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DRAFT
Environmental Impact Report
CityWalk Master Plan
City of San Ramon, Contra Costa County, California

State Clearinghouse Number 2019090586

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius (Centigrade)
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
ACI	Alameda County Industries
ACM	asbestos-containing material
ACP	Alternative Compliance Plan
AD	*anno domini*
ADA	Americans with Disabilities Act
ADT	average daily traffic
AFY	acre-feet per year
AIA	Airport Influence Area
AIC	Archaeological Information Center
AICUZ	Air Installation Compatibility Use Zone
AIRFA	American Indian Religious Freedom Act
ALUC	Airport Land Use Commission
APCD	Air Pollution Control District
APE	Area of Potential Effect
APN	Assessor's Parcel Number
AQMD	Air Quality Management District
ARB	California Air Resources Board
ARPA	Archaeological Resources Protection Act
AST	aboveground storage tank
ASTM	American Society of Testing and Materials
ATC	ATC Group Services, LLC
ATCM	Airborne Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BAU	Business as Usual
BC	before Christ
BCE	before Common Era
BCF	billion cubic feet

BCF/year	billion cubic feet per year
BMP	Best Management Practice
BMR	below-market rate
BOC	Burrowing Owl Consortium
BR 1A	Bishop Ranch 1A
BR 2600	Bishop Ranch 2600
BR 3A	Bishop Ranch 3A
BVOC	biogenic volatile organic compound
C^2ES	Center for Climate and Energy Solution
CA FID	California Facility Inventory Database
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Health and Safety Administration
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CASQA	California Stormwater Quality Association
CBC	California Building Standards Code
CCCC	California Climate Change Center
CCHS-HMP	Contra Costa Health Services – Hazardous Materials Programs
CCMU	City Center Mixed Use
CCR	California Code of Regulations
CCTS	Central California Taxonomic System
CDCP	California Drought Contingency Plan
CDFW	California Department of Fish and Wildlife
CE	Common Era
CEC	California Energy Commission
Central San	Central Contra Costa Sanitary District
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CH_4	methane
CHL	California Historical Landmarks
CHRIS	California Historical Resources Information System

CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNPSEI	California Native Plant Society Electronic Inventory
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
CPHI	California Points of Historical Interest
CPUC	California Public Utilities Code
CRA	Cultural Resources Assessment
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DBH	diameter at breast height
DERWA	Dublin San Ramon Service District and East Bay Municipal Utilities District Recycled Water Authority
DHS	Department of Homeland Security
DMP	Drought Management Program
DPM	diesel particulate matter
DSRSD	Dublin San Ramon Services District
DTSC	California Department of Toxic Substances Control
du	dwelling unit
du/acre	dwelling unit per acre
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act
EMF	electromagnetic field
EMS	Emergency Medical Services
EPA	United States Environmental Protection Agency
ESL	Environmental Screening Level
FAA	Federal Aviation Administration
FAR	floor area ratio
FCS	FirstCarbon Solutions
FEMA	Federal Emergency Management Agency
FESA	Endangered Species Act
FHWA	Federal Highway Administration

FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FRAP	Fire and Resource Assessment Program
GHG	greenhouse gas
gpm	gallons per minute
GPS	Global Positioning System
GWh	gigawatt-hours
GWh/y	gigawatt-hours per year
GWP	global warming potential
HAP	Hazardous Air Pollutants
HazMat	Hazardous Materials
HAZNET	Hazardous Waste Information System
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HCP/NCCP	Habitat Conservation Plan/Natural Community Conservation Plan
HFC	hydrofluorocarbon
HOV/HOT	High Occupancy Vehicle/High Occupancy Toll
HRA	Health Risk Assessment
HRI	California Historic Resources Inventory
HVAC	heating, ventilation, and air conditioning
I-680	Interstate 680
IPCC	United Nations Intergovernmental Panel on Climate Change
ISO	Insurance Services Office
ISTEA	Intermodal Surface Transportation Efficiency Act
kV	kilovolt
kW	kilowatts
LCFS	Low Carbon Fuel Standard
L_{dn}	day/night average sound level
LED	light emitting diode
L_{eq}	equivalent sound level
LEV	low-emission vehicle
LOS	Level of Service
LRA	Local Responsibility Area
LSE	load-serving entities
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MLD	Most Likely Descendant
MM	Mitigation Measure

MMRP	Mitigation Monitoring and Reporting Program
mph	miles per hour
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
MTS	Metropolitan Transportation System
M_W	Maximum Moment Magnitude
MW	megawatt
MWD	Metropolitan Water District of Southern California
MWELO	Model Water Efficient Landscape Ordinance
MXD	mixed-use development
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHM	Natural History Museum of Los Angeles County
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOAA Fisheries	National Marine Fisheries Service
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
O_3	ozone
OAL	Office of Administrative Law
OEHHA	California Office of Environmental Health Hazard Assessment
OHWM	ordinary high water mark
ONAC	Federal Office of Noise Abatement and Control
OSHA	Occupational Safety and Health Administration

PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PDA	Priority Development Area
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
Phase I ESA	Phase I Environmental Site Assessment
PM_{10}	particulate matter, including dust, 10 micrometers or less in diameter
$PM_{2.5}$	particulate matter, including dust, 2.5 micrometers or less in diameter
PM_x	particulate matter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
Recology	Integrated Resource Recovery Company
RecycleSmart	Central Contra Costa County Solid Waste Authority
REL	Reference Exposure Level
RMH	Medium-High Density Residential
RMP	Risk Management Plan
rms	root mean square
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RS-10	Single-Family Residential
RWQCB	Regional Water Quality Control Board
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
SR	State Route
SRVFPD	San Ramon Valley Fire Protection District
SRVRWP	San Ramon Valley Recycled Water Program
State Water Board	California State Water Resources Control Board
SUSMP	Standard Urban Storm Water Mitigation Plan
SWEEP	State Water Efficiency and Enhancement Program
SWIS	Solid Waste Information System
SWPPP	Storm Water Pollution Prevention Plan
SWQMP	Storm Water Quality Management Plan
TAC	toxic air contaminants

TCM	transportation control measures
TDM	Transportation Demand Management
TDS	total dissolved solids
TDV	Time Dependent Valuation
TEA-21	Transportation Equity Act for the 21st Century
Tg	teragram
therms/y	therms per year
TIA	Traffic Impact Analysis
TIS	Traffic Impact Study
TMA	Transportation Management Association
TMDL	Total Maximum Daily Load
TOD	Transit Oriented Development
UBC	Uniform Building Code
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan
V/C	volume to capacity ratio
VDECS	Verified Diesel Emission Control Strategies
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compounds
WDR	Waste Discharge Requirements
WQMP	Water Quality Management Plan
WSA	Water Supply Assessment
WWTP	Wastewater Treatment Plant
ZEV	Zero Emission Vehicle

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EXECUTIVE SUMMARY

Purpose

This Draft EIR is prepared in accordance with the CEQA to evaluate potential environmental impacts associated with implementation of the CityWalk Master Plan (proposed Master Plan) (State Clearinghouse [SCH] No. 2019090586). This document is prepared in conformance with CEQA (Public Resources Code [PRC] § 21000, *et seq*.) and CEQA Guidelines (California Code of Regulations [CCR], Title 14, § 15000, *et se*q.).

The purpose of this Draft EIR is to inform decision makers, representatives of affected and responsible agencies, the public, and other interested parties of potential environmental effects that may result from implementation of the proposed Master Plan. This Draft EIR describes potential impacts relating to a wide variety of environmental issues and methods by which these impacts can be mitigated or avoided.

Project Summary

Project Location

The Master Plan area is located in the Bishop Ranch Business Park in the City of San Ramon, in Contra Costa County, California (Exhibit 2-1). The Master Plan area encompasses Bishop Ranch 1A (BR 1A), Bishop Ranch 3A (BR 3A), and Bishop Ranch 2600 (BR 2600) (Exhibit 2-2). The APNs include 213-120-021, 213-120-022, and 213-120-028 for BR 1A; 213-133-098, 213-133-099, and 213-133-100 for BR 3A; and 213-133-093, 213-133-096, and 213-133-097 for BR 2600. The Master Plan area is generally located around the Bollinger Canyon Road/Camino Ramon intersection.

Project Description

Sunset Development is proposing the Master Plan to guide the development of residential uses, commercial uses, and public facilities within the Master Plan area to complement and support City Center Bishop Ranch. The buildout potential of the proposed Master Plan is up to 4,500 dwelling units, a 169-key hotel, 166,000 square feet of commercial uses, three new parking structures, and publicly accessible, privately owned and maintained park and public spaces. Fifteen percent of the 4,500 units (approximately 675) would be deed-restricted as affordable to low and very low income households per the City's inclusionary requirements. The hotel and retail use that was previously entitled and evaluated in the 2007 City Center EIR are being carried forward into the Master Plan.

Refer to Section 2, Project Description, for a complete description of the proposed Master Plan.

Project Objectives

The objectives of the proposed Master Plan are to:

1. Develop an appropriate mix of multi-family units (including affordable units), retail, and office uses within the Master Plan area that meets regional housing goals.

2. Provide affordable housing units in accordance with the City of San Ramon Housing Element (2015-2023).
3. Promote positive economic contributions to the local economy through new capital investment, expansion of the tax base, creation of new jobs, expansion of the consumer base, and opportunities for new taxable sales.
4. Locate housing next to jobs and in close proximity to transit in order to reduce vehicle miles traveled.
5. Support City Center Bishop Ranch by developing new dwelling units and a new hotel within walking distance.
6. Develop housing on undeveloped and underutilized infill sites within the Bishop Ranch Business Park in order to complement the existing employment center and maximize the use of existing infrastructure.
7. Provide housing with a variety of floor plans to allow for entry-level housing as well as opportunities for existing San Ramon residents to relocate to the City Center mixed use area.
8. Attract new businesses to San Ramon that are well suited for the retail/entertainment sector.
9. Phase development to allow for managed and orderly growth.
10. Provide public access to and enhance existing Bishop Ranch facilities, which are currently private.
11. Improve mobility within Bishop Ranch through the use of Transit Hubs, allowing for pick-up and drop-off at convenient locations easily accessible from major arterial roadways.
12. Provide connectivity with adjoining land uses including the Iron Horse Trail, Central Park, City Center Bishop Ranch, The Shops at Bishop Ranch, and the Marketplace through pedestrian and bicycle connections.

Significant Unavoidable Adverse Impacts

The proposed Master Plan would not result in any significant unavoidable impacts.

Summary of Project Alternatives

Below is a summary of the alternatives to the proposed Master Plan considered in Section 5, Alternatives to the Proposed Master Plan.

No Project/Existing Entitlements Alternative

Under the No Project/Existing Entitlements Alternative, the proposed Master Plan would not be pursued and instead the existing City Center entitlements for Bishop Ranch (BR) 1A and BR 3A would

be developed. No new development would occur on BR 2600. Under this alternative, 487 dwelling units, 935,000 square feet of retail/office space, and a 169-key hotel would be developed.

Reduced Density Alternative

Under the Reduced Density Alternative, a 25 percent reduction in development would be applied to each proposed Master Plan use, except for the hotel, which would remain at 169 keys. Under this alternative, 3,375 dwelling units, 124,500 square feet of retail/office use, and a 169-key hotel would be developed.

BR 2600/Existing Entitlements Alternative

Under the BR 2600/Existing Entitlements Alternative, BR 2600 would be developed with similar uses as the proposed Master Plan and the existing City Center entitlements would be pursued on BR 1A and BR 3A. Under this alternative, 3,544 dwelling units, 1,031,000 square feet of retail/office space, and a 169-key hotel would be developed.

BR 1A and BR 3A Only Alternative

Under the BR 1A and BR 3A Only Alternative, BR 1A and BR 3A would be developed with similar uses as the proposed Master Plan. No development would occur on BR 2600; the existing parking lots and landscaping would remain in their current condition. Under this alternative, 1,443 dwelling units, 70,000 square feet of retail/office use, and a 169-key hotel would be developed.

Areas of Controversy

Pursuant to CEQA Guidelines Section 15123(b), a summary section must address areas of controversy known to the lead agency, including issues raised by agencies and the public, and it must also address issues to be resolved, including the choice among alternatives and whether or how to mitigate significant effects.

An NOP for the proposed Master Plan was issued on September 25, 2019. The NOP describing the original concept for the Master Plan and issues to be addressed in the EIR was distributed to the State Clearinghouse, responsible agencies, and other interested parties for a 30-day public review period extending from September 25, 2019, through October 25, 2019. The NOP identified potential for significant impacts on the environment related to the following topical areas:

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Energy
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation
- Utilities and Service Systems

The NOP also identified certain topical areas where impacts were found to be less than significant because the proposed project's characteristics would not create such impacts. These topical areas include agriculture and forestry resources, mineral resources, and wildlife, and are evaluated briefly in Section 7, Effects Found not to be Significant in the Draft EIR.

Disagreement Among Experts

This Draft EIR contains substantial evidence to support all conclusions presented herein. It is possible that there will be disagreement among various parties regarding these conclusions, although the City of San Ramon is not aware of any disputed conclusions at the time of this writing. Both the CEQA Guidelines and case law clearly provide standards for treating disagreement among experts. Where evidence and opinions conflict on an issue concerning the environment, and the lead agency knows of these controversies in advance, the EIR must acknowledge the controversies, summarize conflicting opinions of the experts, and include sufficient information to allow the public and decision makers to make an informed judgment about environmental consequences of the proposed Master Plan.

Potentially Controversial Issues

Below is a list of potentially controversial issues that may be raised during the public review and hearing process of this Draft EIR:

- Building Height
- Park Dedication Requirements
- Public School Overcrowding
- Increased Crime and Demand for Police Services
- Exacerbated Traffic Conditions

It is also possible that evidence will be presented during the 45-day statutory Draft EIR public review period that may create disagreement. Decision makers would consider this evidence during the public hearing process.

In rendering a decision on a project where there is disagreement among experts, decision makers are not obligated to select the most environmentally preferable viewpoint. Decision makers are vested with the ability to choose whatever viewpoint is preferable and need not resolve a dispute among experts. In their proceedings, decision makers must consider comments received concerning adequacy of the Draft EIR and address any objections raised in these comments. However, decision makers are not obligated to follow any directives, recommendations, or suggestions presented in comments on the Draft EIR, and can certify the Final EIR without needing to resolve disagreements among experts.

Public Review of the Draft EIR

Upon completion of the Draft EIR, the City of San Ramon filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period (PRC § 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the

Draft EIR, including the technical appendices, is available for review on the city's website (http://www.sanramon.ca.gov/our_city/departments_and_divisions/community_development/planning_services/city_walk_master_plan_e_i_r). Due to the COVID-19 crisis, City facilities are currently closed to the public. Once public access to City facilities resumes, hard copies of the EIR can be viewed at the following City facilities (please check with the facilities for hours of operation):

City of San Ramon
Community Development Department
Planning Services Division
2401 Crow Canyon Road
San Ramon, CA 94583

City of San Ramon
City Hall
7000 Bollinger Canyon Road
San Ramon, CA 94583

Dougherty Station Community Center
17011 Bollinger Canyon Road
San Ramon, CA 94582

Alcosta Senior and Community Center
9300 Alcosta Boulevard
San Ramon, CA 94583

Dougherty Station Library
17017 Bollinger Canyon Road
San Ramon, CA 94582

San Ramon Library
100 Montgomery Street
San Ramon, CA 94583

San Ramon Community Center
12501 Alcosta Boulevard
San Ramon, CA 94583

Agencies, organizations, and interested parties have the opportunity to comment on the Draft EIR during the 45-day public review period. Written comments on this Draft EIR should be addressed to:

Mr. Lauren Barr, Planning Services Manager
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Planning Services Division
2401 Crow Canyon Road
San Ramon, CA 94583
Phone: 925.973.2567
Fax: 925.838.3231
Email: lbarr@sanramon.ca.gov

Submittal of electronic comments in Microsoft Word or Adobe PDF format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to the public hearing before the San Ramon Planning Commission on the proposed Master Plan, at which the certification of the Final EIR will be considered. Comments received and the

responses to comments will be included as part of the record for consideration by decision makers for the proposed Master Plan.

Executive Summary Matrix

Table ES-1 below summarizes impacts, mitigation measures, and resulting level of significance after mitigation for the relevant environmental issue areas evaluated for the proposed Master Plan. The table is intended to provide an overview; narrative discussions for issue areas are included in the corresponding section of this EIR. Table ES-1 is included in the EIR as required by CEQA Guidelines Section 15123(b)(1).

Table ES-1 : Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
Section 3.1—Aesthetics, Light, and Glare		
Impact AES-1: The proposed Master Plan would not have a substantial adverse effect on a scenic vista.	No mitigation is required.	Less Than Significant
Impact AES-2: The proposed Master Plan would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway.	No mitigation is required.	Less Than Significant
Impact AES-3: The proposed Master Plan is in an urbanized area and would not conflict with applicable zoning and other regulations governing scenic quality.	No mitigation is required.	Less Than Significant
Impact AES-4: The proposed Master Plan could create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	No mitigation is required.	Less Than Significant
Section 3.2—Air Quality		
Impact AIR-1: The proposed Master Plan could conflict with or obstruct implementation of the applicable air quality plan.	Implement MM AIR-2a and MM AIR-2e.	Less Than Significant
Impact AIR-2: The proposed Master Plan would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	**MM AIR-2a:** The following Best Management Practices (BMPs), as recommended by the Bay Area Air Quality Management District (BAAQMD), shall be included in the design of all development contemplated by the proposed Master Plan and implemented during all construction: • All active construction areas shall be watered at least two times per day. • All exposed non-paved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and access roads) shall be watered at least three times per day and/or non-toxic soil stabilizers shall be applied to exposed non-paved surfaces. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered and/or shall maintain at least 2 feet of freeboard.	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	• All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • The prime construction contractor shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints. The City of San Ramon and the construction contractor shall take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. **MM AIR-2b:** Prior to the issuance of any grading or building permits (whichever occurs earliest), the project applicant and/or construction contractor shall prepare a construction operations plan that, during construction activities, requires all off-road equipment with engines greater than 50 horsepower to meet United States Environmental Protection Agency (EPA) or California Air Resources Board (ARB) Tier 4 Final off-road emission standards. This plan shall be implemented prior to construction activities to ensure that all off-road equipment with engines greater than 50 horsepower meet either EPA or ARB Tier 4 Final off-road emission standards. The construction contractor shall maintain records concerning its efforts to comply with this	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	requirement during construction, including equipment lists. Off-road equipment descriptions and information may include but are not limited to equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, and engine serial number. The project applicant and/or construction contractor shall submit the construction operations plan and records of compliance to the City of San Ramon. **MM AIR-2c:** The following measure shall be applied to all development under the proposed Master Plan during construction to facilitate the use of electric landscaping equipment during project operations: • Provision of outlets on the outside of buildings or in other accessible areas to facilitate the use of electrically powered landscape equipment **MM AIR-2d:** The following measures shall be applied to all development under the proposed Master Plan during both construction and operation to reduce ROG emissions: • Use super-complaint architectural coatings. These coatings are defined as those with volatile organic compound (VOC) less than 10 grams per liter. South Coast Air Quality Management District (SCAQMD)[1] provides a list of manufacturers that provide this type of coating. • Keep lids closed on all paint containers when not in use to prevent ROG emissions and excessive odors. • Use compliant low reactive organic gas (ROG) cleaning solvents (also known as low VOC cleaning solvents) to clean paint application equipment. • Keep all paint and solvent laden rags in sealed containers to prevent ROG emissions. **MM AIR-2e:** Prior to issuance of the final certificate of occupancy for any non-residential building developed under the proposed Master Plan, the project applicant shall provide documentation to the City of San Ramon that development under the	

[1] The availability of super-compliant architectural coatings for purchase is not limited to any geographical area.

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	proposed Master Plan would adhere to the existing approved Transportation Demand Management (TDM) Program for the Bishop Ranch Business Park that has been shown to promote trip reductions. The incentive programs outlined in the Bishop Ranch Business Park TDM Program promote trip reductions using strategies that include, but are not limited to: • A Bishop Ranch Transportation Center with travel information kiosks and on-site TDM coordinators to provide transportation information educational programs • Tenant Employee Transportation Coordinator • Fully Subsidized transit passes on County Connection buses • Promotion and support of carpools, vanpools, and rideshare • Bicycle amenities such as secure racks and showers • Incentives for using alternative travel modes, including access to 511 Contra Costa Guaranteed Ride Home Program • Promotion of TDM Public Outreach Campaigns – 511 Contra Costa • New employee orientation meetings detailing TDM opportunities • Meetings with City TDM Advisory Committee **MM AIR-2f:** The following measure shall be applied to all development under the proposed Master Plan to facilitate and promote the use of electric vehicles during operations. • Prior to issuance of building permits, the project applicant shall prepare and submit building plans to the City of San Ramon that demonstrates that all buildings meet or exceed building code standards. • Prior to issuance of building permits, the project applicant shall prepare and provide documentation demonstrating that the new development under the proposed Master Plan would include installation of on-site charging units for electric vehicles. Plans for on-site electric vehicle charging shall demonstrate that proposed Master Plan would meet or exceed electric vehicle parking provisions required by California Green Building Standards.	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	MM AIR-2g: Prior to the issuance of building permits necessary for construction of any residential components of the proposed Master Plan, the project applicant shall provide documentation to the City of San Ramon demonstrating that all new residential land uses will be designed as all-electric developments. All-electric developments shall not include natural gas. **MM AIR-2h: Step 1)** The project applicant shall, prior to the occupancy of the 1,775th dwelling unit under the proposed Master Plan, demonstrate to the City of San Ramon that long-term operational ROG and NO_X emissions would be below the levels established by the BAAQMD thresholds. This may be achieved by providing refined emission estimates prepared by a qualified air quality specialist which verifies that development under the proposed Master Plan would not exceed the applicable regional thresholds during project operations for ROG and NO_X. As Phase 7 is not anticipated to begin operations until 2034, there are several factors that could result in lower operational emissions than those presented in this EIR. For instance, the project applicant may employ technologies that are not available at the present date (2020) to reduce operational emissions to below levels of significance. In addition, development under the proposed Master Plan could benefit from compliance with regulations affecting mobile-source and area-source operational emissions that are currently not proposed. In addition, emission factors available at the time Phase 7 is expected to begin operations would likely differ from those available at the time of this writing (2020). Step 1 requires the project applicant to demonstrate, to the satisfaction of the City, that the proposed Master Plan's long-term operational emissions would not exceed the applicable BAAQMD's regional thresholds. If the proposed Master Plan's estimated emissions continue to exceed any applicable BAAQMD regional threshold, the requirements outlined in Steps 2 and 3 of this mitigation measure would apply. **Step 2)** The project applicant shall, prior to the occupancy of the 1,775th dwelling unit under the proposed Master Plan, enter into an agreement with the City of San Ramon to develop or participate in a verifiable offsite mitigation program to offset operational ROG and NO_X emissions to the levels established by the BAAQMD thresholds for the years in which the proposed Master Plan's operational emissions exceed the BAAQMD thresholds after incorporation of MM AIR-2c through MM AIR-2g. The offsite mitigation program shall require the project applicant to provide payment to fund emission	

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	reduction projects through grants or similar mechanisms within the San Francisco Bay Area Air Basin. All offsite reductions must be quantifiable, verifiable, and enforceable. During the years of exceedance, the offset cost would be equal to the difference between the proposed Master Plan operational emissions and the applicable BAAQMD threshold multiplied by the emissions fee(s). **Step 3)** If Step 2 is required, the project applicant shall provide a report within 15 months of occupancy of the 1,775th dwelling unit under the proposed Master Plan demonstrating compliance with Step 2 of this mitigation measure. The report shall demonstrate that operational emissions of ROG and NO_X emissions for development under the proposed Master Plan did not exceed levels established by the BAAQMD thresholds in the year of operations being analyzed. The emissions inventory shall be prepared using BAAQMD's approved/recommended emissions inventory model at the time of preparation of the report, using inputs and assumptions generally consistent with the model runs provided in the EIR prepared for the project. Following the submittal of the first required report, update reports shall be submitted to the City on an annual basis. Annual reporting of the implementation of emissions reduction projects shall be required until the proposed Master Plan's emissions are less than the applicable BAAQMD's regional thresholds without offsets. If annual reports indicate that emission reductions do not adequately reduce project emissions to a level below the regional BAAQMD's threshold for any year, then any emissions not offset in a previous year shall be offset in the following year (e.g., if the 2045 emissions exceed the threshold by five tons after the emissions reductions from credits, then those five tons of emissions must be offset in the following year).	
Impact AIR-3: The proposed Master Plan would expose sensitive receptors to substantial pollutant concentrations.	Implement MM AIR-2a and MM AIR-2b and the following: **MM AIR-3a:** The project applicant shall install high efficiency Minimum Efficiency Reporting Value (MERV) filters with a rating of 13 in the intake of the residential ventilation systems. Prior to the issuance of any building permit associated with residential development, the project applicant shall provide to the City for review and approval evidence that in-unit filtration systems with efficiencies equal to or exceeding a 13, as defined by defined by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 52.2, are included in the proposed Master Plan development as a standard design feature. To ensure long-term maintenance and	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	replacement of the MERV filters in the individual units, the owner/property manager shall commit to maintaining and replacing the MERV 13 filters in accordance with the manufacturer's recommendations. A signed commitment letter from the owner/property manager shall be submitted to the City of San Ramon within the first 60 days of occupancy of any residential land uses developed under the proposed Master Plan.	
Impact AIR-4: The proposed Master Plan would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	No mitigation is required.	Less Than Significant
Section 3.3—Biological Resources		
Impact BIO-1: The proposed Master Plan could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.	**MM BIO-1a:** Prior to any ground disturbance activities on BR 1A or BR 3A, a qualified Biologist shall conduct a focused survey to determine the presence or absence of burrowing owls on-site. The survey shall be conducted according to the standard protocol established by the CDFW and the Burrowing Owl Consortium (BOC). If burrowing owl is determined to be present on the site, mitigation for potential impacts to owls shall follow the guidelines outlined by the BOC, including passive relocation. If vegetation removal or ground disturbance begins within 30 days of the focused survey, no pre-construction survey would be required. If vegetation removal or ground disturbance activities begin after 30 days of the focused survey, a pre-construction survey would be required to be performed no earlier than 30 days prior to vegetation removal or ground disturbance. **MM BIO-1b:** If suitable avian nesting habitat is intended to be removed during the nesting season (February 1 - August 31), a qualified Biologist shall conduct a nesting bird survey to identify any potential nesting activity no more than 15 days prior to ground disturbance. If passerine birds are found to be nesting, or there is evidence of nesting behavior within 250 feet of the impact area, the Biologist shall determine an appropriate buffer that shall be required around the nests. No vegetation removal or ground disturbance would occur within this buffer. For raptor species—birds of prey (e.g., hawks and owls)—this buffer would generally be 500 feet. A qualified Biologist	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	shall monitor the nests closely until it is determined that the nests are no longer active, at which time construction activities may commence within the buffer area.	
Impact BIO-2: The proposed Master Plan would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.	No mitigation is required.	No Impact
Impact BIO-3: The proposed Master Plan would not have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	No mitigation is required.	No Impact
Impact BIO-4: The proposed Master Plan would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.	No mitigation is required.	Less Than Significant
Impact BIO-5: The proposed Master Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	No mitigation is required.	Less Than Significant
Impact BIO-6: The proposed Master Plan would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.	No mitigation is required.	No Impact
Section 3.4—Cultural Resources and Tribal Cultural Resources		
Impact CUL-1: The proposed Master Plan could cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.	**MM CUL-1:** An archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology should be present during the initial grading on BR 1A, BR 3A, and BR 2600 to check for the inadvertent exposure of cultural materials.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	In the event exposed soils indicate cultural materials may be present, this may be followed by regular or periodic "spot-check" monitoring, but full-time archaeological monitoring is not recommended at this time. In the event cultural resources are encountered during subsurface activities, all construction within a 100-foot radius of the find shall cease until the qualified Archaeologist determines whether the resource requires further study. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Any previously undiscovered resources found during construction shall be recorded on appropriate Department of Parks and Recreation (DPR) forms and evaluated for significance in terms of CEQA criteria by a qualified Archaeologist. Potentially significant cultural resources consist of, but are not limited to, glass, ceramics, stone, bone, wood, and shell artifacts or features, including hearths, structural remains, or historic dumpsites. The Archaeologist shall make recommendations concerning appropriate measures that will be implemented to protect the resource, including but not limited to excavation and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines.	
Impact CUL-2: The proposed Master Plan could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	Implement MM CUL-1.	Less Than Significant
Impact CUL-3: The proposed Master Plan could disturb human remains, including those interred outside of formal cemeteries.	**MM CUL-3:** If during the course of construction activities there is accidental discovery or recognition of any human remains, the following steps shall be taken: 1. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains to be Native American, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	2. Where the following conditions occur, the landowner or his or her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project site in a location not subject to further subsurface disturbance: • The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission. • The descendant identified fails to make a recommendation. • The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner. Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains: • When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code Section 5097.98. The applicant may develop a plan for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American Burials with the appropriate Native Americans as identified by the Native American Heritage Commission.	
Impact CUL-4: The proposed Master Plan would not cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical	No mitigation is required.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).		
Impact CUL-5: The proposed Master Plan would not cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.	No mitigation is required.	Less Than Significant
Section 3.5—Energy		
Impact ENER-1: The proposed Master Plan would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	No mitigation is required.	Less Than Significant
Impact ENER-2: The proposed Master Plan would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	No mitigation is required.	Less Than Significant
Section 3.6—Geology, Soils, and Seismicity		
Impact GEO-1: The proposed Master Plan would not be exposed to seismic hazards.	No mitigation is required.	Less Than Significant
Impact GEO-2: The proposed Master Plan may result in substantial soil erosion or the loss of topsoil.	Implement MM HYD-1a.	Less Than Significant
Impact GEO-3: The proposed Master Plan would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed Master	No mitigation is required.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
Plan, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.		
Impact GEO-4: The proposed Master Plan would not be susceptible to expansive soil hazards.	No mitigation is required.	Less Than Significant
Impact GEO-5: The proposed Master Plan would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**MM GEO-5:** Prior to initiation of deep excavation procedures at depths greater than 10 feet, a qualified Paleontological Monitor shall be retained to conduct an on-site monitoring program to ensure protection of previously unknown paleontological specimens. In the event a fossil is discovered during construction of the proposed Master Plan area when the Paleontological Monitor is not present, excavation within 100 feet of the find shall be temporarily halted until the discovery is examined by a qualified Paleontologist, in accordance with Society of Vertebrate Paleontology standards. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. The Paleontologist shall notify the City of San Ramon and the project applicant of the procedures that must be followed before construction is allowed to resume at the location of the find. If the find is determined to be significant and the City determines that avoidance is not feasible, the Paleontologist shall design and carry out a data recovery plan consistent with the Society of Vertebrate Paleontology standards. The plan shall be submitted to the City for review and approval.	Less Than Significant
Section 3.7—Greenhouse Gas Emissions		
Impact GHG-1: The proposed Master Plan could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	No mitigation is required.	Less Than Significant
Impact GHG-2: The proposed Master Plan could conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	Implement MM AIR-2e.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
Section 3.8—Hazards and Hazardous Materials		
Impact HAZ-1: The proposed Master Plan would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	No mitigation is required.	Less Than Significant
Impact HAZ-2: The proposed Master Plan may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	**MM HAZ-2:** Soil generated by construction activities on BR 3A shall be stockpiled onsite in a secure and safe manner or if designated for off-site disposal at a permitted facility, the soil shall be loaded, transported and disposed of in a safe and secure manner. Prior to off-site disposal of any excavated soils from BR 3A, the applicant shall retain a qualified consultant to test the soils for petroleum hydrocarbons. If testing reveals concentrations above acceptable levels, the applicant shall either treat the soils or dispose of them at an approved disposal facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state and federal agencies laws, in particular, the Regional Water Quality Control Board (RWQCB), Contra Costa Health Services and policies of the City of San Ramon.	Less Than Significant
Impact HAZ-3: The proposed Master Plan would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	No mitigation is required.	Less Than Significant
Impact HAZ-4: The proposed Master Plan would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.	No mitigation is required.	Less Than Significant
Impact HAZ-5: The proposed Master Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	No mitigation is required.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
Section 3.9—Hydrology and Water Quality		
Impact HYD-1: Construction and operation activities associated with the proposed Master Plan would have the potential to violate water quality standards, waste discharge requirements, and degrade surface water quality in downstream water bodies or ground water quality.	**MM HYD-1a:** Prior to the issuance of grading permits, the project applicant shall file a Notice of Intent (NOI) with and obtain a facility identification number from the State Water Resources Control Board. The project applicant shall also submit a Storm Water Pollution Prevention Plan (SWPPP) to the City of San Ramon that identifies specific actions and Best Management Practices (BMPs) to prevent stormwater pollution during construction activities. The SWPPP shall identify a practical sequence for BMP implementation, site restoration, contingency measures, responsible parties, and agency contacts. **MM HYD-1b:** Prior to the issuance of site development permits, the project applicant shall submit a final Stormwater Control Plan (SCP) to the City of San Ramon for review and approval. The SCP shall be developed using the Contra Costa Stormwater C.3 Guidebook and be designed to discourage prolonged standing/ponding of water on-site.	Less Than Significant
Impact HYD-2: The proposed Master Plan would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed Master Plan may impede sustainable groundwater management of the basin.	No mitigation is required.	Less Than Significant
Impact HYD-3: The proposed Master Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces.	No mitigation is required.	Less Than Significant
Section 3.10—Land Use		
Impact LUP-1: The proposed Master Plan would not physically divide an established community.	No mitigation is required.	Less Than Significant
Impact LUP-2: The proposed Master Plan would not cause a significant environmental impact due to a conflict with any	No mitigation is required.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.		
Section 3.11—Noise		
Impact NOI-1: The proposed Master Plan would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	**MM NOI-1a:** To reduce potential traffic noise impacts, prior to issuance of building permits, the applicant shall submit evidence to the satisfaction of the Planning Division to demonstrate that the proposed Master Plan includes a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods for all proposed residential units fronting the following roadway segments. • Camino Ramon—From Norris Canyon Road to Executive Parkway • Camino Ramon—From Executive Parkway to Bishop Drive • Camino Ramon—From Bishop Drive to Bollinger Canyon Road • Sunset Drive—From The Shops at Bishop Ranch/Bishop Ranch 2 to Bollinger Canyon Road • Bollinger Canyon Road—From Camino Ramon to Bishop Ranch 1 East • Interstate 680 North of Bollinger Canyon Road **MM NOI-1b:** The project shall provide upgraded wall and window assemblies for all residential units that would have a line of sight to I-680 (and would be located within 390 feet of I-680). The combined wall and window assembly shall have a minimum Standard Transmission Class (STC) rating of 32-STC or provide design level analysis to the City for review and approval that shows that the residential interior noise level standard of 45 dBA CNEL will be achieved. Prior to issuance of building permits, the applicant shall have a professional acoustic consultant review the final design plans to provide assurance to City staff that the design would provide the required STC rating.	Less Than Significant
Impact NOI-2: The proposed Master Plan could generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Master Plan area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**MM NOI-2:** To reduce potential construction noise impacts, the following noise-reduction measure shall be implemented during construction: • The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	• The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited. • The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists. • At all times during grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from the nearest residential land uses. • The construction contractor shall designate a noise disturbance coordinator who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaints (starting too early, bad muffler, etc.) and establishment reasonable measures necessary to correct the problem. The construction contractor shall visibly post a telephone number for the disturbance coordinator at the construction site. • The construction contractor shall ensure that construction hours are limited to between 7:30 a.m. and 7:00 p.m. Monday through Friday and limited to between 9:00 a.m. to 6:00 p.m. on Saturdays and Sundays.	
Impact NOI-3: The proposed Master Plan would not result in generation of excessive groundborne vibration or groundborne noise levels.	No mitigation is required.	Less Than Significant
Impact NOI-4: The proposed Master Plan would not expose people residing or working in the Master Plan area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.	No mitigation is required.	Less Than Significant
Section 3.12—Population and Housing		
Impact POP-1: The proposed Master Plan would not induce substantial unplanned population growth in an area, either	No mitigation is required.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).		
Section 3.13—Public Services and Recreation		
Impact PSR-1: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire facilities.	No mitigation is required.	Less Than Significant
Impact PSR-2: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities.	No mitigation is required.	Less Than Significant
Impact PSR-3: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities.	No mitigation is required.	Less Than Significant
Impact PSR-4: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities.	No mitigation is required.	Less Than Significant
Impact PSR-5: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered other public facilities, such as libraries.	No mitigation is required.	Less Than Significant
Section 3.14—Transportation		
Impact TRANS-1: The proposed Master Plan would contribute traffic to facilities that would operate below acceptable levels of service under Existing Plus Project Conditions as set forth in a program, plan, ordinance or policy of the circulation system.	**MM TRANS-1a:** The intersection of Bollinger Canyon Road/Norris Canyon shall be signalized when warranted based on a full warrant analysis. The project applicant shall either install the signal (subject to reimbursement for costs outside its fair share) or provide equitable share fees to the City of San Ramon for installation of the improvement. **MM TRANS-1b:** The existing intersection at Alcosta Boulevard and Bollinger Canyon Road shall be widened to provide a northbound right turn lane and the signal operation	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
	at San Ramon Valley Boulevard/Norris Canyon Road shall be modified to provide a westbound right-turn overlap with the southbound left-turn phase, if warranted based on actual operating conditions. The project applicant shall provide equitable share fees to the City of San Ramon to pay for installation of the improvement.	
Impact TRANS-2: The proposed Master Plan would contribute traffic to facilities that would operate below acceptable levels of service under Cumulative Plus Project Conditions as set forth in a program, plan, ordinance or policy of the circulation system.	**MM TRANS-2a:** When monitoring determines that the intersection of Bishop Drive/Annabel Lane and Norris Canyon Road is approaching deficient LOS, the City of San Ramon shall restripe the northbound approach to provide one exclusive left-turn lane and one shared left-turn/through/right-turn lane, and modify the signal phasing to provide a split phase for the northbound and southbound approaches. The project applicant is responsible for the cost of the improvement. **MM TRANS-2b:** When monitoring determines that the intersection of Camino Ramon and Norris Canyon Road is approaching deficient levels of service, the City of San Ramon shall widen the Norris Canyon Road westbound approach to add an exclusive right-turn lane. The right-turn lane should begin at Camino Ramon and continue easterly to the first driveway. The project applicant is responsible for the cost of the improvement. **MM TRANS-2c:** When monitoring determines that the intersection of Alcosta Boulevard and Bollinger Canyon Road is approaching deficient levels of service, the City shall modify the existing signal operation to provide northbound right-turn overlap phase during the protected westbound left-turn phase. The project applicant is responsible to provide the cost of the improvement.	Less Than Significant
Impact TRANS-3: The proposed Master Plan would not contribute to deficient operations on Caltrans facilities.	No mitigation is required.	Less Than Significant
Impact TRANS-4: The proposed Master Plan would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) (Vehicle Miles Traveled).	No mitigation is required.	Less Than Significant
Impact TRANS-5: The proposed Master Plan would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	No mitigation is required.	Less Than Significant

Table ES-1 (cont.): Executive Summary Matrix

Impacts	Mitigation Measures	Level of Significance After Mitigation
Impact TRANS-6: The proposed Master Plan would not result in inadequate emergency access.	No mitigation is required.	Less Than Significant
Impact TRANS-7: The proposed Master Plan would not conflict with policies or programs associated with transit, bicycles, and pedestrians.	No mitigation is required.	Less Than Significant
Section 3.15—Utilities and Service Systems		
Impact UTIL-1: The proposed Master Plan would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	No mitigation is required.	Less Than Significant
Impact UTIL-2: The proposed Master Plan would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	No mitigation is required.	Less Than Significant
Impact UTIL-3: The proposed Master Plan would not result in a determination by the wastewater treatment provider which serves or may serve the proposed Master Plan that it has adequate capacity to serve the proposed Master Plan's projected demand in addition to the provider's existing commitments.	No mitigation is required.	Less Than Significant
Impact UTIL-4: The proposed Master Plan would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	No mitigation is required.	Less Than Significant

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SECTION 1: INTRODUCTION

1.1 - Overview of the CEQA Process

This Draft Environmental Impact Report (Draft EIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of the CityWalk Master Plan (State Clearinghouse [SCH] No. 2019090586). This document is prepared in conformance with CEQA (California Public Resources Code [PRC], § 21000, *et seq*.) and the CEQA Guidelines (California Code of Regulations [CCR] Title 14, § 15000, *et seq*.). This Draft EIR is intended to serve as an informational document for the public agency decision makers and the public regarding the proposed Master Plan.

1.1.1 - Project Overview

Sunset Development is proposing the Master Plan to guide the development of residential uses, commercial uses, and public facilities within the Master Plan area to complement and support City Center Bishop Ranch. The buildout potential of the proposed Master Plan is up to 4,500 dwelling units, a 169-key hotel, 166,000 square feet of commercial uses, three new parking structures, and publicly accessible, privately owned and maintained park and public spaces. Fifteen percent of the 4,500 units (approximately 675) would be deed-restricted as affordable to low and very low income households per the City's inclusionary requirements. The hotel and retail use that was previously entitled and evaluated in the 2007 City Center EIR are being carried forward into the Master Plan.

Section 2, Project Description, provides a complete description of the proposed Master Plan.

1.1.2 - Purpose and Authority

This Draft EIR provides a project-level analysis of the environmental effects of the proposed Master Plan. The environmental impacts of the proposed Master Plan are analyzed in the EIR to the degree of specificity appropriate, in accordance with CEQA Guidelines Section 15146. This document addresses the potentially significant adverse environmental impacts that may be associated with the planning, construction, or operation of the Master Plan. It also identifies appropriate and feasible mitigation measures and alternatives that may be adopted to significantly reduce or avoid these impacts.

CEQA requires that an EIR contain, at a minimum, certain specific elements. These elements are contained in this Draft EIR and include:

- Table of Contents
- Introduction
- Executive Summary
- Project Description
- Environmental Setting, Significant Environmental Impacts, and Mitigation Measures
- Cumulative Impacts
- Significant Unavoidable Adverse Impacts
- Alternatives to the Proposed Master Plan

- Growth-Inducing Impacts
- Effects Found not to be Significant
- Areas of Known Controversy

1.1.3 - Lead Agency Determination

The City of San Ramon is designated as the lead agency for the Master Plan. CEQA Guidelines Section 15367 defines the lead agency as ". . . the public agency, which has the principal responsibility for carrying out or approving a project." Other public agencies may use this Draft EIR in the decision-making or permit process and consider the information in this Draft EIR along with other information that may be presented during the CEQA process.

This Draft EIR was prepared by FirstCarbon Solutions (FCS), an environmental consultant. Prior to public review, it was extensively reviewed and evaluated by the City of San Ramon. This Draft EIR reflects the independent judgment and analysis of the City of San Ramon as required by CEQA. Lists of organizations and persons consulted, and the report preparation personnel is provided in Section 8, Persons and Organizations Consulted/List of Preparers, of this Draft EIR.

1.2 - Scope of the EIR

This Draft EIR addresses the potential environmental effects of the proposed Master Plan. In accordance with Sections 15063 and 15082 of the CEQA Guidelines, the City of San Ramon, as lead agency, issued a Notice of Preparation (NOP) for the proposed Master Plan on September 25, 2019. The NOP was circulated to responsible and trustee agencies and interested entities and individuals between September 25, 2019, and October 25, 2019, for the statutory 30-day public review period. The scope of this Draft EIR includes the potential environmental impacts identified in the NOP and issues raised by agencies and the public in response to the NOP. The NOP is contained in Appendix A of this Draft EIR.

Pursuant to Section 15083 of the CEQA Guidelines, the City of San Ramon held a public scoping meeting on Tuesday, October 15, 2019, starting at 7:00 p.m. at San Ramon City Hall, 7000 Bollinger Canyon Road, San Ramon, California 94583. Attendees were given an opportunity to provide comments and express concerns about the potential effects of the proposed Master Plan. Several individuals provided verbal comments on the content of the EIR at the scoping meeting. The verbal comments are summarized in Appendix A.

Forty-four comment letters were received in response to the NOP. The City engaged in early consultation with several public service and utility providers and received three letters prior to the release of the NOP. In the interest of informed decision making, those letters are included as NOP comments. The 44 letters are summarized in Table 1-1 and are provided in Appendix A.

The main concerns expressed in the NOP comment letters and at the public scoping meeting were related to the following: potential impacts to San Ramon schools, traffic congestion, increased use of existing parks, pedestrian safety while crossing streets, and impacts to police services.

Table 1-1: Notice of Preparation Comment Letters

Status	Affiliation	Signatory	Date
Public Agencies	California Department of Transportation	Wahida Rashid, Acting District Branch Chief of Local Development—Intergovernmental Review	09/13/2019
	San Ramon Valley Unified School District	Gary Black, Assistant Superintendent of Facilities and Operations	09/10/2019
	Contra Costa Health Services, Environmental Health Division	W. Eric Fung, Environmental Health Specialist	10/02/2019
	City of Dublin	Obaid U. Khan, Transportation and Operations Manager	10/16/2019
	Contra Costa County Flood Control and Water Conservation District	Joe Smithonic, Engineering Staff	10/24/2019
	San Ramon Valley Unified School District	Tina Perault, Senior Planning and Development Manager	10/24/2019
	Contra Costa Mosquito & Vector Control District	Jeremy Shannon, Vector Control Planner	10/08/2019
	Central Contra Costa Sanitary District	Russell B. Leavitt, Engineering Assistant	10/13/2019
	East Bay Municipal Utility District	David J. Rehnstrom, Manager of Water Distribution Planning	10/16/2019
Private Businesses and Parties	Pacific Gas and Electric Company	Plan Review Team	09/02/2019
	Comcast Cable Corporation	David Higginbotham, Field Sales Operations	10/02/2019
	Pacific Gas and Electric Company	Jessi Devgan, Senior New Business Representative	10/23/2019
	Private Individual	John Hazelwood	09/26/2019
		Vee [Full Name Not Provided]	09/26/2019
		Naiju Kavumpurath	09/27/2019
		Ching Evans	10/02/2019
		Christina Toy	10/02/2019
		Shawn Richardson	10/03/2019
		Sally Lee	10/04/2019
		Rick Marks	10/07/2019
		Cheri Ng	10/09/2019
		Melinda Morse	10/10/2019
		H. Chung	10/12/2019
		Hamid Rezaei	10/12/2019

Status	Affiliation	Signatory	Date
		Kathy Senti	10/12/2019
		Franette [Full Name Not Provided]	10/12/2019
		Sangam [Full Name Not Provided]	10/12/2019
		[No Name Provided]	10/12/2019
		Phyllis Combs	10/14/2019
		Rochelle and Sheldon Nelson	10/14/2019
		Jim Blickenstaff	10/15/2019
		Robert Klinger	10/15/2019
		Philip Hensley	10/15/2019
		Larry Feigenbaum	10/16/2019
		Ashwin Kamath	10/16/2019
		Shaughn Park	10/16/2019
		Stan Sinitsa	10/16/2019
		Randall Riley	10/18/2019
		Kenneth Sturm	10/19/2019
		Erin Barca	10/21/2019
		Tim Sevilla	10/23/2019
		Jim Blickenstaff	10/25/2019
		Janet E. Jimenez	10/25/2019
		Sherrie Sivaraman	10/25/2019
Source: City of San Ramon 2019.			

