2O	0.042445839		No
Industrial	Manufacturing	Food Products	None	Fuel combustion	Natural gas	CH4	0.000108953		No
Industrial	Manufacturing	Electric & Electronic Equip.	Semiconductors & Related	Semiconductor manufacture	NA	NF3	0.02589116		No
Industrial	Wastewater Treatment	Domestic Wastewater	Septic Systems	California population	NA	CH4	0.381619805		No
Industrial	Manufacturing	Food Products	None	Fuel combustion	Natural gas	CO2	0.231064076		No
Industrial	Manufacturing	Electric & Electronic Equip.	Semiconductors & Related	Semiconductor manufacture	NA	SF6	0.03432084		No
Industrial	Manufacturing	Wastewater Treatment	Fugitives	Fugitive emissions	NA	CH4	0.000133103		No
Industrial	Manufacturing	Food Products	None	Fuel combustion	Natural gas	N2O	0.000129868		No
Industrial	Oil & Gas: Production & Processi	Wastewater Treatment	Fugitives	Fugitive emissions	NA	CH4	0.009720788		No
Industrial	Manufacturing	Food Products	Food Processing	Fuel combustion	Natural gas	CH4	0.001414528		No
Industrial	Petroleum Marketing	Wastewater Treatment	Fugitives	Fugitive emissions	NA	CH4	1.08425E-05		No
Industrial	Manufacturing	Food Products	Food Processing	Fuel combustion	Natural gas	CO2	2.999931486		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Apples	CH4	0.000171558		No
Industrial	Manufacturing	Food Products	Food Processing	Fuel combustion	Natural gas	N2O	0.001686114		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Citrus fruit	CH4	0.004025308		No
Industrial	Manufacturing	Food Products	Sugar & Confections	Fuel combustion	Natural gas	CH4	0.000042795		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Non-citrus fruit	CH4	0.03190789		No
Industrial	Manufacturing	Food Products	Sugar & Confections	Fuel combustion	Natural gas	CO2	0.090761524		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Other vegetables	CH4	0.060453895		No
Industrial	Manufacturing	Food Products	Sugar & Confections	Fuel combustion	Natural gas	N2O	5.10176E-05		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Potatoes	CH4	0.004257385		No
Industrial	Manufacturing	Tobacco	None	Fuel combustion	Natural gas	CH4	0.000000005		No

Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Poultry	CH4	0.037909735		No
Industrial	Manufacturing	Tobacco	None	Fuel combustion	Natural gas	CO2	1.14258E-05		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Pulp and Paper	CH4	0.042750173		No
Industrial	Manufacturing	Tobacco	None	Fuel combustion	Natural gas	N2O	0		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Red meat	CH4	0.044526093		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	None	Fuel combustion	Natural gas	CH4	0.00017794		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Production processed	Wine grapes	CH4	0.00642269		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	None	Fuel combustion	Natural gas	CO2	0.377375366		No
Industrial	Wastewater Treatment	Industrial Wastewater	None	Wastewater flow	Petroleum Refining	CH4	0.069015125		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	None	Fuel combustion	Natural gas	N2O	0.000212116		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Biomass waste fuel	CH4	0.001252498		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Biomass waste fuel	N2O	0.001959529		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-134a	0.011524942		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Coal	CH4	0.005274798		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-152a	0.009827186		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Coal	CO2	1.750109231		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-43-10	0.00013038		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Coal	N2O	0.009145113		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Fire Protection	CF4	0.000077595		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Distillate	CH4	No Data		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Fire Protection	HFC-125	0.0007742		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Distillate	CO2	No Data		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Fire Protection	HFC-227ea	0.006394276		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Distillate	N2O	No Data		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Fire Protection	HFC-236fa	0.000450279		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	LPG	CH4	0.00000003		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Foams	HFC-134a	0.132345356		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	LPG	CO2	0.000026805		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Foams	HFC-245fa	0.1166887		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	LPG	N2O	5.96E-08		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-125	0.4521496		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	MSW	CH4	0.0000613		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-134a	1.025058463		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	MSW	CO2	0.002113903		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-143a	0.441473292		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-152a	1.92944E-05		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	MSW	N2O	9.58964E-05		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-236fa	0.0193257		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Natural gas	CH4	0.000082175		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-32	0.02579634		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Natural gas	CO2	0.165011561		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Solvents	CF4	0.001886667		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Natural gas	N2O	0.000098191		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Solvents	HFC-245fa	0.187345052		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Petroleum coke	CH4	0.001212535		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Solvents	HFC-365mf	0.000337926		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Petroleum coke	CO2	0.629262249		No

Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Solvents	HFC-43-10	0.00688636		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Petroleum coke	N2O	0.002154242		No
Industrial	Not Specified	Not Specified	None	Use of substitutes for ozone	Solvents	Other PFC	0.00237429		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Residual fuel oil	CH4	No Data		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Residual fuel oil	CO2	No Data		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Residual fuel oil	N2O	No Data		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Tires	CH4	0.002352215		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Tires	CO2	0.191381116		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Cement	Fuel combustion	Tires	N2O	0.003680032		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Flat Glass	Fuel combustion	Natural gas	CH4	0.000000295		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Flat Glass	Fuel combustion	Natural gas	CO2	0.000627884		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Flat Glass	Fuel combustion	Natural gas	N2O	3.576E-07		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Glass Containers	Fuel combustion	Natural gas	CH4	0.000194785		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Glass Containers	Fuel combustion	Natural gas	CO2	0.413100797		No
Industrial	Manufacturing	Stone, Clay, Glass & Cement	Glass Containers	Fuel combustion	Natural gas	N2O	0.000232172		No
Industrial	Manufacturing	Transportation Equip.	None	Fuel combustion	Natural gas	CH4	0.00012769		No
Industrial	Manufacturing	Transportation Equip.	None	Fuel combustion	Natural gas	CO2	0.270803326		No
Industrial	Manufacturing	Transportation Equip.	None	Fuel combustion	Natural gas	N2O	0.000152218		No
Industrial	Manufacturing	Electric & Electronic Equip.	None	Fuel combustion	Natural gas	CH4	0.000011265		No
Industrial	Not Specified	Not Specified	None	CO2 consumption	NA	CO2	0.544213919		No
Industrial	Manufacturing	Electric & Electronic Equip.	None	Fuel combustion	Natural gas	CO2	0.023891529		No
Industrial	Not Specified	Not Specified	None	Limestone and dolomite con	NA	CO2	0.196396827		No
Industrial	Manufacturing	Electric & Electronic Equip.	None	Fuel combustion	Natural gas	N2O	1.34398E-05		No
Industrial	Not Specified	Not Specified	None	Soda ash consumption	NA	CO2	0.252017031		No
Industrial	Manufacturing	Metal Durables	Computers & Office Machi	Fuel combustion	Natural gas	CH4	9.19275E-05		No
Industrial	Petroleum Refining and Hydroge	Transformation	None	Fuel consumption	Natural gas	CO2	2.225023209		No
Industrial	Manufacturing	Metal Durables	Computers & Office Machi	Fuel combustion	Natural gas	CO2	0.194960401		No
Industrial	Petroleum Refining and Hydroge	Transformation	None	Fuel consumption	Petroleum feedstocks	CO2	No Data		No
Industrial	Manufacturing	Metal Durables	Computers & Office Machi	Fuel combustion	Natural gas	N2O	0.000109575		No
Industrial	Petroleum Refining and Hydroge	Transformation	None	Fuel consumption	Refinery gas	CO2	3.090341067		No
Industrial	Manufacturing	Metal Durables	Fabricated Metal Products	Fuel combustion	Natural gas	CH4	0.000214015		No
Industrial	Manufacturing	Metal Durables	Fabricated Metal Products	Fuel combustion	Natural gas	CO2	0.453880961		No
Industrial	Manufacturing	Metal Durables	Fabricated Metal Products	Fuel combustion	Natural gas	N2O	0.000255118		No
Industrial	Manufacturing	Metal Durables	Industrial Machinery & Equ	Fuel combustion	Natural gas	CH4	0.000039455		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Associated gas	CH4	0.001865585		No
Industrial	Manufacturing	Metal Durables	Industrial Machinery & Equ	Fuel combustion	Natural gas	CO2	0.083673735		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Associated gas	CO2	0.169850391		No
Industrial	Manufacturing	Metal Durables	Industrial Machinery & Equ	Fuel combustion	Natural gas	N2O	4.70244E-05		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Associated gas	N2O	0.000092082		No
Industrial	Mining	Coal	None	Fuel combustion	Natural gas	CH4	1.75E-08		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Biomass	CH4	0.006538428		No
Industrial	Mining	Coal	None	Fuel combustion	Natural gas	CO2	3.81479E-05		No
Industrial	Mining	Coal	None	Fuel combustion	Natural gas	N2O	2.98E-08		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Biomass	N2O	0.010229506		No
Industrial	Mining	Metals	None	Fuel combustion	Natural gas	CH4	0.00000551		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Coal	CH4	0.003517983		No
Industrial	Mining	Metals	None	Fuel combustion	Natural gas	CO2	0.01168389		No

Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Coal	CO2	1.254507982		No
Industrial	Mining	Metals	None	Fuel combustion	Natural gas	N2O	0.000006556		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Coal	N2O	0.006099553		No
Industrial	Mining	Non Metals	None	Fuel combustion	Natural gas	CH4	0.00006502		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Crude oil	CH4	No Data		No
Industrial	Mining	Non Metals	None	Fuel combustion	Natural gas	CO2	0.137891967		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Crude oil	CO2	No Data		No
Industrial	Mining	Non Metals	None	Fuel combustion	Natural gas	N2O	7.75098E-05		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Crude oil	N2O	No Data		No
Industrial	Manufacturing	Wood & Furniture	Furniture & Fixtures	Fuel combustion	Natural gas	CH4	0.000007325		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Digester gas	CH4	No Data		No
Industrial	Manufacturing	Wood & Furniture	Furniture & Fixtures	Fuel combustion	Natural gas	CO2	0.015536416		No
Industrial	Manufacturing	Wood & Furniture	Furniture & Fixtures	Fuel combustion	Natural gas	N2O	8.7314E-06		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Digester gas	N2O	No Data		No
Industrial	Manufacturing	Wood & Furniture	Lumber & Wood Products	Fuel combustion	Natural gas	CH4	0.00001194		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Distillate	CH4	0.00000017		No
Industrial	Manufacturing	Wood & Furniture	Lumber & Wood Products	Fuel combustion	Natural gas	CO2	0.025321742		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Distillate	CO2	0.000265537		No
Industrial	Manufacturing	Wood & Furniture	Lumber & Wood Products	Fuel combustion	Natural gas	N2O	1.42444E-05		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Distillate	N2O	4.172E-07		No
Industrial	Manufacturing	Construction	None	Fuel combustion	Ethanol	CH4	1.79075E-05		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Kerosene	CH4	4.625E-07		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Kerosene	CO2	0.000487582		No
Industrial	Manufacturing	Construction	None	Fuel combustion	Ethanol	N2O	4.27034E-05		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Kerosene	N2O	1.1026E-06		No
Industrial	Manufacturing	Construction	None	Fuel combustion	Gasoline	CH4	0.000235463		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Landfill gas	CH4	4.9775E-06		No
Industrial	Manufacturing	Construction	None	Fuel combustion	Gasoline	CO2	0.223968266		No
Industrial	Manufacturing	Construction	None	Fuel combustion	Gasoline	N2O	0.000561343		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Landfill gas	N2O	1.16816E-05		No
Industrial	Manufacturing	Construction	None	Fuel combustion	Natural gas	CH4	0.00004786		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	MSW	CH4	No Data		No
Industrial	Manufacturing	Construction	None	Fuel combustion	Natural gas	CO2	0.101499531		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	MSW	CO2	No Data		No
Industrial	Manufacturing	Construction	None	Fuel combustion	Natural gas	N2O	5.70372E-05		No
Industrial	Manufacturing	Textiles	Apparel	Fuel combustion	Natural gas	CH4	0.00000363		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	MSW	N2O	No Data		No
Industrial	Manufacturing	Textiles	Apparel	Fuel combustion	Natural gas	CO2	0.007700964		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Natural gas	CH4	0.002599423		No
Industrial	Manufacturing	Textiles	Apparel	Fuel combustion	Natural gas	N2O	0.000004321		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Natural gas	CO2	5.548764557		No
Industrial	Manufacturing	Textiles	Leather	Fuel combustion	Natural gas	CH4	5.275E-07		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Natural gas	N2O	0.0031051		No
Industrial	Manufacturing	Textiles	Leather	Fuel combustion	Natural gas	CO2	0.001119576		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Petroleum coke	CH4	No Data		No
Industrial	Manufacturing	Textiles	Leather	Fuel combustion	Natural gas	N2O	6.258E-07		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Petroleum coke	CO2	No Data		No