1.2.1 - Environmental Issues Determined not to be Significant

The NOP identified topical areas that were determined not to be significant. An explanation of why each area is determined not to be significant is provided in Section 7, Effects Found not to be Significant. These topical areas are as follows:

- Agriculture and Forestry Resources
- Mineral Resources
- Wildfire

1.2.2 - Potentially Significant Environmental Issues

The NOP found that the following topical areas may contain potentially significant environmental issues that will require further analysis in the EIR. These sections are as follows:

- Aesthetics
- Air Quality
- Hydrology and Water Quality
- Land Use

- Biological Resources
- Cultural and Tribal Cultural Resources
- Energy
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation
- Utilities and Service Systems

1.3 - Organization of the EIR

This Draft EIR is organized into the following main sections:

- **Section ES: Executive Summary.** This section includes a summary of the proposed Master Plan and alternatives to be addressed in the Draft EIR. A brief description of the areas of controversy and issues to be resolved and a table that summarizes the impacts, mitigation measures, and level of significance after mitigation, are also included in this section.
- **Section 1: Introduction.** This section provides an introduction and overview describing the purpose of this Draft EIR, its scope and components, and its review and certification process.
- **Section 2: Project Description.** This section includes a detailed description of the proposed Master Plan, including its location, site, and Master Plan characteristics. A discussion of the proposed Master Plan's objectives, intended uses of the Draft EIR, responsible agencies, and approvals that are needed for the proposed Master Plan are also provided.
- **Section 3: Environmental Impact Analysis.** This section analyzes the environmental impacts of the proposed Master Plan. Impacts are organized into major topic areas. Each topic area includes a description of the environmental setting, methodology, significance criteria, impacts, mitigation measures, and significance after mitigation. The specific environmental topics that are addressed within Section 3 are as follows:
  - **Section 3.1—Aesthetics, Light, and Glare:** Addresses the potential visual impacts of development intensification and the overall increase in illumination produced by the proposed Master Plan.
  - **Section 3.2—Air Quality:** Addresses potential air quality impacts associated with implementation of the proposed Master Plan and emissions of criteria pollutants. In addition, the section evaluates the proposed Master Plan's emissions of toxic air contaminants.
  - **Section 3.3—Biological Resources:** Addresses the proposed Master Plan's potential impacts on habitat, vegetation, and wildlife; the potential degradation or elimination of important habitat; and impacts on listed, proposed, and candidate threatened and endangered species.
  - **Section 3.4—Cultural Resources and Tribal Cultural Resources:** Addresses potential impacts on historical resources, archaeological resources, paleontological resources, and burial sites.
  - **Section 3.5—Energy:** Addresses potential Master Plan impacts related to energy usage.
  - **Section 3.6—Geology, Soils, and Seismicity:** Addresses the potential impacts the proposed Master Plan may have on soils and assesses the effects of proposed development in relation to geologic and seismic conditions.

- **Section 3.7—Greenhouse Gas Emissions:** Addresses potential Master Plan emissions of greenhouse gases.
- **Section 3.8—Hazards and Hazardous Materials:** Addresses the potential for the presence of hazardous materials or conditions on the Master Plan area and in the vicinity of the Master Plan area that may have the potential to impact human health.
- **Section 3.9—Hydrology and Water Quality:** Addresses the potential impacts of the proposed Master Plan on local hydrological conditions, including drainage areas, and changes in the flow rates.
- **Section 3.10—Land Use and Planning:** Addresses the potential land use impacts associated with division of an established community and consistency with the City of San Ramon General Plan and Zoning Ordinance.
- **Section 3.11—Noise:** Addresses the potential noise impacts during construction and at Master Plan buildout from mobile and stationary sources. The section also addresses the impact of noise generation on neighboring uses.
- **Section 3.12—Population and Housing:** Addresses the existing population and housing and potential effects from Master Plan implementation.
- **Section 3.13—Public Services and Recreation:** Addresses the potential impacts upon public services and recreation setting and potential effects from Master Plan implementation.
- **Section 3.14—Transportation:** Addresses the impacts on the local and regional roadway system, public transportation, bicycle, and pedestrian access.
- **Section 3.15—Utilities and Services Systems:** Addresses the potential impacts upon service providers, including fire protection, law enforcement, water supply, wastewater, solid waste, and energy providers.

- **Section 4: Cumulative Effects.** This section discusses the cumulative impacts associated with the proposed Master Plan, including the impacts of past, present, and probable future projects.

- **Section 5: Alternatives to the Proposed Master Plan.** This section compares the impacts of the proposed Master Plan with four land-use project alternatives: No Project/Existing Entitlements Alternative; Reduced Density Alternative; BR 2600/Existing Entitlements Alterative; and BR 1A and BR 3A Only Alternative. An environmentally superior alternative is identified. In addition, alternatives initially considered but rejected from further consideration are discussed.

- **Section 6: Other CEQA Considerations.** This section provides a summary of significant environmental impacts, including unavoidable and growth-inducing impacts. In addition, significant irreversible environmental changes are discussed.

- **Section 7: Effects found not to be Significant.** This section contains analysis of the topical sections not addressed in Section 3.

- **Section 8: Persons and Organizations Consulted/List of Preparers.** This section contains a full list of persons and organizations that were consulted during the preparation of this Draft EIR. This section also contains a full list of the authors who assisted in the preparation of the Draft EIR, by name and affiliation.

- **Section 9: References.** This section contains a full list of references that were used in the preparation of this Draft EIR.
- **Appendices.** This section includes all notices and other procedural documents pertinent to the Draft EIR, as well as all technical material prepared to support the analysis.

1.4 - Documents Incorporated by Reference

As permitted by CEQA Guidelines Section 15150, this Draft EIR has referenced previously certified environmental documentation. Information from the documents, which have been incorporated by reference, has been briefly summarized in the appropriate section(s). The relationship between the incorporated part of the referenced document and the Draft EIR has also been described. The evaluation contained within this Draft EIR hereby incorporates by reference the following:

- City of San Ramon General Plan 2035, adopted April 28, 2015, last amended October 21, 2019
- City of San Ramon General Plan 2030 EIR (SCH No. 2000082002), certified July 19, 2010
- Addendum to the City of San Ramon General Plan 2030 EIR, prepared November 25, 2014
- San Ramon Municipal Code
- City of San Ramon Climate Action Plan, adopted August 23, 2011
- San Ramon City Center Final Subsequent EIR (SCH No. 2007042022), certified December 2007

When all or part of another document is incorporated by reference, the incorporated portion is treated as if it were set forth in full in the EIR (CEQA Guidelines § 15150(a)). The referenced documents are available for review at the City of San Ramon, Community Development Department, Planning Services Division, 2401 Crow Canyon Road, San Ramon, CA 94583 or online at: http://www.sanramon.ca.gov/our_city/departments_and_divisions/community_development/planning_services.

1.5 - Documents Prepared for the Master Plan

The following technical studies and analyses were prepared for the proposed Master Plan:

- Air Quality/Health Risk Assessment and Greenhouse Gas Analysis, prepared by FCS
- Phase I Cultural Resources Assessment, prepared by FCS
- Final Geotechnical Investigation: Bishop Ranch City Center Project Parcel 1 & 1A, prepared by MACTEC Engineering and Consulting
- Geotechnical Investigation: Bishop Ranch—BR3A, prepared by Langan Treadwell Rollo
- Geotechnical Investigation for 2600 Camino Ramon, prepared by Langan Treadwell Rollo
- Draft Phase I Environmental Site Assessment of Bishop Ranch 3A, prepared by ATC Group Services LLC
- Phase I Environmental Site Assessment for Bishop Ranch 1A, prepared by ATC Group Services LLC

- Phase I Environmental Site Assessment of Bishop Ranch 3A Proposed Hotel Site, prepared by ATC Group Services LLC
- Phase I Environmental Site Assessment of Bishop Ranch 2600 Camino Ramon. prepared by ATC Group Services LLC
- Subsurface Investigation: Bishop Ranch 1A, prepared by ATC Group Services LLC
- Subsurface Investigation: Bishop Ranch 3A, prepared by ATC Group Services LLC
- Transportation Impact Study for the CityWalk Master Plan Project, prepared by Gibson Transportation Consulting, Inc.
- Water Supply Assessment: City Center Mixed Use Master Plan Project, prepared by East Bay Municipal Utility District

1.6 - Review of the Draft EIR

Upon completion of the Draft EIR, the City of San Ramon filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period (PRC § 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the Draft EIR, including the technical appendices, is available for review on the city's website (http://www.sanramon.ca.gov/our_city/departments_and_divisions/community_development/planning_services/city_walk_master_plan_e_i_r). Due to the COVID-19 crisis, City facilities are currently closed to the public. Once public access to City facilities resumes, hard copies of the EIR can be viewed at the following City facilities (please check with the facilities for hours of operation):

City of San Ramon
Community Development Department
Planning Services Division
2401 Crow Canyon Road
San Ramon, CA 94583

City of San Ramon
City Hall
7000 Bollinger Canyon Road
San Ramon, CA 94583

Dougherty Station Community Center
17011 Bollinger Canyon Road
San Ramon, CA 94582

Alcosta Senior and Community Center
9300 Alcosta Boulevard
San Ramon, CA 94583

Dougherty Station Library
17017 Bollinger Canyon Road
San Ramon, CA 94582

San Ramon Library
100 Montgomery Street
San Ramon, CA 94583

San Ramon Community Center
12501 Alcosta Boulevard
San Ramon, CA 94583

Agencies, organizations, and interested parties have the opportunity to comment on the Draft EIR during the 45-day public review period. Written comments on this Draft EIR should be addressed to:

Mr. Lauren Barr, Planning Services Manager
City of San Ramon
Planning Division
2401 Crow Canyon Road
San Ramon, CA 94583
Phone: 925.973.2567
Fax: 925.838.3231
Email: lbarr@sanramon.ca.gov

Submittal of electronic comments in Microsoft Word or Adobe PDF format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to the public hearing before the San Ramon Planning Commission on the proposed Master Plan, at which the certification of the Final EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision makers for the proposed Master Plan.

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SECTION 2: PROJECT DESCRIPTION

The project applicant, Sunset Development, is proposing the CityWalk Master Plan (proposed Master Plan). The proposed Master Plan is intended to guide the development of residential and commercial uses in the Bishop Ranch Business Park in the City of San Ramon, in Contra Costa County. The purpose of this Draft Environmental Impact Report (Draft EIR) is to identify potential environmental impacts associated with buildout of the proposed Master Plan. This section provides the project history, an overview of the proposed Master Plan location and setting, proposed Master Plan objectives, proposed Master Plan characteristics, and construction phasing. It also describes the intended uses of the Draft EIR by agencies with permitting and approval authority over the proposed Master Plan, as well as required permits and approvals.

2.1 - Project History

2.1.1 - Bishop Ranch

Thomas Bishop, the namesake of Bishop Ranch, acquired 960 acres of land in the San Ramon Valley as consideration for his legal work on behalf of the Norris Family in 1891. That same year, the Southern Pacific Railroad completed the San Ramon Branch Line[1] from Martinez to San Ramon, increasing accessibility to the San Ramon Valley. Bishop Ranch began agricultural operations in the early 1890s with 400 head of cattle. Walnuts were planted in 1909 and a 300-acre Bartlett pear orchard was planted in 1911, which by the 1940s was recognized as the single largest orchard in the world. Additional crops including peaches, prunes, grapes, and tomatoes were planted over time as the ranch expanded in size. At its peak, Bishop Ranch occupied 1.5-square-mile between Norris Canyon to the west and the San Ramon Branch Line to the east. Between 1950 and 1978, Bishop Ranch changed hands several times and portions were sold to developers. Western Electric purchased what is now the Bishop Ranch Business Park in the early 1970s with the intent of developing a telephone factory.

In the mid-1960s, Interstate 680 (I-680) was completed through the San Ramon Valley, which served as a catalyst for urban development. Reflecting Western Electric's plans for a telephone factory, the Contra Costa County General Plan designated the property as 'Controlled Manufacturing.' Western Electric later abandoned their plans and Sunset Development Company purchased the land in 1978 with the intent of developing a business park.

The first buildings within the Bishop Ranch Business Park were developed in the early 1980s. Chevron developed its corporate campus (Chevron Park) on the south side of Bollinger Canyon Road in 1984. Pacific Bell developed a corporate campus on approximately 100 acres (now known as BR 2600) within the business park in 1985. The business park has continued to be developed and the

[1] The San Ramon Branch Line ceased operations circa 1977-1978 and the right-of-way was acquired by the County of Contra Costa in 1981. East Bay Regional Park District subsequently developed the Iron Horse Regional Trail within the right-of-way over a period of three decades, with the first trail segment opening in 1986. Sunset Development constructed the Iron Horse Regional Trail segment between Norris Canyon Road and Bollinger Canyon Road adjacent to the Bishop Ranch Business Park.

total square footage now exceeds 10 million. The daytime service population of the Bishop Ranch Business Park is estimated to be 30,000.

The original Bishop Ranch Business Park entitlements were processed through the County of Contra Costa. Following the incorporation of the City of San Ramon on July 1, 1983, the City assumed the entitlements as part of an annexation process.

2.1.2 - City Center Bishop Ranch

The concept for a City Center was first contemplated in the mid-1980s, during the early years of the City of San Ramon. Over the next two decades, City Center planning efforts evolved and included different concepts and locations. These efforts ultimately culminated with the 2007 San Ramon City Center Project located within the boundaries of the Bishop Ranch Business Park at the intersection of Bollinger Canyon Road and Camino Ramon.

The 2007 City Center Project envisioned 2.1 million square feet of retail, office, entertainment, residential (487 dwelling units) and civic uses (City Hall and library) on the BR 1A, BR 2, and BR 3A sites. The San Ramon City Council approved the City Center Project and certified the associated EIR (San Ramon City Center Final Subsequent EIR: State Clearinghouse [SCH] No. 2007042022) in December 2007.

The subsequent economic downturn caused the property owner to revisit the City Center concept and it was ultimately scaled back. In 2014, the entitlements were amended to relocate the civic uses from the City Center Project to nearby Central Park. A 44,000-square-foot City Hall was constructed within the park, which opened in 2016. In November 2018, City Center Bishop Ranch, an approximately 300,000-square-foot lifestyle retail/entertainment center opened on the former BR 2 site.

2.1.3 - Existing and Proposed Entitlements

The proposed Master Plan involves amending the existing land use entitlements[2] that were approved by the San Ramon City Council for the City Center Project in 2007. Table 2-1 summarizes the disposition of the 2007 City Center entitlements, including those that will be amended as part of the Master Plan.

Table 2-1: Disposition of 2007 City Center Entitlements

2007 Entitlement	Disposition
Residential: 487 dwelling units (BR 3A)	• The 487 dwelling units on BR 3A are being carried forward on BR 3A as part of larger 791 dwelling unit development of the proposed Master Plan
Plaza District Retail: 635,000 square feet (BR 2 and BR 3A)	• 300,000 square feet of retail uses developed as City Center Bishop Ranch • 166,000 square feet of retail uses on BR 3A are being carried forward on BR 3A and BR 2600 as part of the proposed Master Plan

[2] Land use entitlements are legal rights to engage in specific development and land use activities. Entitlements 'run with the land' and are a form of property rights. Examples include zoning, variances, use permits, subdivision/parcel maps, and design review.

2007 Entitlement	Disposition
Plaza District Office: 50,142 square feet (BR 2 and BR 3A)	• Relinquished in 2014 as part of development of San Ramon City Hall in Central Park
Bishop Ranch 1A Office: 600,000* (BR 1A)	• The 600,000-square-foot office would be relinquished by the proposed Master Plan and replaced with 652 dwelling units
Plaza District Hotel: 169 keys (BR 3A)	• 169-key hotel on BR 3A is being carried forward as part of the proposed Master Plan
Civic: 110,490 (BR 1B)	• The civic uses would be developed as a medical office on BR 1B. Construction is analyzed in the 2007 City Center EIR, vested with the Development Agreements, and is not being contemplated as part of the proposed Master Plan
Notes: * Bishop Ranch 1A office was evaluated at 681,769 square feet in the 2007 City Center EIR and was later reduced to 600,000. Source: Sunset Development and City of San Ramon 2020.	

The unconstructed portions on BR 1B (the medical office) are being pursued under their vested entitlements that were granted under the 2007 City Center EIR. The medical office is considered in the cumulative analysis (see Section 4, Cumulative Effects).

2.2 - Project Location and Setting

2.2.1 - Location

The Master Plan area is located in the Bishop Ranch Business Park in the City of San Ramon, in Contra Costa County, California (Exhibit 2-1). The Master Plan area encompasses Bishop Ranch 1A (BR 1A), Bishop Ranch 3A (BR 3A), and Bishop Ranch 2600 (BR 2600) (Exhibit 2-2). The Assessor's Parcel Numbers (APNs) include 213-120-021, 213-120-022, and 213-120-028 for BR 1A; 213-133-098, 213-133-099, and 213-133-100 for BR 3A; and 213-133-093, 213-133-096, and 213-133-097 for BR 2600. The Master Plan area is generally located around the Bollinger Canyon Road/Camino Ramon intersection. The Master Plan area is located on the *Diablo, California* United States Geological Survey (USGS) Quadrangle, Township 2 South, Range 1 West, Unsectioned (Latitude 37° 45' 50" North; Longitude 121° 57' 25" West).

2.2.2 - Existing Project Site Characteristics

The Master Plan area encompasses BR 1A, BR 3A, and BR 2600. Existing characteristics of the Master Plan area are described below. Photographs are provided in Exhibit 2-3.

Bishop Ranch 1A

BR 1A encompasses 9.87 acres and consists of undeveloped land with grassland and ornamental landscaping. Mature ornamental trees are planted along the entire perimeter of BR 1A. Sidewalks are present along the frontage with Bollinger Canyon Road and along the eastern frontage.

The City of San Ramon is planning to construct an overpass that would grade separate the Iron Horse Regional Trail at Bollinger Canyon Road (City of San Ramon Capital Improvement Program Project 905530), immediately northeast of BR 1A and adjacent to the eastern boundary of BR 3A. (The construction of the overpass is not part of the proposed Master Plan, but its completion was considered in the traffic study prepared for the subject Master Plan project, both in terms of vehicle trips and pedestrian circulation.)

Bishop Ranch 3A

BR 3A encompasses 10.43 acres and consists of undeveloped land with grassland and ornamental landscaping. A 'Bishop Ranch' monument sign faces the intersection of Bollinger Canyon Road/Camino Ramon. Mature ornamental trees are planted along the BR 3A frontage with Camino Ramon. Sidewalks are present along the Bollinger Canyon Road and Camino Ramon frontages.

Bishop Ranch 2600

BR 2600 occupies 100.10 acres and is developed with a 1.75-million-square-foot multi-story office building, a parking structure, surface parking lots, two water features (Annabel Lake and Lake Cecilia), and a combination paved and unpaved perimeter pedestrian pathway. Camino Ramon, Bishop Drive, and Executive Parkway provide access to BR 2600.

2.2.3 - Surrounding Land Uses

The areas immediately adjacent to the project site are comprised of existing developments that include commercial, office, and residential uses, as well as public places for passive and active recreation. Table 2-2 summarizes the surrounding land uses. As shown in the table, most of the surrounding land uses are part of the Bishop Ranch Business Park.

The Bishop Ranch Business Park is a 585-acre workplace campus that includes office space, commercial retail, and hotel uses. The Bishop Ranch Business Park is composed of several different properties: 2600 Bishop Ranch, Bishop Ranch (BR) 1, BR 3, BR 6, BR 7, BR 8, BR 9, BR 11, BR 12, and BR 15.

Table 2-2: Surrounding Land Uses

Site	Direction	Surrounding Land Uses
Bishop Ranch 1A	North	Bollinger Canyon Road and BR 3A
	East	BR 1 access road, Iron Horse Regional Trail, and Marketplace
	South	BR 1 surface parking and office buildings
	West	BR 1 access road and surface parking
Bishop Ranch 3A	North	BR 3 parking structure and office buildings
	East	Iron Horse Trail, Central Park, and San Ramon City Hall
	South	Bollinger Canyon Road and BR 1A
	West	Camino Ramon and City Center Bishop Ranch

Site	Direction	Surrounding Land Uses
Bishop Ranch 2600	North	Executive Parkway, BR 6, and BR 8
	East	Camino Ramon and BR 3
	South	Bishop Drive, City Center Bishop Ranch, and The Shops at Bishop Ranch
	West	Bishop Drive, San Ramon Marriott, and Interstate 680
Source: FirstCarbon Solutions (FCS) 2020.		

2.2.4 - Existing Land Use Designations and Zoning

BR 1A, BR 3A, and BR 2600 are designated 'Mixed Use—City Center' by the City of San Ramon General Plan 2035 and are zoned 'City Center Mixed Use' (CCMU) by the San Ramon Zoning Ordinance.

2.3 - Project Characteristics

2.3.1 - Master Plan Summary

Sunset Development is proposing the Master Plan to guide the development of residential uses, commercial uses, and public facilities within the Master Plan area to complement and support City Center Bishop Ranch. The buildout potential of the proposed Master Plan is up to 4,500 dwelling units, a 169-key hotel, 166,000 square feet of commercial uses, three new parking structures, and publicly accessible, privately owned and maintained park and public spaces. Fifteen percent of the 4,500 units (approximately 675) would be deed-restricted as affordable to low and very low income households per the City's inclusionary requirements. The hotel and retail use that was previously entitled and evaluated in the 2007 City Center EIR are being carried forward into the Master Plan. Table 2-3 summarizes the elements of the proposed Master Plan. Exhibit 2-4 depicts the site plan.

Table 2-3: CityWalk Master Plan Project Summary

Area	Sub Area	End Use	Characteristics
Bishop Ranch 1A (9.87 acres)	1	Residential	468 du
	2	Residential	184 du
	Subtotal		*652 du*
Bishop Ranch 3A (10.43 acres)	1	Residential	282 du
	2	Residential	261 du
	3	Residential	248 du
	Hotel	Hotel	169 keys
	Retail/Office	Retail/Office	70,000 square feet
	Subtotal		*791 du* *169 keys* *70,000 square feet*

Area	Sub Area	End Use	Characteristics
Bishop Ranch 2600 (100.1 acres)	NW 1	Residential	525 du
	NW 2	Residential	299 du
	NW 3	Residential	273 du
	NW 4	Residential	301 du
	NE 1	Residential	537 du
	NE 2	Residential	313 du
	NE 3	Residential	237 du
	NE 4	Residential	63 du
	SE 1	Residential	300 du
	SE 2	Residential	209 du
	Retail/Office	Retail/Office	96,000 square feet
	Subtotal		*3,057 du* *96,000 square feet*
Total	**Residential**		**4,500 du**
	Hotel		**169 keys**
	Retail/Office		**166,000 square feet**

Notes:
du = dwelling units
Key = Maximum number of guest quarters that can be 'keyed off' (e.g. a suite with 4 bedrooms = 4 keys)
Source: BAR Architects 2020.

2.3.2 - Residential

Up to 4,500 dwelling units would be developed within the three properties: BR 1A (up to 652 dwelling units), BR 3A (up to 791 dwelling units), and BR 2600 (up to 3,057 dwelling units). All units would be multi-family with floor plans including studio, 1-bedroom, 2-bedroom, and 3-bedroom.

2.3.3 - Hotel

The 169-key hotel entitled by the 2007 City Center Project is being carried forward into the Master Plan. The hotel would be a multi-story structure located within Bishop Ranch 3A. Parking for the hotel would be provided in the nearby existing Bishop Ranch 3 South parking structure as part of a shared parking arrangement.

2.3.4 - Retail/Office

Up to 166,000 square feet of retail or office uses would be developed within BR 3A and BR 2600. This includes the 70,000 square feet of retail uses originally entitled on the BR 3A site as part of the City Center project. Retail uses include restaurants, health and beauty, and personal, business, and financial services. Office space may be included within this category.

2.3.5 - Circulation

Camino Ramon, Bollinger Canyon Road, Bishop Drive, and Executive Parkway would serve as the principal roadways serving the Master Plan area. Within BR 1A, BR 3A, and BR 2600, internal roadways would connect streets with parking garages. These internal roadways would be designed with bicycle and pedestrian mobility in mind and are anticipated to be privately owned and maintained.

2.3.6 - Parking

The proposed Master Plan would provide parking in garages at buildout. Residential buildings would include garages on the ground and lower levels. Multi-level parking garages would be developed within BR 2600 to maintain required parking for the existing office uses as the existing surface parking lots are redeveloped. In certain cases, shared parking arrangements would be used.

The project applicant prepared a shared parking analysis for the proposed Master Plan (Appendix J). The study included a review of the site plan and proposed land uses to determine the overall parking demand. The parking demand was analyzed using the code requirements and the hourly parking patterns utilized in the national shared parking methodology. Table 2-4 summarizes the peak parking demand by use within the Master Plan area, based on the shared parking analysis.

Table 2-4: Peak Parking Demand

Area	Required Parking Spaces			
	Residential	Office	Retail	Total
Bishop Ranch 1A (9.87 acres)	1,007	—	—	**1,007**
Bishop Ranch 3A (10.43 acres)	1,147	—	261	**1,408**
Bishop Ranch 2600 (100.10 acres)	3,902	3,764	316	**7,982**
Total	**6,056**	**3,764**	**577**	**10,397**

Notes:
Hotel parking would be provided in the existing Bishop Ranch 3 South parking garage (2633 Camino Ramon).
Source: Gibson Transportation Consulting, Inc., Parking Demand Analysis, 2020.

2.3.7 - Parks, Open Space, and Other Public Facilities

The proposed Master Plan would include approximately 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities. This includes new park spaces and improvements to existing BR 2600 facilities as described below.

New Park Spaces and Community Facilities

The proposed Master Plan proposes approximately 7.4 acres of new parkland and 10.8 acres of linear parkways; the parkland and parkways would be publicly accessible and privately owned and maintained. The new park spaces will be located throughout the Master Plan area as follows:

- **Bishop Ranch 1A:** 1.1 acres of public park
- **Bishop Ranch 3A:** 0.6 acre of public park

- **Bishop Ranch 2600:** 5.7 acres of public park
- **Bishop Ranch 1A/3A/2600:** 10.8 acres of linear parkways

In addition, a community center is proposed to be developed within Bishop Ranch 1A neighborhood.

Improvement to Existing BR 2600 Facilities

The proposed Master Plan includes improvements to existing BR 2600 facilities. Annabel Lake and Lake Cecilia, as well as the proposed improvements, would be publicly accessible and privately owned and maintained. Annabel Lake would be available for sailing, boating, and fishing. Lake Cecilia would be available for fishing. An approximately 15,000-square-foot community center would be developed on the south shore of Annabel Lake. The community center would include flex space, a boat dock, and upstairs lodging units. An approximately 1,500 seat outdoor amphitheater would be developed on the north shore of Annabel Lake. The existing pathway around the perimeter of BR 2600 would be improved as a 6-foot-wide all-weather bicycle/pedestrian path.

2.3.8 - Transit Hubs

Transit Hubs, which would serve public transit, private buses, ride-hailing services, and other forms of motorized transportation, would be developed at BR 1A, BR 3A, and BR 2600. These facilities would provide covered platforms with seating and transit information, as well as limited commercial services such as package pick-up (e.g., Amazon lockers), food and beverage (e.g., coffee stand), and bike share facilities.

2.3.9 - Building Design, Landscaping, and Lighting

Each phase will be subject to the City's architectural approval process. Architectural design themes will include common design elements among all Master Plan components as well as themes that are specific to each neighborhood. All architectural design themes would be developed in accordance with the document titled CityWalk Design Guidelines, which was reviewed and recommended for approval by the Architectural Review Board with comments on December 12, 2019 and included in Appendix B.

Landscaping will be provided along public streets, around buildings, and in public areas in accordance with the document titled CityWalk Design Guidelines, as detailed in Appendix B. Existing ordinance-sized trees would be required to be replaced in accordance with Municipal Code requirements. Exterior lighting would be provided around buildings, within parking areas, and in common areas. Lighting would be subject to City of San Ramon standards including requirements for shielding and aesthetics.

2.3.10 - Utilities

Storm Drainage

The Master Plan area is currently served by existing storm drainage infrastructure owned and maintained by the City of San Ramon.

Existing storm drains are located within Camino Ramon (72-inch diameter), Bishop Drive (24- to 54-inch diameter), and Executive Parkway (60-inch diameter). The proposed Master Plan would install storm drainage systems consisting of inlets, underground piping, bioretention swales, and basins that would collect and detain runoff during storm events and meter its release into downstream drainage facilities in a manner designed to prevent flooding and reduce pollutants per stormwater treatment requirements.

Water

East Bay Municipal Utility District (EBMUD) currently serves the Master Plan area with potable water and would continue to provide this service. San Ramon Valley Recycled Water Program would provide the Master Plan area with non-potable water. Pursuant to the Water Code, EBMUD has prepared a Water Supply Assessment for the proposed Master Plan (see Section 3.15, Utilities and Service Systems).

Existing potable water mains are located within Bollinger Canyon Road (16-inch diameter), Camino Ramon (12-inch diameter), Bishop Drive (8-inch diameter), and Executive Parkway (8-inch diameter). The proposed Master Plan uses would connect to these existing facilities via new service laterals.

Existing recycled water mains are located within Camino Ramon, Executive Parkway, Bollinger Canyon Road, and the Iron Horse Trail corridor (all 16-inches in diameter). A smaller recycled water main is also located in Bishop Drive between Camino Ramon and Sunset Drive (8-inch diameter). The proposed Master Plan uses would connect to these lines via new service laterals.

Wastewater

The Master Plan area is currently served, and would continue to be served, by Central Contra Costa Sanitary District (Central San) for wastewater collection and treatment.

Existing sewer lines are located within Bollinger Canyon Road (10- to 12-inch diameter), Camino Ramon (10-inch diameter), Bishop Drive (12- to 15-inch diameter), and the Iron Horse Trail (San Ramon Interceptor—36-inch diameter). The proposed Master Plan uses would connect to these existing facilities via new service laterals.

Energy

The Master Plan area is currently served, and would continue to be served, by Marin Clean Energy and Pacific Gas and Electric Company (PG&E) with electricity. The Master Plan area is currently served, and would continue to be served, by PG&E with natural gas.

Existing electrical and natural gas lines are located within Bollinger Canyon Road, Camino Ramon, Bishop Drive, Executive Parkway, and the Iron Horse Trail. The proposed Master Plan uses would connect to these existing facilities via new service laterals.

2.3.11 - Phasing

The proposed Master Plan would be developed in phases over a 25-year planning horizon. Table 2-5 summarizes the phasing plan. Economic factors will dictate the implementation schedule and, thus, the phasing plan shown in Table 2-5 reflects a 'best case' scenario for buildout.

Table 2-5: Phasing Plan

Phase	Completion Year	Elements
1	2022	**Bishop Ranch 2600** • 300 dwelling units • 61,000 square feet of retail/office • 2.7-acre public park **Bishop Ranch 3A** • 169-key hotel
2	2024	**Bishop Ranch 1A** • 468 dwelling units • Transit hub • 1.1-acre public park
3	2026	**Bishop Ranch 1A** • 184 dwelling units
4	2028	**Bishop Ranch 3A** • 282 dwelling units • 35,000 square feet of retail/office • Transit hub • 0.6-acre public park
5	2030	**Bishop Ranch 3A** • 261 dwelling units • 35,000 square feet of retail/office
6	2032	**Bishop Ranch 3A** • 248 dwelling units • Parking garage
7	2034	**Bishop Ranch 2600** • 209 dwelling units • 35,000 square feet of retail/office
8	2036	**Bishop Ranch 2600** • 300 dwelling units • Parking garage
9	2038	**Bishop Ranch 2600** • 537 dwelling units • 0.9-acre public park • Annabel Lake community center
10	2040	**Bishop Ranch 2600** • 313 dwelling units • Parking garage

Phase	Completion Year	Elements
11	2042	**Bishop Ranch 2600** • 525 dwelling units
12	2044	**Bishop Ranch 2600** • 299 dwelling units • 0.93-acre public park • Anabel Lake amphitheater
13	2046	**Bishop Ranch 2600** • 273 dwelling units
14	2048	**Bishop Ranch 2600** • 301 dwelling units

Notes:
For purposes of analyzing transportation impacts, the Transportation Section and related Transportation Impact Study assumed all phases of the proposed Master Plan would be built out by Year 2040, consistent with the longest future forecasts available from the Contra Costa County Transportation Authority Travel Demand Forecast Model, and represents a conservative worst-case scenario.
Source: Sunset Development 2020.

2.4 - Project Objectives

The objectives of the proposed Master Plan are to:

1. Develop an appropriate mix of multi-family units (including affordable units), retail, and office uses within the Master Plan area that meets regional housing goals.
2. Provide affordable housing units in accordance with the City of San Ramon Housing Element (2015-2023).
3. Promote positive economic contributions to the local economy through new capital investment, expansion of the tax base, creation of new jobs, expansion of the consumer base, and opportunities for new taxable sales.
4. Locate housing next to jobs and in close proximity to transit in order to reduce vehicle miles traveled.
5. Support City Center Bishop Ranch by developing new dwelling units and a new hotel within walking distance.
6. Develop housing on undeveloped and underutilized infill sites within the Bishop Ranch Business Park in order to complement the existing employment center and maximize the use of existing infrastructure.
7. Provide housing with a variety of floor plans to allow for entry-level housing as well as opportunities for existing San Ramon residents to relocate to the City Center mixed use area.

8. Attract new businesses to San Ramon that are well suited for the retail/entertainment sector.
9. Phase development to allow for managed and orderly growth.
10. Provide public access to and enhance existing Bishop Ranch facilities, which are currently private.
11. Improve mobility within Bishop Ranch through the use of Transit Hubs, allowing for pick-up and drop-off at convenient locations easily accessible from major arterial roadways.
12. Provide connectivity with adjoining land uses including the Iron Horse Trail, Central Park, City Center Bishop Ranch, The Shops at Bishop Ranch, and the Marketplace through pedestrian and bicycle connections.

2.5 - Intended Uses of This Draft EIR

This Draft EIR is being prepared by the City of San Ramon to assess the potential environmental impacts that may arise in connection with actions related to implementation of the Master Plan. Pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15367, the City of San Ramon is the lead agency for the proposed project and has discretionary authority over the proposed project and project approvals. This Draft EIR is intended to serve as a public information and disclosure document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of the proposed Master Plan, to evaluate and recommend mitigation measures that would substantially lessen or eliminate adverse impacts, and to examine a range of feasible alternatives to the proposed Master Plan. This Draft EIR is intended to address all public infrastructure improvements and all future development that are within the parameters of the proposed Master Plan. The proposed Master Plan involves amendments to existing land use entitlements that were approved for the City Center Project in 2007 (see Table 2-1) and is not limited to the net new development relative to the development previously approved in 2007.

This proposed Master Plan will guide project review on a more general (“big picture”) scale, providing guidelines for the design of subsequent phases of development. This Draft EIR is intended to serve as the primary environmental document for all actions associated with implementation of the Master Plan, including all discretionary approvals requested or required to implement the Master Plan. In addition, this Draft EIR is the primary reference document in the formulation and implementation of a mitigation monitoring program for subsequent development under the proposed Master Plan. Each subsequent phase of development will be required to prepare a Development Plan and will also be required to undergo Architectural Review prior to construction. The purpose of the subsequent Development Plans and Architectural Review is to review each project at a site-specific level of detail, and to ensure consistency with the Master Plan framework, design guidelines, and applicable Zoning Ordinance requirements. It should be noted that this Draft EIR applies to all of the detailed subsequent Development Plan and Architectural Review approvals.

It is the intent of the City of San Ramon to use the streamlining/tiering provisions related to environmental review under CEQA to the maximum feasible extent, so that future environmental

review may be undertaken without the need for repetition and redundancy. Accordingly, future environmental analyses, when necessary, may be tiered from this Draft EIR.[3] Specifically, pursuant to CEQA Guidelines Section 15183, streamlined environmental review may be allowed for projects that are consistent with the development density established by zoning, community plan, specific plan, or general plan policies for which an EIR was certified, unless such a project would have environmental impacts peculiar to the project or the project site which were not addressed as significant effects in this Draft EIR.

2.5.1 - Discretionary and Ministerial Actions

Discretionary approvals and permits that are required by the lead agency, the City of San Ramon, for implementation of the Master Plan include the following:

- Development Plan
- Major Subdivision Application
- Land Use Permit for Shared Parking Reduction and Blended Ratio for Multi-family Development
- Land Use Permit (Community Buildings, Privately Owned Parks, Amphitheater, Lodging Uses, and Conference/Conventions Uses anticipated by the Master Plan)
- Architectural and Landscape Design Guidelines
- Development Agreement (Optional—subject to City/Applicant agreement)
- And any other discretionary permits that may be required to implement the proposed project.

In addition, the following ministerial actions would be required by the City of San Ramon for implementation of the Master Plan:

- Demolition permits
- Grading permits
- Site Development Permit
- Building permits
- Tree removal permits

2.5.2 - Responsible and Trustee Agencies

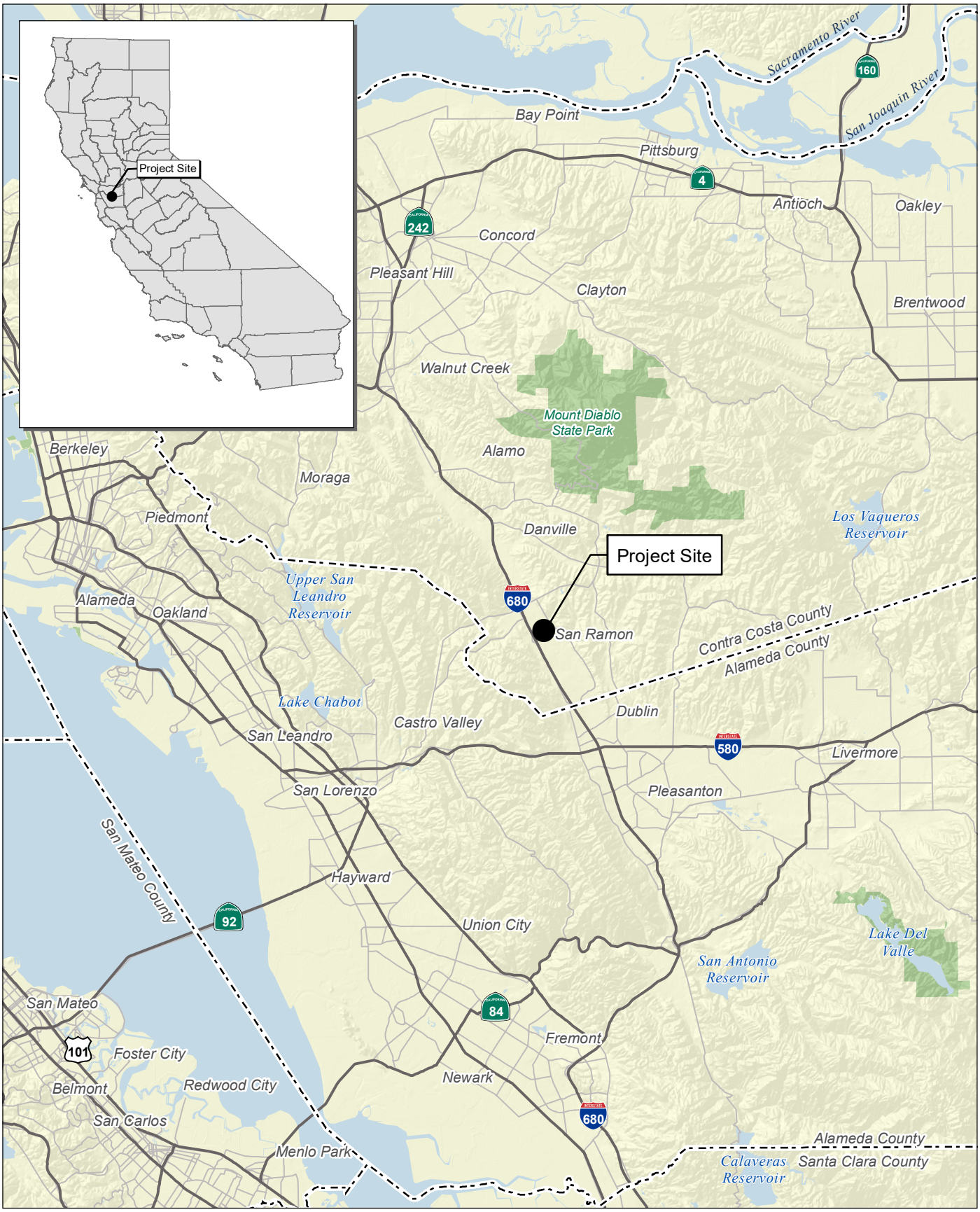
A number of other agencies in addition to the City of San Ramon will serve as Responsible and Trustee Agencies, pursuant to CEQA Guidelines Section 15381 and Section 15386, respectively. This Draft EIR will provide environmental information to these agencies and other public agencies, which may be required to grant approvals or coordinate with other agencies, as part of implementation of the Master Plan. These agencies may include but are not limited to the following:

[3] It is the intent of the City that future environmental analyses may rely on any available streamlining and/or tiering provisions available, including, but not limited to Government Code Section 65457, Public Resources Code Section 21094.5 and 21083.3, and CEQA Guidelines Sections 15162-15164, 15168, 15182, 15183, 15183.3 and 15183.5. The above are only examples of possible streamlining/tiering mechanisms that the City may pursue and in no way limit future environmental review of specific projects.

- United States Fish and Wildlife Service
- California Department of Fish and Wildlife
- California Department of Transportation
- San Francisco Bay Regional Water Quality Control Board
- East Bay Municipal Utility District
- Central Contra Costa Sanitary District
- County of Contra Costa
- East Bay Regional Park District
- Bay Area Air Quality Management District
- Dublin San Ramon Services District
- Pacific Gas and Electric

Actions that are necessary to implement the proposed project that must be taken by other agencies include:

- Issuance of encroachment permits
- General Construction Permit-Stormwater



Source: Census 2000 Data, The CaSIL.

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Exhibit 2-1
Regional Location Map

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Source: Google Earth Pro Aerial Imagery.

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Exhibit 2-2
Local Vicinity Map
Aerial Base

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A. View of Bishop Ranch 2600.

B. View of existing Bishop Ranch 2600 surface parking lot.

C. View of Bishop Ranch 3A.

D. View of Bishop Ranch 1A.

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Exhibit 2-3
Site Photographs

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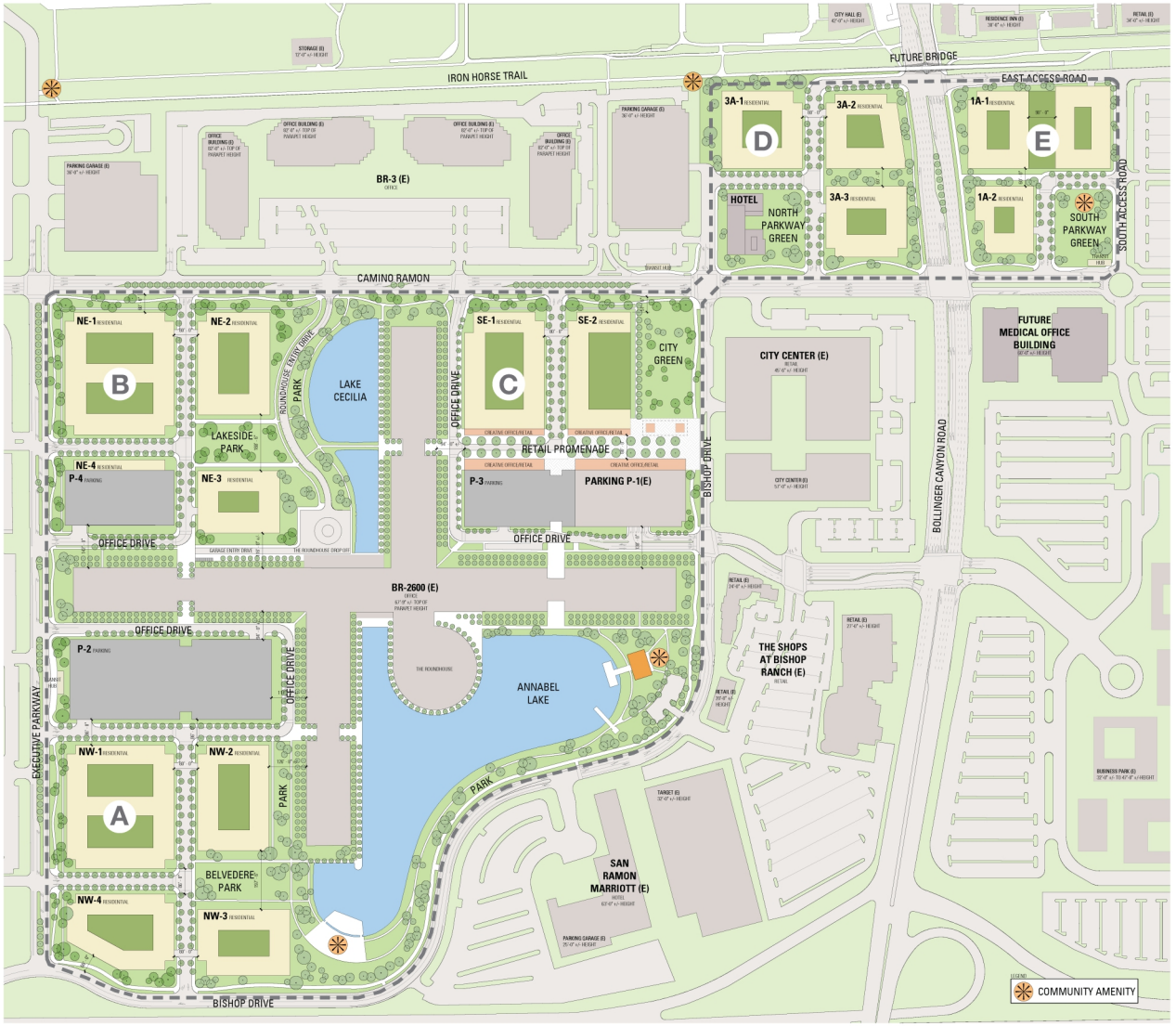

Source: BAR Architects 2020

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Exhibit 2-4
Site Plan

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SECTION 3: ENVIRONMENTAL IMPACT ANALYSIS

Organization of Issue Areas

This Draft Environmental Impact Report (Draft EIR) provides analysis of impacts for those environmental topics where it was determined in the Notice of Preparation, or through subsequent analysis that implementation of the proposed Master Plan would result in "potentially significant impacts." Sections 3.1 through 3.15 discuss the environmental impacts that may result with approval and implementation of the proposed Master Plan.