Industrial	Manufacturing	Textiles	Textile Mills	Fuel combustion	Natural gas	CH4	0.000089455		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Petroleum coke	N2O	No Data		No
Industrial	Manufacturing	Textiles	Textile Mills	Fuel combustion	Natural gas	CO2	0.189717034		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Propane	CH4	0.000010285		No
Industrial	Manufacturing	Textiles	Textile Mills	Fuel combustion	Natural gas	N2O	0.000106624		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Propane	CO2	0.00873322		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Coal	CH4	1.92475E-05		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Propane	N2O	2.45254E-05		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Coal	CO2	0.007922869		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Refinery gas	CH4	0.001283798		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Coal	N2O	0.000033376		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Refinery gas	CO2	0.94806944		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Distillate	CH4	0.000807488		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Refinery gas	N2O	0.003060579		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Distillate	CO2	0.796289157		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Residual fuel oil	CH4	No Data		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Distillate	N2O	0.00192505		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Residual fuel oil	CO2	No Data		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Ethanol	CH4	8.95975E-05		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Residual fuel oil	N2O	No Data		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Tires	CH4	No Data		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Ethanol	N2O	0.000213606		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Tires	CO2	No Data		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Gasoline	CH4	0.001178023		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Gasoline	CO2	1.120521318		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Tires	N2O	No Data		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Gasoline	N2O	0.002808412		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Waste oil	CH4	No Data		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Kerosene	CH4	1.3375E-06		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Waste oil	CO2	No Data		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Kerosene	CO2	0.001340064		No
Industrial	CHP: Industrial	Useful Thermal Output	None	Fuel combustion	Waste oil	N2O	No Data		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Kerosene	N2O	3.1886E-06		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	LPG	CH4	0.00177915		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	LPG	CO2	1.49401156		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	LPG	N2O	0.004241494		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Natural gas	CH4	0.000511433		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Natural gas	CO2	1.084643546		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Natural gas	N2O	0.000609619		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Petroleum coke	CH4	8.37525E-05		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Petroleum coke	CO2	0.037612439		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Petroleum coke	N2O	0.000145215		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Residual fuel oil	CH4	0.000021825		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Residual fuel oil	CO2	0.0218541		No
Industrial	Manufacturing	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	5.20308E-05		No
Industrial	Manufacturing	Plastics & Rubber	None	Fuel combustion	Natural gas	CH4	0.00000669		No
Industrial	Manufacturing	Plastics & Rubber	None	Fuel combustion	Natural gas	CO2	0.014189955		No

Industrial	Manufacturing	Plastics & Rubber	None	Fuel combustion	Natural gas	N2O	7.9864E-06		No
Industrial	Manufacturing	Plastics & Rubber	Plastics	Fuel combustion	Natural gas	CH4	4.10325E-05		No
Industrial	Manufacturing	Plastics & Rubber	Plastics	Fuel combustion	Natural gas	CO2	0.087019768		No
Industrial	Manufacturing	Plastics & Rubber	Plastics	Fuel combustion	Natural gas	N2O	4.89018E-05		No
Industrial	Not Specified	Not Specified	None	Fuel combustion	Other petroleum products	CH4	0.0002307		No
Industrial	Not Specified	Not Specified	None	Fuel combustion	Other petroleum products	CO2	0.21830372		No
Industrial	Not Specified	Not Specified	None	Fuel combustion	Other petroleum products	N2O	0.000549989		No
Industrial	Not Specified	Not Specified	None	Fuel combustion	Wood (wet)	CH4	0.0184856		No
Industrial	Not Specified	Not Specified	None	Fuel combustion	Wood (wet)	N2O	0.028920721		No
Residential	Household Use	Not Specified	None	Fuel storage	Coal	CH4	No Data		Yes - Land Use
Residential	Landscape	Fertilizer	Direct	Residential use of nitrogen fe	Synthetic fertilizers	N2O	0.639542657		Yes - Land Use
Residential	Transmission and Distribution	Natural Gas Pipelines	Fugitives	Fugitive emissions	NA	CH4	0.88792176		Yes - Land Use
Residential	Landscape	Fertilizer	Indirect	Residential use of nitrogen fe	Synthetic fertilizers	N2O	0.207851364		Yes - Land Use
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-134a	0.29652623		No
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-152a	0.203914168		No
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-227ea	0.030937116		No
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-43-10r	0.002704196		No
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Foams	HFC-134a	0.054618707		No
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Foams	HFC-245fa	0.034108965		No
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-125	1.83995455		No
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-134a	0.067933437		No
Residential	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-32	0.353966153		No
Residential	Household Use	Not Specified	None	Fuel combustion	Coal	CH4	No Data		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Coal	CO2	No Data		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Coal	N2O	No Data		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Coal	CO2	No Data		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Coal	N2O	No Data		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Distillate	CH4	3.31825E-05		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Distillate	CO2	0.032721975		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Distillate	N2O	0.000079119		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Kerosene	CH4	0.00001858		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Kerosene	CO2	0.01862892		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Kerosene	N2O	4.42828E-05		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	LPG	CH4	0.001584375		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	LPG	CO2	1.3304525		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	LPG	N2O	0.00377715		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Natural gas	CH4	0.010314385		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Natural gas	CO2	21.87474957		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Natural gas	N2O	0.012294735		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Wood (wet)	CH4	0.01762		Yes - Land Use
Residential	Household Use	Not Specified	None	Fuel combustion	Wood (wet)	N2O	0.02756649		Yes - Land Use
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Distillate	CO2	0.332784369		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Distillate	N2O	0.015546153		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Ethanol	CH4	0.01048661		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Ethanol	N2O	0.095846753		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Gasoline	CH4	0.092652985		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Gasoline	CO2	55.94396625		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Gasoline	N2O	0.846840457		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Renewable Diesel	CH4	1.8275E-06		Yes - Trans

Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Renewable Diesel	N2O	0.001013617		Yes - Trans
Transporta	On Road	Not Specified	None	Fuel combustion	Biomethane	CH4	4.7675E-06		Yes - Trans
Transporta	On Road	Not Specified	None	Fuel combustion	Biomethane	N2O	5.6918E-06		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Biodiesel	CH4	3.22775E-05		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Biodiesel	N2O	0.001706467		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Distillate	CH4	0.000646583		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Distillate	CO2	0.731746455		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Distillate	N2O	0.034183818		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Ethanol	CH4	0.00005412		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Ethanol	N2O	0.000627826		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Gasoline	CH4	0.00047818		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Gasoline	CO2	0.682257581		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Gasoline	N2O	0.005547002		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Renewable Diesel	CH4	4.21575E-05		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Buses	Fuel combustion	Renewable Diesel	N2O	0.002228802		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Biodiesel	CH4	0.000441968		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Biodiesel	N2O	0.056774722		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Distillate	CH4	0.00885351		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Distillate	CO2	24.34550669		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Distillate	N2O	1.137310235		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Ethanol	CH4	0.0009305		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Ethanol	N2O	0.010560703		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Gasoline	CH4	0.008221293		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Gasoline	CO2	6.965183311		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Gasoline	N2O	0.093307704		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Renewable Diesel	CH4	0.000577253		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Heavy-duty Trucks	Fuel combustion	Renewable Diesel	N2O	0.074153009		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Biodiesel	CH4	6.875E-07		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Biodiesel	N2O	0.000234526		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Distillate	CH4	0.000013785		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Distillate	CO2	0.10056835		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Distillate	N2O	0.004698089		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Ethanol	CH4	0.00004545		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Ethanol	N2O	0.000522185		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Gasoline	CH4	0.00040156		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Gasoline	CO2	0.603108721		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Gasoline	N2O	0.004613696		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Renewable Diesel	CH4	8.975E-07		Yes - Trans
Transporta	On Road	Heavy-duty Vehicles	Motorhomes	Fuel combustion	Renewable Diesel	N2O	0.000306314		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Motorcycles	Fuel combustion	Ethanol	CH4	0.002273885		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Motorcycles	Fuel combustion	Ethanol	N2O	0.004451286		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Motorcycles	Fuel combustion	Gasoline	CH4	0.020090598		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Motorcycles	Fuel combustion	Gasoline	CO2	0.445134366		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel consumption	Lubricants	CO2	1.053728649		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Motorcycles	Fuel combustion	Gasoline	N2O	0.039328729		Yes - Trans
Transporta	Rail	Not Specified	None	Fuel combustion	Distillate	CH4	0.002445913		Yes - Trans
Transporta	Rail	Not Specified	None	Fuel combustion	Distillate	CO2	2.411995354		Yes - Trans

Transporta	Rail	Not Specified	None	Fuel combustion	Distillate	N2O	0.005831055		Yes - Trans
Transporta	Water-borne	International	Port activities	Fuel combustion	Distillate	CH4	0.000398818		Yes - Trans
Transporta	Water-borne	International	Port activities	Fuel combustion	Distillate	CO2	0.393288192		Yes - Trans
Transporta	Water-borne	International	Port activities	Fuel combustion	Distillate	N2O	0.000950769		Yes - Trans
Transporta	Water-borne	International	Port activities	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Trans
Transporta	Water-borne	International	Port activities	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Trans
Transporta	Water-borne	International	Port activities	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Trans
Transporta	Water-borne	International	Transit (CA waters)	Fuel combustion	Distillate	CH4	0.00112974		Yes - Trans
Transporta	Water-borne	International	Transit (CA waters)	Fuel combustion	Distillate	CO2	1.114073801		Yes - Trans
Transporta	Water-borne	International	Transit (CA waters)	Fuel combustion	Distillate	N2O	0.002693294		Yes - Trans
Transporta	Water-borne	International	Transit (CA waters)	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Trans
Transporta	Water-borne	International	Transit (CA waters)	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Trans
Transporta	Water-borne	International	Transit (CA waters)	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Trans
Transporta	Water-borne	Not Specified	None	Fuel combustion	Ethanol	CH4	3.66425E-05		Yes - Trans
Transporta	Water-borne	Not Specified	None	Fuel combustion	Ethanol	N2O	8.73438E-05		Yes - Trans
Transporta	Water-borne	Not Specified	None	Fuel combustion	Gasoline	CH4	0.000481778		Yes - Trans
Transporta	Water-borne	Not Specified	None	Fuel combustion	Gasoline	CO2	0.4582621		Yes - Trans
Transporta	Water-borne	Not Specified	None	Fuel combustion	Gasoline	N2O	0.001148552		Yes - Trans
Transporta	Water-borne	Interstate	Port activities	Fuel combustion	Distillate	CH4	4.76175E-05		Yes - Trans
Transporta	Water-borne	Interstate	Port activities	Fuel combustion	Distillate	CO2	0.046957547		Yes - Trans
Transporta	Water-borne	Interstate	Port activities	Fuel combustion	Distillate	N2O	0.000113508		Yes - Trans
Transporta	Water-borne	Interstate	Port activities	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Trans
Transporta	Water-borne	Interstate	Port activities	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Trans
Transporta	Water-borne	Interstate	Port activities	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Trans
Transporta	Water-borne	Interstate	Transit (CA waters)	Fuel combustion	Distillate	CH4	0.0002166		Yes - Trans
Transporta	Water-borne	Interstate	Transit (CA waters)	Fuel combustion	Distillate	CO2	0.21359748		Yes - Trans
Transporta	Water-borne	Interstate	Transit (CA waters)	Fuel combustion	Distillate	N2O	0.000516374		Yes - Trans
Transporta	Water-borne	Interstate	Transit (CA waters)	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Trans
Transporta	Water-borne	Interstate	Transit (CA waters)	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Trans
Transporta	Water-borne	Interstate	Transit (CA waters)	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Trans
Transporta	Water-borne	Intrastate	Harbor craft	Fuel combustion	Distillate	CH4	0.000947578		Yes - Trans
Transporta	Water-borne	Intrastate	Harbor craft	Fuel combustion	Distillate	CO2	0.934437617		Yes - Trans
Transporta	Water-borne	Intrastate	Harbor craft	Fuel combustion	Distillate	N2O	0.002259019		Yes - Trans
Transporta	Water-borne	Intrastate	Port activities	Fuel combustion	Distillate	CH4	0.000172828		Yes - Trans
Transporta	Water-borne	Intrastate	Port activities	Fuel combustion	Distillate	CO2	0.170430896		Yes - Trans
Transporta	Water-borne	Intrastate	Port activities	Fuel combustion	Distillate	N2O	0.000412015		Yes - Trans
Transporta	Water-borne	Intrastate	Port activities	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Trans
Transporta	Water-borne	Intrastate	Port activities	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Trans
Transporta	Water-borne	Intrastate	Port activities	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Trans
Transporta	Water-borne	Intrastate	Transit (CA waters)	Fuel combustion	Distillate	CH4	0.00054967		Yes - Trans
Transporta	Water-borne	Intrastate	Transit (CA waters)	Fuel combustion	Distillate	CO2	0.542048664		Yes - Trans
Transporta	Water-borne	Intrastate	Transit (CA waters)	Fuel combustion	Distillate	N2O	0.001310425		Yes - Trans
Transporta	Water-borne	Intrastate	Transit (CA waters)	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Trans
Transporta	Not Specified	Not Specified	None	Use of substitutes for ozone	Aerosols	HFC-134a	0.115249563		No
Transporta	Water-borne	Intrastate	Transit (CA waters)	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Trans
Transporta	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-125	0.1462426		No
Transporta	Water-borne	Intrastate	Transit (CA waters)	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Trans

Transporta	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-134a	4.255004325		No
Transporta	Off Road	Airport Ground Support Equipr	None	Fuel combustion	Distillate	CH4	0.00003259		Yes - Trans
Transporta	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-143a	0.219717933		No
Transporta	Off Road	Airport Ground Support Equipr	None	Fuel combustion	Distillate	CO2	0.032137783		Yes - Trans
Transporta	Not Specified	Not Specified	None	Use of substitutes for ozone	Refrigeration and Air Conditio	HFC-32	0.000064395		No
Transporta	Off Road	Airport Ground Support Equipr	None	Fuel combustion	Distillate	N2O	7.76886E-05		Yes - Trans
Transporta	Off Road	Construction and Mining Equip	None	Fuel combustion	Distillate	CH4	0.002233775		Yes - Trans
Transporta	Off Road	Construction and Mining Equip	None	Fuel combustion	Distillate	CO2	2.202799119		Yes - Trans
Transporta	Off Road	Construction and Mining Equip	None	Fuel combustion	Distillate	N2O	0.00532532		Yes - Trans
Transporta	Off Road	Industrial Equipment	None	Fuel combustion	Distillate	CH4	0.000188748		Yes - Trans
Transporta	Off Road	Industrial Equipment	None	Fuel combustion	Distillate	CO2	0.186131355		Yes - Trans
Transporta	Off Road	Industrial Equipment	None	Fuel combustion	Distillate	N2O	0.00044998		Yes - Trans
Transporta	Off Road	Oil Drilling Equipment	None	Fuel combustion	Distillate	CH4	0.000105213		Yes - Trans
Transporta	Off Road	Oil Drilling Equipment	None	Fuel combustion	Distillate	CO2	0.103753224		Yes - Trans
Transporta	Off Road	Oil Drilling Equipment	None	Fuel combustion	Distillate	N2O	0.000250827		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	Distillate	CH4	0.000842835		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	Distillate	CO2	0.831148737		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	Distillate	N2O	0.002009325		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	LPG	CH4	0.000054		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	LPG	CO2	0.0453456		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	LPG	N2O	0.000128736		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	Residual fuel oil	CH4	No Data		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	Residual fuel oil	CO2	No Data		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Trans
Transporta	Aviation	Not Specified	None	Fuel combustion	Ethanol	CH4	1.50225E-05		Yes - Trans
Transporta	Not Specified	Not Specified	None	Fuel combustion	Residual fuel oil	N2O	No Data		Yes - Trans
Transporta	Aviation	Not Specified	None	Fuel combustion	Ethanol	CH4	1.50225E-05		Yes - Trans
Transporta	Aviation	Not Specified	None	Fuel combustion	Ethanol	N2O	3.58196E-05		Yes - Trans
Transporta	Aviation	Not Specified	None	Fuel combustion	Gasoline	CH4	0.0001975		Yes - Trans
Transporta	Aviation	Not Specified	None	Fuel combustion	Gasoline	CO2	0.187860204		Yes - Trans
Transporta	Aviation	Not Specified	None	Fuel combustion	Gasoline	N2O	0.00047084		Yes - Trans
Transporta	Aviation	Domestic Air transport	None	Fuel combustion	Aviation gasoline	CH4	0.002993318		Yes - Trans
Transporta	Aviation	Domestic Air transport	None	Fuel combustion	Aviation gasoline	CO2	0.138191519		Yes - Trans
Transporta	Aviation	Domestic Air transport	None	Fuel combustion	Aviation gasoline	N2O	0.000535208		Yes - Trans
Transporta	Aviation	Domestic Air transport	Intrastate	Fuel combustion	Jet fuel	CH4	0.000707035		Yes - Trans
Transporta	Aviation	Domestic Air transport	Intrastate	Fuel combustion	Jet fuel	CO2	3.853747697		Yes - Trans
Transporta	Aviation	Domestic Air transport	Intrastate	Fuel combustion	Jet fuel	N2O	0.033393463		Yes - Trans
Transporta	On Road	Not Specified	None	Fuel combustion	Natural gas	CH4	0.000468383		Yes - Trans
Transporta	On Road	Not Specified	None	Fuel combustion	Natural gas	CO2	0.993345606		Yes - Trans
Transporta	On Road	Not Specified	None	Fuel combustion	Natural gas	N2O	0.000558303		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Biodiesel	CH4	0.00000317		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Biodiesel	N2O	0.000799772		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Distillate	CH4	6.35025E-05		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Distillate	CO2	0.342953367		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Distillate	N2O	0.016021195		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Ethanol	CH4	0.009665663		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Ethanol	N2O	0.079884055		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Gasoline	CH4	0.08539962		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Gasoline	CO2	56.23187821		Yes - Trans

Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Gasoline	N2O	0.705804328		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Renewable Diesel	CH4	0.00000414		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Passenger Cars	Fuel combustion	Renewable Diesel	N2O	0.001044579		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Biodiesel	CH4	1.3975E-06		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Biodiesel	N2O	0.000776081		Yes - Trans
Transporta	On Road	Light-duty Vehicles	Light-duty Trucks & SUVs	Fuel combustion	Distillate	CH4	0.000028015		Yes - Trans

Appendix F

Noise Modeling Data

Table Name	gl	ft (group)	distance	Median ffs	Avg. lanes	volEA_tot	volEA_total (weighted)	Avg. volEA_PV%	Avg. volEA_SM%	Avg. volEA_HV%	volAM_tot	volAM_total (weighted)	Avg. volAM_PV%
2015	Alameda	Freeway	545.8	60	2	1,885,535	2,198	88.6%	9.0%	2.5%	10,292,257	11,288	97.2%
		Expressway	60.9	50	2	90,563	1,671	92.9%	6.3%	0.8%	316,350	4,609	98.4%
		Major Arterial	897.8	30	2	723,399	256	87.9%	10.3%	1.8%	6,423,808	2,248	98.1%
		Collector	766.6	25	1	135,672	65	88.8%	9.5%	1.8%	1,425,924	692	98.3%
	Contra Cost	Freeway	379.8	60	2	996,489	1,439	88.4%	9.2%	2.4%	5,851,441	8,517	97.7%
		Expressway	73.3	55	2	29,283	955	92.5%	6.2%	1.3%	139,765	3,302	98.8%
		Major Arterial	786.5	35	2	259,479	157	88.7%	9.6%	1.7%	2,565,345	1,490	98.5%
		Collector	685.7	30	1	81,709	65	88.1%	9.1%	2.8%	773,462	626	98.4%
	Marin	Freeway	145.0	60	2	218,750	978	83.0%	12.2%	4.8%	1,507,710	6,644	96.0%
		Major Arterial	146.2	35	2	55,867	154	87.9%	10.6%	1.5%	541,415	1,540	97.4%
		Collector	382.4	35	1	24,882	43	89.4%	8.9%	1.7%	230,413	388	97.4%
	Napa	Freeway	29.4	63	2	49,269	1,211	86.6%	10.4%	3.0%	270,136	6,402	96.0%
		Expressway	37.4	55	2	25,307	820	85.7%	10.8%	3.5%	161,053	5,020	95.5%
		Major Arterial	113.7	35	2	26,576	261	87.4%	10.7%	2.0%	197,722	1,639	97.4%
		Collector	364.7	35	1	10,638	64	92.3%	5.9%	1.8%	69,159	320	98.1%
	San Francis	Freeway	71.7	45	3	310,456	1,843	83.8%	13.3%	2.9%	2,086,908	12,568	96.9%
		Expressway	1.6	45	3	9,364	1,091	93.3%	5.4%	1.3%	75,054	9,033	99.1%
		Major Arterial	315.2	25	2	493,813	276	75.0%	22.0%	3.0%	4,185,186	2,422	95.3%
		Collector	303.2	20	1	47,771	36	75.1%	21.9%	3.0%	481,766	366	96.6%
	San Mateo	Freeway	261.6	45	2	674,419	1,530	87.1%	9.9%	3.1%	4,966,357	11,541	97.0%
		Expressway	31.5	45	2	42,988	534	90.4%	8.6%	1.0%	357,670	4,689	98.4%
		Major Arterial	440.9	30	2	217,252	188	88.9%	9.7%	1.4%	1,999,480	1,696	98.2%
		Collector	549.8	25	1	66,961	67	88.9%	9.7%	1.4%	625,585	537	98.4%
	Santa Clara	Freeway	680.3	60	2	1,545,718	1,307	88.0%	9.7%	2.3%	9,160,243	7,486	97.8%
		Expressway	271.7	45	2	336,072	760	88.3%	10.3%	1.4%	2,930,251	4,884	97.9%
		Major Arterial	1,165.0	30	2	667,987	244	88.3%	10.3%	1.4%	6,373,769	2,014	98.2%
		Collector	771.7	25	1	95,111	68	90.3%	8.1%	1.6%	906,839	562	98.2%
	Solano	Freeway	245.0	65	2	799,883	2,373	92.2%	6.1%	1.7%	2,750,545	7,340	97.3%
		Expressway	72.6	50	2	44,203	502	89.4%	6.9%	3.7%	259,352	2,821	97.8%
		Major Arterial	461.3	35	2	122,914	199	90.7%	7.7%	1.6%	761,864	838	98.6%
		Collector	223.2	30	1	32,833	73	91.8%	7.4%	0.8%	282,767	612	98.7%
	Sonoma	Freeway	202.3	60	1	194,611	778	86.4%	9.8%	3.7%	1,163,938	4,031	96.5%
		Expressway	25.6	50	2	14,945	875	86.7%	8.6%	4.7%	107,895	5,690	96.2%
		Major Arterial	589.7	35	1	110,114	193	87.4%	9.4%	3.2%	871,255	1,351	97.6%
		Collector	542.0	30	1	56,890	121	87.0%	9.5%	3.6%	464,896	776	97.3%