Issues Addressed in this EIR

The following environmental issues are addressed in Section 3:

- Aesthetics, Light, and Glare
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Energy
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation
- Utilities and Service Systems

Level of Significance

Determining the severity of project impacts is fundamental to achieving the objectives of the California Environmental Quality Act (CEQA). CEQA Guidelines Section 15091 requires that decision makers mitigate, as completely as is feasible, the significant impacts identified in the Draft EIR. If the EIR identifies any significant unmitigated impacts, CEQA Guidelines Section 15093 requires decision makers in approving a project to adopt a Statement of Overriding Considerations that explains why the benefits of the project outweigh the adverse environmental consequences identified in the EIR.

The level of significance for each impact examined in this Draft EIR was determined by considering the predicted magnitude of the impact against the applicable threshold. Thresholds were developed using criteria from the CEQA Guidelines and checklist; State, federal, and local regulatory schemes; local/regional plans and ordinances; accepted practice; consultation with recognized experts; and other professional opinions.

Impact Analysis and Mitigation Measure Format

The format adopted in this Draft EIR to present the evaluation of impacts is described and illustrated below.

Summary Heading of Impact

Impact AES-1:	**An impact summary heading appears immediately preceding the impact description (Summary Heading of Impact in this example). The impact number identifies the section of the report (AES for Aesthetics, Light, and Glare in this example) and the sequential order of the impact (1 in this example) within that section. To the right of the impact number is the impact statement, which identifies the potential impact.**

Impact Analysis

A narrative analysis follows the impact statement.

Level of Significance Before Mitigation

This section identifies the level of significance of the impact before any mitigation is proposed.

Mitigation Measures

In some cases, following the impact discussion, reference is made to State and federal regulations and agency policies that would fully or partially mitigate the impact. In addition, policies and programs from applicable local land use plans that partially or fully mitigate the impact may be cited.

Project-specific mitigation measures, beyond those contained in other documents, are set off with a summary heading and described using the format presented below:

MM AES-1 Project-specific mitigation is identified that would reduce the impact to the lowest degree feasible. The mitigation number links the particular mitigation to the impact it is associated with (**AES-1** in this example); mitigation measures are numbered sequentially.

Level of Significance After Mitigation

This section identifies the resulting level of significance of the impact following mitigation.

Abbreviations used in the mitigation measure numbering are:

Code	Environmental Issue
AES	Aesthetics, Light, and Glare
AIR	Air Quality
BIO	Biological Resources
CUL	Cultural Resources and Tribal Cultural Resources

Code	Environmental Issue
ENER	Energy
GEO	Geology, Soils, and Seismicity
GHG	Greenhouse Gas Emissions
HAZ	Hazards and Hazardous Materials
HYD	Hydrology and Water Quality
LU	Land Use
NOI	Noise
POP	Population and Housing
PSR	Public Services and Recreation
TRANS	Transportation
UTIL	Utilities and Service Systems

It should be noted that the numbering for the Mitigation Measures is based on the numbering for the Impact Statements and may not necessarily be presented in sequential order. For example, in the Cultural Resources section, MM CUL-1 is associated Impact CUL-1, there are no mitigation measures required for Impact CUL-2, and MM CUL-3 is associated with Impact CUL-3.

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3.1 - Aesthetics, Light, and Glare

3.1.1 - Introduction

This section describes the existing aesthetics, light, and glare setting and potential effects from implementation of the proposed Master Plan on visual resources within the Master Plan area and in the surrounding areas. Descriptions and analysis in this section are based on site reconnaissance performed FirstCarbon Solutions (FCS), as well as review of the San Ramon General Plan Environmental Impact Report (EIR) 2035, the San Ramon Zoning Ordinance, and the CityWalk Design Guidelines (Appendix B).

3.1.2 - Environmental Setting

Regional Visual Setting

The San Ramon Valley stretches from Alamo in the north to Dublin in the south and is characterized by low rolling foothills to the west and east. The valley bottom is mostly developed with urban uses, while significant portions of the hillsides and nearly all of the ridgelines have remained undeveloped. Mount Diablo, elevation 3,849 feet above mean sea level, is the most prominent visual feature in the region and is located northeast of the San Ramon Valley.

The City of San Ramon is located within the San Ramon Valley. Wiedemann Hill, elevation 1,850 feet above mean sea level is located to the west of the city limits. Most of the prominent western slopes of Wiedemann Hill are undeveloped and contain clusters of oak woodlands. Within the city limits are the Dougherty Hills, which separate the San Ramon Valley from the Dougherty Valley to the east. The sides and ridgelines of the Dougherty Hills contain urban development, most notably the Canyon Lakes Golf Course and the Canyon Lakes commercial center. Additional development on the sides and ridgelines of the Dougherty Hills is associated with the Old Ranch area in the southern portion of the city limits.

Master Plan Area Visual Setting

The Master Plan area is located within the City of San Ramon and consists of three areas, described individually below.

Bishop Ranch 1A

Bishop Ranch (BR) 1A encompasses 9.87 acres and consists of undeveloped land with grassland and ornamental landscaping. Mature ornamental trees are planted along the entire perimeter of BR 1A. Sidewalks are present along the frontage with Bollinger Canyon Road and along the eastern frontage.

The City of San Ramon is planning to construct an overpass that would grade separate the Iron Horse Regional Trail at Bollinger Canyon Road (City of San Ramon Capital Improvement Program Project 905530), immediately northeast of BR 1A and adjacent to the eastern boundary of BR 3A. (The construction of the overpass is not part of the proposed Master Plan, but its completion was considered in the traffic study prepared for the subject Master Plan project.)

Bishop Ranch 3A

BR 3A encompasses 10.43 acres and consists of undeveloped land with grassland and ornamental landscaping. An existing construction staging area is located on BR 3A, which can be accessed from an unpaved road that connects to Bollinger Canyon Road. A 'Bishop Ranch' monument sign faces the intersection of Bollinger Canyon Road/Camino Ramon. Mature ornamental trees are planted along the BR 3A frontage with Camino Ramon. Sidewalks are present along the Bollinger Canyon Road and Camino Ramon frontages.

Bishop Ranch 2600

BR 2600 occupies 100.10 acres and is developed with a 1.75-million-square-foot multi-story office building, a parking structure, surface parking, two water features (Annabelle Lake and Lake Cecelia), and a combination paved and unpaved perimeter pedestrian pathway. Camino Ramon, Bishop Drive, and Executive Parkway provide access to BR 2600.

Surrounding Land Uses

The areas immediately adjacent to the Master Plan area are comprised of existing developments that include commercial, office, and residential uses, as well as public places for passive and active recreation. Table 3.1-1 summarizes the land uses surrounding the Master Plan area. As shown in the table, most of the surrounding land uses are part of the Bishop Ranch Business Park.

The Bishop Ranch Business Park is a 585-acre workplace campus that includes office space, commercial retail, and hotel uses. The Bishop Ranch Business Park is composed of several different properties: BR 2600, BR 1, BR 3, BR 6, BR 7, BR 8, BR 9, BR 11, BR 12, and BR 15.

Table 3.1-1: Surrounding Land Use Summary

Site	Direction	Surrounding Land Uses
Bishop Ranch 1A	North	Bollinger Canyon Road and BR 3A
	East	BR 1 access road, Iron Horse Regional Trail, and The Marketplace
	South	BR 1 surface parking and office buildings
	West	BR 1 access road and surface parking
Bishop Ranch 3A	North	BR 3 parking structure and office buildings
	East	Iron Horse Trail, Central Park, and San Ramon City Hall
	South	Bollinger Canyon Road and BR 1A
	West	Camino Ramon and City Center Bishop Ranch
Bishop Ranch 2600	North	Executive Parkway, BR 6, and BR 8
	East	Camino Ramon and BR 3
	South	Bishop Drive, City Center Bishop Ranch, and The Shops at Bishop Ranch
	West	Bishop Drive, San Ramon Marriott, and Interstate 680
Source: FCS 2020.		

Public Views

Public views are short- and medium-range views that are available from publicly accessible viewpoints, such as from city streets or city parks. Views are described in terms of what can be seen from the publicly accessible viewpoints within the Master Plan area, as well as from the publicly accessible viewpoints located outside of the Master Plan area. Views from the Master Plan area are important because the proposed Master Plan includes publicly accessible, privately owned and maintained, parks, open space, and other public facilities. Views of the Master Plan area from surrounding areas are important because there are city streets, city parks, and other publicly accessible viewpoints from which features of the proposed Master Plan will be visible. Views of the Master Plan area are shown in Section 2, Project Description, Exhibit 2-3.

Views from the Master Plan Area

A summary of existing views from the Master Plan area of the surrounding areas is provided below.

Bishop Ranch 1A

Mature trees line the entire periphery of BR 1A, and ornamental landscaping is located at the western boundary. Views of Bollinger Canyon Road and BR 3A are partially visible to the northeast. San Ramon City Hall is partially visible to the northeast, and a portion of the second-floor rooms of the Marriott Residence Inn are visible from BR 1A to the east. To the south and west, views are primarily of BR 1 and its related parking lots.

Bishop Ranch 3A

Mature trees are located along the western, northwestern, and northern portions of the BR 3A boundary, resulting in sporadic views of City Center Bishop Ranch to the west. Bollinger Canyon Road and BR 1A are visible to the south and southeast, and The Marketplace is visible to the southeast. In addition, BR 1 is visible to the south. The BR 3 parking structure is partially visible to the north. The Iron Horse Regional Trail and San Ramon City Hall are visible to the east.

Bishop Ranch 2600

Mature trees and landscaping along a raised earthen berm line the periphery of the site except a small area at the southern portion of the site primarily between Sunset Drive and Camino Ramon. These trees and earthen berm generally block views of the surrounding land uses as seen from the Master Plan area. Views of City Center Bishop Ranch are visible to the south, and views of The Shops at Bishop Ranch are partially visible to the southeast.

Views from Surrounding Land Uses

A summary of existing views from surrounding land uses of the Master Plan area is provided below. Viewer sensitivity tends to be highest from public places, such as Bollinger Canyon Road, Camino Ramon, Central Park, and the Iron Horse Trail. Refer to Exhibit 2-2 for the location of many of the surrounding land uses discussed below.

Bollinger Canyon Road

Bollinger Canyon Road has unobstructed views of BR 1A and BR 3A, which currently contain grassland and ornamental trees. The Shops at Bishop Ranch, and City Center Bishop Ranch partially

obstruct views of BR 2600 from Bollinger Canyon Road. Views of the Dougherty Hills (to the east) and Wiedemann Hill (to the west) are available from certain vantage points along Bollinger Canyon Road where existing landscaping and buildings do not intervene. Mount Diablo can be seen to the northeast in the far distance from Bollinger Canyon Road between BR 3A and BR 1A. However, views are already partially obstructed by existing vegetation, powerlines, and urban development.

Camino Ramon

Landscaping, earthen berms, buildings, and parking lots partially obstruct views of BR 2600 from Camino Ramon. Ornamental landscaping partially obstructs views of BR 1A and BR 3A from this roadway. Generally, only partial views of the Dougherty Hills and Wiedemann Hill are available along Camino Ramon because of the presence of landscaping and large multi-story office buildings on either side of the roadway.

Bishop Ranch 1

Views of BR 1A from any public spaces within BR 1 are partially obstructed by ornamental landscaping. Views of the Dougherty Hills and Wiedemann Hill are available from BR 1.

Iron Horse Trail

North of Bollinger Canyon Road, the Iron Horse Trail has unobstructed views of BR 3A while views of BR 1A are partially obstructed by ornamental landscaping along Camino Ramon. South of Bollinger Canyon Road, views of BR 1A from the Iron Horse Trail are mostly obstructed by ornamental vegetation located with the trail right-of-way an on BR 1A. Views of the Dougherty Hills and Wiedemann Hill are available from the trail.

Chevron Park

Chevron Park, a corporate campus, is located south of Bollinger Canyon Road and west of BR 1 and BR 1A. The structures within Chevron Park are located in the center of the property with dense landscaping surrounding the perimeter. A 125-foot communications tower is located in the center of Chevron Park. Because of the existing structures and ornamental trees, views of BR 1A or BR 3A from Chevron Park are mostly obstructed. Views of the Dougherty Hills and Wiedemann Hill are available from within Chevron Park.

City Center and The Shops at Bishop Ranch

The City Center development is located along the southern boundary of BR 2600. Views of BR 2600, BR 3A and BR 1A from City Center are primarily unobstructed with the exception of intervening landscaping. Some clear views of the Dougherty Hills to the east are visible between existing trees and intervening development. There are no views of Wiedemann Hill or the East Bay Hills to the west as they are entirely obstructed by the Shops at Bishop Ranch and associated landscaping.

The Shops at Bishop Ranch is situated along the southwestern boundary of BR 2600. Views of BR 2600 from The Shops at Bishop Ranch are partially obstructed by intervening landscaping. There are no views of BR 3A or BR 1 from The Shops at Bishop Ranch. Most views from public spaces within The Shops at Bishop Ranch are obstructed by existing landscaping and City Center Bishop Ranch. However, some views of the Dougherty Hills and Wiedemann Hill are available from public spaces within The Shops at Bishop Ranch.

Bishop Ranch 3

Views from public spaces within BR 3 of BR 3A and BR 2600 are mostly obstructed by existing structures and ornamental trees. Views of the Dougherty Hills and Wiedemann Hill are available from public spaces within BR 3.

Central Park

Generally, views to the west from Central Park are obstructed by dense vegetation located along Watson Canyon Drainage/Iron Horse Trail. However, unobstructed views of BR 3A are available at gaps in the vegetation and at bridge crossings of the creek. Views of the Dougherty Hills and Wiedemann Hill are available from Central Park.

State Scenic Highways

The 29.9-mile segment of Interstate 680 (I-680) between Mission Boulevard in Fremont and State Route 24 in Walnut Creek is classified as an "Officially Designated" State Scenic Highway. The nearest portion of the Master Plan area to I-680 is BR 2600, which is approximately 150 feet east from the freeway. The primary scenic resources within the San Ramon city limits that are visible from I-680 are the distant Dougherty Hills, Wiedemann Hill, and Mount Diablo. Middle and immediate views from I-680 consist of urban development and landscaping vegetation typical of the area.

Light and Glare

The Master Plan vicinity is comprised of developed commercial and residential land uses. Below is a summary of existing sources of light and glare in the Master Plan area.

Bishop Ranch 1A and Bishop Ranch 3A

There are no existing sources of light on BR 1A and BR 3A. Nearby sources of light include streetlights along Bollinger Canyon Road, Camino Ramon, and Bishop Ranch 1 East (a minor roadway that provides circulation within the Bishop Ranch 1 property). Other sources of light include lighting from adjacent structures and parking lots associated with San Ramon City Hall, City Center Bishop Ranch, BR 3, BR 2600, BR 1, and The Marketplace. Vehicular headlights also generate light along area roadways and within nearby parking areas. Existing sources of glare is generated from surroundings buildings and cars in the parking areas.

Bishop Ranch 2600

BR 2600 is currently developed with an office building, a parking structure, and surface parking, which are all sources of existing lighting. Other existing sources of light include light associated with City Center Bishop Ranch, The Shops at Bishop Ranch, buildings on BR 6, BR 7, BR 8, and streetlights along Camino Ramon, Bishop Drive, and Executive Parkway. Vehicular headlights also generate light along Bishop Drive, Camino Ramon, I-680, and Executive Parkway. Existing sources of glare is generated from surrounding buildings and cars in parking areas.

3.1.3 - Regulatory Framework

Federal

No federal plans, policies, regulations, or laws related to aesthetics are applicable to the proposed Master Plan.

State

California Scenic Highway Program

The State Legislature created the California Scenic Highway Program, maintained by the California Department of Transportation (Caltrans), in 1963. The purpose of the State Scenic Highway Program is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. The State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been officially designated. The status of a proposed State Scenic Highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway.

Local

City of San Ramon General Plan 2035

The City of San Ramon General Plan 2035 (General Plan) sets forth the goals and policies related to scenic vistas, visual character, light and glare. The goals and policies are summarized below. Section 3.10, Land Use, of the draft EIR separately analyzes how the proposed Master Plan will comply with the General Plan.

Economic Development Element

- **Policy 2.3-I-15:** Use development standards to minimize adverse visual effects of transportation infrastructure.
  Planning for new development should address the visual aspects of circulation, parking, and loading facilities, using siting, design, landscaping, and (where appropriate) screening to assure that these functional elements do not detract from the physical attractiveness of new development.

Land Use Element

- **Policy 4.6.I-19:** Ensure that neighborhood retail centers and commercial service buildings are compatible with the surrounding neighborhood while incorporating 360-degree design principles.
- The 360-degree design principles are intended to ensure that an adequate level of architectural design development and detail is applied to all building elevations of a proposed project to achieve a high quality outcome. All developers are required to present their proposals to the City's Architectural Review Board. In conjunction with staff, Planning

Commission and neighborhood reviews, the Board's review helps ensure that retail development is consistent with the Architectural Review Guidelines, community's values and compatible with surrounding properties.

- **Policy 4.8-G-1:** Maintain and enhance San Ramon's identity.
- **Policy 4.8-I-2:** Ensure that the design, location, and size of new development blends with the environment and a site's natural features.
  The design and location of new buildings can either enhance or detract from the surrounding environment. Buildings should be positioned so that trees, Creekside vegetation, scenic views, and other natural resources are preserved.
- **Policy 4.8-I-3:** Continue to refine citywide lighting standards to ensure appropriate illumination levels for residential, commercial, and industrial land uses, and that lighting is of a consistent character and quality while reducing light pollution.
  Parking lot lighting standards in the City's Zoning Ordinance can help protect residential neighborhoods from glare by shielding and filtering light sources along with maximum illumination levels to reduce unnecessary illumination on adjacent properties and conserve energy.
- **Policy 4.8-I-4:** Ensure that parking facilities adequately address the community image, aesthetics and functional needs of the City.
  Depending on size, residential, commercial, and office development often must provide parking spaces to accommodate the needs of their residents and users. The City shall encourage architectural integration of parking structures into developments, landscape and architectural screening and the construction of underground parking wherever feasible to minimize impervious surfaces at ground level
- **Policy 4.8-I-8:** Use the development review process to ensure that new development minimizes impacts and preserves and/or enhances significant views of the natural landscape.
  The City's most prominent visual resources are the hills to the west and Mt. Diablo and its foothills. Other natural visual amenities include San Ramon Creek within the Crow Canyon subarea, San Catanio Creek along Norris Canyon Road, and the Dougherty Hills ridgeline. Views of the natural landscape can be emphasized and preserved through the design and placement of streets, buildings, and outdoor spaces. Open Space Policy 8.4-I-13 provides for the development of viewshed criteria that will inform the design review process.
- **Policy 4.8-I-9:** Continue to implement landscaping guidelines for public roadways that improve their visual character.
  The City's "Beautification Plan" and "Streetscape Beautification Guidelines" outline landscaping concepts for many of the arterials, gateways, and key intersections. Implementation of these concepts will result in a distinct, unified image for San Ramon that reflects the indigenous and historic character of the San Ramon Valley. Landscaping standards should be reviewed regularly to ensure that there is no conflict with pedestrian safety and access, vehicle visibility at intersections, and fire hazard control as landscaping matures. Safety issues related to site lines and security are addressed in the Zoning Ordinance.
- **Policy 4.8-I-12:** Encourage attractive, drought-tolerant landscaping on private property that is suitable for San Ramon's climate.

Although San Ramon is located in an area of mild temperatures and average rainfall, drought-like conditions have prevailed in the past for years at a time. The City has established guidelines to promote water-conserving landscapes by limiting turf area and requiring drought tolerant shrubbery. The City's Climate Action Plan (CAP) promotes a 20% reduction in water use for new development, the application of the State Model efficient Landscape Ordinance (MWELO) as well as the development and use of dual water systems utilizing reclaimed water for irrigation purposes.

- **Policy 4.8-I-14:** Ensure that businesses provide signs that are attractive and consistent with neighboring commercial uses, minimize visual clutter from roadways and other public areas, and, where possible, cannot be seen from residential neighborhoods.
  San Ramon requires developers to submit a "Master Sign Program" for most commercial and multi-family residential projects to ensure that signs are compatible with the above-stated goals. The City also provides design guidelines and location criteria for a variety of on- and offsite signs, all of which are subject to Architectural Review Board and/or Planning Commission review and approval.
- **Policy 4.8-I-17:** Implement the City Zoning Ordinance sun access plane requirements and provide provisions for encroachments into the sun access plane to allow architectural flexibility.

  Sun access plane encroachments may be done by allowing, for example, a 15-foot vertical projection above the sun access plane for up to 25 percent of the length of the lot line opposite a City park. The Iron Horse Trail corridor is not subject to sun access plane standards. Currently deviations to the sun access plane requirements are processed through the minor exception or variance process.
- **Policy 4.8-I-19:** Continue to provide park and recreational amenities that combine well-designed buildings, recreational equipment and playing fields, and complementary landscaping at key locations throughout the City.
  San Ramon residents take pride in their parks, which offer activities from children's play areas at all the facilities, to adult classes at the Community Center. San Ramon's parks are designed to blend with adjacent neighborhoods, capture significant views of the hillsides, and soften the urban environment.
- **Policy 4.8-I-20:** Require all walls and fences to be designed to minimize visual monotony.
  Walls shall be designed to provide an attractive streetscape with varied building orientations, landscaping and berm materials, and any other techniques that will provide visual relief.

San Ramon Zoning Ordinance

The Master Plan area is zoned City Center Mixed Use (CCMU). The relevant provisions of this zoning district are discussed below.

Division 2 Chapter III—Mixed Use Zones

D2-2 Purpose of Mixed Use Zones—CCMU

The Master Plan area is zoned as CCMU by the San Ramon Zoning Ordinance. According to the Zoning Ordinance, development within CCMU should reflect high quality design with integrated open space, recreational, and/or cultural amenities, as well as opportunities for workforce housing

and structured parking. The CCMU Zone is consistent with and implements the Mixed Use land use classification of the General Plan and do not have any height limits (Zoning Ordinance, Division D2, Allowable Land Uses and Zoning Standards). The CCMU provisions allow a FAR of 0.70. Additional FAR, up to a maximum of 1.35, may be allowed for projects that include affordable housing and significant public benefits or amenities such as public art and plazas, public facilities, or a transit facility.

The proposed structures within BR 1A and BR 3A are not subject to any height restrictions, per the CCMU Zoning Designation and Section D-3-6 of the Zoning Ordinance.

D2-15—Mixed Use Zone Additional Development Standards

According to the Zoning Ordinance, the daylight plane requirement states that a proposed structure shall not intercept a 30-degree daylight plane inclined inward at a residential zone property line and/or I-680 freeway property line. The 30-degree daylight plane shall be measured from:

1. A height of 6 to 8 feet above existing grade, as required by section D3-4.F, at the R zone property line and/or I-680 freeway property line for a site in a MU zone; and
2. A height of 12 feet above existing grade at the R zone boundary line and/or I-680 freeway property line for a site in the CCMU zone.

The 30-degree daylight plane shall be measured from the required height above the existing site grade regardless of the site grade on either side of the property line.

D3-6—Height Limits and Exceptions

This section describes the required methods for measuring the height of structures in compliance with the height limits established by the Zoning Ordinance, and exceptions to those height limits.

This section establishes a maximum height for buildings outside the City Center project. Notwithstanding anything to the contrary in this Code, no building outside the area identified on the Assessment Roll as APN 213-133-063, APN 213-133-086, APN 213-120-010, APN 213-120-013, APN 213-120-017 and APN 213-120-018 and as shown on the Vesting Tentative Map for Subdivision 9217 (San Ramon City Center Project), approved by the City Council on December 11, 2007, shall be permitted to exceed the greater of five (5) stories or eighty-five feet (85') in height, including mechanical, unless approved by the electors of San Ramon.

In addition, the Zoning Ordinance establishes that no structure shall exceed the height limit established for the applicable zone by Division D2 (Allowable Land Uses and Zone Standards), except as otherwise provided by this Section, or by Division D4 (Standards for Specific Land Uses).

The proposed structures within BR 2600 will be subject to a maximum height of 85 feet, per Division D3-6 of the San Ramon Zoning Ordinance.

3.1.4 - Methodology

FCS personnel conducted site reconnaissance, reviewed aerial and site photographs as well as illustrated views of the proposed Master Plan, and reviewed the applicable planning documents for the Master Plan area. FCS personnel observed the Master Plan area from multiple short-range and

long-range public viewpoints. The impact analysis is based on the existing character of the Master Plan area, existing public views, and existing sources of light and glare. Changes related to aesthetics, light, and glare from the proposed Master Plan are identified and qualitatively evaluated based on modifications to the existing aesthetic setting and viewer's sensitivity. Impacts related to aesthetics are assessed using the significance criteria established by the California Environmental Quality Act (CEQA) Guidelines, as augmented by the City of San Ramon.

The proposed structures within BR 2600 will be subject to a maximum height of 85 feet, per Division D3-6 of the San Ramon Zoning Ordinance. The proposed structures within BR 1A and BR 3A are not subject to any height restrictions, per the CCMU Zoning Designation.

3.1.5 - Thresholds of Significance

According to CEQA Guidelines Appendix G, Environmental Checklist, to determine whether impacts to aesthetics are significant environmental effects, the following questions are analyzed and evaluated.

Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista?

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

3.1.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed Master Plan.

Scenic Vistas

Impact AES-1:	**The proposed Master Plan would not have a substantial adverse effect on a scenic vista.**

Impact Analysis

The City of San Ramon General Plan 2035 does not identify any scenic vistas in the Master Plan area. The primary scenic vistas visible from the Master Plan area and surrounding land uses are the Dougherty Hills, Wiedemann Hill, and Mount Diablo. Impacts on views of scenic vistas resulting from the proposed Master Plan are analyzed by component.

Bishop Ranch 1A

BR 1A would include the construction of 652 dwelling units within three buildings. These buildings would be visible from publicly accessible viewpoints, such as the Iron Horse Trail and Bollinger Canyon Road. As previously stated, BR 1A is located within the CCMU Zoning Designation, which does not have any height restrictions. However, the proposed buildings would be compatible with existing surrounding buildings in terms of height and architecture, as detailed in the CityWalk Design Guidelines (Appendix B).

Development on BR 1A would narrow, but not eliminate, existing distant views of both the Dougherty Hills to the east (Exhibit 3.1-1) and Wiedemann Hill to the west for persons traveling on Bollinger Canyon Road. However, under existing conditions, these views are partially obstructed by existing vegetation, powerlines, and urban development. While development on BR 1A would introduce new structures, the visual corridor along Bollinger Canyon Road in both the east and west directions would be maintained. Similarly, views of Mount Diablo may be obstructed by development on BR 1A; however, there are no public viewing areas south of BR 1A where such views would be obstructed. Therefore, impacts to scenic views from the proposed development within BR 1A would be less than significant.

Bishop Ranch 3A

BR 3A would include the construction of 791 dwelling units, a multi-story 169-key hotel, and 70,000 square feet of retail/office space within four buildings. These new buildings would be visible from publicly accessible viewpoints, such as the Iron Horse Trail, Central Park, Bollinger Canyon Road and Camino Ramon. However, BR 3A is situated between City Center Bishop Ranch and San Ramon City Hall and is surrounded by multi-story parking structures and office buildings, which currently obscure views of scenic resources. As previously stated, BR 3A is located within the CCMU Zoning Designation, which does not have any height restrictions. However, the proposed buildings would be compatible with existing surrounding buildings in terms of height and architecture, as detailed in the CityWalk Design Guidelines (Appendix B).

Limited existing intermittent views of the Dougherty Hills from Camino Ramon along the BR 3A frontage would be obstructed by the proposed structures. In addition, existing distant, partially obstructed views of Mount Diablo as viewed from Bollinger Canyon Road would be further obstructed as a result of development on BR 3A. Finally, distant, partially obstructed views of Wiedemann Hill may be obstructed by development on BR 3A, depending on the viewer's location within Central Park. However, under existing conditions, these views are already partially obstructed by existing vegetation, powerlines, and urban development. While development on BR 3A would introduce new structures, the visual corridor along Bollinger Canyon Road in both the east and west directions would be maintained. Thus, development on BR 3A would narrow, but not eliminate, existing distant views of both Dougherty Hills to the east (Exhibit 3.1-1) and Wiedemann Hill to the west for persons traveling on Bollinger Canyon Road. Therefore, impacts to scenic views from the proposed development within BR 3A would be less than significant.

Bishop Ranch 2600

BR 2600 would include the construction of 3,057 dwelling units, 96,000 square feet of retail/office space, multi-level parking garages, an approximately 15,000-square-foot community center, and an approximately 1,500-seat outdoor amphitheater. These new buildings would be located within the heart of City Center Bishop Ranch and would be surrounded by existing multi-story office buildings, parking structures, and mature landscaping that currently obscure views of scenic resources within the area. Exhibit 3.1-2 and Exhibit 3.1-3 contain illustrations depicting the proposed structures and views along Camino Ramon adjacent to BR 2600. As previously stated, the proposed structures within BR 2600 are subject to a maximum height of 85 feet, per Division D3-6 of the San Ramon Zoning Ordinance. In addition, D2-15 requires mixed uses to adhere to the Daylight Plane Requirement which may further govern building height and setbacks near residential areas and I-680. As depicted in Exhibits 3.1-2 and 3.1-3, the new buildings would be consistent with the surrounding buildings and are not expected to substantially obstruct publicly accessible views of Dougherty Hills, Wiedemann Hill, and Mount Diablo, or substantially change views from publicly accessible viewpoints. Therefore, impacts to scenic views would be less than significant.

Distant Views

The hills flanking the San Ramon Valley include elevated publicly accessible open space that provides distant views of San Ramon. Development of the proposed Master Plan would contribute to the urban massing as seen from such locations. Exhibits 3.1-4 through 3.1-6 provide photo-simulations of distant views under existing conditions and with development of the proposed Master Plan. As shown in these exhibits, while the proposed Master Plan would increase visible building massing from these distant views, the proposed development would not dominate the wide sweeping views nor would it obstruct views of the Dougherty Hills and Mount Diablo. As such, impacts to distant scenic views would be less than significant.

Summary of Impacts

Development within the Master Plan area would be required to demonstrate consistency with the General Plan and the Zoning Ordinance prior to issuance of building permits, including setbacks, building heights, and other development standards. In addition, project components within each phase of the proposed Master Plan would be subject to the City's architectural approval process, including review and approval of all proposed structures within the Master Plan. Review of project components would ensure that the proposed Master Plan is consistent with the surrounding area related to massing, architectural style, and lighting. Finally, while publicly accessible views of the Dougherty Hills, Wiedemann Hill and/or Mount Diablo would be obstructed in certain locations, the potential changes to scenic views would remain less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Scenic Highways

Impact AES-2: **The proposed Master Plan would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway.**

Impact Analysis

I-680 is an "Officially Designated" State Scenic Highway within the limits of the City of San Ramon. The primary scenic resources within the San Ramon city limits that are visible from I-680 are the Dougherty Hills, Wiedemann Hill, and Mount Diablo. The Master Plan area is not visible from I-680 because of existing topography as well as trees and other vegetation within the freeway right-of-way, The Shops at Bishop Ranch property, and the Bollinger Canyon Road interchange. In addition, views of Dougherty Hills and Mount Diablo are obstructed due to intervening topography, vegetation and development. Wiedemann Hill is located west of I-680 and therefore, the project would not obstruct views of Wiedemann Hill from I-680.

Bishop Ranch 1A and Bishop Ranch 3A

BR 1A and BR 3A are located approximately 0.5 miles from I-680. Because of the distance of BR 1A and BR 3A from I-680, views from I-680 are not expected to be altered from the proposed buildings at these locations.

Bishop Ranch 2600

BR 2600 is located adjacent to, and approximately 135 feet from I-680. As depicted on the Conceptual Site Plan, four buildings would be located within 900 feet of I-680. Although the proposed Master Plan would introduce new structures that may be visible from I-680, the new buildings would be subject to the City's architectural approval process, including review and approval of all proposed structures within the Master Plan. Review of the proposed buildings would ensure that the proposed Master Plan is consistent with the surrounding area related to massing and architectural style to minimize impacts related to views from I-680. In addition, the proposed Master Plan would include landscaping around the perimeters of the buildings to provide a softening visual element. Furthermore, since views of the Dougherty Hills and Mount Diablo are not visible from I-680 near BR 2600, the project would not have the potential to obstruct such views. Therefore, views from I-680 would not be substantially changed and impacts would be less than significant.

Summary of Impacts

BR 2600 is the only part of the proposed Master Plan that is visible from I-680. Development of the proposed Master Plan would not substantially affect views from I-680. Building heights would be limited to 85 feet and would only be partially visible from I-680 due to intervening mature landscaping. Therefore, the proposed Master Plan's impacts on State Scenic Highways would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Visual Character

Impact AES-3:	**The proposed Master Plan is in an urbanized area and would not conflict with applicable zoning and other regulations governing scenic quality.**

Impact Analysis

The proposed Master Plan would develop new buildings and infrastructure on land that is mostly developed with existing parking parks lots and water features, but also contains undeveloped land with grassland and ornamental landscaping. The proposed Master Plan is located in a built-up and urbanized area of the City of San Ramon.

Bishop Ranch 1A, Bishop Ranch 3A, and Bishop Ranch 2600

The entire Master Plan area is zoned as CCMU by the City of San Ramon Zoning Ordinance and complies with the permitted uses of this designation.

The proposed Master Plan would change the visual character of the Master Plan area. The undeveloped areas with grassland and ornamental landscaping would be developed with new multi-story buildings. In addition, a number of multi-story buildings would be developed on sites that are currently paved parking lots. However, the Master Plan area is located within an urbanized portion of San Ramon and currently surrounded by multi-story buildings. The tall buildings in the vicinity of the Master Plan area include the following: City Center Bishop Ranch, San Ramon City Hall, The Shops at Bishop Ranch, and buildings within Chevron Park, BR 1, The Marketplace, BR 3, BR 6, BR 7, and BR 8. Furthermore, landscaping will be provided along public streets, around buildings, and in public areas to soften the appearance of the new buildings in accordance with the CityWalk Design Guidelines, as detailed in Appendix B.

As previously stated, the proposed structures within BR 2600 would be subject to a maximum height of 85 feet, per Division D3-6 of the San Ramon Zoning Ordinance. The proposed structures within BR 1A and BR 3A are not subject to any height restrictions, per the CCMU Zoning Designation. The proposed structures within BR 2600 would have a maximum height of 85 feet, in accordance with the Zoning Ordinance.

In addition, Division D2-15 of the Zoning Ordinance requires mixed uses to adhere to the Daylight Plane Requirement which may further limit building heights. Division D2-15 ensures that a proposed structure does not intercept a 30-degree daylight plane inclined inward at a residential zone property line and/or I-680 freeway property line. There are no residentially zoned properties located

adjacent to any of the Master Plan areas. Residentially zoned areas in the vicinity of the Master Plan areas are located over 1,000 feet from the proposed structures. As such, the Daylight Plane Requirement would not apply in this instance. BR 2600 is located adjacent to I-680 (beyond Bishop Drive), and therefore, the Daylight Plan Requirement would limit building heights or require set back changes as necessary. Application of the Daylight Plan Requirement would be determined prior to issuance of building permits. In addition, Master Plan components within each phase of the proposed Master Plan would be subject to the City's architectural approval process, including review and approval of all proposed structures within the Master Plan. As such, development associated with the Master Plan would be consistent with zoning regulations set forth by the City of San Ramon related to height and visual character.

The CCMU zoning provisions allow a floor area ratio (FAR) of 0.70. Additional FAR, up to a maximum of 1.35, may be allowed for projects that include affordable housing and significant public benefits or amenities such as public art and plazas, public facilities, or a transit facility. The total FAR for the proposed Master Plan ranges from 1.20 and 1.35. As the proposed Master Plan includes affordable housing and well as publicly accessible, privately owned and maintained, parks, open space, and other public facilities, the proposed Master Plan is consistent with the allowable FAR within the CCMU zoning designation.

Policy 4.8-I-17 of the San Ramon General Plan 2035 requires that sun access plane requirements are implemented for projects adjacent to city parks, to protect access to the sun while allowing for architectural flexibility. The proposed Master Plan includes multi-story buildings adjacent to the Iron Horse Trail, which is explicitly exempt from the sun access plane standards. The Master Plan does not propose any new buildings adjacent to City parks. The proposed Master Plan complies with Policy 4.8-I-2 by positioning the proposed buildings so that trees, Creekside vegetation, scenic views, and other natural resources are preserved.

Review of project components would ensure that the proposed Master Plan is consistent with the surrounding area related to massing, architectural style, and lighting, and that impacts related to visual character remain less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Light and Glare

Impact AES-4: The proposed Master Plan could create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Impact Analysis

The proposed Master Plan would develop BR 2600, BR 3A and BR 1A within the Bishop Ranch Business Park in the City of San Ramon. This impact analysis assesses the proposed Master Plan's light and glare impacts. Each topic is discussed separately.

Light

The Master Plan area is adjacent to existing development, Bollinger Canyon Road, Camino Ramon, Executive Parkway, and I-680, which are all current sources of nighttime lighting in the Master Plan area. New sources of light would be emitted from exterior building lighting, street lighting, parking structure lighting, illuminated signs, and vehicular headlights. Lighting associated with the proposed Master Plan is discussed below.

Bishop Ranch 1A

BR 1A is currently undeveloped with grassland with ornamental landscaping. New sources of light emitted from development within BR 1A would include light from residential structures, streetlights, vehicles, and illuminated signs.

Bishop Ranch3A

BR 3A is currently undeveloped with grassland with ornamental landscaping. Sources of light from new development within BR 3A would include lighting from the hotel, commercial areas, dwelling units, and the associated parking areas. Additional lighting would be introduced from vehicles and signs.

Bishop Ranch 2600

BR 2600 is currently developed with existing buildings and parking areas, all of which are current sources of light that contribute to ambient light conditions. Development within BR 2600 would result in an incremental increase in new lighting from the new buildings, vehicles, and signs.

Summary of Light Impacts

Although the proposed Master Plan would introduce new sources of lighting into the Master Plan area, light emitted from the Master Plan area would be consistent with surrounding sources of light emissions and is not expected to substantially alter the ambient light conditions.

Nonetheless, a condition of project approval would require that, prior to issuance of building permits, the project applicant shall submit a site lighting plan to City of San Ramon for review and approval. The plan will identify necessary requirements established in the Zoning Ordinance (D3-7 and D3-33) and will provide detailed information regarding lighting levels by the use of photometrics to indicate the maximum, minimum, and average foot-candle lighting level proposed for this Master Plan. The plan will also identify the type of light fixtures and pole height. As the City will review the photometrics and will require refinements, if needed, to reduce the potential for light trespass, impacts related to increased lighting would be less than significant.

Glare

Consistent with the appearance of the other multi-story structures in the Bishop Ranch Business Park, some of the proposed Master Plan's multi-story residential, hotel, retail, and office structures would have glass windows with the potential for glare. However, glare from existing structures in the Bishop Ranch Business Park (e.g., BR 1 and BR 3) is not significant on even the brightest days because the exterior glass is treated to reduce reflection. The proposed Master Plan's structures would be required to meet the standards in Zoning Ordinance D2-15B, which requires mixed-use development to minimize glare. Therefore, new sources of glare from glass windows are not expected to substantially affect daytime views, and impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

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Source: BAR Architects 2020

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Exhibit 3.1-1
Bollinger Canyon Road Looking East Illustration

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Source: BAR Architects 2020

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Exhibit 3.1-2
Camino Ramon Parkway Northern View Illustration

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Source: BAR Architects 2020

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Exhibit 3.1-3
Camino Ramon Parkway Southern View Illustration

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Exhibit 3.1-4
View of Twin Creeks Neighborhood

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Source: BAR Architects 2020

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Exhibit 3.1-5
View of Eastern Hills Neighborhood

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Source: BAR Architects 2020

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Exhibit 3.1-6
View From Car Traveling North on I-680

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3.2 - Air Quality

3.2.1 - Introduction

This section describes the existing regional and local air quality conditions as well as the relevant air quality regulatory framework. This section also evaluates the potential impacts related to air quality that could result from implementation of the proposed Master Plan. Information included in this section is based, in part, on Master Plan-specific air quality modeling results included in Appendix C. Air quality modeling results were obtained utilizing California Emissions Estimator Model (CalEEMod) version 2016.3.2 and the American Meteorological Society/United States Environmental Protection Agency (EPA) AERMOD air dispersion model (version 19191).

3.2.2 - Environmental Setting

Regional Geography and Climate

The City of San Ramon is located in Contra Costa County and is within the San Francisco Bay Area Air Basin (Air Basin or SFBAAB). The Air Basin is approximately 5,600 square miles in area and consists of nine counties that surround the San Francisco Bay, including all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties; the southwestern portion of Solano County; and the southern portion of Sonoma County. The San Francisco Bay Area (Bay Area) has a Mediterranean climate characterized by mild, dry summers and mild, moderately wet winters; moderate daytime onshore breezes, and moderate humidity.

A semi-permanent, high-pressure area centered over the northeastern Pacific Ocean dominates the summer climate of the West Coast. Because this high-pressure cell is persistent, storms rarely affect the California coast during the summer. Thus, the conditions that persist along the coast of California during summer are a northwest airflow and negligible precipitation. A thermal low-pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the Bay Area much of the summer.

The steady northwesterly flow around the eastern edge of the Pacific High (a high-pressure cell) exerts stress on the ocean surface along the west coast. This induces upwelling of cold water from the adjacent Pacific Ocean. Upwelling produces a band of cold water off San Francisco that is approximately 80 miles wide. During July, the surface waters off San Francisco are 3°F (degrees Fahrenheit) cooler than those off Vancouver, British Columbia, more than 900 miles to the north. Air approaching the California coast, already cool and moisture-laden from its long trajectory over the Pacific, is further cooled as it flows across this cold bank of water near the coast, thus accentuating the temperature contrast across the coastline. This cooling is often sufficient to produce condensation—a high incidence of fog and stratus clouds along the Northern California coast in summer.

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the gap in the western Coast Ranges, known as the Golden Gate, and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate.

This channeling of the flow through the Golden Gate[1] produces a jet that sweeps eastward but widens downstream, producing southwest winds at Berkeley and northwest winds at San José; a branch curves eastward through the Carquinez Strait and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Golden Gate, the Carquinez Strait, or San Bruno Gap. For example, the average wind speed at San Francisco International Airport from 3:00 a.m. to 4:00 p.m. in July is about 20 miles per hour (mph), compared with only about 8 mph at San José and less than 7 mph at the Farallon Islands.

The sea breeze between the coast and the Central Valley[2] commences near the surface along the coast in late morning or early afternoon; it may first be observed only through the Golden Gate. Later in the day, the layer deepens and intensifies while spreading inland. As the breeze intensifies and deepens, it flows over the lower hills farther south along the peninsula. This process frequently can be observed as a bank of stratus clouds "rolling over" the coastal hills on the west side of the bay. The depth of the sea breeze depends in large part upon the height and strength of the inversion. The generally low elevation of this stable layer of air prevents marine air from flowing over the coastal hills. It is unusual for the summer sea breeze to flow over terrain exceeding 2,000 feet in elevation.

In winter, the SFBAAB experiences periods of storminess, moderate-to-strong winds, and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, weak onshore flows in the afternoon, and otherwise light and variable winds.

A primary factor in air quality is the mixing depth (the vertical air column available for dilution of contaminant sources). Generally, the temperature of air decreases with height, creating a gradient from warmer air near the ground to cooler air at elevation. This is caused by most of the sun's energy being converted to sensible heat at the ground, which in turn warms the air at the surface. The warm air rises in the atmosphere, where it expands and cools. Sometimes, however, the temperature of air actually increases with height. This condition is known as temperature inversion because the temperature profile of the atmosphere is "inverted" from its usual state. Over the SFBAAB, the frequent occurrence of temperature inversions limits mixing depth and, consequently, limits the availability of air for dilution.

Air Pollutant Types, Sources, and Effects

Criteria Air Pollutants

Air pollutants are termed criteria air pollutants if they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Table 3.2-1 provides a summary of the types, sources, and effects of criteria air pollutants.

[1] A strait on the West Coast of North America that connects the San Francisco Bay to the Pacific Ocean.

[2] A flat valley that dominates the geographical center of California stretching 450 miles from north-northwest to south-southeast, inland from and parallel to the Pacific Ocean coast. It is bounded by the Sierra Nevada to the east and the Coast Range to the west.

Table 3.2-1: Description of Criteria Pollutants of National and California Concern

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Ozone	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), nitrous oxides (NO_X), and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_X) are mobile sources (on-road and off-road vehicle exhaust).	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.
Particulate matter (PM_{10}) Particulate matter ($PM_{2.5}$)	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (one micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.
Nitrogen dioxide (NO_2)	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides—NO_X (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). NO_X is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_X can react with compounds to form nitric acid and related small particles and result in particulate matter (PM) related health effects.	NO_X is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide forms quickly from NO_X emissions. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contributions to atmospheric discoloration; increased visits to hospital for respiratory illnesses.

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Carbon monoxide (CO)	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.
Sulfur dioxide (SO_2)	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 parts per million (ppm), the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_X) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethyl sulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.
Lead (Pb)	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure

Sources:
National Toxicology Program. 2016. Report on Carcinogens, Fourteenth Edition; U.S. Department of Health and Human Services, Public Health Service. Diesel Exhaust Particles. Website: https://ntp.niehs.nih.gov/ntp/roc/content/profiles/dieselexhaustparticulates.pdf. Accessed July 30, 2018.

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United States Environmental Protection Agency (EPA). 2018. Health Effects Notebook for Hazardous Air Pollutants. December 21. Website: https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants. Accessed December 31, 2019.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used as indicators of air quality conditions. Air pollutant human exposure standards are identified for many TACs, including the following common TACs relevant to development projects: particulate matter (PM), fugitive dust, lead, and asbestos. These air pollutants are called TACs because they are air pollutants that may cause or contribute to an increase in mortality or in serious illness or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health impact may pose a threat to public health even at low concentrations. TACs can cause long-term health effects (such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage) or short-term acute affects (such as eye watering, respiratory irritation, runny nose, throat pain, or headaches).

TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to a particular TAC. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk, for example, is typically expressed as excess cancer cases per million exposed individuals, typically over a lifetime exposure or other prolonged duration. For noncarcinogenic substances, there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels may vary depending on the specific TAC. Acute and chronic exposure to noncarcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to an acceptable reference exposure levels (RELs).

To date, the California Air Resources Board (ARB) has designated nearly 200 compounds as TACs. The ARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most important being diesel particulate matter (DPM) from diesel-fueled engines. Common TACs of national and California concern include DPM, volatile organic

compounds (VOCs), benzene, asbestos, hydrogen sulfide, sulfates, visibility-reducing particulates, vinyl chloride, and lead. Table 3.2-2 provides a summary of these types, sources, and effects of TACs of national and California concern.

Table 3.2-2: Description of Toxic Air Contaminants of National and California Concern

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Diesel Particulate Matter	Diesel Particulate Matter (DPM) is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.	Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.
VOCs	Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.	Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Benzene	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a "Group A" carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. Benzene occurs naturally in gasoline at one to two percent by volume. The primary route of human exposure is through inhalation.	Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.
Asbestos	Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite.	Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States.	Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs). Exposure to asbestos can occur during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present.
Hydrogen Sulfide	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.
Sulfates	Sulfates occur in combination with metal and/or hydrogen	Sulfates are particulates formed through the	(a) Decrease in ventilatory function;

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	ions. Many sulfates are soluble in water.	photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.	(b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.
Visibility Reducing Particles	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal; and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravates existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.
Vinyl Chloride	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, the ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
		been detected near landfills, sewage plants, and hazardous waste sites.	
Lead (Pb)	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.

Sources:

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National Toxicology Program. 2011. Report on Carcinogens, Twelfth Edition; U.S. Department of Health and Human Services, Public Health Service. June 10. Benzene. Website: http://ntp.niehs.nih.gov/ntp/roc/twelfth/profiles/Benzene.pdf. Accessed December 31, 2019.

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United States Environmental Protection Agency (EPA). 2011. Indoor Air Quality. Sources of Indoor Air Pollution—Organic Gases (Volatile Organic Compounds—VOCs). Website: www.epa.gov/iaq/voc.html. Accessed December 31, 2019.

United States Environmental Protection Agency (EPA). 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017–2025 Cars and Light Trucks. Website: https://nepis.epa.gov/EPA/html/DLwait.htm?url=/Exe/ZyPDF.cgi/P100EZ7C.PDF?Dockey=P100EZ7C.PDF. Accessed December 31, 2019.

Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature inversions interact with the physical features of the landscape to determine the movement and dispersal of air pollutant emissions and, consequently, their effect on air quality.

Regional Air Quality

The Bay Area Air Quality Management District (BAAQMD) is the regional agency with jurisdiction for regulating air quality within the nine-county SFBAAB, which includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the western portion of Solano County, and the southern portion of Sonoma County.

Air Pollutant Standards and Attainment Designations

Air pollutant standards have been identified by the EPA and the ARB for the following six criteria air pollutants that affect ambient air quality: ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), lead, and PM, which is subdivided into two classes based on particle size: particulate matter (PM) equal to or less than 10 microns in diameter (PM_{10}), and PM equal to or less than 2.5 microns in diameter ($PM_{2.5}$). These air pollutants are called "criteria air pollutants" because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. California has also established standards for toxic air contaminants such as visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 3.2-3 presents the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for these aforementioned air pollutants. Note that there is no State or federal air quality standards for VOCs, benzene, or DPM.

Table 3.2-3: Federal and State Air Quality Standards

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]
Ozone	1 Hour	0.09 ppm	—
	8 Hour	0.070 ppm	0.070 ppm[f]
Nitrogen dioxide[b] (NO_2)	1 Hour	0.18 ppm	0.100 ppm
	Annual	0.030 ppm	0.053 ppm
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm
	8 Hour	9.0 ppm	9 ppm
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm
	3 Hour	—	0.5 ppm
	24 Hour	0.04 ppm	0.14 (for certain areas)
	Annual	—	0.030 ppm (for certain areas)
Lead[e]	30-day	1.5 µg/m^3	—

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]
	Quarter	—	1.5 µg/m^3
	Rolling 3-month average	—	0.15 µg/m^3
Particulate matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3
	Mean	20 µg/m^3	—
Particulate matter ($PM_{2.5}$)	24 Hour	—	35 µg/m^3
	Annual	12 µg/m^3	12.0 µg/m^3
Visibility-reducing particles	8 Hour	See note below[d]	
Sulfates	24 Hour	25 µg/m^3	—
Hydrogen sulfide	1 Hour	0.03 ppm	—
Vinyl chloride[e]	24 Hour	0.01 ppm	—

Notes:
ppm = parts per million (concentration) µg/m^3 = micrograms per cubic meter Annual = Annual Arithmetic Mean
30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3-Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] To attain the 1-hour nitrogen dioxide national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (0.100 ppm).

[c] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 part per billion (ppb). The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[d] Visibility reducing particles: In 1989, the ARB converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the Statewide and Lake Tahoe Air Basin standards, respectively.

[e] The ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[f] The EPA Administrator approved a revised 8-hour ozone standard of 0.07 ppb on October 1, 2015. The new standard went into effect 60 days after publication of the Final Rule in the Federal Register. The Final Rule was published in the Federal Register on October 26, 2015 and became effective on December 28, 2015.

Source of standards: California Air Resource Board (ARB). 2016. Ambient Air Quality Standards. May 4. Website: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf?_ga=2.106070147.1241149056.1578606430-1030065867.1566244663. Accessed January 9, 2020.

Ambient air pollutant concentrations in the SFBAAB are measured at air quality monitoring stations operated by the ARB and BAAQMD. Both the EPA and ARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. "Attainment" status refers to those regions that are meeting federal and/or State standards for a specified criteria pollutant. "Nonattainment" refers to regions that do not meet federal and/or State standards for a specified criteria pollutant. "Unclassified" refers to regions where there is not enough data to determine the region's attainment status for a specified criteria air pollutant. Each standard has a different definition, or "form" of what constitutes attainment,

based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the 3-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

The current attainment designations for the SFBAAB are shown in Table 3.2-4. The SFBAAB is designated as nonattainment for the State ozone, PM_{10}, and $PM_{2.5}$, standards, nonattainment for the national ozone and $PM_{2.5}$ standards, and unclassified for the national PM_{10} standard.

Table 3.2-4: San Francisco Bay Area Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment
Sulfates	Attainment	N/A
Hydrogen Sulfates	Unclassified	N/A
Visibility-reducing Particles	Unclassified	N/A
Lead	N/A	Attainment

Source: Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. January. Website: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed February 8, 2019.

Air Quality Index

The health impacts of the various air pollutants of concern can be presented in a number of ways. The clearest comparison is to the State and federal ozone standards. When concentrations exceed the standard, impacts will vary based on the amount by which the standard is exceeded and the sensitivity of the individual to the specific air pollutant. The EPA developed the Air Quality Index (AQI) as an easy-to-understand measure of health impacts compared with concentrations in the air. Table 3.2-5 provides a description of the health impacts of ozone at different concentrations.

Table 3.2-5: Air Quality Index and Health Effects from Ozone

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI—51–100—Moderate Concentration 55–70 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Unusually sensitive individuals may experience respiratory symptoms.
	Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI—101–150—Unhealthy for Sensitive Groups Concentration 71–85 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
AQI—151–200—Unhealthy Concentration 86–105 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI—201–300—Very Unhealthy Concentration 106–200 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
Source: Air Now. 2016. AQI Calculator: AQI to Concentration. Website: http://www.airnow.gov/index.cfm?action=resources.aqi_conc_calc. Accessed April 9, 2020.	

Local Air Quality

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the Master Plan area. Table 3.2-6 summarizes 2016 through 2018 published monitoring data, which is the most recent 3-year period available. The table displays data from the San Ramon Alcosta Boulevard monitoring station (located approximately 1.64 miles southeast of the planning area) and the Concord Treat Boulevard monitoring station (located approximately 12 miles north of the

planning area). The data shows that during the past few years, the proposed Master Plan area has exceeded the standards for ozone (State and national), PM_{10} (State) and $PM_{2.5}$ (national). The data in the table reflects the concentration of the pollutants in the air, measured using air monitoring equipment. This differs from emissions, which are calculations of a pollutant being emitted over a certain period. Note that no recent monitoring data for Contra Costa County is available for CO or SO_2. Generally, air monitoring is not conducted for pollutants that are no longer likely to exceed ambient air quality standards.

Table 3.2-6: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2016	2017	2018
Ozone[1]	1 Hour	Max 1 Hour (ppm)	**0.101**	0.092	0.086
		Days > State Standard (0.09 ppm)	1	0	0
	8 Hour	Max 8 Hour (ppm)	**0.083**	**0.075**	**0.077**
		Days > State Standard (0.07 ppm)	2	2	2
		Days > National Standard (0.075 ppm)	1	0	1
Carbon monoxide (CO)	8 Hour	Max 8 Hour (ppm)	ND	ND	ND
		Days > State Standard (9.0 ppm)	ND	ND	ND
		Days > National Standard (9 ppm)	ND	ND	ND
Nitrogen dioxide (NO_2)[1]	Annual	Annual Average (ppm)	ND	ND	ND
	1 Hour	Max 1 Hour (ppm)	0.026	0.030	0.045
		Days > State Standard (0.18 ppm)	0	0	0
Sulfur dioxide (SO_2)	Annual	Annual Average (ppm)	ND	ND	ND
	24 Hour	Max 24 Hour (ppm)	ND	ND	ND
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})[2]	Annual	Annual Average (µg/m^3)	11.5	ID	16.2
	24 Hour	24 Hour (µg/m^3)	19.0	41.0	**105.0**
		Days > State Standard (50 µg/m^3)	0.0	ID	11.5
		Days > National Standard (150 µg/m^3)	0.0	ID	0.0
Fine particulate matter ($PM_{2.5}$)[2]	Annual	Annual Average (µg/m^3)	ID	12.0	ID
	24 Hour	24 Hour (µg/m^3)	20.7	**89.4**	**159.2**
		Days > National Standard (35 µg/m^3)	0.0	6.0	14.2

Air Pollutant	Averaging Time	Item	2016	2017	2018
Notes: > = exceed ppm = parts per million µg/m^3 = micrograms per cubic meter ID = insufficient data ND = no data max = maximum **Bold** = exceedance * = national data used instead of state data (state data unavailable) State Standard = California Ambient Air Quality Standard National Standard = National Ambient Air Quality Standard [1] San Ramon Alcosta Boulevard Station [2] Concord-2975 Treat Boulevard Station Source: California Air Resources Board (ARB). 2020. San Ramon Alcosta Boulevard Station and Concord Station. Website: https://www.arb.ca.gov/adam/trends/trends1.php. Accessed February 26, 2020.					

Based on the AQI scale for the 8-hour ozone standard (Table 3.2-5), the Master Plan area experienced no days in the most recent 3-year reporting period that would be categorized as very unhealthy (AQI 201-300) or unhealthy (AQI 151-200). The highest reading was 83 ppb in 2016, which would fall in the range for unhealthy for sensitive groups (AQI 101-150).

Air Pollution Sensitive Receptors

Air pollution does not affect every individual in the population in the same way, as some groups are more sensitive to adverse health effects related to air pollutants exposure than others are. Land uses such as residences, schools, day care centers, hospitals, nursing and convalescent homes, and parks are considered the most sensitive to poor air quality, because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would be exposed to air pollution 24 hours per day, 350 days per year, for 70 years.

Master Plan Area Vicinity

The areas surrounding the proposed Master Plan area contain existing commercial- and professional-office, single-family residential, school, mixed use, and public park uses.

Table 3.2-7 summarizes the nearest surrounding land uses. As shown in the table, most of the surrounding land uses are part of the Bishop Ranch Business Park.

Table 3.2-7: Surrounding Land Uses

Site	Direction	Surrounding Land Uses
Bishop Ranch 1A	North	Bollinger Canyon Road and BR 3A
	East	BR 1 access road, Iron Horse Regional Trail, and Marketplace
	South	BR 1 surface parking and office buildings
	West	BR 1 access road and surface parking
Bishop Ranch 3A	North	BR 3 parking structure and office buildings

Site	Direction	Surrounding Land Uses
	East	Iron Horse Trail, Central Park, and San Ramon City Hall
	South	Bollinger Canyon Road and BR 1A
	West	Camino Ramon and City Center Bishop Ranch
Bishop Ranch 2600	North	Executive Parkway, BR 6, and BR 8
	East	Camino Ramon and BR 3
	South	Bishop Drive, City Center Bishop Ranch, and The Shops at Bishop Ranch
	West	Bishop Drive, San Ramon Marriott, and Interstate 680

Note:
BR = Bishop Ranch
Source: FirstCarbon Solutions (FCS) 2020.

For the purposes of assessing impacts to off-site sensitive receptors, it was assumed that all areas designated by the General Plan as residential, park, school, or mixed use could contain sensitive receptors. The closest off-site sensitive receptors include mixed-use development bordering the planning area to the north, northeast, east, and south; and single-family residences west of the planning area, across Interstate 680 (I-680). The closest off-site sensitive receptors include existing trails and park within approximately 75 feet of the proposed Master Plan area and existing sensitive receptors located approximately 430 feet west of the proposed Mater Plan, west of I-680. See Exhibit 3.10-1 for a graphical representation of Existing General Plan Land Use Designations.

Existing Emission Sources

There are existing sources of air pollutants (both criteria air pollutant and TACs) in the immediate vicinity of proposed Master Plan site vicinity, including mobile-source emissions from I-680. Other sources of air pollutants include the building-related energy use and motor-related vehicle trips associated with the local residential, commercial, school, and recreational uses. Other sources of emissions include space and water heating, landscape maintenance, and consumer products from nearby residential and commercial uses.

In addition, there are several permitted stationary sources located within 1,000 feet of the proposed Master Plan. The BAAQMD identifies the locations of all stationary sources within the Bay Area that have BAAQMD permits. For each emissions source, the BAAQMD provides conservative cancer risk and $PM_{2.5}$ concentration increase values. Existing air pollutant emission stationary sources within approximately 1,000 feet of the proposed Master Plan, as identified by the BAAQMD Permitted Stationary Source Risk map last updated in 2019, are listed below in Table 3.2-8 (BAAQMD 2019).

Table 3.2-8: Existing Air Pollutant Emissions Stationary Source in Vicinity of the Plan Area

No.	Facility Name	Type	Address	Distance from Plan Area (feet)[1]
14094	San Ramon Marriott Hotel	Generator (2)	2600 Bishop Drive	430

No.	Facility Name	Type	Address	Distance from Plan Area (feet)[1]
15850	Target Corporation—Store T-949	Generator	2610 Bishop Drive	414
20909	Safe Security	Generator (2)[2]	2440 Camino Ramon, Building 8 parking lot	0 (130 feet from nearest planned residence within the planning area)
10477	Pacific Bell	Generator	2600 Camino Ramon	0 (545 feet from nearest planned residence within the planning area)
22282	2600 CR LLC, Sunset Development	Generator (6), Boiler (9)[3]	2600 Camino Ramon	0 (545 feet from nearest planned residence within the planning area)
21143	General Electric Software	Generator	2623 Camino Ramon	447
23612	City of San Ramon	Generator	7000 Bollinger Canyon Road	113
109731	San Ramon Valley FPD Station No. 34	Gas Dispensing Facility	12599 Alcosta Boulevard	964
14024	San Ramon Valley Fire District—Station No. 34	Generator	12599 Alcosta Boulevard	964
9686	The Solaris Group	Material Handling	2527 Camino Ramon, Suite 140	698
20604	Paycheck Inc.	Generator	12647 Alcosta Boulevard, Suite 200	1,204
21709	Sunset Development Company	Generator, Boiler (14)[4]	4000 Executive Parkway	576
21793	Pacific Gas and Electric	Generator (2)	6121 Bollinger Canyon Road	694
100941	7-Eleven Inc. No. 37993	Gas Dispensing Facility	1091 Market Place	352

Source: Bay Area Air Quality Management District (BAAQMD). 2019. Permitted Stationary Sources Risks and Hazards. September. Website: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65. Accessed February 15, 2020.

Notes:

[1] Distances were measured based on address data for sources where address data was determined to be more accurate than the location shown in the BAAQMD Stationary Source Map.

[2] Two generators are identified by the BAAQMD Permitted Stationary Source Risk map, last updated in 2019, as existing sources associated with Facility No. 20909; however, there is one less generator at Facility No. 20909 based on information obtained in May 2020.

[3] The BAAQMD Permitted Stationary Source Risk map, last updated in 2019, identifies six generators and nine boilers as existing sources associated with Facility No. 22282; however, Facility No. 22282 includes six generators and six boilers based on information obtained in May 2020.

No.	Facility Name	Type	Address	Distance from Plan Area (feet)[1]

[4] The BAAQMD Permitted Stationary Source Risk map, last updated in 2019, identifies one generator and six boilers as existing sources associated with Facility No. 21709; however, Facility No. 21709 includes one generator and six boilers based on information obtained in May 2020.

3.2.3 - Regulatory Framework

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970, and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are PM, ground-level ozone, CO, sulfur oxides, nitrogen oxides, and lead. The EPA calls these pollutants criteria air pollutants because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards (EPA 2017). The federal standards are called National Ambient Air Quality Standards (NAAQS). The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards. The criteria pollutants are:

- Ozone
- Nitrogen dioxide (NO_2)
- Lead
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies.

EPA Emission Standards for New Off-Road Equipment

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, the EPA established emission standards for hydrocarbons, NO_X, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the EPA, as well as by the ARB. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

State

California Air Quality Control Plan (State Implementation Plan)

As required by the CAA, a SIP is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The SIP for the State of California is administered by the ARB, which has overall responsibility for Statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for regional air districts—an air district prepares their federal attainment plan, which is sent to the ARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms for attaining and maintaining air quality standards.

Areas designated nonattainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional State and local regulation is required to achieve the standards.

California Clean Air Act

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and continue to be some of the most severe in the nation, and required additional actions beyond the federal mandates. The ARB administers the California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the CCAA. The 10 State air pollutants are the six federal standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The EPA authorized California to adopt its own regulations for motor vehicles and other sources that are more stringent than similar federal regulations implementing the CAA. It should be noted that the EPA recently rescinded California's waiver for its GHG and zero-emission vehicle mandates; however, all ARB standards are still in effect at the time of this writing (Beveridge & Diamond 2019; ARB 2019). Generally, the planning requirements of the CCAA are more stringent than the federal CAA; therefore, consistency with the CCAA will also demonstrate consistency with the CAA.

Other ARB responsibilities include but are not limited to overseeing local air district compliance with California and federal laws; approving local air quality plans; submitting SIPs to the EPA; monitoring air quality; determining and updating area designations and maps; conducting basic research aimed at providing a better understanding between emissions and public well-being, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

California Health and Safety Code Section 39655 and California Code of Regulations Title 17 Section 93000 (Substances Identified as Toxic Air Contaminants)

The ARB identifies substances as TACs as defined in Health and Safety Code Section 39655 and listed in Title 17, Section 93000 of the California Code of Regulations, "Substances Identified As Toxic Air Contaminants." A TAC is defined as an air pollutant that may cause or contribute to an increase in

mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. In general, for those TACs that may cause cancer, there are thresholds set by regulatory agencies below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards. According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs for the State of California can be attributed to relatively few compounds, the most important of which is DPM from diesel-fueled engines.

California Low-Emission Vehicle Program

The ARB first adopted Low Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 SIP. In 2012, the ARB adopted the LEV III amendments to California's LEV regulations. These amendments, also known as the Advanced Clean Car Program, include more stringent emission standards for model years 2017 through 2025 for both criteria pollutants and greenhouse gas (GHG) emissions for new passenger vehicles (ARB 2017).

California On-Road Heavy-Duty Vehicle Program

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. The ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others (ARB 2014).

California In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, the ARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO_X emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements, making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

The latest amendments to the Truck and Bus regulation became effective on December 31, 2014. The amended regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks (ARB 2019).

California Airborne Toxic Control Measures for Asbestos

The ARB has adopted Airborne Toxic Control Measures (ATCM) for sources that emit a particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology to minimize emissions.

In July 2001, the ARB approved an ATCM for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices (BMPs) to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an ATCM for construction, grading, quarrying, and surface mining asbestos operations, requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally

occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity. Review of the Department of Conservation maps indicates that no ultramafic rock has been found near the City of San Ramon (CDMG 2000).

Verified Diesel Emission Control Strategies

The EPA and the ARB tiered off-road emission standards only apply to new engines and off-road equipment can last several years. The ARB has developed Verified Diesel Emission Control Strategies (VDECS), which are devices, systems, or strategies used to achieve the highest level of pollution control from existing off-road vehicles, to help reduce emissions from existing engines. VDECS are designed primarily for the reduction of DPM emissions and have been verified by ARB. There are three levels of VDECS, the most effective of which is the Level 3 VDECS. Tier 4 engines are not required to install VDECS because they already meet the emissions standards for lower tiered equipment with installed controls.

California Diesel Risk Reduction Plan

The ARB Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions in 2020 by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010, and 85 percent by 2020.

Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (Assembly Bill 2588), also known as the Hot Spots Act. To date, the ARB has identified more than 21 TACs, and has adopted the EPA's list of Hazardous Air Pollutants (HAPs) as TACs.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), a partnership between the ARB and local air districts, issues grants to replace or retrofit older engines and equipment with engines and equipment that exceed current regulatory requirements to reduce air pollution. Money collected through the Carl Moyer Program complements California's regulatory program by providing incentives to effect early or extra emission reductions, especially from emission sources in environmental justice communities and areas disproportionately affected by air pollution. The program has established guidelines and criteria for the funding of emissions reduction projects. Within the Air Basin, the BAAQMD administers the Carl Moyer Program. The program has established guidelines and criteria for the funding of emissions reduction projects. Within the Air Basin, the BAAQMD administers the Carl Moyer Program. The program establishes cost-effectiveness criteria for funding emission reductions projects, which under the final 2017 Carl Moyer Program Guidelines are $30,000 per weighted ton of NO_X, ROG, and PM.

Regional

BAAQMD CEQA Air Quality Guidelines

The BAAQMD is the primary agency responsible for ensuring that air quality standards (NAAQS and CAAQS) are attained and maintained in the Air Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The BAAQMD prepares plans to attain ambient air quality standards in the Air Basin. The BAAQMD prepares ozone attainment plans for the national ozone standard, Clean Air Plans for the California standard, and PM plans to fulfill federal air quality planning requirements. The BAAQMD also inspects stationary sources of air pollution; responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the Clean Air Act, the Clean Air Act Amendments of 1990, and the California Clean Air Act.

The BAAQMD developed quantitative thresholds of significance for its California Environmental Quality Act (CEQA) Guidelines in 2010, which were also included in its updated subsequent guidelines. The BAAQMD's adoption of the 2010 thresholds of significance was later challenged in court. In an opinion issued on December 17, 2015, related to the BAAQMD CEQA Guidelines, the California Supreme Court held that CEQA does not generally require an analysis of the impacts of locating development in areas subject to environmental hazards unless the project would exacerbate existing environmental hazards. The California Supreme Court also found that CEQA requires the analysis of exposing people to environmental hazards in specific circumstances, including the location of development near airports, schools near sources of toxic contamination, and certain exemptions for infill and workforce housing. In circumstances where this analysis is not required by CEQA, the California Supreme Court also held that public agencies remain free to voluntarily conduct this analysis for their own public projects (*CBIA v. BAAQMD [2016] 2 Cal. App.5th 1067, 1083*).

Partly in response to the California Supreme Court's opinion, the BAAQMD published a new version of its CEQA Guidelines in May 2017. The BAAQMD CEQA Guidelines state that local agencies may rely on thresholds designed to reflect the impact of locating development near areas of toxic air contamination where such an analysis is required by CEQA or where the agency has determined that such an analysis would assist in making a decision about the project. However, the thresholds are not mandatory and agencies should apply them only after determining that they reflect an appropriate measure of a project's impacts. BAAQMD's CEQA Guidelines for implementation of the thresholds provide guidance to assist local agencies, but ultimately it is within each local agency's discretion to determine whether to utilize the BAAQMD thresholds.

ARB Air Quality Land Use Handbook

Within their CEQA Guidelines, BAAQMD recommends that the lead agency should refer to the ARB Land Use Handbook when evaluating whether a proposed general or area plan includes adequate buffer distances between TAC sources and sensitive receptors. Table 3.2-9 lists the following ARB advisory recommendations that address the issue of siting "sensitive land uses" near specific sources of air pollution:

- High traffic freeways and roads
- Distribution centers
- Refineries
- Chrome plating facilities

- Rail yards
- Ports
- Dry cleaners
- Large gas dispensing facilities

The analysis examines the area around the Master Plan area to determine if potential sources of TAC emissions may impact the proposed Master Plan, based on the ARB recommended screening distances.

Table 3.2-9: Recommendations on Siting New Sensitive Land Uses

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.
Note: These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.	

Clean Air Plan

The BAAQMD is primarily responsible for assuring that the NAAQS and CAAQS are attained and maintained in the Air Basin. Contra Costa County, and the Bay Area as a whole, is classified as a non-attainment area for the 8-hour ozone and $PM_{2.5}$ NAAQS and non-attainment for the ozone, PM_{10}, and $PM_{2.5}$ CAAQS. The County is either in attainment or unclassified for other pollutants.

Regional Air Quality Management Districts (AQMDs), such as the BAAQMD, must prepare air quality plans specifying how State air quality standards would be met. The BAAQMD's most recently adopted air quality plan is the *Final 2017 Clean Air Plan: Spare the Air, Cool the Climate*. The 2017 Clean Air Plan focuses on two closely related BAAQMD goals, protecting public health and protecting the climate. To protect public health, the 2017 Clean Air Plan describes how the BAAQMD will continue its progress toward attaining State and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To that end, the 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as PM, ozone, and TACs. To protect the climate, the 2017 Clean Air Plan includes control measures intended to reduce GHG emissions by reducing fossil fuel combustion.

The Bay Area Clean Air Plan addresses four categories of pollutants: ground-level ozone and its key precursors, ROG and NO_X; PM, primarily $PM_{2.5}$, and precursors to secondary $PM_{2.5}$; air toxics; and GHGs. The control measures are categorized based on the economic sector framework including stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water measures.

The BAAQMD also has permit authority over stationary sources, acts as the primary reviewing agency for environmental documents, and develops regulations that must be consistent with or more stringent than, federal and State air quality laws and regulations.

BAAQMD Regulations

Regulation 8, Rule 3 (Architectural Coatings)

This rule governs the manufacture, distribution, and sale of architectural coatings and limits the reactive organic gases content in paints and paint solvents. Although this rule does not directly apply to the proposed project, it does dictate the ROG content of paint available for use during the construction.

Regulation 8, Rule 15 (Emulsified and Liquid Asphalts)

Although this rule does not directly apply to the proposed project, it does dictate the reactive organic gases content of asphalt available for use during the construction through regulating the sale and use of asphalt and limits the ROG content in asphalt.

Regulation 1, Rule 301 (Odorous Emissions)

The BAAQMD is responsible for investigating and controlling odor complaints in the Bay Area. The agency enforces odor control by helping the public to document a public nuisance. Upon receipt of a complaint, the BAAQMD sends an investigator to interview the complainant and to locate the odor source if possible. The BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or

more confirmed complaints per year averaged over 3 years is considered to have a substantial effect on receptors.

Several BAAQMD regulations and rules apply to odorous emissions. Regulation 1, Rule 301 is the nuisance provision that states that sources cannot emit air contaminants that cause nuisance to a number of persons. Regulation 7 specifies limits for the discharge of odorous substances where the BAAQMD receives complaints from 10 or more complainants within a 90-day period. Among other things, Regulation 7 precludes discharge of an odorous substance that causes the ambient air at or beyond the property line to be odorous after dilution with four parts of odor-free air, and specifies maximum limits on the emission of certain odorous compounds.

Association of Bay Area Governments and Metropolitan Transportation Commission Plan Bay Area

On July 18, 2013, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) approved the Plan Bay Area. The Plan Bay Area includes integrated land use and transportation strategies for the region and was developed through OneBayArea, a joint initiative between ABAG, BAAQMD, MTC, and the San Francisco Bay Conservation and Development Commission. The plan's transportation policies focus on maintaining the extensive existing transportation network and utilizing these systems more efficiently to handle density in Bay Area transportation cores. Assumptions for land use development used are taken from local and regional planning documents. Emission forecasts in the Bay Area Clean Air Plan rely on projections of vehicle miles traveled, population, employment, and land use projections made by local jurisdictions during development of Plan Bay Area. The Plan Bay Area 2040 was adopted July 2017 and updates Plan Bay Area.

Plan Bay Area 2040, published by the MTC and ABAG, is a long-range integrated transportation and land use/housing strategy through 2040 for the Bay Area. Plan Bay Area 2040 functions as the sustainable communities' strategy mandated by Senate Bill (SB) 375. As a regional land use plan, Plan Bay Area 2040 aims to reduce per-capita GHG emissions through the promotion of more compact, mixed-use residential and commercial neighborhoods located near transit. Plan Bay Area 2040 is a limited and focused update that builds upon a growth pattern and strategies developed in the original Plan Bay Area (adopted by MTC in 2013) but with updated planning assumptions that incorporate key economic, demographic, and financial trends.

Local

The City of San Ramon

San Ramon General Plan 2035

The City of San Ramon General Plan 2035 contains policies pertaining to air quality. Chapter 2, Economic Development, of the General Plan contains the following applicable policies:

- **Policy 2.3-I-12:** Promote and encourage public transit, carpool and vanpool opportunities into San Ramon's business areas including Bishop Ranch, Crow Canyon business area, and the San Ramon Valley Boulevard business area.
- **Policy 2.3-I-13:** Encourage and facilitate non-motorized means of transportation to business areas.

Chapter 5, Traffic and Circulation, of the General Plan contains the following applicable policies:

- **Policy 5.6-I-7:** Encourage new development to include a mix of uses and Complete Streets concepts that will allow people to walk and bike between destinations and reduce the amount of automobile vehicle-miles-traveled.
- **Policy 5.6-I-9:** Encourage employers and commercial complexes to emphasize public transit services or private alternatives to the single-occupant vehicle.
- **Policy 5.6-I-14:** Consider strategies such as shared parking, parking management plans (including valet parking), and/or the construction of public parking facilities in the City Center, North Camino Ramon Specific Plan, or other commercial areas to serve projected parking demand, while carefully balancing the need for adequate parking against the desire to minimize traffic growth and create a pedestrian/bicycle friendly environment using Complete Streets design concepts.
- **Policy 5.6-I-17:** Encourage "Park Once" concepts as a vehicle-miles-traveled reduction strategy for mixed-use, commercial, and public facilities through the integration of common design features and shared parking concepts including but not limited to Parking Benefit Districts.
- **Policy 5.6-I-18:** Encourage shared parking facilities and parking reductions for compatible land uses to minimize excessive parking to reduce inefficient use of land, unnecessary pavement and stormwater runoff, and encourage alternative transportation and reductions in vehicle-miles-traveled.
- **Policy 5.6-I-19:** Encourage infill and Transit-Oriented Development (TOD) concepts as a vehicle miles-traveled reduction strategy for existing and proposed development.
- **Policy 5.7-I-5:** Require bicycle parking, storage and other support facilities as part of any new office and retail developments and public facilities.
- **Policy 5.7-I-6:** Continue to promote and implement through the development review process, continuous circulation facilities within Bishop Ranch Business Park, commercial districts, and residential neighborhoods to enhance connectivity and promote pedestrian and bicycle modes of transportation consistent with Complete Streets concepts.

Chapter 12, Air Quality and Greenhouse Gas, of the General Plan contains the following applicable policies:

- **Policy 12.4-I-1:** Cooperate with other local, regional, and state agencies to achieve and maintain air quality standards.
- **Policy 12.5-G-1:** Improve air quality by integrating air quality, land use, and transportation planning that incorporates appropriate project location, design, and application of best available technologies.
- **Policy 12.5-I-2:** Support and encourage projects proposing infill, and mixed-use development that creates walkable neighborhoods and communities and increases access to transit.
- **Policy 12.6-I-1:** Locate sources of hazardous emissions at appropriate distances from existing and planned sensitive land uses in order to minimize or avoid potential health risks to people that might result from hazardous air pollutant emissions. Locate residential development

projects and projects categorized as sensitive receptors at adequate distances from existing and potential sources of hazardous emissions.

- **Policy 12.6-I-3:** Require construction and grading activities to incorporate particulate emissions reduction measures.
- **Policy 12.6-I-4:** Require all new wood-burning stoves and fireplaces to comply with EPA- and BAAQMD-approved standards and provide informational handouts outlining low-emission alternatives to wood-burning fireplaces.
- **Policy 12.7-I-5:** Construct and promote infrastructure and facilities that support and encourages the use of low-emission transportation and alternative modes of travel, including a safe and comprehensive bicycle and pedestrian system that connects all parts of the City.
- **Policy 12.8-I-1:** Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development projects within the City.

City of San Ramon Climate Action Plan

The City of San Ramon adopted its Climate Action Plan (CAP) in August 2011. The CAP identifies policies that will achieve the State-recommended GHG target of 15 percent below 2008 levels by the year 2020. The CAP establishes the following strategies pertaining to air quality.

- **Strategy LU-3:** Increase transit orientation in new development and redevelopment areas near current and planned transit facilities.
- **Strategy LU-4:** Increase pedestrian orientation in new development and redevelopment areas.
- **Strategy LU-6:** Promote compact development by protecting open space and hillsides and encouraging infill and redevelopment of underutilized parcels in urbanized areas.
- **Strategy T-1:** Provide transit facilities and services that improve transit mode share.
- **Strategy T-2:** Provide pedestrian connections in new and existing development to improve pedestrian mobility and accessibility.
- **Strategy T-3:** Provide a safe and well-connected system of bicycle paths, lanes, and trails to increase bicycle use.
- **Strategy T-4:** Use traffic calming measures to improve traffic flow, pedestrian orientation, and bicycle use.
- **Strategy T-6:** Improve the effectiveness of existing Transportation Demand Management (TDM) Programs and ensure that new developments with large employee concentrations implement TDM Programs.
- **Strategy T-7:** Require projects to provide facilities that make travel by bicycle and transit more convenient.
- **Strategy T-8:** Use parking facility designs and parking management to reduce vehicle trips.
- **Strategy T-9:** Provide vehicle support infrastructure to encourage use of low and zero emission vehicles.
- **Strategy E-1:** Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development projects within the City.

3.2.4 - Methodology

Approach to Analysis

Emission factors represent the emission rate of a pollutant over a given time or activity; for example, grams of NO_X per vehicle miles traveled (VMT) or grams of NO_X per horsepower hour of equipment operation. The ARB has published emission factors for on-road mobile vehicles/trucks in the Emission Factor (EMFAC) mobile source emissions model and emission factors for off-road equipment and vehicles in the OFFROAD emissions model. Activity levels are a measure of how active a piece of equipment is operated and can be represented as the amount of material processed, elapsed time that a piece of equipment is in operation, horsepower of a piece of equipment used, or VMT per day. An air emissions model (or calculator) combines the equipment emission factors and the various levels of activity and outputs the emissions for the various pieces of equipment.

The CalEEMod (version 2016.3.2) was developed in collaboration with the South Coast Air Quality Management District (SCAQMD) and other air districts throughout the State. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with construction and operation from a variety of land uses.

The modeling analysis follows the BAAQMD guidance where applicable from the BAAQMD CEQA Air Quality Guidelines. The models used in this analysis are summarized as follows:

- Construction criteria pollutant and precursor emissions: CalEEMod, version 2016.3.2
- Operational criteria pollutant and precursor emissions: CalEEMod, version 2016.3.2
- Construction TAC emission air dispersion assessment: EPA AERMOD dispersion model, version 19191.

The following criteria air pollutants and precursors are assessed in this analysis:

- Reactive organic gases (ROG)
- Nitrogen oxides (NO_X)
- Carbon monoxide (CO)
- Particulate matter less than 10 microns in diameter (PM_{10})
- Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)

Note that the development of the proposed Master Plan would emit ozone precursors ROG and NO_X. However, the development of the proposed Master Plan would not directly emit ozone since it is formed in the atmosphere during the photochemical reactions of ozone precursors.

Construction-related Criteria Pollutants

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from both on-site and off-site activities. On-site emissions consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly

PM_{10}) from disturbed soil. Additionally, paving operations and application of architectural coatings would release ROG emissions. Off-site emissions result from motor vehicle exhaust from delivery vehicles, worker traffic and road dust (PM_{10} and $PM_{2.5}$).

Schedule

The buildout potential of the Master Plan is up to 4,500 dwelling units, a 169-key hotel, 166,000 square feet of commercial uses, three new parking structures, and publicly accessible, privately owned and maintained, park and public spaces.

Based on information outlined in Section 2, Project Description, construction was assumed to commence in January 2021 and conclude in January 2048.

The major construction activities associated with each construction activity are noted in Table 3.2-10, while detailed accounts of the construction activities in each phase are included in Appendix C. Construction activities would include site preparation (including site clearing of existing pavement), mass grading, excavation for below-grade structures, building construction, paving, and architectural coating. No demolition of existing buildings is proposed as part of the proposed Master Plan. The conceptual construction schedule for buildout of the proposed Master Plan is shown in Table 3.2-10.

Table 3.2-10: Conceptual Construction Schedule

Construction Activity	Assumed Construction Schedule		Working Days
	Start Date	End Date	
Site Work for the Entire Project Site			
Site Preparation	1/1/2021	3/25/2021	60
Grading	1/1/2021	3/25/2021	60
Phase 1 (Portions of Bishop Ranch 3A and Bishop Ranch 2600)			
Grading	3/26/2021	5/6/2021	30
Building Construction	5/7/2021	6/30/2022	300
Paving	7/1/2022	7/28/2022	20
Architectural Coating	7/29/2022	8/25/2022	20
Phases 2-3 (Bishop Ranch 1A)			
Grading	1/1/2022	1/28/2022	20
Building Construction	1/29/2022	11/6/2025	984
Paving	11/7/2025	12/4/2025	20
Architectural Coating	12/5/2025	1/1/2026	20
Phases 4-6 (Bishop Ranch 3A)			
Grading	1/1/2026	2/11/2026	30
Building Construction	2/12/2026	11/6/2031	1,496

Construction Activity	Assumed Construction Schedule		Working Days
	Start Date	End Date	
Paving	11/7/2031	12/4/2031	20
Architectural Coating	12/5/2031	1/1/2032	20
Phases 7-14 (Bishop Ranch 2600)			
Grading	1/1/2032	8/4/2032	155
Building Construction	8/5/2032	2/27/2047	3,800
Paving	2/28/2047	7/31/2047	110
Architectural Coating	8/1/2047	1/1/2048	110
Source: FirstCarbon Solutions (FCS) and CalEEMod, based on information presented in Section 2, Project Description; see Appendix C.			

Construction Equipment Tiers and Emission Factors

Construction equipment tiers refer to the generation of emission standards established by the EPA and the ARB that apply to off-road diesel equipment engines. The "tier" of an engine depends on the model year and horsepower rating; generally, the newer a piece of equipment is, the greater the tier it is likely to have and the lower the emission standards. Excluding engines greater than 750 horsepower, Tier 1 engines were manufactured generally between 1996 and 2003. Tier 2 engines were manufactured between 2001 and 2007. Tier 3 engines were manufactured between 2006 and 2011. Tier 4 engines are the newest and some incorporate hybrid electric technology; they were manufactured after 2007.

On-site Off-road Construction Equipment

CalEEMod contains built-in default inventories of construction equipment for a variety of land use construction projects that incorporate estimates of the number of equipment, their age, their horsepower, and emission control equipment tier mix from which rates of emissions are developed. These inventories were developed based on construction surveys for several land use projects.

The CalEEMod default emission control equipment tier mix was used in this analysis for the estimation of unmitigated emissions from on-site construction equipment. Construction equipment used for implementation of the proposed Master Plan as derived from CalEEMod is included in Appendix C.

Site Preparation and Grading

During grading activities, fugitive dust can be generated from the movement of dirt within the plan area. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt onto haul trucks. Each activity is calculated differently in CalEEMod, based on the number of acres traversed by the grading equipment.

Only some pieces of equipment are assumed to generate fugitive dust in CalEEMod. The CalEEMod model manual identifies various equipment and the acreage disturbed in an 8-hour day for each piece of equipment:

- Crawler tractors, graders, and rubber-tired dozers: 0.5 acre per 8-hour day
- Scrapers: 1 acre per 8-hour day

Hauling would be required to export material from the site. Based on information provided by the project applicant, it is estimated that the proposed Master Plan would require approximately 35,000 cubic yards of material to exported from the planning area. The haul trips associated with the off-site export of material accounted for in Phase 1 site work activities for the entire proposed Master Plan area. Specifically, it was assumed that 7,000 haul trips would be required during Phase 1 based on an estimated 3,500 truckloads. Cut and fill activities in later phases were assumed to balance on-site.

Off-site On-road Vehicle Trips

The CalEEMod model defaults trip length and vehicle fleet were used. The CalEEMod model run used the default worker trip length of 10.8 miles, vendor trip length of 7.3, and the hauling trip length of 20 miles. A summary of the proposed Master Plan's construction-related trips is included in Appendix C.

Off-Gassing Materials

Asphalt paving and architectural coating materials used during construction would generate off-gas emissions of ROGs. The data collection process determined the acres of asphalt paving required, which CalEEMod uses to determine associated ROG emissions. CalEEMod contains assumptions for application of architectural coatings that are based on the BAAQMD's coating regulations and use type, and square footage of the buildings to be constructed and were used to quantify emissions.

Operation-related Criteria Pollutants

Operational emissions were analyzed assuming full-buildout of the proposed Master Plan in October 2048, consistent with the schedule presented in Table 3.2-10. CalEEMod does not have an option available to directly estimate operational emissions for the year 2048; therefore, emissions for the year 2048 were estimated by interpolating emissions estimated using CalEEMod for years 2045 and 2050.

On-road Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the Master Plan area. The emissions were estimated using CalEEMod. The weekday trip generation rates for operations associated with the proposed Master Plan were obtained from the Transportation Impact Study (TIS) prepared for the proposed Master Plan (included in Appendix J). As weekend trips were not explicitly stated in the transportation impact assessment, weekend trips were obtained from the ITE Trip Generation Manual 10th Edition for land uses consistent with those presented in the TIS. Trip rates were not adjusted to account for internal capture and model split reductions shown in the TIS prepared for the proposed TIS and were, instead, accounted for by specifying land use and project design features in CalEEMod. Different from the trip generation presented in the TIS, pass-by trips do not reduce the number of trips generated by the Master Plan area; rather, pass-by trips result in less vehicle miles traveled compared to primary trips. Because of these differences, trips from the land uses included in the proposed Master Plan appear higher in the modeling used to estimate emissions compared to trips

used in the TIS to assess traffic impacts. Development under the proposed Master Plan would include design features, be located within an existing community, and locate housing next to jobs, all of which would reduce project vehicle miles traveled compared to default values. Note that CalEEMod nominally treats these design elements and conditions as "mitigation measures," despite their inclusion in the project description. A full accounting of the on-site measures and factors related the proposed Master Plan's design and to the proposed Master Plan's location in existing community are included as part of Appendix C.

The CalEEMod default round trip lengths for an urban setting for Contra Costa County were used in this analysis. The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the proposed Master Plan. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix for Contra Costa County was used for this analysis.

Architectural Coatings

Paints release VOC/ROG emissions during application and drying. The buildings would be periodically repainted. The supplier that would likely serve the proposed Master Plan would be required to comply with the BAAQMD Regulation 8, Rule 3—Architectural Coatings. This rule governs the manufacture, distribution, and sale of architectural coatings and limits the reactive organic gases content in paints and paint solvents.

Consumer Products

Consumer products include various solvents used in non-industrial applications, which emit VOCs during their product use. "Consumer Product" means a chemically formulated product used by household and institutional consumers, including but not limited to: detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. It does not include other paint products, furniture coatings, or architectural coatings. The default emission factors developed for CalEEMod were used for consumer products associated with parking and park uses. The general consumer product category was updated based on 2017 ARB VOC inventory data and 2017 population estimates based on the State of California's Department of Finance demographic projections were used to estimate a statewide VOC EF for 2017. The default general consumer product emission factor is based on 2008 ARB VOC inventory data using the same methodology applied to calculate the updated VOC emission factor for general consumer products.

Landscape Equipment

CalEEMod was used to estimate the landscaping equipment emissions using the default assumptions in the model. As shown in Appendix C, emissions from maintenance of existing parks and landscaped in the proposed Master Plan areas were subtracted from proposed emissions.

Electricity

Electricity usage (for lighting, etc.) would result in emissions from the power plants that would generate electricity distributed on the electrical power grid. Off-site electricity emission estimates are more pertinent for the analysis of GHG emissions. More detail describing assumptions used in estimating parameters specific to electricity is included in Section 3.7, Greenhouse Gas Emissions.

Natural Gas

Implementation of the proposed Master Plan would generate emissions from the combustion of natural gas for water heaters, heat, etc. CalEEMod has two categories for natural gas consumption: Title 24 and non-Title 24. The Title 24 uses are defined as the major building envelope systems covered by California's Building Code Title 24 Part 6, such as space heating, space cooling, water heating, and ventilation. Non-Title 24 includes everything else such as appliances and electronics.

Construction- and Operation-related Toxic Air Contaminants

TACs are air pollutants in miniscule amounts in the air that, if a person is exposed to them, could increase the chances of experiencing health problems. Exposures to TAC emissions can have both chronic long-term (over a year or longer) and acute short-term (over a period of hours) health impacts. Construction-period TAC emissions could contribute to increased health risks to nearby residents or sensitive receptors.

An assessment was made of the potential health impacts to surrounding sensitive receptors resulting from TAC emissions during construction. $PM_{2.5}$ health impacts are important because their particle size can be deposited deeply in the lungs causing respiratory effects. For purposes of this analysis, exhaust emissions of DPM are represented as exhaust emissions of $PM_{2.5}$. Although DPM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Odors

The City does not have any quantitative standards for evaluating potential odor impacts. The impact analysis qualitatively evaluates the types of land uses proposed to evaluate whether major sources of anticipated odors would be present and, if so, whether those sources would likely generate objectionable odors. According to the BAAQMD's CEQA Air Quality Guidelines, a project that involves the siting of a new odor source would consider the screening level distances and the complaint history of the odor sources, described below. Projects that would site a new odor source farther than the screening-level distances provided in Table 3.2-11 would not likely result in a significant odor impact.

Table 3.2-11: BAAQMD Odor Screening-level Distances

Land Use/Type of Operation	Screening Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	2 miles

Land Use/Type of Operation	Screening Distance
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Metal Smelting Plants	2 miles
Source: Bay Area Air Quality Management District (BAAQMD). 2017. CEQA Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed February 7, 2020.	

3.2.5 - Thresholds of Significance

According to CEQA Guidelines Appendix G, Environmental Checklist, to determine whether impacts to air quality are significant environmental effects, the following questions are analyzed and evaluated.

> Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.
>
> Would the project:
>
> a) Conflict with or obstruct implementation of the applicable air quality plan?
>
> b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
>
> c) Expose sensitive receptors to substantial pollutant concentrations?
>
> d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The appliable significance criteria established by BAAQMD to assist lead agencies in the review of projects under CEQA are discussed below.