Avg. volAM_SM%	Avg. volAM_HV%	volMD_tot	volMD_total (weighted)	Avg. volMD_PV%	Avg. volMD_SM%	Avg. volMD_HV%	volPM_tot	volPM_total (weighted)	Avg. volPM_PV%	Avg. volPM_SM%	Avg. volPM_HV%	volEV_tot
2.1%	0.7%	10,445,422	11,204	75.7%	23.3%	1.0%	11,067,576	12,039	93.3%	6.3%	0.4%	6,674,859
1.3%	0.3%	382,599	5,114	87.1%	12.6%	0.3%	369,823	5,000	95.0%	4.8%	0.2%	274,452
1.5%	0.4%	7,369,473	2,501	83.7%	15.9%	0.5%	7,878,754	2,754	93.8%	5.7%	0.4%	4,115,982
1.1%	0.5%	1,595,997	727	86.3%	13.1%	0.5%	1,799,341	866	94.8%	4.6%	0.4%	872,651
1.7%	0.6%	5,794,566	8,280	77.0%	21.9%	1.1%	6,296,877	9,121	93.8%	5.9%	0.3%	3,669,489
1.0%	0.2%	131,409	3,037	81.5%	17.8%	0.6%	152,118	3,499	94.4%	5.5%	0.1%	86,691
1.1%	0.4%	2,778,321	1,527	84.5%	14.8%	0.7%	3,086,585	1,762	94.8%	5.1%	0.1%	1,544,737
0.8%	0.6%	835,282	619	85.6%	12.7%	1.6%	929,319	732	95.2%	4.4%	0.5%	487,749
2.3%	1.7%	1,508,222	6,439	72.2%	26.1%	1.7%	1,636,733	7,100	92.1%	7.4%	0.5%	960,166
1.4%	1.1%	632,007	1,801	81.2%	18.4%	0.5%	664,279	1,908	93.7%	6.1%	0.2%	341,153
2.1%	0.5%	250,026	380	73.8%	24.0%	2.3%	265,261	429	93.2%	6.3%	0.5%	149,059
3.1%	0.9%	266,736	6,184	75.5%	23.3%	1.2%	299,907	7,007	91.6%	7.8%	0.6%	162,159
3.5%	1.1%	157,727	4,841	72.9%	25.6%	1.5%	170,694	5,296	90.2%	9.1%	0.7%	93,005
2.1%	0.5%	224,537	1,658	81.2%	18.1%	0.7%	232,794	1,779	93.3%	6.4%	0.3%	122,071
1.5%	0.4%	68,600	264	84.9%	14.0%	1.2%	75,911	318	95.9%	3.9%	0.3%	40,747
2.4%	0.7%	2,351,926	13,588	73.3%	25.8%	0.8%	2,301,479	13,667	90.2%	9.3%	0.4%	1,607,672
0.7%	0.3%	68,028	7,982	82.7%	16.7%	0.6%	77,435	9,479	95.4%	4.4%	0.2%	48,534
3.9%	0.7%	6,027,097	3,231	71.8%	27.6%	0.6%	5,344,098	3,027	87.3%	12.3%	0.4%	3,246,762
2.4%	1.0%	631,816	445	75.6%	23.1%	1.2%	635,241	472	89.3%	9.7%	1.0%	332,004
2.0%	1.1%	4,452,961	9,774	75.8%	23.0%	1.2%	5,022,864	11,489	92.2%	7.2%	0.6%	2,953,201
1.4%	0.2%	353,107	4,323	80.9%	18.8%	0.3%	405,527	5,365	94.0%	5.9%	0.1%	233,444
1.4%	0.4%	2,204,878	1,825	83.5%	16.0%	0.5%	2,399,961	2,022	94.3%	5.5%	0.1%	1,270,113
1.0%	0.6%	728,834	590	85.2%	14.0%	0.8%	774,144	644	94.7%	4.8%	0.4%	411,120
1.7%	0.4%	10,119,840	7,944	79.0%	20.0%	1.0%	10,113,232	8,200	94.3%	5.4%	0.3%	6,159,588
1.4%	0.2%	3,194,701	5,318	81.7%	18.0%	0.3%	3,504,864	5,806	94.4%	5.4%	0.2%	1,755,567
1.4%	0.4%	7,575,210	2,344	85.6%	14.0%	0.4%	8,183,638	2,568	94.6%	5.3%	0.1%	3,957,115
0.8%	0.9%	1,003,748	608	87.5%	11.6%	0.9%	1,134,342	685	94.3%	5.3%	0.4%	546,054
2.1%	0.6%	2,909,034	7,856	82.0%	17.1%	0.9%	3,068,375	8,196	93.7%	5.9%	0.4%	1,702,750
1.7%	0.5%	281,162	2,598	83.0%	16.5%	0.5%	312,180	3,124	94.1%	5.5%	0.4%	159,761
1.0%	0.4%	892,669	957	86.0%	13.2%	0.8%	928,702	998	95.5%	4.4%	0.2%	497,504
1.1%	0.2%	320,602	681	87.5%	12.2%	0.3%	344,506	751	95.8%	4.1%	0.1%	177,468
2.2%	1.3%	1,243,656	4,292	77.6%	20.6%	1.8%	1,326,986	4,522	93.7%	5.8%	0.5%	703,602
2.6%	1.2%	103,998	4,928	81.0%	17.2%	1.8%	116,760	5,917	93.5%	5.7%	0.8%	64,249
1.8%	0.7%	1,008,333	1,394	82.0%	16.5%	1.6%	1,064,187	1,535	93.7%	5.7%	0.5%	586,374
1.8%	0.9%	514,576	785	83.1%	15.7%	1.2%	550,726	875	93.9%	5.2%	0.9%	286,520

volEV_total (weighted)	Avg. volEV_PV%	Avg. volEV_SM%	Avg. volEV_HV%	TOTAL 24 HR Volume	% Day	% Evening	% Night	Near Dist	Far Distance	Day Vol	Eve Vol	Night Vol
7,089	90.0%	9.4%	0.6%	43,818	72.37%	6.07%	21.57%	106	112	31709.35	2658.304	9450.383
3,966	93.5%	6.3%	0.1%	20,358	66.65%	7.31%	26.04%	106	112	13569.55	1487.24	5301.608
1,407	91.1%	8.2%	0.6%	9,166	75.72%	5.76%	18.52%	106	112	6940.672	527.5191	1697.666
402	91.9%	7.1%	1.0%	2,751	76.76%	5.48%	17.76%	106	106	2111.744	150.6952	488.6629
5,274	89.0%	10.3%	0.7%	32,631	72.90%	6.06%	21.04%	106	106	23789.07	1977.656	6864.396
2,245	91.4%	8.3%	0.3%	13,037	69.13%	6.46%	24.42%	106	106	9012.14	841.8829	3183.216
883	91.2%	8.0%	0.8%	5,819	75.73%	5.69%	18.58%	106	106	4407.156	330.9965	1081.257
365	90.4%	6.7%	2.9%	2,408	75.63%	5.69%	18.67%	106	106	1821.185	137.0446	449.6643
4,143	86.8%	12.0%	1.2%	25,303	73.20%	6.14%	20.66%	106	106	18521.38	1553.562	5228.376
969	90.6%	9.2%	0.2%	6,373	76.33%	5.70%	17.97%	106	106	4864.409	363.4054	1145.147
242	91.9%	7.7%	0.3%	1,483	74.20%	6.13%	19.67%	106	106	1100.41	90.84245	291.7087
3,847	88.9%	10.5%	0.6%	24,652	72.99%	5.85%	21.16%	106	106	17992.19	1442.795	5216.591
2,935	87.6%	11.7%	0.7%	18,913	73.51%	5.82%	20.67%	106	112	13902.38	1100.789	3909.914
962	90.3%	9.3%	0.3%	6,299	74.08%	5.73%	20.20%	106	106	4666.097	360.875	1272.106
181	95.2%	4.5%	0.3%	1,146	71.68%	5.91%	22.41%	106	106	821.4023	67.7405	256.772
9,125	86.7%	12.9%	0.4%	50,792	72.22%	6.74%	21.04%	106	112	36681.14	3422.062	10688.57
5,627	93.4%	6.4%	0.2%	33,212	72.97%	6.35%	20.67%	106	112	24236.16	2109.968	6865.985
1,796	83.6%	16.0%	0.4%	10,751	75.10%	6.26%	18.64%	106	112	8074.267	673.3322	2003.722
245	85.1%	13.2%	1.7%	1,563	76.16%	5.88%	17.96%	106	106	1190.445	91.97913	280.6946
6,508	89.1%	9.9%	1.0%	40,842	73.25%	5.98%	20.77%	106	112	29919.09	2440.513	8482.804
2,870	91.2%	8.7%	0.1%	17,781	74.26%	6.05%	19.69%	106	112	13204.28	1076.3	3500.485
1,053	91.5%	8.0%	0.5%	6,784	75.45%	5.82%	18.72%	106	106	5118.849	394.8997	1270.292
345	92.2%	7.2%	0.6%	2,184	74.96%	5.93%	19.11%	106	106	1636.752	129.4935	417.3261
4,828	89.7%	9.8%	0.5%	29,765	73.10%	6.08%	20.82%	106	106	21758.58	1810.361	6196.332
2,949	90.4%	9.4%	0.2%	19,716	75.00%	5.61%	19.39%	106	112	14786.56	1105.881	3823.871
1,231	91.8%	8.0%	0.2%	8,402	76.45%	5.49%	18.06%	106	112	6422.703	461.6468	1517.254
336	91.6%	7.6%	0.8%	2,260	75.87%	5.58%	18.55%	106	106	1714.729	126.1684	419.1806
4,590	91.7%	7.9%	0.4%	30,355	71.02%	5.67%	23.31%	106	106	21557.56	1721.076	7075.969
1,607	89.5%	7.9%	2.6%	10,651	73.58%	5.66%	20.76%	106	106	7837.102	602.7528	2211.61
553	92.8%	6.9%	0.3%	3,544	72.90%	5.85%	21.26%	106	106	2583.763	207.1891	753.4189
379	93.1%	6.5%	0.4%	2,495	75.78%	5.69%	18.53%	106	106	1890.594	141.9857	462.3995
2,477	88.9%	9.8%	1.4%	16,099	73.53%	5.77%	20.70%	106	106	11837.11	928.7052	3333.132
3,239	91.6%	7.5%	0.9%	20,647	73.19%	5.88%	20.93%	106	106	15111.51	1214.569	4321.398
861	91.0%	8.0%	1.0%	5,334	73.90%	6.05%	20.04%	106	106	3941.841	322.913	1069.051
469	90.7%	7.7%	1.7%	3,026	74.10%	5.81%	20.09%	106	106	2242.275	175.7103	607.9561