Consistency with Air Quality Plan

The applicable air quality plan is the BAAQMD's 2017 Bay Area Clean Air Plan, which identifies measures to:

- Reduce emissions and reduce ambient concentrations of air pollutants; and

- Safeguard public health by reducing exposure to the air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution.

The proposed project would be consistent with the Bay Area Clean Air Plan if it would support the plan's goals, include applicable control measures from the Bay Area Clean Air Plan, and would not disrupt or hinder implementation of any control measures from the Bay Area Clean Air Plan. Consistency with the Bay Area Clean Air Plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan.

Ambient Air Quality and Health Risk Thresholds

The City of San Ramon has not adopted standards of significance for construction and operational activities and instead suggests the use of the BAAQMD thresholds and mitigation measures. In accordance with CEQA Guidelines Section 15064.7 (Thresholds of Significance), the City exercises its own discretion to use the significance thresholds in the BAAQMD's CEQA thresholds based on substantial evidence contained in BAAQMD's record for adoption of the thresholds (which is relied on and incorporated herein). Accordingly, the assessment of the proposed Master Plan's air quality impacts uses the thresholds and methodologies from BAAQMD's May 2017 CEQA Air Quality Guidelines to determine the potential impacts of the proposed Master Plan on the existing environment. The significance thresholds used in this analysis are based on BAAQMD standards as set forth in Table 3.2-12 and Table 3.2-13 below. In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant cumulative adverse air quality impacts to the region's existing air quality conditions. Although the specific land uses could ultimately vary during final design, the emission estimates were developed consistent with the land uses and construction schedule in Chapter 2, Project Description.

Table 3.2-12: BAAQMD Thresholds of Significance (Project-Level)

Pollutant	Construction Thresholds Average Daily Emissions	Operational Thresholds	
		Average Daily Emissions	Annual Average Emissions
Criteria Air Pollutants			
ROG	54 pounds/day	54 pounds/day	10 tons/year
NO_X	54 pounds/day	54 pounds/day	10 tons/year
PM_{10}	82 pounds/day	82 pounds/day	15 tons/year
$PM_{2.5}$	54 pounds/day	54 pounds/day	10 tons/year
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	

Pollutant	Construction Thresholds Average Daily Emissions	Operational Thresholds	
		Average Daily Emissions	Annual Average Emissions
Health Risks and Hazards for New Sources			
Excess Cancer Risk	Increase > 10.0 per one million	Increase > 10.0 per one million	
Chronic or Acute Hazard Index	Increase > 1.0	Increase > 1.0	
Incremental annual average $PM_{2.5}$	0.3 µg/m^3	0.3 µg/m^3	
Health Risks and Hazards for Sensitive Receptors (Cumulative from All Sources within 1,000-foot Zone of Influence) and Cumulative Thresholds for New Sources			
Excess Cancer Risk	> 100 per 1 million		
Chronic Hazard Index	> 10.0		
Annual Average $PM_{2.5}$	> 0.8 µg/m^3		

Notes:
ROG = reactive organic gases
NO_X = nitrogen oxides
PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 µm or less
$PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less
Source: Bay Area Air Quality Management District (BAAQMD). 2017. CEQA Air Quality Guidelines. May. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may 2017-pdf.pdf?la=en. Accessed February 7, 2020.

Table 3.2-13: BAAQMD Thresholds of Significance (Plan-Level)

Pollutant	Construction Thresholds Average Daily Emissions	Operational Thresholds
Criteria Air Pollutants and Precursors	None	1. Consistency with Current Air Quality Plan control measures, and 2. Projected VMT or vehicle trip increase is less than or equal to projected population increase
Risks and Hazards*	None	Identify the location, and include policies to reduce the impacts, of existing or planned sources of odors
Odors*	None	Identify the location, and include policies to reduce the impacts, of existing or planned sources of odors

Notes:
VMT = vehicle miles traveled
* The receptor thresholds were the subject of litigation in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369. Applicability of thresholds are discussed in this EIR under the relevant impact assessments.
Source: Bay Area Air Quality Management District (BAAQMD). 2017. CEQA Air Quality Guidelines. May. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may 2017-pdf.pdf?la=en. Accessed February 7, 2020.

Odors

The significance thresholds for odor impacts are qualitative in nature. Specifically, an odor-generating source with five or more confirmed complaints in the new source area per year averaged over 3 years is considered to have a significant impact on receptors within the screening distances shown above under Section 3.2.4, Approach to Analysis.

3.2.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed Master Plan and provides mitigation measures where appropriate.

Consistency with Air Quality Management Plan

Impact AIR-1: The proposed Master Plan could conflict with or obstruct implementation of the applicable air quality plan.

Impact Analysis

Construction and Operations

The SFBAAB is designated nonattainment for State standards for 1-hour and 8-hour ozone, 24-hour respirable particulate matter (PM_{10}), annual PM_{10}, and annual fine particulate matter ($PM_{2.5}$). To address regional air quality standards, the BAAQMD has adopted several air quality policies and plans, and in April 2017, the BAAQMD adopted their 2017 Clean Air Plan, which serves as BAAQMD's most current regional Air Quality Plan (AQP) for the Air Basin for attaining federal ambient air quality standards. The primary goals of the 2017 Clean Air Plan are to protect public health and protect the climate. The 2017 Clean Air Plan acknowledges that the BAAQMD's two stated goals of protection are closely related. As such, the 2017 Clean Air Plan identifies a wide range of control measures intended to decrease both criteria pollutants[3] and GHGs.[4] The 2017 Clean Air Plan updates the previous BAAQMD's 2010 Clean Air Plan, pursuant to air quality planning requirements defined in the California Health and Safety Code.

The 2017 Clean Air Plan also accounts for projections of population growth provided by ABAG and vehicle miles traveled provided by the MTC and identifies strategies to bring regional emissions into compliance with federal and State air quality standards. A project would be judged to conflict with or obstruct implementation of the 2017 Clean Air Plan if it would result in substantial new regional emissions not foreseen in the air quality planning process.

The primary way of determining whether a project is consistent with the AQP's assumptions is to determine if a General Plan is consistent with the growth assumptions used in the AQPs for the Air Basin, and if the project is consistent with the applicable General Plan. As required by California law, city and county general plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and designates locations for

[3] The EPA has established National Ambient Air Quality Standards (NAAQS) for six of the most common air pollutants—carbon monoxide, lead, ground-level ozone, particulate matter, nitrogen dioxide, and sulfur dioxide—known as "criteria" air pollutants (or simply "criteria pollutants").

[4] A greenhouse gas (GHG) is any gaseous compound in the atmosphere that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere. By increasing the heat in the atmosphere, GHGs are responsible for the greenhouse effect, which ultimately leads to global warming.

land uses to regulate growth. The growth projections and land use information in adopted general plans, among other sources, is used to estimate future average daily trips and associated VMT, which are then provided to the BAAQMD to estimate future emissions in the AQPs. AQPs provide the amount of emission reductions required to reach attainment of the air standards based on the projected growth in emissions and include control measures required to achieve those reductions by the deadlines mandated by the Clean Air Act.

The BAAQMD Air Quality Guidelines indicates that the threshold of significance for operational-related criteria air pollutant and precursor impacts for long range plans (general plan, redevelopment plans, specific plans, area plans, community plans, transportation plans, congestion management plans, etc.) is consistency with the most recently adopted AQP. All of the following criteria must be satisfied for a proposed plan to be consistent with the AQP, and to result in a less than significant impact.

Proposed plans must show over the planning period of the plan that:

- **Criterion 1:** The plan incorporates current AQP control measures as appropriate to the plan area;
- **Criterion 2:** The projected vehicle miles traveled or vehicle trips increase is less than or equal to projected population increase.

Criterion 1

The 2017 Clean Air Plan contains 85 control measures aimed at reducing air pollutant emissions and GHG emissions at the local, regional, and global levels. Along with the traditional stationary, area, mobile source, and transportation control measures, the 2017 Clean Air Plan contains a number of control measures designed to protect the climate, promote mixed use and to compact development to reduce vehicle emissions and exposure to pollutants from stationary and mobile sources. The 2017 Clean Air Plan also includes an account of the implementation status of control measures identified in the 2010 Clean Air Plan.

Table 3.2-14 lists the Clean Air Plan policies relevant to the proposed Master Plan and evaluates the proposed Master Plan's consistency with the policies. As shown below, the proposed Master Plan would be consistent with the applicable measures.

Table 3.2-14: Clean Air Plan Control Measures Consistency Analysis

Control Measure	Plan Consistency
Buildings Control Measures	
BL1: Green Buildings	**Consistent.** As discussed in more detail in Section 3.7, Greenhouse Gas Emissions, the proposed Master Plan would comply with the applicable provisions of California Energy Code and, thus, incorporate applicable energy efficiency features designed to reduce energy consumption associated with the proposed Master Plan.

Control Measure	Plan Consistency
BL4: Urban Heat Island Mitigation	**Consistent.** The proposed Master Plan would incorporate landscaping (including trees) throughout the plan area. The proposed Master Plan would include 40.7 acres of parks (including existing and planned parks that would remain), open space, and other public amenities. The proposed Master Plan requires landscaping along public streets, around buildings, and in public areas. Landscaping will be provided along public streets, around buildings, and in public areas in accordance with the document titled CityWalk Design Guidelines.
Energy Control Measures	
EN2: Decrease Electricity Demand	**Consistent.** The design of the proposed Master Plan would be required to conform to the applicable energy efficiency requirements of the California Building Standards Code, also known as Title 24, which was adopted in order to meet an executive order in the Green Building Initiative to improve the energy efficiency of buildings through aggressive standards. The 2019 Building Efficiency Standards are the current regulations and went into effect on January 1, 2020.
Natural and Working Lands Control Measures	
NW2: Urban Tree Planting	**Consistent.** The proposed Master Plan requires landscaping along public streets, around buildings, and in public areas. Landscaping will be provided along public streets, around buildings, and in public areas in accordance with the document titled CityWalk Design Guidelines.
WA3: Green Waste Diversion	**Consistent.** The waste service provider for the proposed Master Plan would be required to meet AB 341, SB 939, and SB 1374 requirements that require waste service providers to divert green waste away from landfills. All plant refuse generated during operations of the proposed Master Plan would be recycled off-site.
WA4: Recycling and Waste Reduction	**Consistent.** The waste service provider for the proposed Master Plan would be required to meet AB 341, SB 939, and SB 1374 requirements that require waste to be recycled.
Stationary Control Measures	
SS29: Asphaltic Concrete	**Consistent.** Paving activities associated with the proposed Master Plan would be required to utilize asphalt that does not exceed BAAQMD emission standards.
SS 34: Wood Smoke	**Consistent.** The proposed Master Plan would be required to comply with Air District Rule 6-3: Wood Burning Devices.
SS36: Particulate Matter from Trackout	**Consistent with Mitigation.** Mud and dirt that may be tracked out onto nearby public roads during construction activities would be removed promptly by the contractor based on BAAQMD requirements. MM AIR-2a, identified under Impact AIR-2, would implement BMPs recommended by the BAAQMD for fugitive dust emissions during

Control Measure	Plan Consistency
	construction.
SS38: Fugitive Dust	**Consistent.** Material stockpiling and track out during grading activities as well as smoke and fumes from paving and roofing asphalt operations shall utilize BMPs to minimize the creation of fugitive dust. MM AIR-2a, identified under Impact AIR-2, would implement BMPs recommended by the BAAQMD for fugitive dust emissions during construction.
Transportation Control Measures	
TR8: Ridesharing, Last-Mile Connection	**Consistent.** Implementation of MM AIR-2e, which requires the project to participate in the existing TDM plan, would ensure compliance with this measure. The project applicant currently manages a TDM Plan that includes a set of strategies designed to reduce peak-hour vehicular traffic to and from the Bishop Ranch Business Park, which encompasses the Master Plan area. Promoting and supporting carpools and rideshare is one of the strategies included in the TDM. In addition, Transit Hubs would be developed at BR 1A, BR 3A, and BR 2600. Transit hubs would serve public transit, private buses, ride-hailing services, and other forms of motorized transportation.
TR9: Bicycle and Pedestrian Access and Facilities.	**Consistent.** The pedestrian access to the Master Plan area would be provided via the sidewalks along Camino Ramon, Bishop Drive, and Executive Parkway, as well as a pedestrian-only access along pathways within the Master Plan area. The proposed Master Plan would minimize pedestrian and automobile traffic conflicts by utilizing controlled crosswalks at the signalized intersections. Pedestrian circulation internal to the Master Plan area would be provided via sidewalks and off-street pedestrian pathways. Pedestrian crossings across local streets internal to the site would be focused on intersections where marked crosswalks would be provided subject to City review and approval. The proposed Master Plan would implement and supplement the City's Bicycle Master Plan so that visitors and employees arriving by bicycle would have a continuous access system similar to that provided to pedestrians and vehicles. In order to encourage and facilitate bicycle use, the proposed Master Plan would provide code-required bicycle parking spaces throughout the Master Plan area. The proposed Master Plan would be consistent with the BAAQMD effort to encourage planning for bicycle and pedestrian facilities.
TR 13: Parking Policies	**Consistent.** The proposed Master Plan would utilize parking garages for residents and visitors. Shared parking would be used in certain cases.
Water Control Measures	
WR2. Support Water Conservation	**Consistent.** Development under the proposed Master Plan

Control Measure	Plan Consistency
	would conform to the City's Water Efficient Landscape Ordinance (WELO) and the California Green Building Standards Code. In addition, an existing recycled water main is located within the Iron Horse Trail corridor (16-inch diameter). The proposed Master Plan uses would connect to this line via new service laterals.
Source of control measures: Bay Area Air Quality Management District (BAAQMD). 2017. Final 2017 Clean Air Plan: Spare the Air, Cool the Climate. April 19. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed February 27, 2020.	

In summary, implementation of the proposed Master Plan would not conflict with applicable measures under the 2017 Clean Air Plan after incorporation of MM AIR-2a and MM AIR-2e. Therefore, the proposed Master Plan would be consistent with Criterion 1 after incorporation of mitigation.

Criterion 2

The second step to ensure that the proposed Master Plan would not conflict with or obstruct the 2017 Clean Air Plan is to show that the projected VMT or vehicle trips increase for the proposed Master Plan is less than or equal to the projected population increase. Specifically, the projected VMT or vehicle trips increase for the proposed Master Plan must be less than or equal to the projected population increase to be less than significant.

Population Estimates

The City of San Ramon General Plan 2035, which was adopted prior to the BAAQMD 2017 Clean Air Plan, is the applicable General Plan for the proposed Master Plan. Areas evaluated in this EIR for new development under the proposed Master Plan include Bishop Ranch 1A (BR 1A), Bishop Ranch 3A (BR 3A), and Bishop Ranch 2600 (BR 2600). BR 1A, BR 3A, and BR 2600 are designated 'Mixed Use—City Center' by the City of San Ramon General Plan 2035 and are zoned 'City Center Mixed Use' (CCMU) by the San Ramon Zoning Ordinance.

The CCMU provisions allow a 0.70 floor area ratio (FAR), which can be increased to 1.35 FAR if affordable housing and significant public benefits or amenities such as public art and plazas, public facilities, or a transit facility is nearby. The proposed Master Plan's FAR is estimated to be between 1.20 and 1.35, allowed due to approximately 40.7 proposed acres of publicly accessible parks, open space, and other public facilities, and use of mobility hubs. The CCMU Standard allows for 22-50 dwelling unit per acre (du/acre) (as determined by General Plan). The Master Plan proposes an overall 33.3 du/acre residential density.

As noted in Section 3.12, Population and Housing, the City of San Ramon's 2020 population estimate of 83,118 persons exceeds ABAG's projections for 2020, 2025, 2020, and 2035. Implementation of the proposed Master Plan would result in an increase of population compared to existing conditions. Population growth resulting from the proposed Master Plan is within the General Plan's population projections for 2035. As previously noted, the population projections within the City of San Ramon General Plan 2035 differ from ABAG's population projections.

The measures in BAAQMD 2017 Clean Air Plan complement and support Plan Bay Area, adopted by the MTC and ABAG, which lays out the region's planning framework to reduce motor vehicle miles traveled. The BAAQMD Guidelines state that population estimates should be derived from the most recent issue of the ABAG Projections publication. Consistent with the recommended approach, population data used in the analysis was obtained from ABAG. Baseline population estimates for Contra Costa County were obtained from ABAG for use in the population and VMT comparison analysis, consistent with the BAAQMD-recommended approach.

Vehicle Miles Traveled

The proposed Master Plan contemplates mixed-use development that includes several design features that aim to reduce vehicle miles traveled and promote goals and measures contained in BAAQMD's 2017 Clean Air Plan and related planning documents. The proposed Master Plan would develop housing and walkable public open space on undeveloped and underutilized infill sites within the Bishop Ranch Business Park. Development of the housing contemplated in the proposed Master Plan would complement the existing employment center and maximize the use of existing infrastructure. Furthermore, locating housing next to jobs would reduce or eliminate motor vehicle travel for home-to-work trips for some residents and would provide connectivity for non-motorized modes of travel. With approximately 10.8 acres of linear parkways proposed in addition to the mix of residential and commercial uses, the proposed Master Plan is designed to make walking a convenient and practical mode of transportation for residents, employees, and patrons of the development within the planning area. Buildout of the proposed Master Plan would provide future residents, visitors, and employees connectivity to adjoining land uses including the Iron Horse Trail, Central Park, City Center Bishop Ranch, The Shops at Bishop Ranch, and the Marketplace through pedestrian and bicycle connections. The inclusion of mobility hubs in BR 1A, BR 3A, and BR 2600 would increase accessibility to public transportation and would improve mobility within Bishop Ranch, allowing for pick-up and drop-off at convenient locations easily accessible from major arterial roadways. Overall, the proposed Master Plan would create a considerable amount of internal capture between its components to reduce vehicle miles traveled compared to the same level of development built with land uses geographically separated from each other.

Assessment of Increase in Population Compared to Increase in Vehicle Miles Traveled

The increases in population and VMT from development of the proposed Master Plan are compared against Contra Costa County VMT and population estimates obtained from MTC and ABAG. Because the methodology needed to consider transportation impacts and air quality impacts differ, the proposed Master Plan is assessed using both approaches to estimate the increase in VMT from development under the proposed Master Plan. The increase in VMT from development under the proposed Master Plan is assessed using the full buildout year of 2048 and VMT estimated using the CalEEMod output files prepared to estimate air quality and GHG emissions in Table 3.2-15. Table 3.2-16 presents the analysis using the assumptions assessed in the TIS, including VMT estimates and a buildout year of 2040.

Table 3.2-15 compares the increase in VMT and population due to the proposed Master Plan in the year 2048, which is the estimated full buildout year of development of the proposed Master Plan.

Table 3.2-15: Population and VMT Estimates (Master Plan Buildout-2048)

Geographical Level	VMT	Population
Countywide	23,378,036[1]	1,387,295[3]
Proposed Master Plan	60,995[2]	13,500[4]
Percentage Increase	0.26	0.97

Notes:
VMT = vehicle miles traveled

[1] Source for Countywide VMT: Metro Transportation Commission (MTC). July. Vital Signs/; Daily Miles Traveled—by county (total), Contra Costa County. July 6. Website: https://open-data-demo.mtc.ca.gov/dataset/Vital-Signs-Daily-Miles-Traveled-by-county-total-/9i2c-q9ay. Accessed February 27, 2020.
Note: Data available up to 2014. Linearly interpolated for the year 2048.

[2] Source for proposed Master Plan VMT: CalEEMod output (Appendix C). Annual VMT for Bishop Ranch 1A, Bishop Ranch 3A, and Bishop Ranch 2600 = 22,263,080.

[3] Source: Plan Bay Area. 2020. Projections 2040. February. Website: http://projections.planbayarea.org/. Accessed February 27, 2020.

[4] Using ABAG projections data of 3 persons per household in Contra Costa County in 2040 and the proposed Master Plan will develop 4,500 residential units. Therefore, total population of the proposed Master Plan in 2040 = 3*4,500 = 13,500 persons.

As discussed in Section 3-14, Transportation, Impact TRANS-4 of this Draft EIR, the data for Total Vehicle Miles traveled for San Ramon is not available in the City of San Ramon General Plan 2035. Thus, VMT estimates for Contra Costa County are used instead. The approach used for estimating the effects of the proposed Master Plan on per capita VMT in the TIS consisted of using travel demand model information that was readily available. Modeled trip tables for from the Contra Costa Transportation Authority (CCTA) for the year 2040 are used to calculate residential VMT. The TIS utilized person trip tables by trip purpose from the CCTA Travel Demand Model the VMT analysis. The proposed Master Plan is located in three Model Traffic Analysis Zone (TAZs). The CCTA Travel Demand Model assumed future residential development for the Bishop Ranch TAZ that is south of Executive Parkway and east of Camino Ramon—TAZ 40136 only. For more details, refer to the TIS in Appendix J of this Draft EIR.

Table 3.2-16: Population and VMT Estimates (2040)

Geographical Level	VMT (Home-based)	Population
Countywide	27,803,110	1,381,643
Proposed Master Plan[1]	222,290	12,375
Percentage Increase	0.80	0.90

Notes:
VMT = vehicle miles traveled

Source of VMT and Population Estimates: Gibson Transportation Consulting Inc. 2020. Transportation Impact Study for the CityWalk Master Plan Project. March. (See Appendix J of this EIR.)

Geographical Level	VMT (Home-based)	Population

[1] The VMT for the Master Plan area reflects (a) proportional scaling of home-based vehicle trips for TAZ 40193 in Dougherty Valley by a factor of 3.1 and (b) a conservative assumption that average trip length would increase by 50 percent. The population for the proposed Master Plan was based on an assumed 2.75 persons per residential unit.

Table 3.2-17: Comparison of Population Percentage Increase and VMT Percentage Increase

Scenario	Percentage Increase in VMT	Percentage Increase in Population
Percentage Increase as Assessed in Table 3.2-16	0.26	0.97
Percentage Increase as Assessed in Table 3.2-17	0.80	0.90
Does Percentage Increase in Population Exceed Increase in VMT in Either Scenario?	**Yes**	

As shown in Table 3.2-15, Table 3.2-16, and Table 3.2-17, the projected vehicle miles traveled or vehicle trips increase due to the proposed Master plan is less than projected population increase in both analyses.

Considering this information, the proposed Master Plan would be consistent with Criterion 2.

Level of Significance Before Mitigation

Potentially significant impact (Criterion 1).

Less than significant impact (Criterion 2).

Mitigation Measures

Implement MM AIR-2a and MM AIR-2e.

Level of Significance After Mitigation

Less than significant impact.

Cumulative Criteria Pollutant Emissions Impacts

Impact AIR-2: **The proposed Master Plan would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.**

Impact Analysis

In developing thresholds of significance for criteria air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively significant. As such, if a project exceeds the identified thresholds of significance, its emissions would be significant in terms of both project- and cumulative-level impacts, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Since land contemplated by the proposed Master Plan are known, the project-level thresholds are appropriate in assessing impacts related to

regional criteria pollutant emissions. Although the specific land uses could ultimately vary during final design, the emission estimates were developed consistent with the land uses and construction schedule in Chapter 2, Project Description. Thus, this impact analysis and discussion are related to the proposed Master Plan's and cumulative-level effect of the proposed Master Plan's regional criteria air pollutant emissions.

The region is non-attainment for the federal and State ozone standards, the State PM_{10} standards, and the federal and State $PM_{2.5}$ standards. Potential impacts would result in exceedances of State or federal standards for NO_X or particulate matter (PM_{10} and $PM_{2.5}$). NO_X emissions are of concern because of potential health impacts from exposure to NO_X emissions during both construction and operation and as a precursor in the formation of airborne ozone and particulate nitrates. PM_{10} and $PM_{2.5}$ are of concern during construction, because of the potential to emit exhaust emissions from the operation of off-road construction equipment and fugitive dust during earth-disturbing activities (construction fugitive dust).

ROG emissions are also important, because of their participation in the formation of airborne ozone and organic PM. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children.

By its nature, air pollution is largely a cumulative impact resulting from emissions generated over a large geographic region. The nonattainment status of regional pollutants is a result of past and present development within the air basin, and this regional impact is a cumulative impact. In other words, new development projects within the air basin would contribute to this impact only on a cumulative basis. No single project would be sufficient in size, by itself, to result in nonattainment of regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively significant when taken in combination with past, present, and future development projects.

The cumulative analysis focuses on whether a specific project would result in cumulatively significant emissions. According to Section 15064(h)(4) of the CEQA Guidelines, the existence of significant cumulative impacts caused by other projects alone does not constitute substantial evidence that the project's incremental effects would be cumulatively significant. Rather, the determination of cumulative air quality impacts for construction and operational emissions is based on whether the project would result in regional emissions that exceed the BAAQMD regional thresholds of significance for construction and operations on a project level. The thresholds of significance represent the allowable amount of emissions each project can generate without generating a cumulatively significant contribution to regional air quality impacts. Therefore, a project that would not exceed the BAAQMD thresholds of significance on the project level also would not be considered to result in a cumulatively significant impact with regard to regional air quality and, therefore, would not be considered to result in a significant impact related to cumulative regional air quality.

Construction

Construction activities associated with development of the proposed Master Plan would include site preparation, grading, paving, building construction, and painting. During construction, fugitive dust (PM_{10} and $PM_{2.5}$) would be generated from site grading and other earth-moving activities. The majority of this fugitive dust would remain localized and would be deposited near the plan area. However, the potential for impacts from fugitive dust exists unless control measures are implemented to reduce the emissions from this source. Exhaust emissions would also be generated from the operation of the off-road construction equipment, as shown in Table 3.2-12.

Construction Fugitive Dust

Construction would require general site clearing and grading/earthwork activities. Emissions from construction activities are generally short-term in duration but may still cause adverse air quality impacts. The proposed Master Plan would generate emissions from construction equipment exhaust, worker travel, and fugitive dust as PM_{10} and $PM_{2.5}$. PM is of concern during construction because of the potential to emit fugitive dust during earth-disturbing activities (construction fugitive dust). The BAAQMD does not have a quantitative significance threshold for fugitive dust. The BAAQMD's Air Quality Guidelines recommend that projects determine the significance for fugitive dust through application of control measures intended to reduce fugitive dust. Without mitigation, the proposed Master Plan does not include any dust control measures. As such, this represents a significant cumulative construction impact related to criteria air pollutant emissions.

However, per MM AIR-2a, the BMPs identified in the BAAQMD's Air Quality Guidelines would be required to be implemented during construction of the proposed Master Plan in order to reduce localized dust impacts. Therefore, with implementation of MM AIR-2a, cumulative construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation in terms of criteria air pollutant emissions specific to fugitive dust would be less than significant with mitigation.

Construction Emissions: ROG, NO_X, PM_{10} (exhaust), $PM_{2.5}$ (exhaust)

As described above under Section 3.2.4, Approach to Analysis, CalEEMod was used to estimate the proposed Master Plan construction emissions. Estimated construction emissions are compared with the applicable thresholds of significance established by the BAAQMD to assess ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$ construction emissions to determine significance for this criterion.

As shown in Table 3.2-10, for the purpose of analysis in this Draft EIR, construction of development under the proposed Master Plan is anticipated to begin as early as January 2021 and continue through January 2048. The construction schedule used in the analysis represents a reasonable "worst-case" analysis scenario since a delay in construction dates into the future would result in using emission factors for construction equipment that decrease as the analysis year increases, due to improvements in technology and the need to meet more stringent regulatory requirements. Therefore, construction emissions would likely decrease if the construction schedule moves to later years. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet. The construction emissions modeling parameters and assumptions are summarized above under Approach to Analysis, and the complete modeling results are provided in Appendix C. Annual construction emissions are shown by source, converted

to average daily construction emissions, and are compared with the applicable significance thresholds in Table 3.2-18.

Table 3.2-18: Construction Annual and Daily Average Emissions (Unmitigated)

Construction Activity	Annual Emissions (tons/year)			
	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Site Work for the Entire Planning Area (BR 1A, BR 3A, and BR 2600)	0.31	3.86	0.14	0.20
Phase 1 (Portions of BR 1A and BR 2600)	4.39	5.53	0.18	0.22
Phases 2-3 (BR 1A)	6.10	10.64	0.36	0.60
Phases 4-6 (BR 3A)	8.15	15.45	0.35	1.23
Phases 7-14 (BR 2600)	36.01	156.96	0.54	20.72
Total Construction Emissions (tons)	**54.95**	**192.45**	**1.57**	**22.97**
Total project Construction Emissions (lbs)	**109,908**	**384,891**	**3,131**	**2,966**
Average Daily Construction Emissions (lbs/day) [1]	***15.60***	***54.64***	***0.44***	***0.42***
BAAQMD Average Daily Construction Emission Thresholds (lbs/day)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**No**	**Yes**	**No**	**No**

Notes:
[1] The average daily construction emissions were estimated based on the total annual emissions divided by the number of working days (7,044 total working days for the construction duration of the proposed Master Plan).
lbs = pounds ROG = reactive organic gases NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter $PM_{2.5}$ = particulate matter 2.5 microns in diameter
BR = Bishop Ranch
Calculations use unrounded numbers.
Source of thresholds: Bay Area Air Quality Management District (BAAQMD). 2017. CEQA Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed February 7, 2020.
Source of Emissions: CalEEMod Output (Appendix C).

As shown in Table 3.2-18, construction emissions would not exceed the BAAQMD's recommended thresholds of significance with regard to emissions of ROG, exhaust PM_{10}, and exhaust $PM_{2.5}$; however, construction emissions would slightly exceed the BAAQMD-recommended threshold for emissions of NO_X. Therefore, mitigation is required to reduce emissions of NO_X during construction.

MM AIR-2b requires the project applicant and/or construction contractor to provide documentation to the City of San Ramon that all off-road diesel-powered construction equipment greater than 50 horsepower meets EPA or ARB Tier IV Final off-road emissions standards. Annual construction emissions after the implementation of MM AIR-2b are shown by source, converted to average daily construction emissions, and are compared with the applicable significance thresholds in Table 3.2-19.

Table 3.2-19: Construction Annual and Daily Average Emissions (Mitigated)

Construction Activity	Annual Emissions (tons/year)			
	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Site Work for the Entire Planning Area (BR 1A, BR 3A, and BR 2600)	0.08	1.14	0.01	0.01
Phase 1 (Portions of BR 1A and BR 2600)	4.14	2.68	0.03	0.03
Phases 2-3 (BR 1A)	5.58	4.77	0.06	0.06
Phases 4-6 (BR 3A)	7.46	8.67	0.08	0.08
Phases 7-14 (BR 2600)	34.27	146.90	0.42	0.40
Total Construction Emissions (tons)	**51.53**	**164.16**	**0.60**	**0.58**
Total project Construction Emissions (lbs)	**103,061**	**328,328**	**1,203**	**1,154**
Average Daily Construction Emissions (lbs/day) [1]	***14.63***	***46.61***	***0.17***	***0.16***
BAAQMD Average Daily Construction Emission Thresholds (lbs/day)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**

Notes:
[1] The average daily construction emissions were estimated based on the total annual emissions divided by the number of working days (7,044 total working days for the construction duration of the proposed Master Plan).
lbs = pounds ROG = reactive organic gases NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter $PM_{2.5}$ = particulate matter 2.5 microns in diameter
BR = Bishop Ranch
Calculations use unrounded numbers.
Source of thresholds: Bay Area Air Quality Management District (BAAQMD). 2017. CEQA Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed February 7, 2020.
Source of Emissions: CalEEMod Output (Appendix C).

As shown in Table 3.2-19, with the incorporation of mitigation, construction emissions would not exceed the BAAQMD's recommended thresholds of significance with regard to emissions ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$. Cumulative construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation in terms of criteria air pollutant emissions specific to ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$ would be less than significant after incorporation of MM AIR-2b.

Operation

Operational Emissions: ROG, NO_X, PM_{10}, $PM_{2.5}$

Operational pollutants of concern include ROG, NO_X, PM_{10}, and $PM_{2.5}$. Operational emissions include those emissions that occur when a project commences operations. Operations were analyzed for the 2048 operational year, which is the full buildout year of development contemplated by the proposed Master Plan. The operational emissions for the respective pollutants were calculated using CalEEMod. The total daily trips associated with proposed and existing land uses are consistent with those presented in the transportation impact assessment included in Appendix J. The CalEEMod

default trip lengths for an urban setting in Contra Costa County[5] were used in this analysis of vehicle emissions. The major sources for operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ are shown above under Approach to Analysis. Annual operational emissions estimated for the proposed Master Plan are shown by source and are compared with the applicable significance thresholds in Table 3.2-20. The average daily operational-related emissions for the proposed Master Plan are compared with the applicable significance thresholds in Table 3.2-21.

Table 3.2-20: Operational Annual Emissions at Buildout in 2048 (Unmitigated)

Emission Source	Annual Emissions (tons/year)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Entire Project Site (Bishop Ranch 1A, Bishop Ranch 3A, and Bishop Ranch 2600)				
Area	19.49	0.46	0.19	0.19
Energy	0.32	2.73	0.22	0.22
Mobile	1.97	14.69	8.33	2.25
Proposed Master Plan Total	**21.77**	**17.87**	**8.74**	**2.66**
BAAQMD Maximum Annual Emission Threshold	**10**	**10**	**15**	**10**
Exceeds thresholds?	**Yes**	**Yes**	**No**	**No**

Notes:
ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
Source of emissions: CalEEMod Output (Appendix C).

Table 3.2-21: Operational Average Daily Emissions at Buildout in 2048 (Unmitigated)

Parameters	Average Daily Emissions (pounds/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Annual Emissions[1] (tons/year)	21.77	17.87	8.74	2.66
Annual Emissions[2] (lbs/year)	43,549	35,749	17,480	5,321
Average Daily Emissions[3] (lbs/day)	**119.31**	**97.94**	**47.89**	**14.58**
BAAQMD Average Daily Emission Thresholds (lbs/day)	**54**	**54**	**82**	**54**
Exceeds thresholds?	**Yes**	**Yes**	**No**	**No**

Notes:
1 Project emissions are shown in Table 3.2-20.
2 Pounds per year were calculated using the unrounded annual project operational emissions.
3 The average daily construction emissions were estimated based on the total annual emissions divided by the number of days in 2048 (365 days).

5 Note that the CalEEMod setting is limited to the county level, so there is no option to select a city.

Parameters	Average Daily Emissions (pounds/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
ROG = reactive organic gases NO_X = oxides of nitrogen PM_{10} = particulate matter 10 microns in diameter $PM_{2.5}$ = particulate matter 2.5 microns in diameter Source of thresholds: Bay Area Air Quality Management District (BAAQMD). 2017. CEQA Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed February 7, 2020. Source of emissions: CalEEMod Output (Appendix C).				

As shown in Table 3.2-20 and Table 3.2-21, the implementation of the proposed Master Plan would result in ROG and NO_X emissions that would exceed BAAQMD's thresholds of significance for both annual operational emissions and daily operational emissions, indicating that on-going operations would be considered to have the potential to generate a significant quantity air pollutants. Therefore, operational emissions from development contemplated by the proposed Master Plan would be potentially significant prior to mitigation.

As shown in Table 3.2-20 and Table 3.2-21, the majority of operational ROG emissions in the unmitigated buildout scenario would be generated from area sources. The majority of ROG emissions in the unmitigated scenario were from consumer products, however ROG emissions are also generated from occasional repainting of buildings and regular landscaping activities; refer to Appendix C for details.

Some options to reduce operational emissions of ROG[6] may include:

- Utilize only low ROG cleaning supplies (also known low VOC cleaning supplies) in perpetuity;
- Utilize only low ROG paint supplies (also known low VOC paint supplies) in perpetuity; and
- Utilize only electric landscaping equipment in perpetuity.

As noted above, the options available to reduce the majority of ROG emissions caused by area-sources during operations would require the use of restricted supplies and equipment by future occupants in perpetuity. Future occupants (including residents) would have access to consumer products available on the marketplace. Regulation of consumer products available on the marketplace is not within the control of any individual project applicant or lead agency. Therefore, requiring the use of only low ROG cleaning supplies in perpetuity is neither feasible nor enforceable.

MM AIR-2c and MM AIR-2d require design plans that encourage the use of low ROG paint supplies and electric landscaping by all components of the proposed Master Plan. Although construction and operational impacts are considered separately,[7] construction activities would emit ROG at the same time operations due to the overlap of construction and operations. Because construction activities

[6] It should be noted "ROG" and "VOC" are used interchangeably. ROG is being used to refer to the pollutant being emitted by the proposed Master Plan, consistent with the BAAQMD thresholds that the emissions were compared against. When considering options for mitigation measures, the more common terminology for lower emitting options is "VOC."

[7] Consistent with BAAQMD recommendations, construction emissions are compared to the applicable thresholds separately from operational emissions.

would overlap with operations, there is a nexus to also apply the low ROG paint requirements to construction activities associated with development of the proposed Master Plan. Although requiring the use of low ROG paint supplies during construction would not reduce the amount of operational ROG generated during operations, it would serve to reduce the proposed Master Plan's overall generation of ROGs.

As shown in Table 3.2-20 and Table 3.2-21, the majority of operational NO_X emissions in the unmitigated buildout scenario would be generated from mobile sources. There are limited options beyond compliance existing regulation and the numerous design features already included as part of the proposed Master Plan to further reduce emissions associated with vehicles traveling to and from the planning area during operations. MM AIR-2e (requiring non-residential components of the proposed Master Plan to participate in a transportation demand management plan) and MM AIR-2f (requiring the proposed Master Plan to meet or exceed electric vehicle parking provisions required by California Green Building Standards) are required to reduce emissions of NO_X generated by the proposed Master Plan during operations from mobile sources. Reductions to emissions from mobile sources from implementation of MM AIR-2f were calculated outside of CalEEMod and are included as part of Appendix C.

Although to a lesser extent than the sources listed above, on-site use of natural gas contributes to the proposed Master Plan's generation of ROG and NO_X during long-term operations. MM AIR-2g requires all new residential land uses to be designed as all-electric developments. Implementation of MM AIR-2g would eliminate emissions from residential uses of natural gas, including emissions of ROG and NO_X associated with residential use of natural gas.

Table 3.2-22 and Table 3.2-23 present the proposed Master Plan's annual and average daily emissions after the incorporation of MM AIR-2c through MM AIR-2g.

Table 3.2-22: Operational Annual Emissions at Buildout in 2048 (Mitigated)

Emission Source	Annual Emissions (tons/year)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Entire Project Site (Bishop Ranch 1A, Bishop Ranch 3A, and Bishop Ranch 2600)				
Area	16.36	0.38	0.18	0.18
Energy	0.07	0.62	0.05	0.05
Mobile	1.95	14.62	8.05	2.18
Proposed Master Plan	**18.38**	**15.62**	**8.28**	**2.41**
BAAQMD Maximum Annual Emission Threshold	**10**	**10**	**15**	**10**
Exceeds thresholds?	**Yes**	**Yes**	**No**	**No**

Notes:
ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
Source of emissions: CalEEMod Output (Appendix C).

Table 3.2-23: Operational Average Daily Emissions at Buildout in 2048 (Mitigated)

Parameters	Average Daily Emissions (pounds/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Annual Emissions[1] (tons/year)	18.38	15.62	8.28	2.41
Annual Emissions[2] (lbs/year)	36,770	31,240	16,568	4,815
Average Daily Emissions[3] (lbs/day)	**100.74**	**85.59**	**45.39**	**13.19**
BAAQMD Average Daily Emission Thresholds (lbs/day)	**54**	**54**	**82**	**54**
Exceeds thresholds?	**Yes**	**Yes**	**No**	**No**

Notes:
[1] Project emissions are shown in Table 3.2-22.
[2] Pounds per year were calculated using the unrounded annual project operational emissions.
[3] The average daily construction emissions were estimated based on the total annual emissions divided by the number of days in 2048 (365 days).
ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
Source of thresholds: Bay Area Air Quality Management District (BAAQMD). 2017. CEQA Air Quality Guidelines. May. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed February 7, 2020.
Source of emissions: CalEEMod Output (Appendix C).

As shown in Table 3.2-22 and Table 3.2-23, the proposed Master Plan's long-term operational emissions of ROG and NO_X would continue to exceed the applicable thresholds after implementation of MM AIR-2c through MM AIR-2g.

Because there are approximately 26 years between the anticipated date of first occupancy of development under the proposed Master Plan and the anticipated date of full buildout, operational emissions were also estimated for each phase for informational purposes. Based on emission estimates prepared for each phase, development under the proposed Master Plan is not anticipated to exceed any applicable operational threshold in Phases 1 through 6. Therefore, prior to the occupancy of the 1,775th dwelling unit under the proposed Master Plan, the applicant shall demonstrate to the City of San Ramon that long-term operational ROG and NO_X emissions would be below the levels established by the BAAQMD thresholds, as required by MM AIR-2h.

MM AIR-2h requires the project applicant, prior to occupancy of the 1,775th dwelling unit under the proposed Master Plan, to either: 1) provide refined emission estimates prepared by a qualified air quality specialist which verifies that development under the proposed Master Plan would not exceed the applicable regional thresholds during project operations for ROG and NO_X; or 2) develop or participate in a verifiable offsite mitigation program to offset operational ROG and NO_X emissions to the levels established by the BAAQMD thresholds for the years in which the proposed Master Plan's operational emissions exceed the BAAQMD thresholds after incorporation of MM AIR-2c through

MM AIR-2g. Therefore, MM AIR-2h would apply to development under the proposed Master Plan for Phases 7 through 14.

With the implementation of MM AIR-2h, impacts associated with the project's generation of criteria pollutants and precursors during ongoing operations of development under the proposed Master Plan would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Implement the following:

MM AIR-2a Implement BAAQMD Best Management Practices During Construction

The following Best Management Practices (BMPs), as recommended by the Bay Area Air Quality Management District (BAAQMD), shall be included in the design of all development contemplated by the proposed Master Plan and implemented during all construction:

- All active construction areas shall be watered at least two times per day.
- All exposed non-paved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and access roads) shall be watered at least three times per day and/or non-toxic soil stabilizers shall be applied to exposed non-paved surfaces.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered and/or shall maintain at least 2 feet of freeboard.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage regarding idling restrictions shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- The prime construction contractor shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints. The City of San Ramon and the construction contractor shall take corrective action within 48

hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

MM AIR-2b **Implement a Construction Activities Emissions Reduction Plan**

Prior to the issuance of any grading or building permits (whichever occurs earliest), the project applicant and/or construction contractor shall prepare a construction operations plan that, during construction activities, requires all off-road equipment with engines greater than 50 horsepower to meet United States Environmental Protection Agency (EPA) or California Air Resources Board (ARB) Tier 4 Final off-road emission standards. This plan shall be implemented prior to construction activities to ensure that all off-road equipment with engines greater than 50 horsepower meet either EPA or ARB Tier 4 Final off-road emission standards. The construction contractor shall maintain records concerning its efforts to comply with this requirement during construction, including equipment lists. Off-road equipment descriptions and information may include but are not limited to equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, and engine serial number. The project applicant and/or construction contractor shall submit the construction operations plan and records of compliance to the City of San Ramon.

MM AIR-2c The following measure shall be applied to all development under the proposed Master Plan during construction to facilitate the use of electric landscaping equipment during project operations:

- Provision of outlets on the outside of buildings or in other accessible areas to facilitate the use of electrically powered landscape equipment.

MM AIR-2d The following measures shall be applied to all development under the proposed Master Plan during both construction and operation to reduce ROG emissions:

- Use super-complaint architectural coatings. These coatings are defined as those with volatile organic compound (VOC) less than 10 grams per liter. South Coast Air Quality Management District (SCAQMD)[8] provides a list of manufacturers that provide this type of coating.
- Keep lids closed on all paint containers when not in use to prevent ROG emissions and excessive odors.
- Use compliant low reactive organic gas (ROG) cleaning solvents (also known as low VOC cleaning solvents) to clean paint application equipment.
- Keep all paint and solvent laden rags in sealed containers to prevent ROG emissions.

MM AIR-2e Prior to issuance of the final certificate of occupancy for any non-residential building developed under the proposed Master Plan, the project applicant shall provide

[8] The availability of super-compliant architectural coatings for purchase is not limited to any geographical area.

documentation to the City of San Ramon that development under the proposed Master Plan would adhere to the existing approved Transportation Demand Management (TDM) Program for the Bishop Ranch Business Park that has been shown to promote trip reductions. The incentive programs outlined in the Bishop Ranch Business Park TDM Program promote trip reductions through the use of strategies and include, but are not limited to:

- A Bishop Ranch Transportation Center with travel information kiosks and on-site TDM coordinators to provide transportation information educational programs
- Tenant Employee Transportation Coordinator
- Fully subsidized transit passes on County Connection buses
- Promotion and support of carpools, vanpools and rideshare
- Bicycle amenities such as secure racks and showers
- Incentives for using alternative travel modes, including access to 511 Contra Costa Guaranteed Ride Home Program
- Promotion of TDM Public Outreach Campaigns—511 Contra Costa
- New employee orientation meetings detailing TDM opportunities
- Meetings with City TDM Advisory Committee

MM AIR-2f The following measure shall be applied to all development under the proposed Master Plan to facilitate and promote the use of electric vehicles during operations.

- Prior to issuance of building permits, the project applicant shall prepare and submit building plans to the City of San Ramon that demonstrates that all buildings meet or exceed building code standards.
- Prior to issuance of building permits, the project applicant shall prepare and provide documentation demonstrating that the new development under the proposed Master Plan would include installation of on-site charging units for electric vehicles. Plans for on-site electric vehicle charging shall demonstrate that proposed Master Plan would meet or exceed electric vehicle parking provisions required by California Green Building Standards.

MM AIR-2g Prior to the issuance of building permits necessary for construction of any residential components of the proposed Master Plan, the project applicant shall provide documentation to the City of San Ramon demonstrating that all new residential land uses will be designed as all-electric developments. All-electric developments shall not include natural gas.

MM AIR-2h **Offset ROG and NO_X Emissions Generated during Project Operation that are Above the Applicable BAAQMD Emissions Thresholds.**

Step 1) The project applicant shall, prior to the occupancy of the 1,775th dwelling unit under the proposed Master Plan, demonstrate to the City of San Ramon that long-term operational ROG and NO_X emissions would be below the levels established by the BAAQMD thresholds. This may be achieved by providing refined emission estimates prepared by a qualified air quality specialist which verifies that development under the proposed Master Plan would not exceed the applicable regional thresholds during project operations for ROG and NO_X. As Phase 7 is not anticipated to begin operations until 2034, there are several factors that could result in lower operational emissions than those presented in this EIR. For instance, the project applicant may employ technologies that are not available at the present date (2020) to reduce operational emissions to below levels of significance. In addition, development under the proposed Master Plan could benefit from compliance with regulations affecting mobile-source and area-source operational emissions that are currently not proposed. In addition, emission factors available at the time Phase 7 is expected to begin operations would likely differ from those available at the time of this writing (2020). Step 1 requires the project applicant to demonstrate, to the satisfaction of the City, that the proposed Master Plan's long-term operational emissions would not exceed the applicable BAAQMD's regional thresholds. If the proposed Master Plan's estimated emissions continue to exceed any applicable BAAQMD regional threshold, the requirements outlined in Steps 2 and 3 of this mitigation measure would apply.

Step 2) The project applicant shall, prior to the occupancy of the 1,775th dwelling unit under the proposed Master Plan, enter into an agreement with the City of San Ramon to develop or participate in a verifiable offsite mitigation program to offset operational ROG and NO_X emissions to the levels established by the BAAQMD thresholds for the years in which the proposed Master Plan's operational emissions exceed the BAAQMD thresholds after incorporation of MM AIR-2c through MM AIR-2g. The offsite mitigation program shall require the project applicant to provide payment to fund emission reduction projects through grants or similar mechanisms within the San Francisco Bay Area Air Basin. All offsite reductions must be quantifiable, verifiable, and enforceable. During the years of exceedance, the offset cost would be equal to the difference between the proposed Master Plan operational emissions and the applicable BAAQMD threshold multiplied by the emissions fee(s).

Step 3) If Step 2 is required, the project applicant shall provide a report within 15 months of occupancy of the 1,775th dwelling unit under the proposed Master Plan demonstrating compliance with Step 2 of this mitigation measure. The report shall demonstrate that operational emissions of ROG and NO_X emissions for development under the proposed Master Plan did not exceed levels established by the BAAQMD thresholds in the year of operations being analyzed. The emissions inventory shall be prepared using BAAQMD's approved/recommended emissions inventory model at the time of preparation of the report, using inputs and assumptions generally

consistent with the model runs provided in the EIR prepared for the project. Following the submittal of the first required report, update reports shall be submitted to the City on an annual basis. Annual reporting of the implementation of emissions reduction projects shall be required until the proposed Master Plan's emissions are less than the applicable BAAQMD's regional thresholds without offsets.

If annual reports indicate that emission reductions do not adequately reduce project emissions to a level below the regional BAAQMD's threshold for any year, then any emissions not offset in a previous year shall be offset in the following year (e.g., if the 2045 emissions exceed the threshold by five tons after the emissions reductions from credits, then those five tons of emissions must be offset in the following year).

Level of Significance After Mitigation

Less than significant impact.

Sensitive Receptors Exposure to Pollutant Concentrations

Impact AIR-3:	**The proposed Master Plan would expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis

This impact addresses whether implementation of the proposed Master Plan would expose air pollution sensitive receptors to TACs such as construction-related asbestos disturbance, construction-generated fugitive dust (PM_{10} and $PM_{2.5}$), construction-generated DPM, operational-related TACs, or operational CO hotspots.

For the purposes of assessing impacts to off-site sensitive receptors, it was assumed that all areas designated by the City of San Ramon General Plan 2035 as residential, park, school, or mixed use could contain sensitive receptors. The closest off-site sensitive receptors include mixed-use development bordering the planning area to the north, northeast, east, and south; and single-family residences west of the planning area, across I-680. The closest off-site sensitive receptors include planned land uses that could include sensitive receptors within approximately 50 feet of the proposed Master Plan area and existing sensitive receptors located approximately 430 feet west of the proposed Mater Plan, west of I-680. See Exhibit 3.10-1 for a graphical representation of Existing General Plan Land Use Designations.

Construction

Construction Fugitive Dust

Construction activities associated with development of the proposed Master Plan would include site preparation, grading, building construction, paving, and architectural coating. Generally, the most substantial air pollutant emissions would be dust generated from site grading. If uncontrolled, these emissions could lead to both health and nuisance impacts. Construction activities would also temporarily create emissions of equipment exhaust and other air contaminants.

The BAAQMD does not recommend a numerical threshold for fugitive, dust-related PM emissions. Instead, the BAAQMD bases the determination of significance for fugitive dust on a consideration of the control measures to be implemented. If all appropriate emissions control measures recommended by the BAAQMD are implemented, then fugitive dust emissions during construction are not considered significant. MM AIR-2a includes the fugitive dust control measures recommended by the BAAQMD, thereby reducing this impact to less than significant.

Construction Toxic Air Contaminants

A Health Risk Assessment (HRA) is a guide that helps to determine whether current or future exposures to a chemical or substance in the environment could affect the health of a population. In general, risk depends on the following factors:

- Identify the TACs that may be present in the air;
- Estimate the amount of TACs released from all sources, or the source of particular concern, using air samples or emission models;
- Estimate concentrations of TACs in air in the geographic area of concern by using dispersion models with information about emissions, source locations, weather, and other factors; and
- Estimate the number of people exposed to different concentrations of the TAC at different geographic locations.

During construction, the proposed Master Plan would result in the emissions of TACs that could potentially impact nearby sensitive receptors. TACs are the air pollutants of most concern as it relates to sensitive receptors, as they have the greatest potential to pose a carcinogenic and non-carcinogenic (such as asthma and bronchitis) hazard to human health. The BAAQMD has defined health risk significance thresholds as discussed under Specific Thresholds of Significance above. These thresholds are represented as a cancer risk to the public and a non-cancer hazard from exposures to TACs. Cancer risk represents the probability (in terms of risk per million individuals) that an individual would contract cancer resulting from exposure to TACs continuously over a period of several years. The health risks also include concentration levels of $PM_{2.5}$ and non-cancer hazards.

Construction DPM Emissions

DPM has been identified by the ARB as a carcinogenic substance. The principal TAC emission analyzed in this assessment was DPM from the operation of off-road equipment and diesel-powered delivery and worker vehicles during construction. For purposes of this analysis, DPM is represented as exhaust emissions of $PM_{2.5}$. As noted earlier, construction of the proposed Master Plan is anticipated to commence January 2021 and conclude January 2048. Construction assumptions are summarized above under Section 3.2.4, Approach to Analysis.

Based on the analysis presented in this section, emissions were estimated for the unmitigated scenario and a scenario with clean off-road engines (Tier IV Final mitigated). As discussed under Approach the Analysis, equipment tiers refer to a generation of emission standards established by the EPA and ARB that apply to diesel engines in off-road equipment. Construction DPM emissions (as $PM_{2.5}$ exhaust) and total $PM_{2.5}$ ($PM_{2.5}$ exhaust and $PM_{2.5}$ fugitive dust) were estimated using

CalEEMod (version 2016.3.2) The construction emissions were assumed to be distributed over the project area with a working schedule of 8 hours per day and 5 days per week. Emissions modeled for 8 hours each day, 5 days per week day were adjusted by a factor of 4.2 to convert for use with a 24-hour-per-day averaging period.

Construction emissions and are summarized in Table 3.2-24 below.

Table 3.2-24: Project Construction DPM (as $PM_{2.5}$ Exhaust) and Total $PM_{2.5}$ Emissions

Parameter	On-site DPM (as $PM_{2.5}$ Exhaust) (tons/year)	Off-site DPM[(1)] (as $PM_{2.5}$ Exhaust) (tons/year)	On-site Total $PM_{2.5}$ (as $PM_{2.5}$ Total) (tons/year)	Off-site Total $PM_{2.5}$[(1)] (as $PM_{2.5}$ Total) (tons/year)
Annual Average Construction Emissions (No Mitigation)				
Total Unmitigated Emissions	1.1273	0.0293	1.4992	1.7088
Annual Construction Emissions (Tier IV Final Mitigation)				
Total Mitigated Emissions	0.2220	0.0293	0.05940	1.7088

Note:
(1) The off-site emissions were estimated over construction vehicle travel routes within approximately 1,000 feet of the project site; see Appendix C for detailed assumptions. Source: Appendix C.

Estimation of Cancer Risks

The BAAQMD has developed a set of guidelines for estimating cancer risks that provide adjustment factors that emphasize the increased sensitivities and susceptibility of young children to exposures to TACs. These adjustment factors include age-sensitivity weighting factors, age-specific daily breathing rates, and age-specific time-at-home factors. The recommend method for the estimation of cancer risk is shown in the equations below with the cancer risk adjustment factors provided in Table 3.2-24 for several types of sensitive/residential receptors (infant, child, and adult).

$$\text{Cancer Risk} = C_{DPM} \times \text{Inhalation Exposure Factor} \qquad \text{(EQ-1)}$$

Where:

Cancer Risk = Total individual excess cancer risk defined as the cancer risk a hypothetical individual faces if exposed to carcinogenic emissions from a particular source for specified exposure durations; this risk is defined as an excess risk because it is above and beyond the background cancer risk to the population; cancer risk is expressed in terms of risk per million exposed individuals.

C_{DPM} = Period average DPM air concentration calculated from the air dispersion model in $\mu g/m^3$

Inhalation is the most important exposure pathway to impact human health from DPM and the inhalation exposure factor is defined as follows:

$$\text{Inhalation Exposure Factor} = CPF \times EF \times ED \times DBR \times AAF/AT \qquad \text{(EQ-2)}$$

Where:

CPF = Inhalation cancer potency factor for the TAC: 1.1 $(mg/kg\text{-}day)^{-1}$ for DPM
EF = Exposure frequency (days/year)
ED = Exposure duration (years of construction)
AAF = set of age-specific adjustment factors that include age sensitivity factors (ASF), daily breathing rates (DBR), and time at home factors (TAH)—see Table 3.2-25
AT = Averaging time period over which exposure is averaged (days)

The California Office of Environmental Health Hazards Assessment (OEHHA)-recommended values for the select various cancer risk parameters shown in EQ 2, above, are provided in Table 3.2-25.

Table 3.2-25: Exposure Assumptions for Cancer Risk

Receptor Age	Exposure Frequency		Age Sensitivity Factors	Time at Home Factor (%)	Daily Breathing Rate[(1)] (l/kg-day)
	Hours/day	Days/year			
3rd Trimester	24	350	10	100	361
0 to 2 years	24	350	10	100	1,090
2 to 9 years	24	350	10	100	631
9 to 16 years	24	350	10	100	572
>16 to 30 years	24	350	1	73	261

Notes:
(1) The daily breathing rates recommended by the BAAQMD for sensitive/residential receptors assume the 95th percentile breathing rates for all individuals less than 2 years of age and 80th percentile breathing rates for all older individuals.
(l/kg-day) = liters per kilogram body weight per day
Sources: Appendix C.

Bay Area Air Quality Management District (BAAQMD). 2016. Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en. Accessed November 27, 2019.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Project Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February. Website: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf. Accessed December 10, 2019.

Estimation of Non-cancer Chronic Hazards

An evaluation of the potential non-cancer effects of chronic chemical exposures was also conducted. Adverse health effects are evaluated by comparing the annual receptor concentration of each chemical compound with the appropriate Reference Exposure Level (REL) Risk characterization for non-cancer health hazards from TACs is expressed as a hazard index (HI). The HI is a ratio of the predicted concentration of a Project's emissions to a concentration considered acceptable to public health professionals, termed the REL. Available RELs promulgated by the OEHHA were considered in the assessment.

To quantify non-carcinogenic impacts, the hazard index approach was used.

$$HI = C_{ann}/REL \qquad \text{(EQ-3)}$$

Where:

HI = chronic hazard index
C_{ann} = annual average concentration of TAC as derived from the air dispersion model ($\mu g/m^3$)
REL = reference exposure level above which a significant impact is assumed to occur ($\mu g/m^3$)

The hazard index assumes that chronic exposures to TACs adversely affect a specific organ or organ system (toxicological endpoint) of the body. For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity REL. For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds 1, a health hazard is presumed to exist. For purposes of this assessment, the TAC of concern is DPM, for which the OEHHA has defined a REL for DPM of 5 $\mu g/m^3$. The principal toxicological endpoint assumed in this assessment was through inhalation.

Air Dispersion Modeling Results and Parameters

An air dispersion model is a mathematical formulation used to estimate the air quality impacts at specific locations (receptors) surrounding a source of emissions given the rate of emissions and prevailing meteorological conditions. The air dispersion model applied in this assessment was the AERMOD version 19191 air dispersion model that is approved by the BAAQMD for performing air dispersion impact assessments. Specifically, the AERMOD model was used to estimate levels of air emissions at sensitive receptor locations from the project construction DPM (as $PM_{2.5}$ exhaust) and $PM_{2.5}$ emissions. The use of the AERMOD model provides a refined methodology for estimating construction impacts by utilizing long-term, measured representative meteorological data and a representative construction schedule.

Terrain elevations were obtained using the EPA Terrain Preprocessor (AERMAP) model, the AERMOD terrain data preprocessor. The urban dispersion option was used to describe the air dispersion in the local vicinity of the plan area. The air dispersion model assessment used meteorological data from the Livermore Municipal Airport station, which is approximately 9 miles northwest of the planning area.

Receptor locations within the AERMOD model were placed at locations of existing residences and schools surrounding the Master Plan area. To evaluate localized construction impacts, sensitive receptor height should be taken into account at the point of maximum impact (ground-level for the purposes of this analysis). The emissions from the on-site construction exhaust source were assumed to be emitted at a height of 5 meters above ground to account for the top of the equipment exhaust stack where the emissions are released to the atmosphere and the increase in the height of the emissions due to its heated exhaust. The off-site construction vehicle emissions were represented in the AERMOD model as line volume sources with a release height of 3.1 meters for the DPM vehicles. The off-site emissions were estimated over construction vehicle travel routes within approximately 1,000 feet of the Master Plan area; see Appendix C for detailed assumptions.

As a mixed-use project that would include residential and park uses, developments within the proposed Master Plan would be considered air pollution sensitive receptors once operational.

Construction of the proposed Master Plan is assumed to start in January 2021 and conclude in January 2048 (see Table 3.2-10). The mass grading activities and site preparation activities would generate the greatest amount of emissions during construction. The most intense grading activities are anticipated to occur for the entire planning area in Phase 1, prior to the start of operations for any development contemplated under the proposed Master Plan. Construction activities during Phase 1 would primarily include less intense excavation for below-grade buildings, fine grading if needed, building construction, paving, landscaping, and architectural coatings. Notwithstanding this information, buildout of the proposed Master Plan could expose also future sensitive receptors within the planning area to substantial pollutant concentrations due to the overlap of occupancy and construction. Therefore, future on-site residential receptors and existing off-site sensitive receptors were considered in this analysis. Residences built in earlier phases were assumed to be exposed to later phases of construction. For example, residences built in Phase 1 were assumed to be exposed to emissions from construction of Phases 2 through 14. Table 3.2-26 shows the maximum impacted sensitive receptor (MIR) for each scenario analyzed.

Table 3.2-26: Maximum impacted sensitive Receptor (MIR) in Each Scenario Analyzed

Scenario	MIR	Construction Duration Analyzed in Scenario
Scenario 1—Existing Off-site Receptors Exposed to all Phases of Construction	37°45'47.3"N 121°57'16.5"W An existing off-site sensitive receptor at the linear trail, approximately 75 feet east of the project site	1/1/2021-1/1/2048
Scenario 2—Proposed Phase 1 On-site Receptors Exposed to Phases 2-14 Construction	37°45'56.7"N 121°57'34.7"W A proposed sensitive receptor in the Phase 1 portion of Bishop Ranch 2600	1/1/2022-1/1/2048
Scenario 3—Proposed Phases 1 and 2 On-site Receptors Exposed to Construction Phases 3-14	37°45'45.7"N 121°57'20.1"W A proposed sensitive receptor in the Phase 2 portion of Bishop Ranch 1A	1/1/2024-1/1/2048
Scenario 4—Proposed Phases 1-3 On-site Receptors Exposed to Construction Phases 4-14	37°45'56.7"N 121°57'34.7"W A proposed sensitive receptor in the Phase 1 portion of Bishop Ranch 2600	1/1/2026-1/1/2048
Scenario 5—Proposed Phases 1-4 On-site Receptors Exposed to Construction Phases 5-14	37°45'56.7"N 121°57'34.7"W A proposed sensitive receptor in the Phase 1 portion of Bishop Ranch 2600	1/1/2028-1/1/2048
Scenario 6—Proposed Phases 1-5 On-site Receptors Exposed to Construction Phases 6-14	37°45'49.1"N 121°57'22.4"W A proposed sensitive receptor in the Phase 5 portion of Bishop Ranch 3A	1/1/2030-1/1/2048
Scenario 7—Proposed Phases 1-6 On-site Receptors Exposed to Construction Phases 7-14	37°45'49.0"N 121°57'26.3"W A proposed sensitive receptor in the Phase 6 portion of Bishop Ranch 3A	1/1/2032-1/1/2048
Scenario 8—Proposed Phases 1-7 On-site Receptors Exposed to Construction Phases 8-14	37°45'47.7"N 121°57'25.5"W A proposed sensitive receptor in the Phase 6 portion of Bishop Ranch 3A	1/1/2034-1/1/2048
Scenario 9—Proposed Phases 1-8 On-site Receptors Exposed to Construction Phases 9-14	37°46'01.8"N 121°57'46.9"W A proposed sensitive receptor in the Phase 8 portion of Bishop Ranch 2600	1/1/2036-1/1/2048

Scenario	MIR	Construction Duration Analyzed in Scenario
Scenario 10—Proposed Phases 1-9 On-site Receptors Exposed to Construction Phases 10-14	37°45'47.7"N 121°57'25.5"W A proposed sensitive receptor in the Phase 6 portion of Bishop Ranch 3A	1/1/2038-1/1/2048
Scenario 11—Proposed Phases 1-10 On-site Receptors Exposed to Construction Phases 11-14	37°46'01.8"N 121°57'47.7"W A proposed sensitive receptor in the Phase 8 portion of Bishop Ranch 2600	1/1/2040-1/1/2048
Scenario 12—Proposed Phases 1-11 On-site Receptors Exposed to Construction Phases 12-14	37°46'00.2"N 121°58'02.6"W A proposed sensitive receptor in the Phase 11 portion of Bishop Ranch 2600	1/1/2042-1/1/2048
Scenario 13—Proposed Phases 1-12 On-site Receptors Exposed to Construction Phases 13-14	37°46'00.2"N 121°58'02.6"W A proposed sensitive receptor in the Phase 11 portion of Bishop Ranch 2600	1/1/2044-1/1/2048
Scenario 14—Proposed Phases 1-13 On-site Receptors Exposed to Construction Phase 14	37°46'00.9"N 121°58'03.0"W A proposed sensitive receptor in the Phase 11 portion of Bishop Ranch 2600	1/1/2046-1/1/2048

Notes:
MIR = Maximum Impacted Sensitive Receptor
Source: Appendix C.

The estimated health and hazard impacts from construction emissions at the MIR in each scenario are provided in Table 3.2-27. The estimates shown in Table 3.2-27 and Table 3.2-28 include application of BMPs recommended by the BAAQMD, as required by MM AIR-2a. It should be noted that inclusion of MM AIR-2a only reduces $PM_{2.5}$ total and not $PM_{2.5}$ exhaust.

Table 3.2-27: Proposed Master Plan Construction Health Risks and Hazards (Unmitigated)

Scenario	Age Group	Cancer Risk (risk per million)	Chronic Non-Cancer Hazard Index[(2)]	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Scenario 1—Existing Off-site Receptors Exposed to all Phases of Construction	Infant Child Adult	66.92 37.12 6.89	0.0178 0.0178 0.0178	0.1038 0.1038 0.1038
Scenario 2—Proposed Phase 1 On-site Receptors Exposed to Phases 2-14 Construction	Infant Child Adult	30.46 16.84 3.03	0.0081 0.0081 0.0081	0.0752 0.0752 0.0752
Scenario 3—Proposed Phases 1 and 2 On-site Receptors Exposed to Construction Phases 3-14	Infant Child Adult	55.78 30.65 5.16	0.0150 0.0150 0.0150	0.0967 0.0967 0.0967
Scenario 4—Proposed Phases 1-3 On-site Receptors Exposed to Construction Phases 4-14	Infant Child Adult	35.18 19.21 3.01	0.0095 0.0095 0.0095	0.0973 0.0973 0.0973
Scenario 5—Proposed Phases 1-4 On-site	Infant	37.91	0.0103	0.1022

Scenario	Age Group	Cancer Risk (risk per million)	Chronic Non-Cancer Hazard Index[2]	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Receptors Exposed to Construction Phases 5-14	Child Adult	20.57 2.97	0.0103 0.0103	0.1022 0.1022
Scenario 6—Proposed Phases 1-5 On-site Receptors Exposed to Construction Phases 6-14	Infant Child Adult	78.98 42.56 5.61	0.0217 0.0217 0.0217	0.1489 0.1489 0.1489
Scenario 7—Proposed Phases 1-6 On-site Receptors Exposed to Construction Phases 7-14	Infant Child Adult	47.63 25.68 3.06	0.0132 0.0132 0.0132	0.1717 0.1717 0.1717
Scenario 8—Proposed Phases 1-7 On-site Receptors Exposed to Construction Phases 8-14	Infant Child Adult	39.88 22.84 2.41	0.0120 0.0120 0.0120	0.1686 0.1686 0.1686
Scenario 9—Proposed Phases 1-8 On-site Receptors Exposed to Construction Phases 9-14	Infant Child Adult	50.07 26.88 2.82	0.0163 0.0163 0.0163	0.1701 0.1701 0.1701
Scenario 10—Proposed Phases 1-9 On-site Receptors Exposed to Construction Phases 10-14	Infant Child Adult	80.52 39.79 4.12	0.0287 0.0287 0.0287	0.2276 0.2276 0.2276
Scenario 11—Proposed Phases 1-10 On-site Receptors Exposed to Construction Phases 11-14	Infant Child Adult	9.55 4.26 0.43	0.0038 0.0038 0.0038	0.0620 0.0620 0.0620
Scenario 12—Proposed Phases 1-11 On-site Receptors Exposed to Construction Phases 12-14	Infant Child Adult	63.33 24.14 2.43	0.0282 0.0282 0.0282	0.2221 0.2221 0.2221
Scenario 13—Proposed Phases 1-12 On-site Receptors Exposed to Construction Phases 13-14	Infant Child Adult	47.36 13.79 1.39	0.0242 0.0242 0.0242	0.1902 0.1902 0.1902
Scenario 14—Proposed Phases 1-13 On-site Receptors Exposed to Construction Phase 14	Infant Child Adult	33.77 6.40 0.64	0.0224 0.0224 0.0224	0.1767 0.1767 0.1767
Highest from Any Scenario				
Risks and Hazards from any Scenario		80.52	0.0287	0.2276
BAAQMD Significance Threshold		**10.0**	**1.0**	**0.3**
Exceeds Individual Source Threshold?		**Yes**	**No**	**No**

Notes:
MIR = Maximum Impacted Sensitive Receptor
[1] The MIR for each scenario analyzed is shown in Table 3.2-26.
[2] Chronic non-cancer hazard index was estimated by dividing the annual average DPM concentration (as $PM_{2.5}$ exhaust) by the REL of 5 $\mu g/m^3$.
Source: Appendix C.

As noted from Table 3.2-27, construction of the proposed Master Plan would exceed the applicable BAAQMD thresholds for one of the three health impact metrics prior to the application of mitigation beyond that required by MM AIR-2a. Specifically, the DPM concentration during construction of the proposed Master Plan would exceed the applicable cancer risk significance threshold in multiple scenarios. This represents a potentially significant construction TAC exposure impact. Therefore, additional mitigation is required to reduce the impact during the construction period to below a level of significance.

MM AIR-2b requires the project applicant and/or construction contractor to provide documentation to the City of San Ramon that all off-road diesel-powered construction equipment greater than 50 horsepower meet EPA or ARB Tier IV Final off-road emissions standards. Table 3.2-28 shows the health risks and non-cancer hazard index for construction with implementation of Tier IV Final mitigation, as required by MM AIR-2b.

Table 3.2-28: Proposed Master Plan Construction Health Risks and Hazards (Tier IV Mitigated Equipment)

Scenario	Age Group	Cancer Risk (risk per million)	Chronic Non-Cancer Hazard Index[2]	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Scenario 1—Existing Off-site Receptors Exposed to all Phases of Construction	Infant Child Adult	9.93 5.51 1.02	0.0026 0.0026 0.0026	0.0296 0.0296 0.0296
Scenario 2—Proposed Phase 1 On-site Receptors Exposed to Phases 2-14 Construction	Infant Child Adult	13.44 7.43 1.34	0.0036 0.0036 0.0036	0.0525 0.0525 0.0525
Scenario 3—Proposed Phases 1 and 2 On-site Receptors Exposed to Construction Phases 3-14	Infant Child Adult	14.41 7.92 1.33	0.0039 0.0039 0.0039	0.0566 0.0566 0.0566
Scenario 4—Proposed Phases 1-3 On-site Receptors Exposed to Construction Phases 4-14	Infant Child Adult	15.61 8.52 1.33	0.0042 0.0042 0.0042	0.0746 0.0746 0.0746
Scenario 5—Proposed Phases 1-4 On-site Receptors Exposed to Construction Phases 5-14	Infant Child Adult	16.92 9.18 1.33	0.0046 0.0046 0.0046	0.0758 0.0758 0.0758
Scenario 6—Proposed Phases 1-5 On-site Receptors Exposed to Construction Phases 6-14	Infant Child Adult	19.44 10.47 1.38	0.0053 0.0053 0.0053	0.0832 0.0832 0.0832
Scenario 7—Proposed Phases 1-6 On-site Receptors Exposed to Construction Phases 7-14	Infant Child Adult	21.67 11.68 1.39	0.0061 0.0061 0.0061	0.1364 0.1364 0.1364
Scenario 8—Proposed Phases 1-7 On-site Receptors Exposed to Construction Phases 8-14	Infant Child Adult	18.24 10.45 1.10	0.0055 0.0055 0.0055	0.1361 0.1361 0.1361

Scenario	Age Group	Cancer Risk (risk per million)	Chronic Non-Cancer Hazard Index[(2)]	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Scenario 9—Proposed Phases 1-8 On-site Receptors Exposed to Construction Phases 9-14	Infant Child Adult	22.33 11.99 1.26	0.0073 0.0073 0.0073	0.1374 0.1374 0.1374
Scenario 10—Proposed Phases 1-9 On-site Receptors Exposed to Construction Phases 10-14	Infant Child Adult	35.92 17.75 1.84	0.0128 0.0128 0.0128	0.1481 0.1481 0.1481
Scenario 11—Proposed Phases 1-10 On-site Receptors Exposed to Construction Phases 11-14	Infant Child Adult	4.26 1.90 0.19	0.0017 0.0017 0.0017	0.0598 0.0598 0.0598
Scenario 12—Proposed Phases 1-11 On-site Receptors Exposed to Construction Phases 12-14	Infant Child Adult	28.24 10.77 1.08	0.0126 0.0126 0.0126	0.01439 0.01439 0.01439
Scenario 13—Proposed Phases 1-12 On-site Receptors Exposed to Construction Phases 13-14	Infant Child Adult	21.12 6.15 0.62	0.0108 0.0108 0.0108	0.1232 0.1232 0.1232
Scenario 14—Proposed Phases 1-13 On-site Receptors Exposed to Construction Phase 14	Infant Child Adult	15.06 2.85 0.29	0.0100 0.0100 0.0100	0.1145 0.1145 0.1145
Highest from Any Scenario				
Risks and Hazards from Any Scenario		35.92	0.0128	0.1481
BAAQMD Significance Threshold		**10.0**	**1.0**	**0.3**
Exceeds Individual Source Threshold?		**Yes**	**No**	**No**

Notes:
MIR = Maximum Impacted Sensitive Receptor
[1] The MIR for each scenario analyzed is shown in Table 3.2-26.
[2] Chronic non-cancer hazard index was estimated by dividing the annual average DPM concentration (as $PM_{2.5}$ exhaust) by the REL of 5 $\mu g/m^3$.
Source: Appendix C.

After incorporation of MM AIR-2a and MM AIR-2b, the project would not exceed any applicable health risk thresholds at any off-site sensitive receptors. However, as noted in Table 3.2-28, the proposed Master Plan's construction emissions would continue to exceed the applicable BAAQMD significance threshold for cancer risk after the incorporation of MM AIR-2a and MM AIR-2b in at least one scenario that analyzes impacts at proposed on-site residential sensitive receptors.

To reduce impacts at future residential sensitive receptors within the proposed Master Plan area, MM AIR-3a is recommended in addition to MM AIR-2a and MM AIR-2b. MM AIR-3a requires the installation of Minimum Efficiency Reporting Value (MERV) 13 filters to address cancer risks and $PM_{2.5}$ concentrations on the proposed Master Plan area during project operations.

Many heating/vacuum/air condition (HVAC) filters available in the United States are rated for their particle removal efficiency using a laboratory test procedure described in the American Society of Heating, Refrigerating, and Air Conditioning Engineers Standard 52.2-2012, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size. Minimum removal efficiency values in these three sized bins are used to assign HVAC filters a single efficiency metric MERV. In general, the higher the MERV for a filter, the greater the removal efficiency for one or more particle size bins. Average values for approximated outdoor-origin $PM_{2.5}$ removal efficiencies for several MERV-rated filters were derived from Stephens, Brennan, and Harriman. Single-pass outdoor-origin $PM_{2.5}$ removal efficiencies range from less than 10 percent for MERV 6 to over 95 percent for MERV 16 and high-efficiency particulate air (HEPA) filters.

MERV 13 filters would trap particles at an efficiency rate of at least 80 percent, substantially reducing impacts from TACs for future residents included as part of the proposed Master Plan. Table 3.2-29 shows the health risks at proposed residential sensitive receptors after the incorporation of MM AIR-2a, and MM AIR-2b, and MM AIR-3a.

Table 3.2-29: Proposed Master Plan Construction Health Risks and Hazards After Incorporation of MM AIR-2a, MM AIR-2b, and MM AIR-3a

Scenario	Age Group	Cancer Risk at the MIR[1] (risk per million)	Chronic Non-Cancer Hazard Index[(2)]	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Scenario 2—Proposed Phase 1 On-site Receptors Exposed to Phases 2-14 Construction	Infant Child Adult	2.69 1.49 0.27	0.0007 0.0007 0.0007	0.0105 0.0105 0.0105
Scenario 3—Proposed Phases 1 and 2 On-site Receptors Exposed to Construction Phases 3-14	Infant Child Adult	2.88 1.58 0.27	0.0008 0.0008 0.0008	0.0113 0.0113 0.0113
Scenario 4—Proposed Phases 1-3 On-site Receptors Exposed to Construction Phases 4-14	Infant Child Adult	3.12 1.70 0.27	0.0008 0.0008 0.0008	0.0149 0.0149 0.0149
Scenario 5—Proposed Phases 1-4 On-site Receptors Exposed to Construction Phases 5-14	Infant Child Adult	3.38 1.84 0.27	0.0009 0.0009 0.0009	0.0152 0.0152 0.0152
Scenario 6—Proposed Phases 1-5 On-site Receptors Exposed to Construction Phases 6-14	Infant Child Adult	3.89 2.09 0.28	0.0011 0.0011 0.0011	0.0166 0.0166 0.0166
Scenario 7—Proposed Phases 1-6 On-site Receptors Exposed to Construction Phases 7-14	Infant Child Adult	4.33 2.34 0.28	0.0012 0.0012 0.0012	0.0273 0.0273 0.0273
Scenario 8—Proposed Phases 1-7 On-site Receptors Exposed to Construction Phases 8-14	Infant Child Adult	3.65 2.09 0.22	0.0011 0.0011 0.0011	0.0272 0.0272 0.0272

Scenario	Age Group	Cancer Risk at the MIR[1] (risk per million)	Chronic Non-Cancer Hazard Index[(2)]	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Scenario 9—Proposed Phases 1-8 On-site Receptors Exposed to Construction Phases 9-14	Infant Child Adult	4.47 2.40 0.25	0.0015 0.0015 0.0015	0.0275 0.0275 0.0275
Scenario 10—Proposed Phases 1-9 On-site Receptors Exposed to Construction Phases 10-14	Infant Child Adult	7.18 3.55 0.37	0.0026 0.0026 0.0026	0.0296 0.0296 0.0296
Scenario 11—Proposed Phases 1-10 On-site Receptors Exposed to Construction Phases 11-14	Infant Child Adult	0.85 0.38 0.04	0.0003 0.0003 0.0003	0.0120 0.0120 0.0120
Scenario 12—Proposed Phases 1-11 On-site Receptors Exposed to Construction Phases 12-14	Infant Child Adult	5.65 2.15 0.22	0.0025 0.0025 0.0025	0.0029 0.0029 0.0029
Scenario 13—Proposed Phases 1-12 On-site Receptors Exposed to Construction Phases 13-14	Infant Child Adult	4.22 1.23 0.12	0.0022 0.0022 0.0022	0.0246 0.0246 0.0246
Scenario 14—Proposed Phases 1-13 On-site Receptors Exposed to Construction Phase 14	Infant Child Adult	3.01 0.57 0.06	0.0020 0.0020 0.0020	0.0229 0.0229 0.0229
Highest from Any Scenario				
Risks and Hazards from Any Scenario		7.18	0.0026	0.0296
BAAQMD Significance Threshold		**10.0**	**1.0**	**0.3**
Exceeds Individual Source Threshold?		**No**	**No**	**No**

Notes:
MIR = Maximum Impacted Sensitive Receptor
MM = Mitigation Measure
1 The MIR for each scenario analyzed is shown in Table 3.2-26.
2 Chronic non-cancer hazard index was estimated by dividing the annual average DPM concentration (as PM2.5 exhaust) by the REL of 5 µg/m3.
3 MM AIR-1X does not apply
Source: Appendix C.

The project's health impacts from construction emissions would not exceed any applicable significance threshold implementation of MM AIR-2a, MM AIR-2b, and MM AIR-3a.[9] Therefore, project-related emissions would not result in significant health impacts to nearby existing and proposed sensitive receptors during construction of the proposed Master Plan.

Construction Emissions at Existing Maximum-impacted Air Pollution Sensitive Receptor

The BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project site. For the proposed Master Plan, the cumulative impact assessment

[9] MM AIR-3a, requiring the installation and maintenance of filters meeting the MERV 13 standard, is not an applicable measure to reduce impacts at off-site receptors.

quantified the cumulative impacts from TAC emission sources located within 1,000 feet of the proposed Master Plan site in addition to the maximum TAC emissions from implementation of the proposed Master Plan. For cumulative-level TACs analysis, the BAAQMD provides various tools for use in screening potential cumulative sources of TACs. These tools are:

- Surface Street Screening Tools. The BAAQMD pre-calculated potential cancer risk and $PM_{2.5}$ concentration increases for each county within their jurisdiction. The look-up tables are used for roadways that meet BAAQMD's "major roadway" criteria of 10,000 vehicles or 1,000 trucks per day. Risks are assessed by roadway volume, roadway direction, and distance to sensitive receptors. These look-up tables provided in the Google Earth Surface Street Screening Tool were last updated in 2011; however, the BAAQMD also provides the Roadway Screening Analysis Calculator that provides county-specific tables containing estimates of risks and hazard impacts from roadways in the Bay Area. The Roadway Screening Analysis Calculator was used to estimate health risk from existing local roadways within 1,000 feet of the planning area that meet the BAAQMD's criteria for major roadways. Alcosta Boulevard located approximately 990 feet east of the proposed Master Plan, is estimated to carry 26,700 annual average daily trips. San Ramon Valley Boulevard located approximately 311 feet west of the proposed Master Plan, is estimated to carry 22,300 annual average daily trips.
- Freeway Screening Analysis Tools. The BAAQMD prepared a Google Earth file that contains pre-estimated cancer risk, hazard index, and $PM_{2.5}$ concentration increases for highways within the Bay Area. Risks are provided by roadway link and are estimated based on elevation and distance to the sensitive receptor. BAAQMD has also prepared a Geographic Information System (GIS) tool with estimated cancer risk and $PM_{2.5}$ concentration increases for freeways within the Bay Area, which has been updated more recently than the previously mentioned Google Earth tool. The GIS tool supersedes the Google Earth tool and was used in this analysis to obtain cancer risks and $PM_{2.5}$ concentrations associated with freeways located within 1,000 feet of the planning area. I-680 is located approximately 145 feet west of the proposed Master Plan area.
- Stationary Source Risk and Hazard Screening Tools. The BAAQMD prepared a Google Earth file that contains the locations of all stationary sources within the Bay Area that have BAAQMD operational permits. For each emissions source, the BAAQMD provides conservative cancer risk and $PM_{2.5}$ concentration due to each source. The BAAQMD has also prepared a GIS tool with updated information for permitted sources, which has been updated more recently than the previously mentioned Google Earth tool. Thus, the GIS tool was used for the analysis below. There are multiple stationary sources identified by this screening tool that are located within approximately 1,000 feet of the proposed Master Plan and three stationary sources that are located within the boundary of the proposed Master Plan.

Table 3.2-30 lists the cumulative health impacts at the MIR estimated to occur during construction of the proposed Master Plan.

Table 3.2-30: Cumulative Construction Air Quality Health Impacts at the Maximum Impacted Off-site Sensitive Receptor

Source	Source Type	Distance from Planning Area (feet)[1]	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Proposed Master Plan Construction					
Unmitigated Construction (Scenario 1)	Construction Emissions	0	66.92	0.0178	0.1038
Mitigated Construction (Scenario 1)	Construction Emissions	0	9.93	0.0026	0.0296
Existing Stationary Sources					
San Ramon Marriott Hotel	Generator (2)	430	2.02	0.0031	0.0026
Target Corporation—Store T-949	Generator	414	0.00	0.0000	0.0000
Safe Security[2],[3]	Generator (2)	0 (130 feet from nearest planned residence within the planning area)	0.87	0.0012	0.0011
Pacific Bell[2]	Generator	0 (545 feet from nearest planned residence within the planning area)	12.30	0.0190	0.0157
Sunset Development (Facility 22282)[2],[3]	Generator (6), Boiler (9)	0 (545 feet from nearest planned residence within the planning area)	5.28	0.0082	0.0067
General Electric Software	Generator	447	0.47	0.0011	0.0006
City of San Ramon	Generator	113	46.74	0.6759	0.2668
San Ramon Valley Fire Protection District, Station No. 34	Gas Dispensing Facility	964	0.0002	0.0000	ND
San Ramon Valley Fire Protection District, Station No. 34	Generator	694	0.0002	0.0000	0.0000
The Solaris Group	Material Handling	698	0.0000	0.0000	0.0000
Paycheck Inc.	Generators	1,204	0.86	0.0012	0.0011

Source	Source Type	Distance from Planning Area (feet)[1]	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Sunset Development Company (Facility 21709)[3]	Generator, Boiler (14)	576	0.75	0.0005	0.1402
Pacific Gas and Electric	Generator (2)	694	2.90	0.0080	0.000
7-Eleven Inc.	Gas Dispensing Facility	352	2.83	0.0120	ND
Local Roads[4] (>10,000 AADT)					
Alcosta Boulevard	Traffic on Local Road	991	1.03	N/A	0.019
San Ramon Valley Boulevard	Traffic on Local Road	311	0.59	N/A	0.012
Freeway					
Interstate 680 (Donald D. Doyle Highway)	Traffic on Freeway	145	6.69	N/A	0.134
Cumulative Health Risks from Project Construction and Existing TAC Sources					
Cumulative Total at the MIR with Construction of the Proposed Project (Unmitigated)			**150.24**	**0.7480**	**0.7036**
Cumulative Total at the MIR with Construction of the Proposed Project (Mitigated)			**93.25**	**0.7328**	**0.6294**
BAAQMD Cumulative Thresholds of Significance			**100**	**10**	**0.8**
Threshold Exceeded prior to Incorporation of Mitigation?			**Yes**	**No**	**No**
Threshold Exceeded after to Incorporation of Mitigation (MM AIR-2a and MM AIR-2b)?			**No**	**No**	**No**

Notes:
MIR = Maximum Impacted Sensitive Receptor
NA = not available
ND = no data available
AADT = annual average daily traffic
[1] The MIR for unmitigated DPM was a potential future receptor located approximately 296 feet north of the northeastern portion of Bishop Ranch 2600, in an area designated for mixed-used development.
[2] These stationary sources are within the boundary of proposed Master Plan. The distances are measured from the source to the closest sensitive receptor within the proposed Master Plan.
[3] See Table 3.2-8 for updates related the reduced number of sources as of May 2020.
[4] Cancer risks from existing roadways, calculated using the BAAQMD Roadway Screening Analysis Calculator, were adjusted by a correction factor of 1.3744 to incorporate the latest OEHHA guidance. The source of the 1.3744 correction factor: BAAQMD recommendation confirmed through personal communication with BAAQMD Environmental Planner, Areana Flores, on January 8, 2020.

As noted above in Table 3.2-30, the cumulative health impacts at the MIR from existing TAC emission sources located within 1,000 feet of the proposed Master Plan, combined with the unmitigated construction-related emissions would exceed the BAAQMD's recommended cumulative health significance thresholds. After incorporation of MM AIR-2a and MM AIR-2b, the cumulative health

impacts at the MIR from existing TAC emission sources located within 1,000 feet of the proposed Master Plan, combined with the mitigated construction-related emissions would not exceed BAAQMD's recommended cumulative health significance thresholds. The cumulative TACs impact during construction of the proposed Master Plan at off-site receptors would be less than significant after incorporation of mitigation.

Operation

Operational Toxic Air Contaminants

Project Operations as Toxic Air Contaminants Generator

The proposed Master Plan contemplates the development of residential uses, commercial uses, and public facilities within the Master Plan area to complement and support City Center Bishop Ranch. Specific land uses included in the proposed Master Plan include up to 4,500 dwelling units, a 169-key hotel, 166,000 square feet of commercial uses, three new parking structures, and park and public spaces. Unlike warehouses or distribution centers, the daily vehicle trips generated by development under the proposed Master Plan would be primarily generated by passenger vehicles. Passenger vehicles typically use gasoline engines rather than the diesel engines that are found in heavy-duty trucks. Gasoline-powered vehicles do emit TACs in the form of toxic organic gases, some of which are carcinogenic. Compared to the combustion of diesel, the combustion of gasoline had relatively low emissions of DPM. Consistent with BAAQMD guidance, an operational Health Risk Assessment is not necessary, as implementation of the proposed Master Plan would not result in significant health impacts during operation.

ARB Air Quality and Land Use Handbook Recommendations

The ARB Air Quality and Land Use Handbook (2005) contains recommendations that will "help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution", including recommendations for distances between sensitive receptors and certain land uses. In the *California Building Industry Association v. Bay Area Air Quality Management District*, 62 Cal.4th 369 (2015) (Case No. S213478) the California Supreme Court held that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment—and not the environment's impact on the project—that compels an evaluation of how future residents or users could be affected by exacerbated conditions." Although the Court ruled that impacts from the existing environment on projects are not required to be addressed under CEQA, land uses such as gasoline stations, dry cleaners, distribution centers, and auto body shops can expose residents to high levels of TAC emissions if they are in proximity of the project site. Information regarding the location of existing TAC sources is provided for disclosure purposes only and not as a measure of the project's significance under CEQA.

Consistency with these recommendations is assessed as follows:

- **Heavily traveled roads.** The ARB recommends avoiding new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. Epidemiological studies indicate that the distance from the roadway and truck traffic

densities were key factors in the correlation of health effects, particularly in children. The proposed Master Plan is located 145 feet from the Donald D. Doyle Highway (I-680), with an average daily traffic of 160,000 vehicles per day. Therefore, the proposed Master Plan would locate sensitive receptors to a source of TACs closer than what is recommended by ARB.

- **Distribution centers.** The ARB also recommends avoiding siting new sensitive land uses within 1,000 feet of a distribution center. The proposed Master Plan is not located within 1,000 feet of a distribution center. The closest distribution Center is approximately 9.64 miles from the proposed Master Plan, located at 1200 Voyager St Livermore.
- **Fueling stations.** The ARB recommends avoiding new sensitive land uses within 300 feet of a large fueling station (a facility with a throughput of 3.6 million gallons per year or greater). ARB recommends a 50-foot separation is recommended for typical gas dispensing facilities. The nearest gas station is located at 1091 Market Place, approximately 300 feet east of the proposed Master Plan.
- **Dry cleaning operations.** The ARB recommends avoiding siting new sensitive land uses within 300 feet of any dry-cleaning operation that uses perchloroethylene. For operations with two or more machines, the ARB recommends a buffer of 500 feet. For operations with three or more machines, the ARB recommends consultation with the local air district. The nearest dry-cleaning operation is approximately 880 feet east of the proposed Master Plan at 116 Market Place.
- **Auto body shops.** Auto body shops have the potential to emit TACs related to painting. The nearest auto body shop is located at 2560 San Ramon Valley Blvd approximately 0.4 mile northwest of the proposed Master Plan, which is beyond the distance that would result in a measurable impact.

In summary, the proposed Master Plan would meet the recommended buffer distances between sensitive receptor land uses and TAC-generating land uses for all sources of TACs identified in the ARB Air Quality and Land Use Handbook with the exception of heavily traveled roads. Incorporation of MM AIR-3a,[10] requiring the installation and maintenance of filters meeting the MERV 13 standard, would reduce impacts to future residents within the proposed Master Plan from heavily traveled roads. BAAQMD-recommended mitigation measures for reducing the exposure of sensitive receptors to TACs and hazards include, but are not limited to, the following:

- Increase project distance from freeways and/or major roadways.
- Redesign the site layout to locate sensitive receptors as far as possible from any freeways, major roadways, or other non-permitted TAC sources (e.g., loading docks, parking lots).
- Large projects may consider phased development where commercial/retail portions of the project are developed first. This would allow time for the ARB diesel regulations to effectively reduce diesel emissions along major highways and arterial roadways. Ultimately lower

[10] MM AIR-3a, requiring the installation and maintenance of filters meeting the MERV 13 standard, is not an applicable measure to reduce impacts at off-site receptors.

concentrations would be predicted along the roads in the near future such that residential development would be impacted by less risk in later phases of development.

- Projects that propose sensitive receptors adjacent to sources of diesel PM (e.g., freeways, major roadways, rail lines, and rail yards) shall consider tiered plantings of trees such as redwood, deodar cedar, live oak and oleander to reduce TAC and PM exposure. This recommendation is based on a laboratory study that measured the removal rates of PM passing through leaves and needles of vegetation. Particles were generated in a wind tunnel and a static chamber and passed through vegetative layers at low wind velocities. Redwood, deodar cedar, live oak, and oleander were tested. The results indicate that all forms of vegetation were able to remove 65–85 percent of very fine particles at wind velocities below 1.5 meters per second (approximately 3 miles per hour [mph]) with redwood and deodar cedar being the most effective. Even greater removal rates were predicted for ultra-fine PM (i.e., aerodynamic resistance diameter of 0.1 micrometer or less).
- Install and maintain air filtration systems of fresh air supply either on an individual unit-by unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system should be certified to achieve a certain effectiveness, for example, to remove at least 80 percent of ambient $PM_{2.5}$ concentrations from indoor areas. The air intake for these units should be located away from areas producing the air pollution (i.e., away from major roadways and highways).

MM AIR-3a is consistent with BAAQMD-recommended measure to install and maintain air filtration systems of fresh air supply. In addition, the planned residential areas closest to the freeway are currently scheduled in later phases of development. As previously discussed, the information regarding the location of existing TAC sources is provided for disclosure purposes only; therefore, no significance determination is tied to the analysis provided above.