Table Name	gl	ft (group)	distance	Median ffs	Avg. lanes	volEA_tot	volEA_total (weighted)	Avg. volEA_PV%	Avg. volEA_SM%	Avg. volEA_HV%	volAM_tot	volAM_total (weighted)	Avg. volAM_PV%
Final Bluepr	Alameda	Freeway	672.5	55	2	1,871,654	1,806	90.6%	5.6%	2.1%	9,026,730	8,159	97.9%
		Expressway	62.9	50	2	154,536	2,360	92.2%	6.2%	1.6%	564,312	6,991	98.2%
		Major Arterial	898.7	30	2	1,233,343	478	85.9%	11.9%	2.3%	8,984,980	3,285	97.7%
		Collector	754.1	25	1	210,377	125	85.5%	12.0%	2.4%	2,060,824	1,136	97.7%
	Contra Cost	Freeway	443.1	55	2	1,096,567	1,438	92.0%	5.4%	2.1%	5,944,601	7,581	98.4%
		Expressway	54.3	55	2	38,742	931	91.5%	6.9%	1.6%	201,613	4,087	98.7%
		Major Arterial	793.4	30	2	464,434	283	88.4%	10.1%	1.4%	3,799,131	2,277	98.3%
		Collector	705.5	30	1	148,902	128	89.0%	9.6%	1.4%	1,255,526	1,084	98.5%
	Marin	Freeway	156.9	55	2	254,639	1,063	87.8%	9.0%	3.2%	1,530,884	6,367	98.0%
		Major Arterial	146.2	30	2	55,731	154	88.3%	10.2%	1.5%	598,393	1,752	98.3%
		Collector	382.4	35	1	28,001	52	87.4%	10.2%	2.5%	315,857	593	98.1%
	Napa	Freeway	32.8	55	2	55,383	1,134	88.8%	8.6%	2.7%	328,809	6,278	96.7%
		Expressway	37.4	55	2	30,719	1,032	88.8%	8.5%	2.8%	176,799	5,652	96.5%
		Major Arterial	118.3	30	2	26,703	238	89.4%	8.9%	1.7%	188,403	1,402	97.9%
		Collector	356.8	35	1	12,355	78	93.5%	5.3%	1.3%	81,384	388	98.5%
	San Francis	Freeway	81.6	55	2	295,316	1,471	87.4%	9.4%	3.1%	1,903,494	9,564	97.9%
		Expressway	4.4	45	3	10,798	610	94.9%	4.5%	0.6%	85,064	6,073	99.5%
		Major Arterial	316.4	25	2	677,583	408	71.1%	24.1%	3.5%	5,425,214	3,329	93.8%
		Collector	303.5	20	1	74,297	57	71.3%	24.6%	4.0%	683,242	550	94.4%
	San Mateo	Freeway	305.1	55	2	619,609	1,192	92.1%	5.5%	2.5%	4,025,138	7,706	98.3%
		Expressway	28.6	45	2	55,918	765	88.3%	9.7%	2.0%	431,796	6,094	97.8%
		Major Arterial	439.6	30	2	450,447	395	90.0%	8.5%	1.5%	3,320,936	2,980	98.3%
		Collector	549.7	25	1	114,728	107	87.2%	11.7%	1.1%	1,061,772	955	97.9%
	Santa Clara	Freeway	722.1	55	2	1,420,846	1,116	90.4%	6.4%	3.2%	7,606,253	5,648	98.0%
		Expressway	265.7	45	2	671,672	1,386	88.9%	9.2%	1.9%	4,479,203	7,799	98.1%
		Major Arterial	1,167.1	30	2	1,229,725	420	86.8%	11.2%	2.0%	10,909,770	3,437	97.8%
		Collector	772.0	25	1	142,776	101	86.4%	11.1%	2.5%	1,341,855	834	98.0%
	Solano	Freeway	291.4	55	2	894,481	2,266	94.3%	3.6%	2.2%	2,835,801	6,618	98.1%
		Expressway	85.2	55	2	114,954	973	90.2%	6.2%	3.6%	568,414	4,547	98.1%
		Major Arterial	467.4	30	2	181,399	303	91.9%	7.0%	1.1%	1,087,113	1,305	98.6%
		Collector	240.0	30	1	50,816	126	92.2%	6.6%	1.2%	409,203	868	98.9%
	Sonoma	Freeway	227.1	55	1	219,513	806	87.8%	8.1%	4.1%	1,302,899	4,102	97.3%
		Expressway	23.8	55	2	15,330	640	85.5%	6.2%	8.3%	105,944	4,271	97.1%
		Major Arterial	581.3	30	1	106,899	189	88.4%	8.8%	2.7%	925,751	1,426	97.7%
		Collector	542.0	30	1	77,243	156	88.9%	7.3%	3.8%	563,037	941	97.4%

Avg. volAM_SM%	Avg. volAM_HV%	volMD_tot	volMD_total (weighted)	Avg. volMD_PV%	Avg. volMD_SM%	Avg. volMD_HV%	volPM_tot	volPM_total (weighted)	Avg. volPM_PV%	Avg. volPM_SM%	Avg. volPM_HV%	volEV_tot
1.4%	0.6%	8,350,046	7,382	88.4%	10.4%	1.2%	9,042,304	8,126	95.6%	3.8%	0.4%	6,476,371
1.3%	0.5%	676,147	7,718	87.3%	12.1%	0.6%	631,031	7,666	95.4%	4.3%	0.3%	539,991
1.9%	0.4%	10,872,849	3,843	83.0%	16.5%	0.6%	10,570,385	3,835	93.5%	6.2%	0.3%	7,091,017
1.4%	0.5%	2,498,655	1,270	84.4%	15.0%	0.5%	2,540,108	1,338	93.9%	5.7%	0.3%	1,428,024
1.2%	0.4%	5,223,553	6,469	88.4%	10.6%	1.0%	5,905,916	7,456	96.3%	3.4%	0.3%	4,048,680
1.1%	0.2%	176,129	3,663	85.0%	14.3%	0.7%	211,361	4,363	95.4%	4.4%	0.2%	127,280
1.3%	0.3%	4,246,575	2,397	85.2%	14.3%	0.4%	4,479,825	2,650	94.8%	5.0%	0.2%	2,659,061
1.1%	0.4%	1,424,034	1,133	86.3%	13.0%	0.6%	1,494,287	1,258	95.3%	4.4%	0.1%	907,723
1.4%	0.6%	1,628,128	6,444	85.2%	13.3%	1.5%	1,601,894	6,462	96.0%	3.6%	0.4%	1,246,179
1.5%	0.3%	706,866	2,048	85.7%	13.8%	0.3%	745,941	2,193	94.5%	5.3%	0.1%	405,185
1.5%	0.4%	314,718	477	83.0%	16.1%	0.9%	357,547	638	94.9%	4.8%	0.3%	208,221
2.3%	0.9%	310,719	5,771	80.5%	18.5%	1.0%	353,578	6,557	93.2%	6.3%	0.6%	196,522
2.5%	1.0%	175,854	5,441	78.8%	20.1%	1.1%	186,811	5,895	92.3%	7.0%	0.6%	113,529
1.7%	0.4%	223,452	1,488	84.7%	14.7%	0.6%	227,211	1,569	94.5%	5.2%	0.3%	129,408
1.1%	0.4%	87,269	325	89.7%	9.7%	0.6%	91,565	393	96.4%	3.3%	0.3%	53,682
1.5%	0.6%	1,855,561	8,732	83.3%	15.5%	1.0%	1,894,064	9,480	93.0%	6.0%	0.8%	1,625,549
0.4%	0.1%	76,355	4,853	86.1%	13.7%	0.2%	96,786	8,016	96.5%	3.4%	0.1%	65,798
4.5%	1.0%	8,361,807	4,805	69.9%	28.6%	0.7%	6,276,872	3,879	82.3%	15.9%	0.9%	5,012,589
3.0%	2.1%	1,035,471	776	73.2%	25.2%	1.0%	1,131,682	873	86.7%	11.6%	0.9%	564,393
1.2%	0.5%	3,189,432	5,820	86.6%	12.0%	1.4%	3,832,343	7,155	95.8%	3.8%	0.4%	2,798,407
1.8%	0.4%	491,064	6,610	80.2%	19.1%	0.6%	505,398	7,160	93.1%	6.6%	0.2%	335,315
1.4%	0.3%	3,820,056	3,327	85.9%	13.7%	0.4%	3,694,721	3,287	94.8%	5.0%	0.2%	2,882,323
1.2%	0.6%	1,274,739	1,070	84.9%	14.6%	0.2%	1,283,105	1,116	94.6%	5.1%	0.1%	801,310
1.6%	0.5%	8,560,956	6,183	87.1%	12.0%	1.0%	8,482,892	6,234	95.4%	4.2%	0.3%	5,719,755
1.5%	0.4%	5,289,397	8,955	82.4%	17.1%	0.5%	5,097,157	8,818	94.7%	5.1%	0.2%	3,562,406
1.7%	0.5%	13,549,692	4,160	84.4%	15.2%	0.4%	13,404,129	4,210	94.1%	5.7%	0.2%	8,004,505
1.2%	0.7%	1,646,220	976	86.0%	13.2%	0.7%	1,760,179	1,066	94.3%	4.9%	0.6%	899,236
1.2%	0.7%	2,955,329	6,978	89.5%	9.0%	1.4%	3,048,898	7,183	96.0%	3.0%	0.7%	1,882,773
1.5%	0.4%	559,468	4,154	84.9%	13.7%	1.3%	620,606	4,826	95.3%	4.4%	0.3%	349,835
1.1%	0.3%	1,247,935	1,412	87.4%	12.0%	0.6%	1,302,393	1,505	95.6%	4.0%	0.2%	727,198
0.9%	0.2%	474,155	988	87.6%	11.7%	0.7%	503,005	1,054	95.4%	3.9%	0.7%	256,353
1.9%	0.8%	1,401,950	4,357	81.5%	16.4%	2.1%	1,474,728	4,560	94.2%	4.9%	1.0%	820,113
1.8%	1.1%	112,447	4,125	84.4%	12.2%	3.4%	118,835	4,600	95.5%	3.8%	0.7%	69,183
1.5%	0.8%	1,088,036	1,468	84.3%	13.7%	1.9%	1,131,936	1,619	94.4%	4.8%	0.8%	631,574
1.4%	1.3%	647,259	985	86.5%	11.7%	1.7%	658,656	1,051	94.8%	4.1%	1.0%	380,160