BAAQMD Screening Tools

The proposed Master Plan would locate new sensitive receptors (residents) that could be subject to existing sources of TACs at the project site. However, the California Supreme Court concluded in *California Building Industry Association v. BAAQMD* that agencies generally subject to CEQA are not required to analyze the impact of existing environmental conditions on a project's future users or residents. Although impacts from existing sources of TAC emissions on sensitive receptors on the Master Plan area are not subject to CEQA, the BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project when siting new sensitive land uses. The potential TAC risks to the proposed Master Plan's future residents are analyzed for informational purposes below in Table 3.2-31.

Table 3.2-31: Cumulative Air Quality Health Impacts at the Project Site during Operations

Source	Source Type	Distance from Planning Area (feet)	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Proposed Master Plan Construction					
Unmitigated Construction	Construction Emissions	0	80.52	0.0287	0.2276
Tier IV Mitigated Construction (after incorporation of MM AIR-2a and MM AIR-2b)	Construction Emissions	0	35.92	0.0128	0.1481
Existing Stationary Sources					
San Ramon Marriott Hotel	Generator (2)	430	6.17	0.0095	0.0079
Target Corporation—Store T-949	Generator	414	0.00	0.0000	0.0001
Safe Security[(1),(2)]	Generator (2)	130	2.64	0.0037	0.0034
Pacific Bell[(1)]	Generator	545	29.83	0.0462	0.0381
Sunset Development (Facility 22282)[(1),(2)]	Generator (6), Boiler (9)	545	12.80	0.0198	0.0163
General Electric Software	Generator	447	1.39	0.0033	0.0018
City of San Ramon	Generator	113	46.74	0.6759	0.8080
San Ramon Valley Fire Protection District, Station No. 34	Gas Dispensing Facility	964	0.00	0.0000	ND
San Ramon Valley Fire Protection District, Station No. 34	Generator	694	0.00	0.0000	0.0000
The Solaris Group	Material Handling	698	0.00	0.0000	0.0000
Paycheck Inc.	Generators	1,204	0.86	0.0012	0.0011
Sunset Development Company (Facility 21709)[(2)]	Generator, Boiler (14)	576	1.70	0.0012	0.3185
Pacific Gas and Electric	Generator (2)	694	5.23	0.0150	0.0000
7-Eleven Inc.	Gas Dispensing Facility	352	2.83	0.0120	ND
Local Roads[(3)] (>10,000 AADT)					
Alcosta Boulevard	Traffic on Local Road	991	1.03	N/A	0.019
San Ramon Valley Boulevard	Traffic on Local Road	311	2.10	N/A	0.041
Freeway					
Interstate 680 (Donald D. Doyle Highway)	Traffic on Freeway	145	78.35	N/A	1.5598

Source	Source Type	Distance from Planning Area (feet)	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Cumulative Health Risks from Project Construction and Existing TAC Sources					
Cumulative Total with Construction of the Proposed Project (Unmitigated)			**272.19**	**0.8165**	**3.0426**
Cumulative Total with Tier IV Mitigation Construction of the Proposed Project (After Incorporation of MM AIR-2a and MM AIR-2b)			**227.59**	**0.8006**	**2.9631**
BAAQMD Cumulative Thresholds of Significance (Included for Informational Purposes Only)			**100**	**10**	**0.8**
Threshold Exceeded prior to Incorporation of Mitigation?			**Yes**	**No**	**Yes**
Threshold Exceeded after to Incorporation of MM AIR-2a and MM AIR-2b?			**Yes**	**No**	**Yes**

Notes:
MIR = Maximum Impacted Sensitive Receptor
NA = not available
ND = no data available
AADT = annual average daily traffic
(1) These stationary sources are within the boundary of proposed Master Plan. The distances are measured from the source to the closest sensitive receptor within the proposed Master Plan.
(2) See Table 3.2-8 for updates related the reduced number of sources as of May 2020.
(3) Cancer risks from existing roadways, calculated using the BAAQMD Roadway Screening Analysis Calculator, were adjusted by a correction factor of 1.3744 to incorporate the latest OEHHA guidance. The source of the 1.3744 correction factor: BAAQMD recommendation confirmed through personal communication with BAAQMD Environmental Planner, Areana Flores, on January 8, 2020.

As noted in Table 3.2-31, the health impacts from existing TAC emission sources located within 1,000 feet of the Master Plan area would exceed the BAAQMD's cumulative health significance thresholds for cancer risk and $PM_{2.5}$ concentrations. MM AIR-3a, requiring the installation and maintenance of filters meeting the MERV 13 standard, would reduce impacts to residential sensitive receptors from all sources of TACs. Table 3.2-32 shows the health risks at proposed residential sensitive receptors after the incorporation of MM AIR-2a, and MM AIR-2b, and MM AIR-3a. Cumulative impacts would be below the BAAQMD-recommended thresholds at future residential on-site receptors after the incorporation of mitigation. As previously discussed, this analysis of existing sources of TACs was included for informational purposes.

Table 3.2-32: Cumulative Air Quality Health Impacts at the Project Site during Operations After the Incorporation of MM AIR-2a, MM AIR-2b, and MM AIR-3a

Source	Source Type	Distance from Planning Area (feet)	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Proposed Master Plan Construction					
Mitigated Construction (after incorporation of MM AIR-2a, MM AIR-2b, and MM AIR-3a)	Construction Emissions	0	7.18	0.0026	0.0296
Existing Stationary Sources					
San Ramon Marriott Hotel	Generator (2)	430	1.23	0.0019	0.0016
Target Corporation—Store T-949	Generator	414	0.00	0.0000	0.0000
Safe Security[(1),(2)]	Generator (2)	130	0.53	0.0007	0.0007
Pacific Bell[(1)]	Generator	545	5.97	0.0092	0.0076
Sunset Development (Facility 22282)[(1),(2)]	Generator (6), Boiler (9)	545	2.56	0.0040	0.0033
General Electric Software	Generator	447	0.28	0.0007	0.0004
City of San Ramon	Generator	113	9.35	0.1352	0.1616
San Ramon Valley Fire Protection District, Station No. 34	Gas Dispensing Facility	964	0.00	0.0000	ND
San Ramon Valley Fire Protection District, Station No. 34	Generator	694	0.00	0.0000	0.0000
The Solaris Group	Material Handling	698	0.00	0.0000	0.0000
Paycheck Inc.	Generators	1,204	0.17	0.0002	0.0002
Sunset Development Company (Facility 21709)[(2)]	Generator, Boiler (14)	576	0.34	0.0002	0.0637
Pacific Gas and Electric	Generator (2)	694	1.05	0.0030	0.0000
7-Eleven Inc.	Gas Dispensing Facility	352	0.57	0.0024	ND
Local Roads[(3)] (>10,000 AADT)					
Alcosta Boulevard	Traffic on Local Road	991	0.21	N/A	0.0038
San Ramon Valley Boulevard	Traffic on Local Road	311	0.42	N/A	0.0082
Freeway					
Interstate 680 (Donald D. Doyle Highway)	Traffic on Freeway	145	15.67	N/A	0.3120

Source	Source Type	Distance from Planning Area (feet)	Cancer Risk (per million)	Chronic Non-Cancer HI	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Cumulative Health Risks from Project Construction and Existing TAC Sources					
Cumulative Total with Tier IV Mitigation Construction of the Proposed Project (After Incorporation of MM AIR-2a, MM AIR-2b, and MM AIR-3a)			**45.52**	**0.1601**	**0.5926**
BAAQMD Cumulative Thresholds of Significance (Included for Informational Purposes Only)			**100**	**10**	**0.8**
Threshold Exceeded After Incorporation of MM AIR-2a, MM AIR-2b, and MM AIR-3a?			**No**	**No**	**No**

Notes:
MIR = Maximum Impacted Sensitive Receptor
NA = not available
ND = no data available
AADT = annual average daily traffic
(1) These stationary sources are within the boundary of proposed Master Plan. The distances are measured from the source to the closest sensitive receptor within the proposed Master Plan.
(2) See Table 3.2-8 for updates related the reduced number of sources as of May 2020.
(3) Cancer risks from existing roadways, calculated using the BAAQMD Roadway Screening Analysis Calculator, were adjusted by a correction factor of 1.3744 to incorporate the latest OEHHA guidance. The source of the 1.3744 correction factor: BAAQMD recommendation confirmed through personal communication with BAAQMD Environmental Planner, Areana Flores, on January 8, 2020.

Operational CO Hotspots

Localized high levels of CO (CO hotspot) are associated with traffic congestion and idling or slow-moving vehicles. The BAAQMD recommends a screening analysis to determine if a project's operation has the potential to contribute to a CO hotspot. The screening criteria identify when site-specific CO dispersion modeling is not necessary. Implementation of the proposed Master Plan would result in a less than significant impact related to air quality for local CO if the following screening criteria are met:

- **Screening Criterion 1**: The proposed Master Plan is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; or
- **Screening Criterion 2:** Traffic associated with the proposed Master Plan would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; or
- **Screening Criterion 3:** Traffic associated with the proposed Master Plan would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The transportation impact assessment (included as Appendix J) identified AM and PM peak-hour traffic volumes for 31 intersections affected by implementation of the proposed Master Plan. The maximum peak-hour intersection volume would occur at I-680 Northbound Ramps and Bollinger Canyon Road "Future Plus Project Traffic Volumes (2040)" scenario during the AM peak-hour. The estimated cumulative traffic volume at this intersection is estimated at 6,792 AM peak-hour trips. This level of peak-hour trips is substantially less than the BAAQMD's second and third screening criteria of 44,000 vehicles per hour and 24,000 vehicles per hour respectively. Implementation of the proposed Master Plan would not result in an increase of traffic volumes at affected intersections to more than 44,000 vehicles per hour and would not increase traffic volumes at affected intersections to more than 24,000 where vertical or horizontal mixing is substantially limited. Therefore, based on the above criteria, the proposed Master Plan would not exceed the CO screening criteria and would have a less than significant impact related to CO.

Level of Significance Before Mitigation

Potentially significant impact (TAC emissions during construction).

Mitigation Measures

Implement MM AIR-2a and MM AIR-2b and the following:

MM AIR-3a Implement installation of high efficiency MERV filters

The project applicant shall install high efficiency Minimum Efficiency Reporting Value (MERV) filters with a rating of 13 in the intake of the residential ventilation systems. Prior to the issuance of any building permit associated with residential development, the project applicant shall provide to the City for review and approval evidence that in-unit filtration systems with efficiencies equal to or exceeding a 13, as defined by defined by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 52.2, are included in the proposed Master Plan development as a standard design feature. To ensure long-term maintenance and replacement of the MERV filters in the individual units, the owner/property manager shall commit to maintaining and replacing the MERV 13 filters in accordance with the manufacturer's recommendations. A signed commitment letter from the owner/property manager shall be submitted to the City of San Ramon within the first 60 days of occupancy of any residential land uses developed under the proposed Master Plan.

Level of Significance After Mitigation

Less than significant impact.

Objectionable Odors Exposure

Impact AIR-4: The proposed Master Plan would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Impact Analysis

As stated in the BAAQMD 2017 Air Quality Guidelines, odors are generally regarded as an annoyance rather than a health hazard and the ability to detect odors is highly subjective and varies considerably among the populations. The BAAQMD does not have a recommended odor threshold for construction activities. However, the BAAQMD recommends operational screening criteria that are based on distance between types of sources known to generate odor and the receptor. For projects within the screening distances, the BAAQMD has the following threshold for project operations:

> An odor source with five or more confirmed complaints per year averaged over 3 years is considered to have a significant impact on receptors within the screening distance shown in Table 3-3 [of the BAAQMD's CEQA Guidelines].

Odors can cause a variety of responses. The impact of an odor often results from interacting factors such as frequency (how often), intensity (strength), duration (time), offensiveness (unpleasantness), location, and sensory perception. Two circumstances have the potential to cause odor impacts:

1) A source of odors is proposed to be located near existing or planned receptors; or
2) A receptor land use is proposed near an existing or planned source of odor.

Construction

Diesel exhaust would be emitted during construction, the odors of which are objectionable to some. However, construction activity would be short-term and finite in nature. Furthermore, equipment exhaust odors would dissipate quickly and are common in an urban environment. As such, the proposed Master Plan would not create objectionable odors affecting a substantial number of people during construction. Therefore, construction odor impacts at existing off-site odor sensitive receptors would be less than significant.

Operation

Project as an Odor Generator

Land uses typically considered associated with odors include wastewater treatment facilities, waste-disposal facilities, or agricultural operations.

The proposed Master Plan contemplates mixed-use development and is not expected to produce any offensive odors that would result in odor complaints. During operation of the proposed Master Plan, odors would primarily consist of passenger vehicles traveling to and from the site. These occurrences would not produce objectionable odors affecting a substantial number of people; therefore, operational impacts associated with the proposed Master Plan's potential to create odors would be less than significant.

Project as a Receptor

The proposed Master Plan includes residential land uses and would have the potential to place sensitive receptors (residents) near existing or planned sources of odors. The Master Plan area is not located within the vicinity of agricultural operations (e.g., dairies, feedlots, etc.), landfills, wastewater treatment plants, or refineries. Public Records Request Number 2020-02-0031 was filed with the BAAQMD to obtain the most recent 3-year odor complaint history for the potential odor generators within the vicinity of the Master Plan area. Based on the responses from the BAAQMD, there are no land uses within the screening distances shown in Table 3-3 of the BAAQMD's CEQA Guidelines that have received five or more confirmed complaints per year for the most recent 3-year period. Specifically, there were no confirmed complaints for any facility report by the BAAQMD for the most 3-year period available. A summary of the potential sources of odor are included in Appendix C. For all facilities outlined in Appendix C, there are existing residential uses located closer to each facility than the proposed Master Plan. Considering all of the information, the uses in the Master Plan area vicinity would not cause substantial odor impacts to future residents occupying development built out under the proposed Master Plan. The proposed Master Plan would not place odor sensitive receptors near an existing or planned source of odor affecting a substantial number of people. Therefore, operational odor impacts in terms of the planning area as an odor sensitive receptor would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

3.3 - Biological Resources

3.3.1 - Introduction

This section describes the existing biological setting and potential effects from implementation of the proposed Master Plan on biological resources on the Master Plan area and the surrounding area. This section also identifies mitigation measures to reduce these potential effects to less than significant levels. Descriptions and analysis in this section are based on database queries and a field survey performed by FirstCarbon Solutions (FCS) Biologists. The findings are contained herein. Supporting information is provided in Appendix D.

3.3.2 - Environmental Setting

Records Searches and Pedestrian Survey to Identify Existing Biological Resources

Literature Review

The literature review provides a baseline from which to evaluate the biological resources potentially occurring on the Master Plan area as well as in the surrounding area.

The analysis of biological resources on-site included a review of pertinent literature on habitat characteristics of the site, species of plants and animals expected to utilize the Master Plan area, and a field survey of the Master Plan area performed by FCS Biologists. The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) was consulted to determine if any populations of endangered, threatened, or rare species have occurred historically or are currently known to exist in the Master Plan area vicinity (CDFW 2019).

Elevation and Drainage

An FCS Biologist reviewed current United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps and aerial photographs to identify the existing conditions within the Master Plan area and in the immediate vicinity. Information obtained from the review of the topographic maps included elevation range, general watershed information, and potential drainage feature locations. Aerial photographs provide a perspective of the most current site conditions relative to on-site and off-site land use, plant community locations, and potential locations of wildlife movement corridors.

Soil

FCS Biologists also reviewed the United States Department of Agriculture (USDA) soil surveys. These soil profiles include major soil series with similar thickness, arrangement, and other important characteristics. These series are further subdivided into soil mapping units that provide specific information regarding soil characteristics. Many special-status plant species have a limited distribution based exclusively on soil type. Therefore, pertinent USDA soil survey maps were reviewed to determine existing soil mapping units within the Master Plan area and to determine if soil conditions on-site are suitable for any special-status plant species.

Special-Status Wildlife and Plant Species

A list of threatened, endangered, and special-status species previously recorded within the general Master Plan area vicinity was compiled as part of the analysis (Appendix D). The list was based on a

search of the CDFW CNDDB, a special-status species and plant community account database (CDFW 2019), and the California Native Plant Society Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California database for the *Dublin and Diablo, California* USGS 7.5-minute topographic quadrangle maps (CNPS 2019). The database search results can be found in Appendix D. The CNDDB Biogeographic Information and Observation System (CDFW 2020) database was used to determine the distance between the recorded occurrences of special-status species and the Master Plan area.

Trees

FCS Biologists reviewed applicable City ordinances pertaining to tree preservation, tree protective measures, and tree replacement conditions or permits required, such as Chapter II of The City of San Ramon's Zoning Ordinance.

Jurisdictional Waters and Wetlands

FCS Biologists reviewed USGS topographic maps and aerial photography to identify potential natural drainage features and water bodies within the Master Plan area and in the surrounding area. In general, surface drainage features identified as blue-line streams on USGS maps and linear patches of vegetation are expected to exhibit evidence of flows and considered potentially subject to State and federal regulatory authority as "waters of the United States and/or State."

Field Survey

FCS Biologists conducted a field survey on October 30, 2019. All habitats on the Master Plan area were surveyed on foot and assessed for similarity to sites known to support special-status species within the Master Plan area. Common plant species observed during the survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Uncommon and less-familiar plants were identified with the use of taxonomical guides, such as Hitchcock (1971), taxonomic nomenclature used in analysis follows Baldwin et al. (2012). Common plant names, when not available from Baldwin et al. (2012), were taken from other regionally specific references.

Physical Habitat/Vegetation

Habitat is a geographic area consisting of a combination of resources (e.g., food, cover, water) and environmental conditions (e.g., temperature, precipitation, presence, or absence of predators and competitors) that promotes occupancy by individuals of a species and enables those individuals to survive and reproduce. Thus, habitat arises from interaction among soils, hydrology, climate, and vegetation. Soils, hydrology, and climate are addressed in other sections of this Draft EIR. The habitat discussion in this section is related to vegetation.

Master Plan Area

The Master Plan area consists of three separate areas (BR 1A, BR 3A, and BR 2600) and associated roadways (Exhibit 3.3-1). Habitat types present in the three areas include ruderal/disturbed as well as urban/developed.

Ruderal/Disturbed

Ruderal/disturbed land is characterized by land that has been disturbed by human activities such as mowing, grading and other activities that impact natural soils and vegetation.

Urban/Developed

Although not considered a natural plant community, this habitat often includes a mixture of ornamental vegetation associated with existing structures, roads, residential and commercial buildings, and parking lots. Vegetation within this community typically includes lawns, golf courses, road shoulders, airports, and park facilities, surrounded by or located near residential and commercial development. Many secondary dirt access roads also are included in this category.

The urban/developed area, consisting of several commercial buildings and paved parking lots within BR 2600, occupies the majority of the Master Plan area.

No sensitive habitats were identified anywhere within the boundaries of the Master Plan area. Below are descriptions of the three properties in the Master Plan area.

Bishop Ranch 1A

BR 1A is situated south of Bollinger Canyon Road consists of approximately 9.87 acres of disturbed/ruderal land. BR 1A shows evidence of mowing and other man-made disturbances. An extensive ground squirrel burrow network near the northeast corner of BR 1A was observed. The land cover on BR 1A can be characterized as ruderal/disturbed.

Ruderal vegetation observed at BR 1A included large thickets of yellow star thistle (*Centaurea solstitialis*), coyote bush (*Baccharis pilularis*), fiddle dock (*Rumex pulcher*), wild oat (*Avena barbata*), smooth cat's-ear (*Hypochaeris glabra*), bristly ox-tongue (*Helminthotheca echioides*), and field mustard (*Brassica rapa*).

Bishop Ranch 3A

BR 3A is situated north of Bollinger Canyon Road and is approximately 10.43 acres in size. BR 3A contains highly compacted soils, patches of ruderal vegetation concentrated toward the center of the site, and large areas of cement and gravel around the periphery from previous development activities. Ground squirrel burrows were also observed on BR 3A; however, the burrows were less extensive than what was found within BR 1A. The land cover on BR 3A can be characterized as ruderal/disturbed.

Ruderal vegetation observed at BR 3A included large thickets of yellow star thistle (*Centaurea solstitialis*), coyote bush (*Baccharis pilularis*), fiddle dock (*Rumex pulcher*), wild oat (*Avena barbata*), smooth cat's-ear (*Hypochaeris glabra*), bristly ox-tongue (*Helminthotheca echioides*), and field mustard (*Brassica rapa*).

Bishop Ranch 2600

BR 2600 consists of approximately 100.10 acres of land and is mostly developed with an existing office building, parking structure, and surface parking lots. BR 2600 also contains three man-made ponds located in the central portion of the site. Ornamental trees and other maintained vegetation

are found around the edges of the property and between buildings throughout BR 2600. The land cover on BR 2600 can be characterized as urban/developed, Including ornamental trees, shrubbery and other decorative plants.

Soils

Based on a review of the USDA Natural Resources Conservation Service Web Soil Survey (USDA NRCS 2019) the Master Plan area is composed of the following soils: Botella clay loam, Clear lake clay, Conejo clay loam, and Pescadero clay loam. These soils are depicted on Exhibit 3.3-2.

Sensitive Biological Communities

Biological communities are assemblages of organisms that live within or use a variety of habitats for their range-of-life functions. Of the habitat communities discussed above, some are further identified as sensitive biological communities. Sensitive biological communities include habitats that fulfill special functions or have special values (e.g., greater biological diversity), such as wetlands, streams, and riparian habitat. Because wildlife is a major aspect of a biological community, the discussion of sensitive biological communities in this section describes wildlife present in such communities.

Master Plan Area

The Master Plan area does not contain any sensitive biological communities such as wetland, streams, or riparian habitat.

Wildlife

The habitat communities discussed above provide habitat for a limited number of local wildlife species including birds, and mammals. As noted above, an extensive ground squirrel burrow network was observed near the northeast of the corner of BR 1A and intermittent ground squirrel burrows were observed within BR 3A. Portions of the overall Master Plan area provides potential foraging opportunities for burrowing owl (*athene cunicularia*), raptors, and other migratory bird species. Six killdeer (*Charadrius vociferous*) were observed within BR 3A; however, no active nests were present. Additionally, one red-shoulder hawk (*Buteo lineatus*) was observed foraging in the vicinity of the overall Master Plan area. Other species observed included American crow (*Corvus brachyrhynchos*), California scrub jay (*Aphelocoma californica*), Bewick's wren (*Thryomanes bewickii*), and House finch (*Haemorhous mexicanus)*.

Special-status Species

Special-status plant and wildlife species are those designated by federal, State, local, or scientific organizations as needing protection because of rarity or threats to their existence. Special-status plant and wildlife species include those listed as threatened, endangered, or proposed for listing; Special-status species are those animal and plant species that, in the judgment of the resource agencies, trustee agencies, and certain non-governmental organizations, warrant special consideration in the California Environmental Quality Act (CEQA) process. Special-status species include the following:

- Officially designated "threatened," "endangered," or "candidate" species federally listed by the United States Fish and Wildlife Service (USFWS) and protected under the Federal Endangered Species Act.
- Officially designated "rare," "threatened," "endangered," or "candidate" species State listed by the CDFW and protected under the California Endangered Species Act. The CDFW also maintains a list of "Fully Protected" species as well as "California Species of Special Concern" that are also generally included as special-status species under CEQA.
- Species considered rare, threatened, or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as plant species identified on the CNPS List ranked 1A, 1B, and 2.
- Other species considered sensitive, such as nests of birds listed in the Migratory Bird Treaty Act (MBTA), which includes most native birds, and plants included in lists 3 and 4 in the CNPS Inventory.

The following discussion focuses on the occurrence of or potential for special-status species to occur at the Master Plan area.

Special-status Plants in the Master Plan area

A search of both the CNDDB and CNPS online databases identified 29 special-status plant species as well as each species' listing status, required habitat(s) and habitat features, and potential to occur within the Master Plan area (CDFW 2019, CNPS 2019).

Of the 29 special-status plant species that have been recorded to occur within the Dublin and Diablo quadrangles, none have the potential to occur on the Master Plan area due to the lack of suitable habitat on the Master Plan area. No special-status plant species were observed at the property during the field survey conducted by FCS Biologists. All 29 species have been included in the Special-status Plant Species Table (Appendix D) to further substantiate their exclusion from the Master Plan area.

Special-status Wildlife at the Master Plan area

The CNDDB search query of the Dublin and Diablo quadrangles identified 18 special-status wildlife species (CDFW 2019). Of these 18 recorded species, only burrowing owl has potential to occur on the Master Plan area. All 18 species have been included in the Special-status Wildlife Species Table (Appendix D) to further substantiate their likelihood of occurrence on the Master Plan area.

Burrowing Owl

Typical habitat associated with burrowing owl includes short-grass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), prairies, coastal dunes, desert floors, and some artificial, open areas as a year-round resident. One primary requirement for suitable burrowing owl foraging habitat is low vegetation cover that allows visibility and access to prey. Typically, burrowing owl requires approximately 6.5 acres to support a pair of nesting owls.

A search of the CNDDB shows a previous record of burrowing owl occurring along the eastern edge of BR 3A (CDFW 2019). BR 1A and BR 3A contain ruderal vegetation and ground squirrel burrows that

provide suitable habitat and prey for burrowing owl (Rich 1984). Given the presence of suitable habitat and the close proximity to previously recorded occurrences, there is a potential for burrowing owl to occur on-site.

Migratory and Nesting Birds

Trees within the Master Plan area provide suitable nesting habitat for various avian species, including those protected under the MBTA. Species protected under the MBTA that have the potential to occur within the Master Plan area include, but are not limited to, California scrub jay and Bewick's wren.

Wildlife Movement Corridors

The Master Plan area is located in an urban, built-up area and is surrounded by roadways, commercial development, and public places for recreational uses. Interstate 680 (I-680) is located adjacent to the western boundary of the Master Plan area and serves as a significant barrier to wildlife movement between the hills on the west side of San Ramon and Dougherty Hills on the east side. The Master Plan area does not contain any physical features commonly associated with wildlife movement (e.g., riparian corridors, arroyos, ridgelines). Watson Canyon Drainage, a man-made drainage channel, is located east of BR 1A and BR 3A. Its viability as a substantial wildlife movement corridor is limited because it is culverted from Bollinger Canyon Road to South San Ramon Creek.

Regulated Trees

Master Plan area

Trees are protected under Chapter II of the City of San Ramon's Zoning Ordinance, Division D5, Resource Management, which sets forth tree preservation and protection (San Ramon 2019c). Section 3.3.3 below provides a detailed description of the City's tree preservation and protection measures.

Jurisdictional Waters and Wetlands

The three areas that constitute the Master Plan area do not contain any blue-line streams shown on topographical maps. BR 2600 is built up and covered with impervious surfaces. This condition precludes the presence of jurisdictional waters or wetlands. BR 2600 contains three large artificial freshwater ponds within the central portion of the site. These water bodies are not jurisdictional features as they have no connectivity to nearby water bodies and were built within an upland/developed setting.

BR 1A and BR 3A are undeveloped and show evidence of past development efforts. Site reconnaissance found that there are no jurisdictional features on either BR 1A or BR 3A.

3.3.3 - Regulatory Framework

Federal

Federal Endangered Species Act

The United States (U.S.) Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to

operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (16 United States Code [USC] § 1531 *et seq*.). "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] § 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR § 17.3). Actions that result in take can result in civil or criminal penalties.

FESA and the Clean Water Act (CWA) Section 404 guidelines prohibit the issuance of wetland permits for projects that jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The United States Army Corps of Engineers (USACE~~)~~ must consult with the USFWS and/or the National Marine Fisheries Service (NOAA Fisheries) when threatened or endangered species under their jurisdiction may be affected by a proposed project. In the context of the proposed project, FESA consultation would be initiated if development resulted in take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of State and federal laws. The federal MBTA prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior.

Clean Water Act

The USACE regulates the discharge of dredge or fill material into waters of the United States under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into waters of the United States, including, but not limited to, the following: placement of fill that is necessary for the construction of any structure or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines (33 CFR § 328.2(f)) In addition, Section 401 of the CWA (33 USC § 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the United States include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Boundaries between jurisdictional waters and uplands are determined in a variety of ways, depending on which type of waters is present. Methods for delineating wetlands and non-tidal waters are described below (USACE 1987).

- Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR § 328.3(b)) Presently, to be a wetland, a site must exhibit three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the site.
- The lateral extent of non-tidal waters is determined by delineating the ordinary high water mark (OHWM) (33 CFR § 328.4(c)(1)). The OHWM is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR § 328.3(e)).

State

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to FESA but pertains to State-listed endangered and threatened species. CESA requires State agencies to consult with the CDFW when preparing CEQA documents. The purpose of CESA is to ensure that the lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code [FGC] § 2080). CESA directs agencies to consult with the CDFW on projects or actions that could affect listed species, directs the CDFW to determine whether jeopardy would occur, and allows the CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows the CDFW to authorize exceptions to the State's prohibition against take of a listed species if the take is incidental to carrying out an otherwise lawful project that has been approved under CEQA (FGC § 2081).

California Fish and Game Code

The California Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (FGC § 86). Except for take related to scientific research, all take of fully protected species is prohibited. Fully protected fish species are protected under Fish and Game Code Section 5515; fully protected amphibian and reptile species are protected under Section 5050; fully protected bird species are protected under Section 3511; and fully protected mammal species are protected under Section 4700. Fish and Game Code Section 3503 prohibits the killing of birds or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests. Fish and Game Code Sections 2062 and 2067 define "endangered and threatened species."

California Department of Fish and Wildlife Species of Concern

In addition to formal listing under FESA and CESA, species receive additional consideration by the CDFW and local lead agencies during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern," developed by the CDFW that tracks species in California whose numbers, reproductive success, or habitats may be threatened. In addition to

Species of Special Concern, the CDFW identifies animals that are tracked by the CNDDB but warrant no federal interest and no legal protection. These species are identified as "California Special Animals."

Porter-Cologne Water Quality Control Act

The CDFW is a trustee agency that has jurisdiction under Fish and Game Code Section 1600, *et seq*. Under Fish and Game Code Sections 1602 and 1603, a private party must notify the CDFW if a proposed project would "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds . . . except when the department has been notified pursuant to Section 1601." Additionally, the CDFW may assert jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over 4 inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, the CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with the CDFW identifying the approved activities and associated mitigation measures.

Section 13260(a) of the Porter-Cologne Water Quality Control Act (contained in the California Water Code) requires any person discharging waste or proposing to discharge waste, other than to a community sewer system, within any region that could affect the quality of the waters of the State (all surface and subsurface waters) to file a report of waste discharge. The discharge of dredged or fill material may constitute a discharge of waste that could affect the quality of waters of the State.

Historically, California relied on its authority under Section 401 of the CWA to regulate discharges of dredged or fill material to California waters, which requires an applicant to obtain "water quality certification" from the California State Water Resources Control Board (State Water Board) through one of its nine Regional Water Quality Control Boards (RWQCBs) to ensure compliance with State water quality standards before certain federal licenses or permits may be issued. The permits subject to Section 401 include permits for the discharge of dredged or fill material (CWA Section 404 permits) issued by the USACE. Waste discharge requirements under the Porter-Cologne Water Quality Control Act were typically waived for projects requiring certification. With the recent changes that limited the jurisdiction of wetlands under the CWA, the State Water Board has needed to rely on the report of waste discharge process.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the Native Plant Protection Act (NPPA), which directed the CDFW to carry out the Legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. CESA expanded on the original NPPA and enhanced legal protection for plants. CESA established categories for threatened and endangered species, and grandfathered all rare animals—but not rare plants—into the Act as threatened species. Thus, the State of California employs three listing categories for plants: rare, threatened, and endangered.

The CNPS maintains a rank of plant species native to California that has low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS ranked plants receive consideration under CEQA review. The following identifies the definitions of the CNPS ranks:

- **Rank 1A:** Plants presumed Extinct in California
- **Rank 1B:** Plants Rare, Threatened, or Endangered in California and elsewhere
- **Rank 2:** Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere
- **Rank 3:** Plants about which we need more information—A Review List
- **Rank 4:** Plants of limited distribution—A Watch List

All plants appearing on CNPS List ranked 1 or 2 are considered to meet CEQA Guidelines Section 15380 criteria. While only some of the plants ranked 3 and 4 meet the definitions of threatened or endangered species, the CNPS recommends that all Rank 3 and Rank 4 plants be evaluated for consideration under CEQA

Local

City of San Ramon General Plan 2035

The City of San Ramon General Plan 2035 establishes the following applicable policies related to biological resources:

- **Policy 8.3-I-3:** Preserve as open space significant creek, trail, and viewshed corridors, areas of riparian and wildlife habitat, and prominent topographic features.
- **Policy 8.3-I-8:** Encourage public access to creek corridors with a system of trails.
- **Policy 8.3-I-12:** Continue participation in the Contra Costa Clean Water Program to control stormwater pollution and protect the quality of the City's waterways.

San Ramon City Code

Chapter II of the City of San Ramon's Zoning Ordinance, Division D5, Resource Management, sets forth tree preservation and protection. This Chapter provides regulations for the protection, preservation, maintenance, and replacement of:

a) Native oak trees;
b) The habitat values of oak woodlands;
c) Trees of historic or cultural significance;
d) Groves and stands of mature native trees; or
e) Mature trees and native habitat in general.

D5-8—Applicability

A. Applicability to protected trees. The provisions within this Chapter shall apply in all zones to the removal or relocation of any protected tree as defined below unless exempt as determined in subsection C of this section. A protected tree is any of the following:

1. A native oak tree with a diameter of six or more inches as measured 54 inches above the ground.
2. A heritage, or landmark tree or grove identified by City Council Resolution.
3. Significant groves or stands of trees identified by City Council Resolution.
4. A tree required to be planted, relocated, or preserved that is specifically identified as a condition of approval for a Tree Removal Permit or other discretionary permit, and/or as environmental mitigation for a discretionary permit.
5. A tree within 100 feet of a perennial stream, or within 50 feet of a seasonal stream that is six inches or more in diameter as measured at 54 inches above the ground.
6. A mature tree other than those listed in Subsections A.1 through A.4, that is eight inches or more in diameter as measured at 54 inches above the ground that is not otherwise exempt from the requirement of this Chapter.

B. Tree Removal Permit required.

1. Activities requiring a permit. A Tree Removal Permit shall be required prior to:

a. Relocation, removal, cutting-down, or other act that causes the destruction of a protected tree;
b. Issuance of building or grading permits resulting in the removal of a protected tree; or
c. The approval of a, Development Plan, Use Permit, Minor Use Permit, Variance, or subdivision map, hereafter referred to as "discretionary projects" resulting in the removal of a protected tree.

D5-9—Tree Removal Permit Application Requirements

A. Application contents. An application for a Tree Removal Permit shall contain the information as required by the Director which may include submittal of studies such as an Arborist report or Arborist's statements disclosing the conditions of trees to be removed and reasons for the removal.

B. Application filing.

1. Discretionary Project: An application for a Tree Removal Permit involving a discretionary project shall be included as part of the application for the discretionary project, and the review authority for a discretionary project shall act upon the application.

2. Non-discretionary Project: An application for a Tree Removal Permit not associated with a discretionary project shall be filed with the Planning Services Division, and the Director or Director's designee shall act upon the application.

D5-10—Tree Planting and Replacement

The City's principal objective for the Tree Removal Permit process is the preservation and replacement of protected trees. Where the review authority determines that preservation is infeasible, replacement plantings or in-lieu fees may be required in compliance with this Section.

Replacement Trees for Existing Development

Removal of protected trees on already improved commercial or single-family residential property may be subject to replacement trees as determined by the Director or an arborist's recommendation approved by the Director. The tree replacement ratio may depend on the ability of the property to accommodate replacement trees, as determined by the Director or an arborist's recommendation approved by the Director.

Replacement Trees for Proposed Development

Subsection A through D are applicable to proposed subdivisions, new developments and/or other project requiring discretionary approval.

A. Extent of replacement required. The review authority may condition any Tree Removal Permit for the removal of a protected tree upon the replacement of trees in kind. The replacement requirement shall be calculated as provided by Table [3.3-1] below. The review authority may reduce the required number of replacement trees if it is determined that the subject site would not adequately support the total number of required replacement trees. The review authority may approve a replacement program using one of the methods identified in Subsections B. through D., or any combination of the methods.

Table 3.3-1: Required Replacement Trees

Species of Tree to be Removed	Diameter of Tree to be Removed[1]	Mitigation Value (required number of replacement trees)	Required Size and Species of Replacement Trees for Mitigation Value
Blue oak	6 to 9 inches 10 to 15 inches 16 to 25 inches 26 or more inches	8 12 20 26	15-gallon blue oaks
Valley oak	6 to 9 inches 10 to 15 inches 16 to 25 inches 26 or more inches	6 9 15 19	15-gallon valley oaks
Live oak	6 to 9 inches 10 to 15 inches 16 to 25 inches 26 or more inches	4 6 10 13	15-gallon oaks
Other protected tree	19 to 25 inches 26 or more inches	12 15	15-gallon trees

Notes:
[1] Diameter shall measure at a point 54 inches above the ground at the base of the tree
Source: San Ramon Zoning Ordinance. Table 5-1.

B. Location and specifications for replacement trees. The replacement trees required by Table [3.3-1] shall be planted on site (the City's preferred method of

mitigation), except that the review authority may authorize other areas within the City where maintenance to ensure survival of the trees will be guaranteed.

1. All replacement trees shall be of the same native species as the trees being removed. In the case where an approved tree replacement location is characterized as non-native habitat such as an incompatible ornamental landscape, urban development, and/or narrow roadway median, the replacement tree may be non-native species.
2. Up to 50 percent of the required replacement trees may have a 5-gallon container size, where the review authority determines that long-term tree health and survival will be improved by starting with a smaller container size, and that each tree with a container size less than 15 gallons will not be in a location where it will be more subject to damage while it is becoming established than a larger tree.
3. Replacement trees shall be in addition to any trees required by provisions of this Zoning Ordinance other than this Chapter (e.g., required parking lot landscaping or street trees).

C. Revegetation. The review authority may, instead of requiring replacement trees, require implementation of a revegetation plan.

1. The Developer shall enter into a written agreement with the City obligating the developer to comply with the requirements of the revegetation program.
2. A performance security or bond for 150 percent of the cost of the revegetation plan shall be required to insure [sic] that the agreement is fulfilled.
3. The revegetation program shall propagate native oak trees from seed using currently accepted methods, and shall identify the seed source of the trees to be propagated, the location of the plots, and the methods to be used to ensure success of the revegetation program.
4. A revegetation program shall not be considered complete until the trees to be propagated have survived in a healthy state for a minimum of 10 years, or the Commission has approved a revegetation program which demonstrates the need for alternative success criteria and achieves mitigation on an inch-for-inch basis.

D. In lieu mitigation fee. The review authority may determine that the remedies described above are not feasible or desirable and may instead require the payment of an in-lieu fee for the cost of purchasing, planting and irrigating the number of 15-gallon trees required by Table [3.3-1] and maintaining for five years. The in-lieu fee shall be calculated based on the unit cost (materials and labor) commonly used in estimating the landscape improvements at the time of the subject applications are deemed to be complete. The in-lieu fee shall be deposited into one of the following funds, as determined by the review authority:

1. **Oak Tree Propagation Fund.** This fund shall be used to propagate and protect native oak trees. Uses of the fund include, but are not limited to, purchasing property to plant or protect native oak trees, propagating native oak trees from seed or container stock and maintaining existing native oak trees.

2. **Non Native Tree Fund.** This fund shall be used to purchase and plant non-native trees within San Ramon. Uses of the fund include, but are not limited to, purchasing and propagating non-native trees from seed or container stock and maintaining existing non native trees.

3.3.4 - Methodology

Impacts on biological resources were evaluated based on the likelihood that special-status species, sensitive habitats, wildlife corridors, and protected trees are present on the Master Plan area, and the likely effects of Master Plan construction or operation on these resources. For the purposes of this EIR, the word "substantial" as used in the significance thresholds below is defined by the following three principal components:

- Magnitude and duration of the impact (e.g., substantial/not substantial),
- Uniqueness of the affected resource (rarity), and
- Susceptibility of the affected resource to disturbance.

3.3.5 - Thresholds of Significance

According to CEQA Guidelines Appendix G, Environmental Checklist, biological resources impacts resulting from the implementation of the proposed Master Plan would be considered significant if the Master Plan would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service?

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service?

c) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

3.3.6 - Project Impacts and Mitigation Measures

This section discusses the potential impacts of constructing and operating the proposed Master Plan and provides mitigation measures to lessen the significance of environmental effects where appropriate.

Special-status Species

Impact BIO-1:	**The proposed Master Plan could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.**

Impact Analysis

Master Plan impacts on special-status plant and wildlife species would be considered significant if the proposed Master Plan would result in a substantial, adverse change in any of the physical conditions (such as habitat) within the area affected by the Master Plan and would therefore adversely affect a species. Each special-status species that has the potential to occur within the Master Plan area and immediate vicinity is discussed in detail below.

Special-status Plant Species

No special-status plant species are likely to occur on the Master Plan area due to the lack of suitable habitat. BR 2600 is primarily developed with an existing office building, parking structure, and surface parking lots. BR 2600 also contains three man-made ponds, ornamental trees, shrubbery and other decorative plants. BR 1A and BR 3A contain ruderal species that can persist despite high levels of disturbance from disking and mowing. As such, impacts to special-status plants species from development within the Master Plan area would be less than significant. Appendix D provides a complete description of special-status plant species, their listing, habitat, and potential to occur on-site.

Burrowing Owl

A search of the CNDDB shows a previous record from 2004 of burrowing owl along the eastern edge of BR 3A. BR 1A and BR 3A contain ruderal vegetation and ground squirrel burrows that may provide suitable habitat and prey for burrowing owl. Given the presence of suitable habitat and previous recorded occurrence of this species, there is potential for burrowing owl to occur on-site. Given the potential for this species or occur on the Master Plan area Mitigation Measure (MM) BIO-1a shall be implemented to avoid adverse impacts on this species.

Nesting and Migratory Birds

Although BR 2600 is developed, it contains numerous ornamental trees that could be utilized by nesting birds. Additionally, the three artificial lakes on the Master Plan area might attract local and migratory waterfowl which may utilize these man-made bodies of water bodies. Additionally, BR 1A and BR 3A contain trees that could also be utilized by nesting birds. However, any potential impacts to migratory or nesting birds on-site during construction activities within the Master Plan area would be mitigated through the implementation of MM BIO-1b.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM BIO-1a Prior to any ground disturbance activities on BR 1A or BR 3A, a qualified Biologist shall conduct a focused survey to determine the presence or absence of burrowing owls on-site. The survey shall be conducted according to the standard protocol established by the California Department of Fish and Wildlife (CDFW) and the Burrowing Owl Consortium (BOC). If burrowing owl is determined to be present on the site, mitigation for potential impacts to owls shall follow the guidelines outlined by the BOC, including passive relocation. If vegetation removal or ground disturbance begins within 30 days of the focused survey, no pre-construction survey would be required. If vegetation removal or ground disturbance activities begin after 30 days of the focused survey, a pre-construction survey would be required to be performed no earlier than 30 days prior to vegetation removal or ground disturbance.

MM BIO-1b If suitable avian nesting habitat is intended to be removed during the nesting season (February 1 through August 31), a qualified Biologist shall conduct a nesting bird survey to identify any potential nesting activity no more than 15 days prior to ground disturbance. If passerine birds are found to be nesting, or there is evidence of nesting behavior within 250 feet of the impact area, the Biologist shall determine an appropriate buffer that shall be required around the nests. No vegetation removal or ground disturbance would occur within this buffer. For raptor species—birds of prey (e.g., hawks and owls)—this buffer would generally be 500 feet. A qualified Biologist shall monitor the nests closely until it is determined that the nests are no longer active, at which time construction activities may commence within the buffer area.

Level of Significance After Mitigation

Less than significant impact.

Sensitive Natural Communities or Riparian Habitat

Impact BIO-2: **The proposed Master Plan would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.**

Impact Analysis

The Master Plan area does not contain or lie adjacent to any riparian habitat or other sensitive natural community. The Watson Canyon Drainage is located east of the Master Plan area and on the east side of the Iron Horse Trail corridor. Therefore, the proposed Master Plan would have no impact on riparian habitat or other sensitive natural communities identified in local or regional plan, policies, or by the CDFW or USFWS.

Level of Significance Before Mitigation

No impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

No impact.

Wetlands and Jurisdictional Features

Impact BIO-3:	**The proposed Master Plan would not have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

Impact Analysis

The Master Plan area does not contain any jurisdictional wetland features. BR 2600 contains three large artificial freshwater ponds; however, these water bodies are not considered jurisdictional as they have no known connectivity to any nearby water bodies. As a result, the proposed Master Plan would have no impact on State or federally protected wetlands.

Level of Significance Before Mitigation

No impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

No impact.

Fish and Wildlife Movement Corridors

Impact BIO-4:	**The proposed Master Plan would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.**

Impact Analysis

The Master Plan area does not contain any physical features commonly associated with wildlife movement such as riparian corridors or ridgelines.

I-680 is located adjacent to and west of the Master Plan area and serves as a significant physical barrier to wildlife movement between the hills on the west side of San Ramon and Dougherty Hills on the east side.

Watson Canyon Drainage, a man-made drainage channel, is located east of BR 1A and BR 3A. It is culverted from Bollinger Canyon Road to South San Ramon Creek, which limits it potential as a

wildlife movement corridor. Additionally, the Master Plan area is located within a densely populated urban area surrounded by highly trafficked roadways. As such, the proposed Master Plan would have a less than significant impact on wildlife movement.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Local Policies or Ordinances

Impact BIO-5:	**The proposed Master Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

Impact Analysis

The City of San Ramon General Plan 2035 contains several policies that pertain to the preservation of trails, creek corridors, and other areas that could potentially support wildlife habitat or other biological resources.

General Plan Policy 8.3-I-3 calls for the protection of significant creek corridors and riparian areas, and General Plan Policy 8.3-I-8 encourages public access to creek corridors. The Iron Horse Trail corridor is located adjacent to the eastern boundary of BR 3A and BR 1A. However, the Master Plan does not propose any development within the Iron Horse Trail corridor. Therefore, the proposed Master Plan would be consistent with these policies.

Policy 8.3-I-12 stipulates that the City shall continue to participate in the Contra Costa Clean Water Program to control stormwater pollution and protect the quality of the City's waterways. The proposed Master Plan would not adversely impact Watson Canyon Drainage. In addition, the proposed Master Plan would implement stormwater pollution controls during construction and operations to prevent the release of pollutants into local waterways, consistent with the policies of the Contra Costa Clean Water Program (see Section 3.9, Hydrology and Water Quality). Therefore, the proposed Master Plan would be consistent with this policy.