volEV_total (weighted)	Avg. volEV_PV%	Avg. volEV_SM%	Avg. volEV_HV%	TOTAL 24 HR Volume	% Day	% Evening	% Night	Near Dist	Far Distance	Day Vol	Eve Vol	Night Vol
5,702	95.7%	3.9%	0.4%	31,174	69.38%	6.86%	23.77%	106	106	21627.3	2138.071	7408.852
6,549	94.6%	5.1%	0.3%	31,284	65.94%	7.85%	26.21%	106	112	20627.32	2455.95	8200.72
2,527	91.6%	7.8%	0.6%	13,969	72.60%	6.78%	20.61%	106	106	10141.96	947.6891	2879.238
771	91.3%	7.6%	1.1%	4,641	74.56%	6.23%	19.21%	106	106	3460.623	289.2472	891.5616
5,081	94.2%	4.6%	0.6%	28,025	69.97%	6.80%	23.23%	106	106	19610.82	1905.464	6509.203
2,865	94.1%	5.6%	0.3%	15,909	69.72%	6.75%	23.53%	106	106	11091.59	1074.251	3743.16
1,534	92.6%	7.1%	0.3%	9,141	73.89%	6.29%	19.81%	106	106	6754.622	575.3459	1811.286
742	92.8%	6.8%	0.4%	4,345	73.74%	6.40%	19.85%	106	106	3204.226	278.2748	862.5795
5,018	93.6%	5.9%	0.5%	25,355	69.74%	7.42%	22.84%	106	106	17682.21	1881.604	5791.371
1,166	93.1%	6.7%	0.2%	7,313	75.97%	5.98%	18.06%	106	106	5555.606	437.0744	1320.463
346	93.3%	6.4%	0.3%	2,106	74.07%	6.17%	19.77%	106	106	1560.075	129.9008	416.3812
3,727	91.1%	8.4%	0.5%	23,467	72.60%	5.96%	21.45%	106	106	17036.24	1397.716	5032.595
3,654	90.4%	9.1%	0.6%	21,673	71.86%	6.32%	21.82%	106	112	15574.4	1370.416	4728.637
935	92.4%	7.3%	0.3%	5,633	72.95%	6.23%	20.82%	106	106	4109.425	350.701	1172.956
227	95.6%	4.1%	0.2%	1,411	71.52%	6.03%	22.46%	106	106	1008.895	85.01407	316.8344
7,979	93.4%	5.8%	0.8%	37,225	68.19%	8.04%	23.77%	106	112	25384.42	2992.043	8848.796
3,488	94.7%	5.2%	0.1%	23,040	75.62%	5.68%	18.70%	106	112	17423.85	1307.917	4308.21
2,996	82.4%	15.0%	0.6%	15,417	72.52%	7.29%	20.19%	106	112	11180.75	1123.488	3113.049
432	84.3%	13.7%	1.9%	2,688	76.68%	6.03%	17.29%	106	106	2060.781	162.1256	464.6171
5,257	95.5%	4.1%	0.4%	27,131	69.13%	7.27%	23.61%	106	112	18755.18	1971.366	6404.483
4,565	91.8%	7.9%	0.3%	25,195	72.80%	6.79%	20.41%	106	112	18340.94	1711.756	5142.008
2,486	93.7%	6.1%	0.2%	12,474	70.93%	7.47%	21.60%	106	106	8847.951	932.3412	2694.145
668	92.4%	7.0%	0.5%	3,917	74.10%	6.40%	19.50%	106	106	2902.789	250.6172	763.9601
4,094	93.8%	4.9%	1.3%	23,274	71.55%	6.60%	21.85%	106	106	16652.92	1535.25	5086.246
5,927	92.2%	7.5%	0.3%	32,884	71.83%	6.76%	21.41%	106	112	23621.62	2222.469	7040.035
2,463	92.1%	7.6%	0.3%	14,689	74.53%	6.29%	19.19%	106	112	10947.46	923.4801	2818.296
537	90.6%	7.9%	1.5%	3,514	75.91%	5.73%	18.36%	106	106	2667.486	201.2611	645.1403
4,409	94.7%	4.0%	1.3%	27,454	69.66%	6.02%	24.32%	106	106	19123.9	1653.497	6676.581
2,661	93.2%	6.3%	0.6%	17,161	72.20%	5.82%	21.99%	106	106	12389.9	998.0111	3773.127
844	93.9%	5.9%	0.2%	5,369	72.55%	5.90%	21.55%	106	106	3895.057	316.5348	1157.174
545	93.2%	6.1%	0.7%	3,581	75.20%	5.70%	19.09%	106	106	2693.034	204.197	683.7494
2,630	91.5%	7.2%	1.3%	16,457	72.88%	5.99%	21.12%	106	106	11994.26	986.4103	3475.84
2,667	93.6%	5.2%	1.3%	16,304	73.17%	6.13%	20.70%	106	106	11928.83	1000.205	3374.556
942	92.7%	6.5%	0.8%	5,644	73.64%	6.26%	20.10%	106	106	4156.348	353.2518	1134.57
617	92.2%	5.6%	2.2%	3,750	73.11%	6.17%	20.72%	106	106	2741.497	231.4615	776.8471

Table Name	gl	ft (group)	distance	Median ffs	Avg. lanes	volEA_tot	volEA_total (weighted)	Avg. volEA_PV%	Avg. volEA_SM%	Avg. volEA_HV%	volAM_tot	volAM_total (weighted)	Avg. volAM_PV%
No Project	Alameda	Freeway	556.7	60	2	2,866,967	3,249	90.3%	7.4%	2.4%	12,817,021	13,792	96.9%
		Expressway	59.5	50	2	114,661	2,375	92.3%	6.5%	1.2%	466,233	7,246	98.5%
		Major Arterial	894.0	30	2	1,083,552	393	87.9%	10.0%	2.1%	8,663,123	3,172	97.9%
		Collector	752.1	25	1	190,667	94	87.4%	9.9%	2.7%	2,098,181	1,105	97.3%
	Contra Cost	Freeway	387.4	60	2	1,707,343	2,432	91.3%	6.7%	2.0%	8,022,550	11,341	98.2%
		Expressway	73.3	55	2	49,055	1,599	94.7%	4.6%	0.7%	243,668	5,280	98.9%
		Major Arterial	789.3	35	2	435,786	275	91.0%	7.8%	1.2%	4,164,290	2,531	98.8%
		Collector	705.6	30	1	137,831	107	89.5%	7.6%	2.9%	1,320,207	1,151	98.9%
	Marin	Freeway	121.1	60	2	227,401	1,260	89.0%	8.1%	2.9%	935,330	5,151	96.8%
		Major Arterial	146.2	35	2	143,504	428	90.5%	7.7%	1.9%	728,083	2,250	97.7%
		Collector	380.2	35	1	50,306	92	80.1%	14.0%	5.9%	317,232	620	97.1%
	Napa	Freeway	28.6	63	2	53,270	1,550	88.5%	9.1%	2.4%	322,534	8,666	96.9%
		Expressway	37.4	55	2	31,302	1,058	87.7%	9.1%	3.2%	197,405	6,281	96.4%
		Major Arterial	113.7	35	2	30,638	294	89.6%	8.7%	1.7%	230,579	1,889	97.9%
		Collector	354.3	35	1	12,712	76	94.2%	4.5%	1.3%	84,026	415	98.6%
	San Francis	Freeway	71.3	45	3	460,589	2,657	83.5%	13.3%	3.2%	2,704,467	16,036	96.8%
		Expressway	4.4	45	3	11,010	546	94.0%	5.1%	0.9%	89,601	6,063	99.2%
		Major Arterial	316.4	25	2	667,582	371	72.7%	23.8%	3.2%	5,480,134	3,196	94.2%
		Collector	303.5	20	1	73,622	54	70.7%	25.1%	4.1%	715,122	555	94.6%
	San Mateo	Freeway	289.0	60	2	947,440	1,946	88.4%	8.7%	3.0%	6,485,927	13,764	96.6%
		Expressway	28.6	45	2	59,838	778	89.6%	8.6%	1.7%	495,684	7,063	98.3%
		Major Arterial	435.3	30	2	318,813	282	90.6%	8.3%	1.2%	2,805,195	2,466	98.5%
		Collector	549.2	25	1	95,620	88	90.2%	8.4%	1.4%	969,407	886	98.5%
	Santa Clara	Freeway	679.9	60	2	2,216,006	1,823	86.2%	8.3%	5.5%	12,081,773	9,901	97.7%
		Expressway	266.5	45	2	499,367	1,055	88.2%	10.2%	1.6%	4,128,107	6,929	98.0%
		Major Arterial	1,162.0	30	2	1,037,212	355	88.3%	9.9%	1.8%	10,817,490	3,418	98.3%
		Collector	772.0	25	1	134,337	94	87.6%	10.1%	2.3%	1,428,477	877	97.9%
	Solano	Freeway	246.2	65	2	1,019,620	2,961	92.3%	5.8%	1.9%	3,418,639	9,096	97.6%
		Expressway	57.8	50	2	55,257	613	89.4%	7.2%	3.3%	363,846	3,605	97.7%
		Major Arterial	461.3	35	2	151,301	259	91.7%	6.6%	1.8%	987,093	1,149	98.5%
		Collector	238.0	30	1	40,310	86	92.7%	6.4%	0.9%	347,050	739	98.5%
	Sonoma	Freeway	220.1	60	1	237,212	890	85.9%	10.1%	4.0%	1,376,526	4,410	96.9%
		Expressway	10.6	50	2	10,801	814	87.0%	7.8%	5.2%	85,299	6,302	97.1%
		Major Arterial	575.3	35	1	132,279	231	87.4%	9.0%	3.6%	1,061,915	1,633	97.7%
		Collector	542.0	30	1	73,087	150	88.0%	8.5%	3.5%	598,146	988	97.3%

Avg. volAM_SM%	Avg. volAM_HV%	volMD_tot	volMD_total (weighted)	Avg. volMD_PV%	Avg. volMD_SM%	Avg. volMD_HV%	volPM_tot	volPM_total (weighted)	Avg. volPM_PV%	Avg. volPM_SM%	Avg. volPM_HV%	volEV_tot
2.5%	0.6%	12,860,197	13,521	80.9%	18.1%	1.0%	13,257,810	14,265	93.0%	6.5%	0.5%	9,428,542
1.2%	0.3%	529,691	7,268	88.7%	10.9%	0.4%	515,928	7,596	95.6%	4.3%	0.2%	384,378
1.5%	0.6%	9,947,732	3,465	84.6%	14.8%	0.6%	10,259,406	3,696	94.1%	5.5%	0.3%	5,857,279
1.1%	1.1%	2,320,878	1,088	86.2%	12.9%	0.8%	2,526,331	1,270	94.5%	4.7%	0.7%	1,248,627
1.4%	0.4%	7,970,371	11,086	84.1%	14.9%	0.9%	8,310,179	11,728	94.8%	4.9%	0.3%	6,049,785
0.9%	0.2%	202,700	4,387	86.4%	13.3%	0.3%	251,967	5,370	95.7%	4.1%	0.1%	150,329
1.0%	0.2%	4,368,055	2,469	87.6%	12.1%	0.3%	4,952,169	2,961	95.6%	4.2%	0.1%	2,561,202
0.8%	0.3%	1,334,916	1,015	88.6%	10.8%	0.5%	1,571,368	1,301	96.1%	3.7%	0.2%	831,504
2.0%	1.2%	986,422	5,221	81.2%	17.2%	1.6%	1,000,741	5,362	93.4%	5.6%	1.0%	800,843
1.1%	1.2%	836,335	2,547	86.7%	12.3%	1.2%	841,704	2,568	94.3%	4.3%	1.4%	623,390
2.1%	0.8%	332,320	581	79.1%	19.2%	1.7%	349,335	638	94.1%	5.5%	0.4%	231,325
2.3%	0.8%	305,276	7,959	80.2%	18.9%	1.0%	347,940	9,038	93.2%	6.3%	0.5%	184,926
2.7%	0.9%	192,633	6,045	77.7%	21.0%	1.3%	206,249	6,521	92.2%	7.2%	0.7%	116,758
1.7%	0.4%	261,333	1,865	84.5%	14.9%	0.6%	279,541	2,073	94.7%	5.1%	0.3%	148,231
1.1%	0.3%	84,079	316	89.2%	10.2%	0.6%	97,506	415	96.1%	3.6%	0.3%	50,774
2.4%	0.8%	3,061,621	17,723	76.0%	23.1%	0.9%	2,831,148	16,802	90.9%	8.7%	0.5%	2,313,398
0.6%	0.2%	82,205	4,486	84.3%	15.4%	0.4%	92,588	6,631	95.6%	4.2%	0.2%	60,110
4.1%	1.0%	8,255,667	4,498	71.3%	27.6%	0.7%	6,999,032	4,036	86.2%	12.7%	0.5%	4,583,980
2.9%	1.6%	1,054,687	743	75.2%	23.7%	0.8%	978,670	722	88.7%	10.2%	0.6%	540,083
2.5%	0.8%	5,777,880	11,518	76.8%	21.8%	1.3%	6,388,899	13,283	91.1%	8.0%	0.7%	4,330,122
1.4%	0.3%	514,034	6,959	81.8%	17.7%	0.5%	528,231	7,507	94.1%	5.7%	0.2%	343,318
1.2%	0.3%	3,213,043	2,712	86.2%	13.4%	0.4%	3,316,485	2,892	94.8%	5.0%	0.1%	1,969,857
1.0%	0.3%	1,093,809	873	86.0%	12.9%	1.0%	1,171,087	1,004	95.2%	4.6%	0.1%	631,772
1.9%	0.4%	13,212,473	10,468	80.2%	18.9%	0.9%	12,951,979	10,552	94.0%	5.7%	0.3%	9,310,559
1.5%	0.4%	4,813,330	7,982	82.5%	17.1%	0.4%	4,761,406	8,031	94.4%	5.3%	0.2%	2,739,029
1.4%	0.3%	12,457,522	3,819	86.1%	13.6%	0.3%	13,223,445	4,169	94.6%	5.2%	0.2%	6,880,243
1.0%	0.9%	1,601,055	946	86.6%	11.8%	1.6%	1,816,789	1,083	94.8%	4.3%	0.8%	861,296
1.6%	0.4%	3,712,029	9,953	84.5%	14.5%	0.9%	3,763,792	10,068	94.6%	5.0%	0.3%	2,277,521
1.8%	0.5%	384,428	3,716	83.5%	15.7%	0.8%	423,194	4,184	94.1%	5.6%	0.3%	203,994
0.9%	0.6%	1,162,839	1,273	88.2%	11.0%	0.7%	1,219,842	1,364	95.0%	3.7%	0.5%	624,743
1.0%	0.5%	417,843	857	88.5%	11.0%	0.5%	428,098	909	95.8%	3.9%	0.2%	221,240
2.3%	0.8%	1,568,405	5,010	77.8%	20.6%	1.6%	1,600,752	5,044	93.4%	5.9%	0.7%	873,292
1.8%	1.1%	96,178	7,108	86.4%	12.4%	1.1%	98,549	7,279	94.9%	4.4%	0.6%	56,977
1.7%	0.7%	1,266,458	1,739	83.8%	14.9%	1.3%	1,291,469	1,844	94.0%	5.3%	0.7%	736,140
1.5%	1.3%	671,154	994	84.3%	13.6%	2.1%	713,911	1,111	94.8%	4.5%	0.7%	384,396

volEV_total (weighted)	Avg. volEV_PV%	Avg. volEV_SM%	Avg. volEV_HV%	TOTAL 24 HR Volume	% Day	% Evening	% Night	Near Dist	Far Distance	Day Vol	Eve Vol	Night Vol
9,835	92.5%	7.0%	0.5%	54,663	69.76%	6.75%	23.50%	106	112	38130.56	3688.24	12844.23
6,294	94.0%	5.8%	0.2%	30,779	65.95%	7.67%	26.38%	106	112	20298.31	2360.326	8120.07
2,015	92.1%	7.3%	0.5%	12,740	74.88%	5.93%	19.19%	106	112	9539.95	755.4679	2445.032
581	92.4%	6.6%	1.1%	4,137	77.02%	5.26%	17.72%	106	106	3186.293	217.7535	732.9497
8,502	92.8%	6.5%	0.8%	45,089	69.46%	7.07%	23.47%	106	106	31319.5	3188.374	10581.25
3,820	94.7%	5.2%	0.1%	20,455	67.06%	7.00%	25.94%	106	106	13716.8	1432.442	5306.22
1,489	93.4%	6.0%	0.5%	9,725	75.35%	5.74%	18.90%	106	106	7328.35	558.3743	1838.523
613	92.4%	5.2%	2.3%	4,186	75.93%	5.49%	18.58%	106	106	3178.723	229.9511	777.6054
4,357	91.6%	7.2%	1.2%	21,350	67.66%	7.65%	24.69%	106	106	14445.31	1633.816	5271.211
1,874	92.9%	6.0%	1.1%	9,667	70.37%	7.27%	22.36%	106	106	6803.281	702.7146	2161.483
414	92.7%	6.9%	0.5%	2,345	71.80%	6.62%	21.58%	106	106	1683.801	155.2415	506.0695
4,999	90.6%	9.0%	0.5%	32,211	72.94%	5.82%	21.24%	106	106	23495.61	1874.518	6841.144
3,761	89.7%	9.6%	0.6%	23,666	73.00%	5.96%	21.04%	106	112	17277.23	1410.273	4978.755
1,110	92.4%	7.2%	0.3%	7,231	74.06%	5.76%	20.19%	106	106	5355.241	416.1646	1459.91
220	96.3%	3.5%	0.2%	1,443	72.28%	5.72%	22.00%	106	106	1042.92	82.57143	317.397
13,252	89.2%	10.4%	0.4%	66,470	70.03%	7.48%	22.49%	106	112	46552.48	4969.383	14948.59
3,039	94.2%	5.7%	0.1%	20,765	75.44%	5.49%	19.07%	106	112	15664.86	1139.502	3960.842
2,544	83.6%	15.4%	0.3%	14,646	74.64%	6.51%	18.85%	106	112	10931.55	953.9149	2760.275
398	84.8%	12.8%	2.3%	2,472	76.09%	6.04%	17.87%	106	106	1880.943	149.1861	441.8315
8,629	91.7%	7.7%	0.6%	49,140	71.48%	6.59%	21.94%	106	112	35124.21	3235.972	10779.79
4,477	92.1%	7.6%	0.3%	26,783	73.79%	6.27%	19.94%	106	112	19762.48	1678.712	5341.816
1,677	93.6%	6.2%	0.2%	10,028	74.32%	6.27%	19.41%	106	106	7452.775	628.9961	1946.399
506	92.9%	6.1%	1.0%	3,356	75.71%	5.65%	18.64%	106	106	2540.832	189.575	625.5235
7,115	89.2%	7.6%	3.2%	39,860	71.37%	6.69%	21.94%	106	106	28446.16	2668.294	8745.421
4,511	91.6%	8.2%	0.2%	28,509	74.40%	5.93%	19.67%	106	112	21210.68	1691.519	5606.561
2,068	92.5%	6.9%	0.6%	13,829	76.30%	5.61%	18.09%	106	112	10551.39	775.3442	2502.076
514	92.2%	6.5%	1.3%	3,514	76.46%	5.49%	18.05%	106	106	2686.728	192.8429	634.3935
6,061	92.5%	6.9%	0.7%	38,138	70.38%	5.96%	23.66%	106	106	26842.86	2272.857	9022.76
2,020	91.6%	7.9%	0.5%	14,138	75.00%	5.36%	19.64%	106	106	10603.68	757.6649	2776.914
727	93.4%	5.8%	0.8%	4,772	73.31%	5.71%	20.98%	106	106	3497.997	272.692	1000.877
446	93.7%	5.6%	0.8%	3,038	76.40%	5.50%	18.10%	106	106	2320.92	167.1983	549.81
2,859	89.0%	9.4%	1.5%	18,213	73.36%	5.89%	20.75%	106	106	13361.43	1072.259	3779.413
4,242	93.0%	6.2%	0.8%	25,745	74.24%	6.18%	19.58%	106	106	19113.33	1590.724	5040.675
1,066	91.6%	7.2%	1.2%	6,513	73.82%	6.14%	20.04%	106	106	4807.731	399.9119	1305.327
606	92.2%	6.6%	1.2%	3,849	73.93%	5.91%	20.16%	106	106	2845.312	227.3926	776.0732

Baseline (2015)

Project: MTC/SCS PBA 2050

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

County	Facility Type	Segment Description and Location		Input: ADT	Speed (mph)	Distance to Directional Centerline, (feet)$_4$ Near	Distance to Directional Centerline, (feet)$_4$ Far	Traffic Distribution Characteristics % Auto	% Medium	% Heavy	% Day	% Eve	% Night	Output: Ldn, (dBA)$_{5,6,7}$	Distance to Contour, (feet)$_3$ 70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
Alameda	Freeway			43,818	60	106	112	88.6%	9.0%	2.5%	72.4%	6.1%	21.6%	74.9	230	495	1066	2297
	Expressway			20,358	50	106	112	92.9%	6.3%	0.8%	66.7%	7.3%	26.0%	69.1	95	205	441	950
	Major Arterial			9,166	30	106	112	87.9%	10.3%	1.8%	75.7%	5.8%	18.5%	60.2	24	52	113	244
	Collector and Other			2,751	25	106	106	88.8%	9.5%	1.8%	76.8%	5.5%	17.8%	53.7	9	19	40	87
Contra Costa	Freeway			32,631	60	106	106	88.4%	9.2%	2.4%	72.9%	6.1%	21.0%	73.7	186	402	866	1865
	Expressway			13,037	55	106	106	92.5%	6.2%	1.3%	69.1%	6.5%	24.4%	68.5	84	181	389	839
	Major Arterial			5,819	35	106	106	88.7%	9.6%	1.7%	75.7%	5.7%	18.6%	59.6	22	47	100	216
	Collector and Other			2,408	30	106	106	88.1%	9.1%	2.8%	75.6%	5.7%	18.7%	54.9	10	22	48	104
Marin	Freeway			25,303	60	106	106	83.0%	12.2%	4.8%	73.2%	6.1%	20.7%	73.3	176	380	819	1764
	Major Arterial			6,373	35	106	106	87.9%	10.6%	1.5%	76.3%	5.7%	18.0%	60.0	23	49	106	228
	Collector and Other			1,483	35	106	106	89.4%	8.9%	1.7%	74.2%	6.1%	19.7%	53.7	9	19	41	87
Napa	Freeway			24,652	62.5	106	106	86.6%	10.4%	3.0%	73.0%	5.9%	21.2%	73.2	174	374	806	1735
	Expressway			18,913	55	106	112	85.7%	10.8%	3.5%	73.5%	5.8%	20.7%	70.5	117	252	543	1170
	Major Arterial			6,299	35	106	106	87.4%	10.7%	2.0%	74.1%	5.7%	20.2%	60.5	25	53	114	245
	Collector and Other			1,146	35	106	106	92.3%	5.9%	1.8%	71.7%	5.9%	22.4%	52.6	7	16	34	74
San Francisco	Freeway			50,792	45	106	112	83.8%	13.3%	2.9%	72.2%	6.7%	21.0%	72.6	163	350	754	1625
	Expressway			33,212	45	106	112	93.3%	5.4%	1.3%	73.0%	6.4%	20.7%	69.3	99	212	457	985
	Major Arterial			10,751	25	106	112	75.0%	22.0%	3.0%	75.1%	6.3%	18.6%	61.9	31	67	145	313
	Collector and Other			1,563	20	106	106	75.1%	21.9%	3.0%	76.2%	5.9%	18.0%	53.1	8	17	36	79
San Mateo	Freeway			40,842	45	106	112	87.1%	9.9%	3.1%	73.3%	6.0%	20.8%	71.3	134	288	621	1337
	Expressway			17,781	45	106	112	90.4%	8.6%	1.0%	74.3%	6.1%	19.7%	66.8	66	143	309	665
	Major Arterial			6,784	30	106	106	88.9%	9.7%	1.4%	75.5%	5.8%	18.7%	58.8	19	41	88	191
	Collector and Other			2,184	25	106	106	88.9%	9.7%	1.4%	75.0%	5.9%	19.1%	52.7	7	16	35	74
Santa Clara	Freeway			29,765	60	106	106	88.0%	9.7%	2.3%	73.1%	6.1%	20.8%	73.3	175	377	812	1749
	Expressway			19,716	45	106	112	88.3%	10.3%	1.4%	75.0%	5.6%	19.4%	67.5	74	160	344	742
	Major Arterial			8,402	30	106	112	88.3%	10.3%	1.4%	76.4%	5.5%	18.1%	59.6	22	47	102	219
	Collector and Other			2,260	25	106	106	90.3%	8.1%	1.6%	75.9%	5.6%	18.5%	52.6	7	16	34	74
Solano	Freeway			30,355	65	106	106	92.2%	6.1%	1.7%	71.0%	5.7%	23.3%	74.2	203	437	940	2026
	Expressway			10,651	50	106	106	89.4%	6.9%	3.7%	73.6%	5.7%	20.8%	66.8	64	139	299	644
	Major Arterial			3,544	35	106	106	90.7%	7.7%	1.6%	72.9%	5.8%	21.3%	57.5	16	34	73	157
	Collector and Other			2,495	30	106	106	91.8%	7.4%	0.8%	75.8%	5.7%	18.5%	53.7	9	19	41	87
Sonoma	Freeway			16,099	60	106	106	86.4%	9.8%	3.7%	73.5%	5.8%	20.7%	70.9	122	264	568	1225
	Expressway			20,647	50	106	106	86.7%	8.6%	4.7%	73.2%	5.9%	20.9%	70.1	107	231	498	1072
	Major Arterial			5,334	35	106	106	87.4%	9.4%	3.2%	73.9%	6.1%	20.0%	60.0	23	49	106	229
	Collector and Other			3,026	30	106	106	87.0%	9.5%	3.6%	74.1%	5.8%	20.1%	56.5	13	29	62	133

Final Blueprint (2050)

Project: MTC/SCS PBA 2050

Noise Level Descriptor: Ldn
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

County	Facility Type	Segment Description and Location		Input: ADT	Speed (mph)	Distance to Directional Centerline, (feet)$_4$ Near	Distance to Directional Centerline, (feet)$_4$ Far	Traffic Distribution Characteristics % Auto	% Medium	% Heavy	% Day	% Eve	% Night	Output: Ldn, (dBA)$_{5,6,7}$	Distance to Contour, (feet)$_3$ 70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
Alameda	Freeway			31,174	55	106	106	90.6%	5.6%	2.1%	69.4%	6.9%	23.8%	72.3	151	326	702	1513
	Expressway			31,284	50	106	112	92.2%	6.2%	1.6%	65.9%	7.9%	26.2%	71.2	132	284	611	1316
	Major Arterial			13,969	30	106	106	85.9%	11.9%	2.3%	72.6%	6.8%	20.6%	63.0	36	78	167	360
	Collector and Other			4,641	25	106	106	85.5%	12.0%	2.4%	74.6%	6.2%	19.2%	57.0	14	31	67	144
Contra Costa	Freeway			28,025	55	106	106	92.0%	5.4%	2.1%	70.0%	6.8%	23.2%	71.8	140	301	648	1395
	Expressway			15,909	55	106	106	91.5%	6.9%	1.6%	69.7%	6.8%	23.5%	69.4	97	208	448	965
	Major Arterial			9,141	30	106	106	88.4%	10.1%	1.4%	73.9%	6.3%	19.8%	60.4	24	52	112	241
	Collector and Other			4,345	30	106	106	89.0%	9.6%	1.4%	73.7%	6.4%	19.9%	57.1	15	31	67	145
Marin	Freeway			25,355	55	106	106	87.8%	9.0%	3.2%	69.7%	7.4%	22.8%	72.0	143	309	666	1435
	Major Arterial			7,313	30	106	106	88.3%	10.2%	1.5%	76.0%	6.0%	18.1%	59.2	20	43	93	201
	Collector and Other			2,106	35	106	106	87.4%	10.2%	2.5%	74.1%	6.2%	19.8%	55.8	12	26	55	119
Napa	Freeway			23,467	55	106	106	88.8%	8.6%	2.7%	72.6%	6.0%	21.4%	71.3	129	278	598	1288
	Expressway			21,673	55	106	112	88.8%	8.5%	2.8%	71.9%	6.3%	21.8%	70.8	124	266	573	1236
	Major Arterial			5,633	30	106	106	89.4%	8.9%	1.7%	73.0%	6.2%	20.8%	58.4	18	38	82	177
	Collector and Other			1,411	35	106	106	93.5%	5.3%	1.3%	71.5%	6.0%	22.5%	53.1	8	17	37	80
San Francisco	Freeway			37,225	55	106	112	87.4%	9.4%	3.1%	68.2%	8.0%	23.8%	73.6	189	408	878	1892
	Expressway			23,040	45	106	112	94.9%	4.5%	0.6%	75.6%	5.7%	18.7%	67.1	69	149	322	694
	Major Arterial			15,417	25	106	112	71.1%	24.1%	3.5%	72.5%	7.3%	20.2%	64.0	44	94	202	436
	Collector and Other			2,688	20	106	106	71.3%	24.6%	4.0%	76.7%	6.0%	17.3%	56.0	12	27	57	123
San Mateo	Freeway			27,131	55	106	112	92.1%	5.5%	2.5%	69.1%	7.3%	23.6%	71.7	141	303	652	1405
	Expressway			25,195	45	106	112	88.3%	9.7%	2.0%	72.8%	6.8%	20.4%	68.8	91	197	424	912
	Major Arterial			12,474	30	106	106	90.0%	8.5%	1.5%	70.9%	7.5%	21.6%	61.7	30	64	138	298
	Collector and Other			3,917	25	106	106	87.2%	11.7%	1.1%	74.1%	6.4%	19.5%	55.5	11	25	53	114
Santa Clara	Freeway			23,274	55	106	106	90.4%	6.4%	3.2%	71.6%	6.6%	21.9%	71.2	128	276	595	1281
	Expressway			32,884	45	106	112	88.9%	9.2%	1.9%	71.8%	6.8%	21.4%	70.1	110	237	510	1099
	Major Arterial			14,689	30	106	112	86.8%	11.2%	2.0%	74.5%	6.3%	19.2%	62.6	35	75	162	349
	Collector and Other			3,514	25	106	106	86.4%	11.1%	2.5%	75.9%	5.7%	18.4%	55.5	12	25	53	115
Solano	Freeway			27,454	55	106	106	94.3%	3.6%	2.2%	69.7%	6.0%	24.3%	71.7	138	296	638	1375
	Expressway			17,161	55	106	106	90.2%	6.2%	3.6%	72.2%	5.8%	22.0%	70.0	106	229	493	1063
	Major Arterial			5,369	30	106	106	91.9%	7.0%	1.1%	72.6%	5.9%	21.6%	57.5	16	34	73	157
	Collector and Other			3,581	30	106	106	92.2%	6.6%	1.2%	75.2%	5.7%	19.1%	55.4	11	24	53	113
Sonoma	Freeway			16,457	55	106	106	87.8%	8.1%	4.1%	72.9%	6.0%	21.1%	70.0	106	229	493	1062
	Expressway			16,304	55	106	106	85.5%	6.2%	8.3%	73.2%	6.1%	20.7%	70.7	118	255	550	1185
	Major Arterial			5,644	30	106	106	88.4%	8.8%	2.7%	73.6%	6.3%	20.1%	58.7	19	41	87	188
	Collector and Other			3,750	30	106	106	88.9%	7.3%	3.8%	73.1%	6.2%	20.7%	57.3	15	33	70	151

Baseline + Proposed Plan

Project: MTC/SCS PBA 2050

County	Facility Type	Segment Description and Location		Existing Conditions	Existing + Project Conditions	Δ Existing – Existing + Project	Cumulative Conditions	Cumulative +Project Conditions	Δ Cumulative – Cumulative + Project
Summary of Net Changes									
Alameda	Freeway			74.9	72.3	-2.5			
	Expressway			69.1	71.2	2.1			
	Major Arterial			60.2	63.0	2.7			
	Collector and Other			53.7	57.0	3.3			
Contra Costa	Freeway			73.7	71.8	-1.9			
	Expressway			68.5	69.4	0.9			
	Major Arterial			59.6	60.4	0.7			
	Collector and Other			54.9	57.1	2.2			
Marin	Freeway			73.3	72.0	-1.3			
	Major Arterial			60.0	59.2	-0.8			
	Collector and Other			53.7	55.8	2.0			
Napa	Freeway			73.2	71.3	-1.9			
	Expressway			70.5	70.8	0.4			
	Major Arterial			60.5	58.4	-2.1			
	Collector and Other			52.6	53.1	0.5			
San Francisco	Freeway			72.6	73.6	1.0			
	Expressway			69.3	67.1	-2.3			
	Major Arterial			61.9	64.0	2.2			
	Collector and Other			53.1	56.0	2.9			
San Mateo	Freeway			71.3	71.7	0.3			
	Expressway			66.8	68.8	2.1			
	Major Arterial			58.8	61.7	2.9			
	Collector and Other			52.7	55.5	2.8			
Santa Clara	Freeway			73.3	71.2	-2.0			
	Expressway			67.5	70.1	2.6			
	Major Arterial			59.6	62.6	3.0			
	Collector and Other			52.6	55.5	2.9			
Solano	Freeway			74.2	71.7	-2.5			
	Expressway			66.8	70.0	3.3			
	Major Arterial			57.5	57.5	0.0			
	Collector and Other			53.7	55.4	1.7			
Sonoma	Freeway			70.9	70.0	-0.9			
	Expressway			70.1	70.7	0.6			
	Major Arterial			60.0	58.7	-1.3			
	Collector and Other			56.5	57.3	0.8			

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Representative Construction Equipment and Levels (LEQ)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	3,873	55.0
Center	5000	52.8
Staging Area	3000	57.2

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Jackhammer	85	0.4
Impact Pile Driver	95	0.4
Crane	85	0.16
Dump Truck	84	0.4
Compressor (air)	80	0.4
Front End Loader	80	0.4
Backhoe	80	0.4
Man Lift	85	0.4
Compactor (ground)	80	0.2
Generator	82	0.4
Pumps	77	0.5
Pickup Truck	55	0.4

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Jackhammer	81.0
Impact Pile Driver	91.0
Crane	77.0
Dump Truck	80.0
Compressor (air)	76.0
Front End Loader	76.0
Backhoe	76.0
Man Lift	81.0
Compactor (ground)	73.0
Generator	78.0
Pumps	74.0
Pickup Truck	51.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
92.8

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Representative Construction Equipment and Levels (LMAX)

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
threshold	6,269	55.0
Center	5000	57.0
Staging Area	3000	61.4

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Jackhammer	85	1
Impact Pile Driver	95	1
Crane	85	1
Dump Truck	84	1
Compressor (air)	80	1
Front End Loader	80	1
Backhoe	80	1
Man Lift	85	1
Compactor (ground)	80	1
Generator	82	1
Pumps	77	1
Pickup Truck	55	1

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Jackhammer	85.0
Impact Pile Driver	95.0
Crane	85.0
Dump Truck	84.0
Compressor (air)	80.0
Front End Loader	80.0
Backhoe	80.0
Man Lift	85.0
Compactor (ground)	80.0
Generator	82.0
Pumps	77.0
Pickup Truck	55.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
97.0

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Distance Propagation Calculations for Stationary Sources of Ground Vibration

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.

— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Impact pile driver	112	@	25	71.7	@	550

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Impact pile driver	1.518	@	25	0.537	@	50

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 12-11 of FTA 2006. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.