As noted in Section 3.3.3 above, Chapter II of the City of San Ramon's Zoning Ordinance, Division D5, Resource Management, sets forth tree preservation and protection. The proposed Master Plan would be required to adhere to the City's tree preservation and protection ordinance.

In summary, the proposed Master Plan would be consistent with all applicable General Plan and City Code policies related to biological resources. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Local, Regional, or State Habitat Conservation Plan

Impact BIO-6:	**The proposed Master Plan would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.**

Impact Analysis

The Master Plan area is not located within the boundaries of any local, State, or regional habitat conservation plan. The nearest habitat conservation plan is the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) which is located approximately 6 miles northeast of the Master Plan area. As such, the proposed Master Plan would not conflict with the provisions of an adopted habitat conservation plan, or other approved local, regional, or State habitat conservation plan. No impacts would occur.

Level of Significance Before Mitigation

No impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

No impact.

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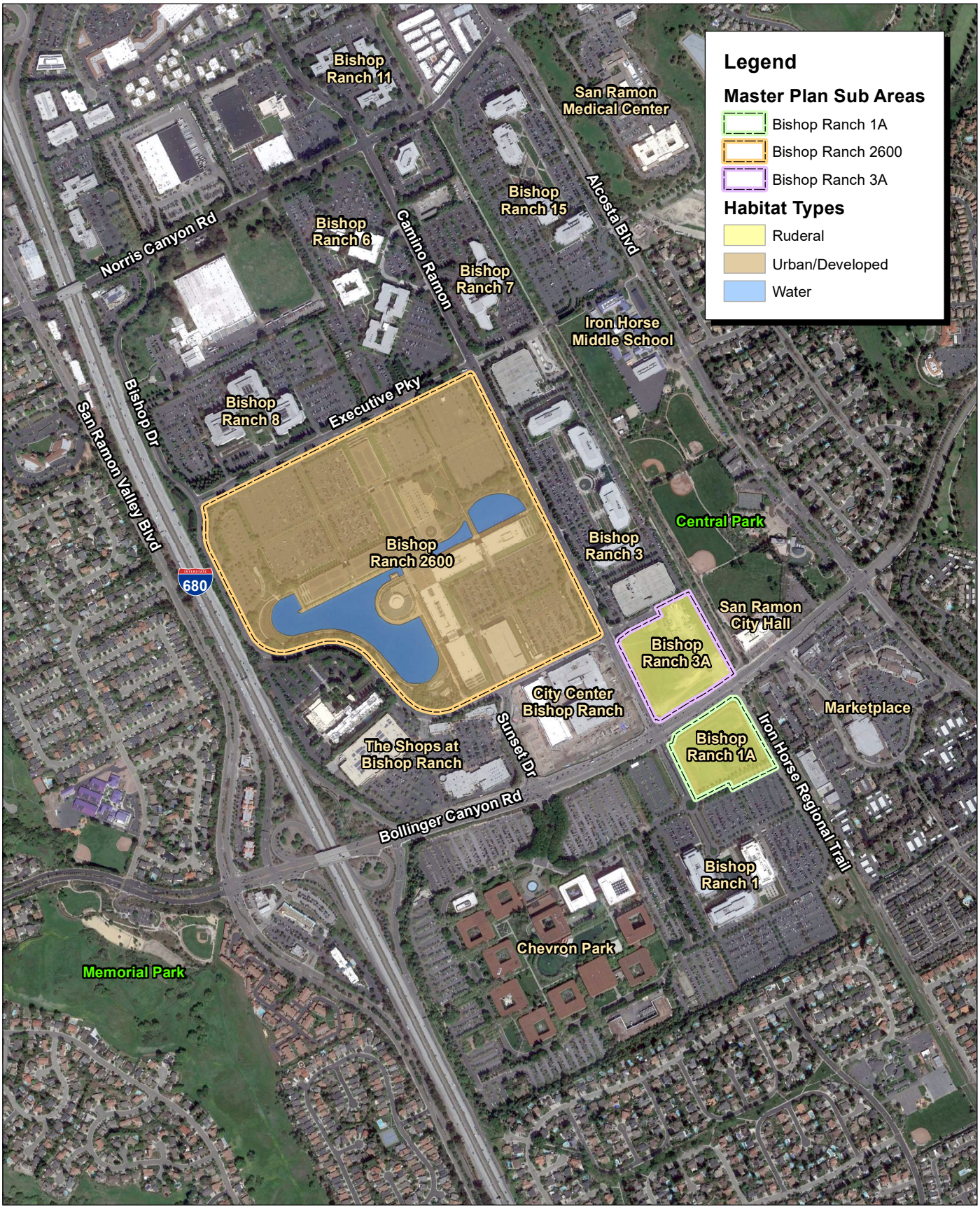

Source: Google Earth Pro Aerial Imagery.

FIRSTCARBON SOLUTIONS™

1,000 500 0 1,000 Feet

Exhibit 3.3-1
Habitat Types

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Source: Google Earth Pro Aerial Imagery. USDA Soils Data Mart, Contra Costa County.

FIRSTCARBON SOLUTIONS™

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Exhibit 3.3-2
Soils Map

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3.4 - Cultural Resources and Tribal Cultural Resources

3.4.1 - Introduction

This section describes the existing cultural resources setting and the potential effects resulting from implementation of the Master Plan on the site and its surrounding area. The analysis is based on a Phase I Cultural Resources Assessment (Phase I CRA) performed by FirstCarbon Solutions (FCS) (Appendix E). This section also evaluates the possible impacts related to Tribal Cultural Resources (TCRs) that could result from implementation of the Master Plan. Information in this section is based on initial consultation with the Native American Heritage Commission (NAHC), subsequent consultation with tribal representatives identified by the NAHC who may have interest in or additional information on tribal cultural resources that may be impacted by the proposed Master Plan (Appendix E).

3.4.2 - Environmental Setting

Overview

The terms "Cultural Resources" and "Tribal Cultural Resources" encompasses historic, archaeological, and TCRs as well as burial sites. Below is a brief summary of each component:

- **Historic Resources:** Historic resources are associated with the recent past. In California, historic resources are typically associated with the Spanish, Mexican, and American periods in the State's history and are generally less than 200 years old.
- **Archaeological Resources:** Archaeology is the study of artifacts and material culture with the aim of understanding human activities and cultures in the past. Archaeological resources may be associated with prehistoric indigenous cultures as well as historic periods.
- **Burial Sites and Cemeteries:** Burial sites and cemeteries are formal or informal locations where human remains have been interred.
- **Tribal Cultural Resources:** Tribal cultural resources include sites, features, places, or objects that are of cultural value to one or more California Native American Tribes.

Setting

Following is a brief overview of the prehistory, ethnography, and historic background, providing a context in which to understand the background and relevance of sites found in the Master Plan area. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview. Further details can be found in ethnographic studies, mission records, and major published sources included in Section 9: References.

Prehistoric and Ethnographic Background

In general, archaeological research in the greater San Francisco Bay Area has focused on coastal areas, where large shellmounds were relatively easily identified on the landscape. This research and its chronological framework, however, is relevant to and has a bearing on our understanding of prehistory in areas adjacent to the San Francisco Bay Area, including modern Contra Costa County.

The San Francisco Bay Area supported a dense population of hunter-gatherers over thousands of years, leaving a rich and varied archaeological record. The Bay Area was a place of incredible language diversity, with seven languages spoken at the time of Spanish settlement in 1776. The diverse ecosystem of the Bay Area and surrounding lands supported an average of three to five persons per square mile, but reached 11 persons per square mile in the North Bay. At the time of Spanish contact, the people of the Bay Area were organized into local tribelets that defended fixed territories under independent leaders. Typically, individual Bay Area tribelets included 200 to 400 people distributed among three to five semi-permanent villages, within territories measuring approximately 10 to 12 miles in diameter (Millikan et al. 2007).

Native American occupation and use of the greater Bay Area, including the region comprising modern San Ramon, extends over 5,000 to 7,000 years and may be longer. Early archaeological investigations in Central California were conducted at sites located in the Sacramento-San Joaquin Delta region. The first published account documents investigations in the Lodi and Stockton area. The initial archaeological reports typically contained descriptive narratives with more systematic approaches sponsored by Sacramento Junior College in the 1930s. At the same time, the University of California, Berkeley, excavated several sites in the lower Sacramento Valley and Delta region, which resulted in recognizing archaeological site patterns based on a variation of intersite assemblages. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence. In 1939, researcher Jeremiah Lillard of Sacramento Junior College noted that each cultural period led directly to the next and that influences spread from the Delta region to their regions in Central California (Lillard 1936). In the late 1940s and early 1950s, researcher Richard Beardsley of the University of California, Berkeley, documented similarities in artifacts among sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became known as the Central California Taxonomic System (CCTS). This system proposed a uniform, linear sequence of cultural succession (Beardsley 1948).

To address some of the flaws in the CCTS system, D.A. Fredrickson introduced a revision that incorporated a system of spatial and cultural integrative units. Fredrickson separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: Paleo-Indian (10000 to 6000 before Christ [BC]); Lower, Middle and Upper Archaic (6000 BC to *anno domini* [AD] 500), and Emergent (Upper and Lower, AD 500 to 1800). The suggested temporal ranges are similar to earlier horizons, which are broad cultural units that can be arranged in a temporal sequence (Fredrickson 1973). In addition, Fredrickson defined several patterns—a general way of life shared within a specific geographical region. These patterns include:

- Windmiller Pattern or Early Horizon (3000 to 1000 before Common Era [BCE])
- Berkeley Pattern or Middle Horizon (1000 BCE to 500 Common Era [CE])
- Augustine Pattern or Late Horizon (500 CE to historic period)

Brief descriptions of these temporal ranges and their unique characteristics follow.

Windmiller Pattern or Early Horizon (3000 to 1000 BCE)

Characterized by the Windmiller Pattern, the Early Horizon was centered in the Cosumnes district of the Delta and emphasized hunting rather than gathering, as evidenced by the abundance of projectile points in relation to plant processing tools. Additionally, atlatl, dart, and spear technologies typically included stemmed projectile points of slate and chert but minimal obsidian. The large variety of projectile point types and faunal remains suggests exploitation of numerous types of terrestrial and aquatic species (Bennyhoff 1950). Burials occurred in cemeteries and intra-village graves. These burials typically were ventrally extended, although some dorsal extensions are known with a westerly orientation and a high number of grave goods. Trade networks focused on acquisition of ornamental and ceremonial objects in finished form rather than on raw material. The presence of artifacts made of exotic materials such as quartz, obsidian, and shell indicate an extensive trade network that may represent the arrival of Utian populations into central California. Also indicative of this period are rectangular Haliotis and Olivella shell beads, and charmstones that usually were perforated (Ragir 1972).

Berkeley Pattern or Middle Horizon (1000 BCE to 500 CE)

The Middle Horizon is characterized by the Berkeley Pattern, which displays considerable changes from the Early Horizon. This period exhibited a strong milling technology represented by minimally shaped cobble mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Fredrickson suggests that the Berkeley Pattern marked the eastward expansion of Miwok groups from the San Francisco Bay Area. Compared with the Early Horizon, there is a higher proportion of grinding implements at this time, implying an emphasis on plant resources rather than on hunting. Typical burials occurred within the village with flexed positions, variable cardinal orientation, and some cremations. As noted by Lillard, Heizer, and Fenenga, the practice of spreading ground ochre over the burial was common at this time. Grave goods during this period are generally sparse and typically include only utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles occasionally were present, which suggest the religious or ceremonial significance of the individual (Lillard 1939). During this period, larger populations are suggested by the number and depth of sites compared with the Windmiller Pattern. According to Fredrickson, the Berkeley Pattern reflects gradual expansion or assimilation of different populations rather than sudden population replacement and a gradual shift in economic emphasis (Fredrickson 1973).

Augustine Pattern or Late Horizon (500 CE to Historic Period)

The Late Horizon is characterized by the Augustine Pattern, which represents a shift in the general subsistence pattern. Changes include the introduction of bow and arrow technology; and most importantly, acorns became the predominant food resource. Trade systems expanded to include raw resources as well as finished products. There are more baked clay artifacts and extensive use of Haliotis ornaments of many elaborate shapes and forms. According to Moratto, burial patterns retained the use of flexed burials with variable orientation, but there was a reduction in the use of ochre and widespread evidence of cremation (Moratto 1984). Judging from the number and types of grave goods associated with the two types of burials, cremation seems to have been reserved for individuals of higher status, whereas other individuals were buried in flexed positions. Johnson

suggests that the Augustine Pattern represents expansion of the Wintuan population from the north, which resulted in combining new traits with those established during the Berkeley Pattern (Johnson 1976).

Central California research has expanded from an emphasis on defining chronological and cultural units to a more comprehensive look at settlement and subsistence systems. This shift is illustrated by the early use of burials to identify mortuary assemblages and more recent research using osteological data to determine the health of prehistoric populations. Although debate continues over a single model or sequence for California, the general framework consisting of three temporal/cultural units is generally accepted, although the identification of regional and local variation is a major goal of current archaeological research.

The Ohlone

At the time of European contact in the 18th Century, the San Ramon area was occupied by the Ohlone tribe of California Native Americans. The Ohlone group designates a linguistic family consisting of eight different yet related languages. The eight Ohlone languages were quite different from one another, with each language being related to its geographically contiguous neighbors.

The arrival of Ohlone groups into the Bay Area appears to be temporally consistent with the appearance of the Late Period artifact assemblage in the archaeological record, as documented at sites such as the Emeryville Shellmound or the Ellis Landing Shellmound. It is probable that the Ohlone moved south and west from the delta region of the San Joaquin-Sacramento River region into the Bay Area. The tribal group that most likely occupied the Master Plan area is the Chochenyo language group, whose territory extended from the southern end of the Carquinez Strait south to Mission San Jose (present-day Fremont), east to present-day Livermore and west to the San Francisco Bay.

The various Ohlone tribes subsisted as hunter-gatherers and relied on local terrestrial and marine flora and fauna for subsistence. The predominant plant food source was the acorn, but they also exploited a wide range of other plants, including various seeds, buckeye, berries, and roots. Protein sources included grizzly bear, elk, sea lions, antelope, and black-tailed deer as well as smaller mammals such as raccoon, brush rabbit, ground squirrels, and wood rats. Waterfowl, including Canadian geese, mallards, green-winged teal, and American widgeon, were captured in nets using decoys to attract them. Fish also played an important role in the Chochenyo diet and included steelhead, salmon, and sturgeon.

The Ohlone constructed watercraft from tule reeds and possessed bow and arrow technology. They fashioned blankets from sea otter pelts, fabricated basketry from twined reeds of various types, and assembled a variety of stone and bone tools in their assemblages. Ohlone villages typically consisted of domed dwelling structures, communal sweathouses, dance enclosures, and assembly houses constructed from thatched tule reeds and a combination of wild grasses, wild alfalfa, and ferns.

The Ohlone were politically organized into autonomous tribelets that had distinct cultural territories. Individual tribelets contained one or more villages with a number of seasonal camps for resource procurement within the tribelet territory. The tribelet chief could be either male or female, and the

position was inherited patrilineally, but approval of the community was required. The tribelet chief and council were essentially advisors to the community and were responsible for feeding visitors, directing hunting and fishing expeditions, ceremonial activities, and warfare on neighboring tribelets.

The first European contact with the Ohlone was probably in 1602, when Sebastian Vizcaíno's expedition moored in Monterey. The estimated Ohlone population in 1770—when the first mission was established in Ohlone territory—was approximately 10,000. By 1832, the population had declined to fewer than 2,000, mainly due to diseases introduced by the European explorers and settlers. When the Spanish mission system rapidly expanded across California, the Ohlone traditional way of life was irreversibly altered. The pre-contact hunter-gatherer subsistence economy was replaced by an agricultural economy, and the Spanish missionaries prohibited traditional social activities. After secularization of the missions between 1834 and 1836, some Native Americans returned to traditional religious and subsistence practices while others labored on Mexican ranchos. Thus, multi-ethnic Indian communities grew up in and around the area and provided informant testimony to ethnologists from 1878 to 1933 (Hart 1987).

The California Gold Rush brought further disease to the native inhabitants, and by the 1850s, nearly all of the Ohlone had adapted in some way or another to economies based on cash income. Hunting and gathering activities continued to decline and were rapidly replaced with economies based on ranching and farming.

Regional Historic Background

Spanish and Mexican Exploration and Settlement

Spanish exploration into the Central Valley dates back to the late 1700s, and Spanish mission records indicate that local Native American inhabitants were being taken to Mission San Jose until secularization of the missions in 1833. Many Native Americans were not willing converts, and there are numerous accounts of neophytes fleeing the missions and a series of "Indian Wars" broke out when the Spanish tried to return them to the missions. During this period, Native American populations were declining rapidly from an influx of Euro-American diseases. In 1832, a party of trappers from the Hudson's Bay Company, led by John Work, traveled down the Sacramento River unintentionally spreading a malaria epidemic to Native Californians.

The Mexican revolt against Spain in 1822 and the secularization of the missions in 1834 changed land ownership patterns in California. The Spanish philosophy of government was directed at the founding of presidios, missions, and secular towns with the land held by the Crown, whereas the later Mexican policy stressed individual ownership of the land. Following Mexico's independence from Spain in 1822, the vast mission lands were granted to private citizens. The last of the mission land holdings were relinquished in 1845, which led the way for the large ranchos common to California in the mid-1800s.

Mission San Jose was one of the most prosperous missions in California because of its fertile land, excellent water supply, large numbers of Native American laborers, and its proximity to San Francisco Bay. In 1824, when a map was drawn of the Mission San Jose territory, it included the San Ramon Valley, which at that time was called "Yngerto Canada," its original Spanish name.

During the Mexican Period, vast tracts of land, including former Mission lands that had reverted to public domain, were granted to individuals. The San Ramon Valley contained three large ranchos: San Ramon (Amador), 16,517 acres; San Ramon (Carpentier), 8,917 acres; and San Ramon (Norris), 4,451 acres. The Master Plan area is within the San Ramon (Norris) rancho. In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of California was 8,000 non-natives and 10,000 Native Americans. However, these estimates have been debated. Cook suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,385 (Cook 1976).

Gold Rush and American Expansion

In 1848, James W. Marshall discovered gold at Coloma in modern-day El Dorado County, which started the Gold Rush into the region that forever altered the course of California's history. The arrival of thousands of gold seekers in the territory contributed to the exploration and settlement of the entire State. By late 1848, approximately four out of five men in California were gold miners. The Gold Rush originated along the reaches of the American River and other tributaries to the Sacramento River, and Hangtown, present-day Placerville, became the closest town offering mining supplies and other necessities for the miners in El Dorado County. Gold subsequently was found in the tributaries to the San Joaquin River, which flowed north to join the Sacramento River in the Great Delta east of San Francisco Bay (Robinson 1948).

By 1864, the California Gold Rush had essentially ended. The rich surface and river placers were largely exhausted and the miners either returned to their homelands or stayed to start new lives in California. After the Gold Rush, people in towns such as Jackson, Placerville, and Sonora turned to other means of commerce, such as ranching, agriculture, and timber production. With the decline of gold mining, agriculture and ranching came to the forefront in the State's economy. California's natural resources and moderate climate proved well suited for cultivation of a variety of fruits, nuts, vegetables, and grains (Beck 1974).

Local Historic Background

History of Contra Costa County

The east side of San Francisco Bay, directly across from the City of San Francisco, became known as the "opposite coast" (or contra costa) by the Spanish. Contra Costa County was formed in December of 1849 and is one of the original 27 California counties, with the county seat at Martinez (Hoover 2002). Contra Costa County, like much of California, was seen as a land of economic opportunity, not just for its mining resources but also for its productive land where farmers could cultivate a variety of crops. Agriculture became important in the California economy in the late 1850s, and through to the 1860s, homesteading became a means by which people could own and operate a family farm. The decidedly agricultural focus also underpins the historical significance of the Spanish colonial and Mexican era of land grants. As early as 1882, special interests advertised the County's virtues as a place to cultivate. Early settlers began to speak of beneficial soils that support a range of crops—pears, prunes, peaches, almonds, walnuts and grapes flourished—with seasonal rainfall, and favorable climates. In addition, Contra Costa County is strategically located at the crossing of trade routes with a waterfront location and relative closeness to the San Francisco metropolis. Large-scale commercial operations began to capitalize on mechanical innovations just as irrigation developed in

the early 1880s. Consequently, competing economic interests caused land prices to increase and make family farming a less profitable enterprise.

The population of the Contra Costa County increased rapidly during the Gold Rush and, later, by the completion of Western Pacific Railroad between Stockton and Niles Junction in 1869 and the Santa Fe Railroad between Stockton and Richmond in 1896. The great rancheros of the Spanish period were divided and sold for agricultural uses, with intensively irrigated farming made possible in some areas of the County by the development of canals that brought water from the eastern portions of the County to the central portions. Other areas, such as nearby Livermore Valley, used the more limited water available from local creeks and wells. Orchards dominated where abundant water was available, while seasonally dry areas were used for dry farming and cattle ranching. Walnuts were an especially attractive orchard crop in central portions of the County, with farmers using thin-shelled English walnut branches grafted to hardy and disease-resistant American walnut rootstock.

History of the City of San Ramon

The first settlers to the San Ramon area were Leo and Mary Norris, who purchased 4,450 acres of land in 1850. Other early settlers included names that are recognizable from local street names, such as Crow, Bollinger, and Glass. The first village developed on the site of the present-day Outpost Casino at the intersection of Deerwood Road and San Ramon Valley Boulevard. San Ramon was known by a series of names in the 19th Century: Brevensville, for a local blacksmith; Lynchville, for the early settler William Lynch; and Limerick, for the numerous Irish immigrants.

The Southern Pacific Railroad arrived in the San Ramon Valley in the 1890s. Dubbed the San Ramon Branch Line, the single-track line originally extended from a junction with the Oakland-Stockton main line near Martinez south to San Ramon, a distance of approximately 20 miles. Service commenced in June 1891. In 1909, the southern terminus of the San Ramon Branch Line was extended south to a junction with the Lathrop-Niles Junction main line near Pleasanton. San Ramon was served with a station, known as San Ramon Siding, near the present-day Iron Horse Trail crossing at Crow Canyon Road. By the mid-1970s, traffic on the line had dwindled to 125 carloads annually and the Southern Pacific Railroad petitioned the Interstate Commerce Commission to abandon the branch line. The line was formally abandoned in 1978 and the counties of Alameda and Contra Costa acquired ownership of the right-of-way within their respective jurisdictions. The Iron Horse Trail, a 24.47-mile Class I bicycle/pedestrian trail, follows the alignment of the San Ramon Branch Line from Pleasanton to Concord.

The San Ramon Valley remained primarily an agricultural area up through the early 1960s. Following the completion of Interstate 680 (I-680) through the San Ramon Valley in the mid-1960s, the San Ramon area experienced rapid growth. The first residential subdivisions were developed in South San Ramon (also known as San Ramon Village) and Twin Creeks. In the early 1980s, Sunset Development began developing the Bishop Ranch Business Park. The most notable facilities in the Bishop Ranch Business Park are Chevron Park and the AT&T campus (formerly known as the Pacific Bell campus), both of which opened in the mid-1980s. Sunset Development continued to develop the Bishop Ranch Business Park through the 1980s and 1990s, with the newest complex, Bishop Ranch 1, opening in 2001.

With growth came the desire for greater control over land use and development. In March 1983, the City electorate voted to incorporate, and the City of San Ramon came into existence on July 1 of that year. Since incorporation, the City has expanded its limits west to include the Westside Drive area and portions of Norris Canyon, north to include the Crow Canyon area, and east to include the Dougherty Hills and Dougherty Valley.

Records Searches and Pedestrian Survey to Identify Existing Cultural Resources

Northwest Information Center Records Search

On January 14, 2020, a records search for the Master Plan area and a 0.5-mile radius beyond the Master Plan area boundaries was conducted at the Northwest Information Center (NWIC) located at Sonoma State University in Rohnert Park, California. To identify any historic properties or resources, the current inventories of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Historical Landmarks list, the California Points of Historical Interest list, and the California Historical Resources Inventory for Sonoma County were reviewed to determine the existence of previously documented local historical resources.

The results of the records search indicate that no cultural resources have been recorded within the Master Plan area or the 0.5-mile search radius. The closest known resource (P-07-000718) is approximately 0.6 mile northwest of the Master Plan area boundary. In addition, 25 area-specific survey reports (Table 3.4-1) are on file with the NWIC for the Master Plan area and its 0.5-mile search radius. One report (S-000830) is within the Master Plan area indicating that immediate area has previously been surveyed for cultural resources.

Table 3.4-1: Previous Investigations within 0.5-mile of the Master Plan Area

Report No.	Report Title/Project Focus	Author	Date
S-000229	An Archaeological Reconnaissance of Shapell Industries Proposed Residential Development, San Ramon, Contra Costa County, California	David A. Fredrickson	1975
S-000727	An Archaeological Reconnaissance of Two New Proposed Wastewater Pipeline Routes, Livermore-Amador Valley Water Management Agency, Alameda County, California	Miley Holman and David Chavez	1977
S-000830	Report of Findings of Archaeological Reconnaissance and Historical Research for the Contra Costa County Assessment District 1973-3, San Ramon, Contra Costa County, California	Thomas L. Jackson	1973
S-000830a	Review of the Tom Jackson archaeological survey report on the Bishop Ranch (letter report)	David A. Fredrickson	1977

Report No.	Report Title/Project Focus	Author	Date
S-000830b	Notes concerning the Contra Costa County Assessment District 1973-3 report and the "probable" prehistoric archaeological site (letter report)	Thomas L. Jackson	1978
S-001233	An Archaeological Investigation of a Parcel in San Ramon, Contra Costa County, California, for L. H. International Development	Jane C. Adams	1978
S-001421	An Archaeological Reconnaissance of 64 acres Near San Ramon, Contra Costa, County, California	Paul E. Amaroli	1979
S-005001	An Archaeological Reconnaissance of Wood Valley, a Proposed Land Development in San Ramon, Contra Costa County, California	Peter M. Banks	1982
S-005749	Archaeological Survey Report, Improvements to Bollinger Canyon Road Interchange (2.9), Norris Canyon Road Overcrossing (3.9), Crow Canyon Road Interchange (4.2), and Sycamore Valley Road Interchange (6.8), in the San Ramon Valley, Contra Costa County, 04-CCO-680, 04224-908008	Mara Melandry	1982
S-006264	An Archaeological Reconnaissance of Canyon Lakes, a Proposed Land Development Near San Ramon, Contra Costa County	Cindy Desgrandchamp and Peter Banks	1983
S-006277	A Cultural Resources survey for Canyon Creek Village Located at Norris Canyon Road and Twin Creeks Drive, San Ramon, California	Donna M. Garaventa, James C. Bard, and Rebecca Loveland Anastasio	1983
S-020030	Cultural Resources Assessment Report, EBMUD Southern Loop Pipeline Alignment Study, Contra Costa and Alameda Counties, California	William Self	1997
S-026299	Historic Properties Survey report, Interstate 680 Auxiliary Lanes Project in the Cities of Danville and San Ramon, within Contra Costa County, California, 04-CC-680, KP R4.7/R12.2 (PM R2.9/R7.6), EA 04-219-228530	Leigh A. Martin, Kimberley S. Popetz, and William Self	2002
S-028819	Historical Cultural Resources Assessment, Proposed Telecommunications Facility, Central Park, Site No. PL-271-02, 7060 Bollinger Canyon Road, San Ramon, California (letter report)	Allen G. Pastron and R. Keith Brown	1999

Report No.	Report Title/Project Focus	Author	Date
S-029518	Nextel Communications, Alcosta Boulevard (CA-2335A), San Ramon, California	Earth Touch, LLC	Unknown
S-029578	Cultural and Paleontological Resources Study for the Vista Granda, Greenbook, John F. Baldwin, and Bollinger Canyon Elementary school Campuses	Randy Groza and Benjamin Matzen	2004
S-043619	Historic Property Survey Report for the MTC Interstate 680 Express Lane Phase 1 Project, Alameda and Contra Costa Counties, California; 04-ALA-680 PM R20.2-R21.88, 04-CCO-680 PM R0.0-13.9 EA 3G950K (04-3G910K)	Laura Leqach-Palm and Chandra Miller	2014
S-043619a	Archaeological Survey Report for the MTC Interstate 680 Express Lane Phase 1 Project, Alameda and Contra Costa Counties, California; 04-ALA-680 PM R20.2-R21.88, 04-CCO-680 PM R0.0-13.9 EA 3G950K (04-3G910K)	Laura Leach-Palm and Jack Meyer	2014
S-043619b	Extended Phase I Investigation for the MTC I-680 Express Lane Phase I Project between Alcosta Boulevard and Livorna Road, Alameda and Contra Costa Counties, California; 04-ALA-680 PM R20.2-R21.88, 04-CCO-680 PM R0.0-13.9, EA 04-3G950K	Jack Meyer and Laura Leach-Palm	2014
S-043619c	Historical Resource Evaluation Report for the MTC Express Lane Phase I Project, Alameda and Contra Costa Counties, California; 04-ALA-680 PM R20.2-R21.88, 04-CCO-680 PM R0.0-13.9, EA 04-3G950K, ID: 0413000110	Chandra Miller	2014
S-043619d	Historic Property Survey Report for the MTC Interstate 680 Express Lane Phase I Project, 04-ALA-680 PM R20.2-R21.88, 04-CCO-680 PM R0.0-13.9	Laura Leach-Palm	2014
S-043619e	Environmentally Sensitive Area Action Plan for the Metropolitan Transportation Commission's Interstate 680 Express Lane Project, Alameda and Contra Costa Counties, California; 04-ALA-680 PM R20.2-R21.88, 04-CCO-680 PM R0.0-13.9, EA 04-3G950K (04-3G910K)	Laura Leach-Palm	2014
S-043619f	Supplemental Historic Property Survey Report for the MTC Interstate 680 Express Lane Phase I Project, Alameda and Contra Costa Counites, California; 04-ALA-680 PM R20.2-R21.88, 04-CCO-680 PM R0.0-13.9, EA 04-3G950K (04-3G910K)	Laura Leach-Palm	2015

Report No.	Report Title/Project Focus	Author	Date
S-043619g	Environmentally Sensitive Area Action Plan for the Metropolitan Transportation Commission's Interstate 680 Express Lane Project, Alameda and Contra Costa Counties, California; 04-ALA-680 PM R20.2-R21.88, 04-CCO-680 PM R0.0-13.9, EA 04-3G950K (04-3G910K)	Laura Leach-Palm	2015
S-043619h	FHWA_2014_3010_001: Project Changes Affecting Request for Determination of Eligibility; Interstate 680 Express Lane Phase I Project through Alameda and Contra Costa Counties	Carol Roland-Nawi, Elizabeth Kee, and Valerie Shearer	2014
Source: NWIC Records Search, January 14, 2020.			

Native American Heritage Commission Records Search and Tribal Correspondence

On January 7, 2020, FCS sent a letter to the NAHC in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the Master Plan area. A response was received on January 8, 2020, indicating that the Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate Master Plan area. The NAHC included a list of eight tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential TCRs that may be affected by implementation of the proposed Master Plan are addressed, the City of San Ramon provided formal notification to applicable Native American Governments pursuant to Assembly Bill 52 (AB 52) on January 21, 2020. On February 14, 2020, a letter was received from the Confederated Villages of Lisjan requesting consultation with the City of San Ramon on the proposed Master Plan. On March 10, 2020, Corrina Gould, Chairperson, with the Confederated Villages of Lisjan received project information via a phone conversation with City staff. On March 12, 2020, Ms. Gould requested additional cultural resource documentation via email; City staff subsequently provided the Draft Phase 1 Cultural Resource Assessment for the Citywalk project via email. City staff sent follow up emails to Ms. Gould on March 23, and April 7, 2020 to discuss the project further; however, no response was received. No other requests for consultation were received by the City of San Ramon within the 30-day period, which ended on February 20,2020.

Pedestrian Survey

On February 5, 2020, FCS Senior Archaeologist, Dana DePietro, PhD, RPA, conducted a pedestrian survey of the proposed Master Plan area to identify any unrecorded cultural resources. The Master Plan area consists of level ground interspersed with paved roads, parking lot areas, various office buildings, and undeveloped land. The field survey included all visible ground surface and was conducted utilizing transects of 10 meters or less, depending on vegetation, roads, and other obstructions. The typical ground surface consisted of grass, short weeds, and exposed soils as well as the paved areas such as roads, parking lots, and buildings.

The primary areas with open ground surface were on the north and south sides of Bollinger Canyon Road between Camino Ramon and the Iron Horse Trail. Visibility of native soils in these areas was poor overall (20-30%) given that the undeveloped lots were largely overgrown with thick vegetation.

Soils in these sections of poor visibility were intermittently inspected using a hand trowel, and extensive bioturbation across the site provided some visibility into native soils across the site. Soils were largely composed of medium brown loam interspersed with small (2-3 cm) stones composed of quartz and schist. The remainder of the Master Plan area was covered with surface parking, roads, landscape elements, and the office buildings of BR 2600. The Master Plan area does not contain buildings over 50 years old. The buildings on the Master Plan area were constructed in 1982 as part of the Bishop Ranch Development and, therefore, do not meet the minimum age requirement of 50 years old to be considered for eligibility for listing on the NRHP or the CRHR.

Survey conditions were documented using digital photographs and field notes. During the survey, Dr. DePietro examined all areas of the exposed ground surface for prehistoric artifacts (e.g., fire-affected rock, milling tools, flaked stone tools, tool-making debris, ceramics), soil discoloration and depressions that might indicate the presence of a cultural midden, faunal and human osteological remains, and features indicative of the former presence of structures or buildings (e.g., postholes, standing exterior walls, foundations) or historic debris (e.g., glass, metal, ceramics). The proposed Master Plan area was closely inspected for culturally modified soils or other indicators of potential historic or prehistoric resources. No historic or prehistoric resources were discovered during the pedestrian survey of the Master Plan area.

3.4.3 - Regulatory Framework

Federal

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA), as amended, established the NRHP, which contains an inventory of the nation's significant prehistoric and historic properties. Under 36 Code of Federal Regulations 60, a property is recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history, or broad patterns of events;
- It is associated with significant people in the past;
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; or it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction; or
- It has yielded, or may yield, information important in history or prehistory.

Certain types of properties are usually excluded from consideration for listing in the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (ARPA) amended the Antiquities Act of 1906 (16 United States Code [USC] §§ 431–433) and set a broad policy that archaeological resources are important to the nation and should be protected, and required special permits before the excavation or removal of archaeological resources from public or Indian lands. The purpose of the ARPA was to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites that are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October 31, 1979.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act (AIRFA) established federal policy to protect and preserve the inherent rights of freedom for Native American groups to believe, express, and exercise their traditional religions. These rights include but are not limited to access to sites, use and possession of sacred objects, and freedom to worship through ceremonials and traditional rites.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

State

California Register of Historical Resources

As defined by Section 15064.5(a)(3)(A-D) of the California Environmental Quality Act (CEQA) Guidelines, a resource shall be considered historically significant if the resource meets the criteria for listing on the CRHR. The CRHR and many local preservation ordinances have employed the criteria for eligibility to the NRHP as a model, since the NHPA provides the highest standard for evaluating the significance of historic resources. A resource that meets the NRHP criteria is clearly significant. In addition, a resource that does not meet the NRHP standards may still be considered historically significant at a local or State level.

California Environmental Quality Act

The CEQA Guidelines state that a resource need not be listed on any register to be found historically significant. CEQA Guidelines direct lead agencies to evaluate archaeological sites to determine if they meet the criteria for listing in the CRHR. If an archaeological site is a historical resource, in that it is listed or eligible for listing in the CRHR, potential adverse impacts to it must be considered. If an archaeological site is considered not to be a historical resource but meets the definition of a “unique

archeological resource" as defined in Public Resources Code Section 21083.2, then it would be treated in accordance with the provisions of that section.

Native American Heritage Commission Sacred Lands Inventory

Section 5097.91 of the Public Resources Code established the whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. This inventory is referred to as the NAHC Sacred Lands File. Under Section 5097.9 of the Public Resources Code, a State policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites or sacred shrines located on public property. Section 5097.98 of the Public Resources Code specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a County Coroner. Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

California Assembly Bill 52—Effects on Tribal Cultural Resources

AB 52 was signed into law on September 25, 2014, and provides that any public or private "project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." TCRs include "[s]ites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources." Under prior law, TCRs were typically addressed under the umbrella of "cultural resources," as discussed above. AB 52 formally added the category of "tribal cultural resources" to CEQA, and extends the consultation and confidentiality requirements to all projects, rather than just projects subject to Senate Bill 18 (SB 18) as discussed above.

The parties must consult in good faith, and consultation is deemed concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect on a tribal cultural resource (if such a significant effect exists); or (2) when a party concludes that mutual agreement cannot be reached. Mitigation measures agreed upon during consultation must be recommended for inclusion in the environmental document. AB 52 also identifies mitigation measures that may be considered to avoid significant impacts if there is no agreement on appropriate mitigation. Recommended measures include:

- Preservation in place.
- Protecting the cultural character and integrity of the resource.
- Protecting the traditional use of the resource.
- Protecting the confidentiality of the resource.
- Permanent conservation easements with culturally appropriate management criteria.

Local

City of San Ramon General Plan 2035

The City of San Ramon General Plan 2035 (General Plan) establishes the following policies related to cultural resources:

- **Policy 8.7-G-1:** Identify, evaluate, and preserve the archaeological, paleontological, and historic resources that are found within the San Ramon Planning Area.
- **Policy 8.7-I-1:** Require that new development evaluate potential impacts to historic, archaeological, and paleontological resources and, if necessary, implement appropriate mitigation measures to protect the resources. Projects that disturb undeveloped land or propose the demolition or substantial modification of structures 45 years of age or older will be required to evaluate potential cultural resource impacts. Exceptions to this policy include infill development or redevelopment on sites that have been developed within the previous 45 years.
- **Policy 8.7-I-4:** As a standard condition of approval, require all development projects involving grading and excavation to implement appropriate measures in the event that burial sites or human remains are encountered during earthwork activities. Appropriate measures may include stopping work within 100 feet of the find, notifying the Contra Costa County Coroner's Office, and, if the Coroner determines that the remains are determined to be of Native American origin, notification of the Native American Heritage Commission.

3.4.4 - Methodology

FCS prepared a Phase I CRA for the Master Plan area that included records searches and a field survey. The historic resources impact analysis below (Impact CUL-1) is based on information collected from record searches at the NWIC, additional archival research, and pedestrian surveys. The archaeological and human remains impact analysis below (Impacts CUL-2 through CUL-5) is based on information collected from record searches at the NWIC, the NAHC, additional archival research, pedestrian surveys, and outreach to Native American representatives identified by the NAHC as potentially having an interest in or additional information on the Master Plan area.

3.4.5 - Thresholds of Significance

According to CEQA Guidelines Appendix G, Environmental Checklist, cultural resources impacts resulting from the implementation of the proposed Master Plan would be considered significant if the Master Plan would:

a) Cause a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5?

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

c) Disturb any human remains, including those interred outside of formal cemeteries?

d) Cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape

that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

e) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

3.4.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed Master Plan and provides mitigation measures where appropriate.

Historic Resources

Impact CUL-1:	**The proposed Master Plan could cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.**

Impact Analysis

Construction

There are no recorded historic resources within the Master Plan area or the 0.5-mile radius of the Master Plan area and none were encountered during the pedestrian field survey. As described previously, all structures located on or adjacent to the Master Plan area were constructed as part of the Bishop Ranch Development and are not at least 50 years old. While unlikely, subsurface construction activities always have the potential to damage or destroy previously undiscovered historic resources such as wood, stone, foundations, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramic, and other refuse, if encountered. This would represent a potentially significant impact related to historic resources. Implementation of Mitigation Measure (MM) CUL-1 would ensure that, in the event a previously undiscovered historic resource is encountered during subsurface activities, all construction within a 100-foot radius of the find shall cease until a qualified archaeologist determines whether the resource requires further study. Therefore, impacts would be less than significant with mitigation incorporated.

Operation

Impacts related to a substantial adverse change in historic resources are limited to construction impacts because no subsurface activity would occur during operation that could uncover previously undiscovered historic resources. Therefore, no impacts would occur at operation.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM CUL-1 Initial Monitoring and Stop Construction Upon Encountering Historical or Archeological Materials

An archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology should be present during the initial grading on BR 1A, BR 3A, and BR 2600 to check for the inadvertent exposure of cultural materials. In the event exposed soils indicate cultural materials may be present, this may be followed by regular or periodic "spot-check" monitoring, but full-time archaeological monitoring is not recommended at this time. In the event cultural resources are encountered during subsurface activities, all construction within a 100-foot radius of the find shall cease until the qualified Archaeologist determines whether the resource requires further study. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Any previously undiscovered resources found during construction shall be recorded on appropriate Department of Parks and Recreation (DPR) forms and evaluated for significance in terms of California Environmental Quality Act (CEQA) criteria by a qualified Archaeologist. Potentially significant cultural resources consist of, but are not limited to, glass, ceramics, stone, bone, wood, and shell artifacts or features, including hearths, structural remains, or historic dumpsites. The Archaeologist shall make recommendations concerning appropriate measures that will be implemented to protect the resource, including but not limited to excavation and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines.

Level of Significance After Mitigation

Less than significant impact.

Archaeological Resources

Impact CUL-2: The proposed Master Plan could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

Impact Analysis

Construction

The NWIC records search results indicate that no archeological resources are within the planning area or the 0.5-mile search radius, and none were observed over the course of the pedestrian survey. A significant prehistoric habitation site (P-07-000718) has been recorded 0.6 miles from the project however, and ground cover obscured much of the survey area during the pedestrian survey, increasing the chances that undiscovered archaeological resources may be present within the Master Plan area. Such resources could consist of but are not limited to stone, bone, wood, or shell artifacts or features, including hearths and structural elements. This represents a potentially significant impact related to archeological resources. However, implementation of MM CUL-1 would ensure that in the event a previously undiscovered archeological resource is encountered during subsurface activities all construction within a 100-foot radius of the find shall cease until a qualified

Archaeologist determines whether the resource requires further study. Therefore, impacts would be less than significant with mitigation incorporated.

Operation

Impacts related to a substantial adverse change in the significance of an archeological resource are limited to construction impacts. No respective direct or indirect operational impacts related to archeological resources would occur.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Implement MM CUL-1.

Level of Significance After Mitigation

Less than significant impact.

Burial Sites

Impact CUL-3:	**The proposed Master Plan could disturb human remains, including those interred outside of formal cemeteries.**

Impact Analysis

Construction

No human remains or cemeteries are known to exist within or near the Master Plan area. However, there is always the possibility that subsurface construction activities associated with the proposed Master Plan, such as trenching and grading, could potentially damage or destroy previously undiscovered human remains. This represents a potentially significant impact related to human remains. General Plan Policy 8.7-I- requires as a standard condition of approval, all development projects involving grading and excavation to implement appropriate measures in the event that burial sites or human remains are encountered during earthwork activities. MM CUL-3 would require that work be halted, and the County Coroner be called to make a determination as to the nature of the remains and to confirm the next steps regarding contacting the NAHC and appropriate tribal representatives. In addition, in the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5(d)—Effects on Human Remains, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 must be followed. Requirements of these regulations are described above in Regulatory Framework. Therefore, with implementation of MM CUL-3 and compliance with aforementioned CEQA Guidelines, direct and indirect impacts related to disturbance of human remains would be less than significant.

Operation

Impacts related to a project's potential to disturb human remains are limited to construction impacts as no subsurface activity or excavation would occur during operation. Therefore, no respective direct or indirect operational impacts related to human remains would occur.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM CUL-3 Stop Construction Upon Encountering Human Remains

If during the course of construction activities there is accidental discovery or recognition of any human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance within 100 feet of the remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.
2. Where the following conditions occur, the landowner or his or her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project site in a location not subject to further subsurface disturbance:
   - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission.
   - The descendant identified fails to make a recommendation.
   - The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

   Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:

   - When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code Section 5097.98. The applicant may develop a plan for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American Burials with the appropriate Native Americans as identified by the Native American Heritage Commission.

Level of Significance After Mitigation

Less than significant impact.

Listed or Eligible Tribal Cultural Resources

Impact CUL-4: **The proposed Master Plan would not cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).**

Impact Analysis

Construction

No listed or potentially eligible TCRs have been identified within the Master Plan area. Specifically, a review of the CRHR, the NAHC Sacred Lands File, a records search conducted at the NWIC, and a pedestrian survey of the Master Plan area failed to identify any listed TCRs that could be adversely affected by construction of the proposed Master Plan. As such, there are no known eligible or potentially eligible TCRs that could be adversely affected by the proposed Master Plan. Therefore, impacts related to previously listed TCRs would be less than significant.

Operation

Impacts related to a project's potential to cause a substantial adverse change in the significance of a State listed or eligible TCR are limited to construction impacts. No respective operational impacts would occur.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Lead Agency Determined Tribal Cultural Resources

Impact CUL-5: The proposed Master Plan would not cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

Impact Analysis

Construction

On January 7, 2020, a letter was sent to the NAHC in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the Master Plan area. A response was received on January 8, 2020, indicating the search returned negative results for TCRs in the Master Plan area or within a 0.5-mile radius, and recommended contacting tribal representatives for additional information. The NAHC included a list of eight tribal representatives available for consultation. To ensure that all Native American knowledge and concerns over potential TCRs that may be affected by implementation of the Master Plan are addressed, the City of San Ramon provided formal notification to applicable Native American Governments pursuant to AB 52 on January 21, 2020.

On February 14, 2020, a letter was received from the Confederated Villages of Lisjan requesting consultation with the City of San Ramon on the proposed Master Plan. On March 10, 2020, Corrina Gould, Chairperson, with the Confederated Villages of Lisjan received project information via a phone conversation with City staff. On March 12, 2020, Ms. Gould requested additional cultural resource documentation via email; City staff subsequently provided the Draft Phase 1 Cultural Resource Assessment for the Citywalk project via email. City staff sent follow up emails to Ms. Gould on March 23, and April 7, 2020 to discuss the project further; however, no response was received. No other requests for consultation were received by the City of San Ramon within the 30-day period, which ended on February 20,2020.

The City of San Ramon, in its capacity as Lead Agency, has also not identified or determined any known tribal cultural resources to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. As such, no construction impact related to tribal cultural resources would occur.

Operation

Impacts related to a project's potential to cause a substantial adverse change in the significance of a lead agency listed or eligible TCR are limited to construction impacts. No respective operational impacts would occur.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

3.5 - Energy

3.5.1 - Introduction

This section describes the existing energy setting in the Master Plan area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to energy that could result from implementation of the proposed Master Plan. Information in this section is based on project-specific energy calculation outputs included in Appendix F. No comments were received during the Environmental Impact Report (EIR) scoping period related to energy.

3.5.2 - Existing Setting

Energy Basics

Energy is generally transmitted either in the form of electricity, measured in kilowatts (kW)[1] or megawatts (MW),[2] or natural gas, typically measured in British thermal units (BTU) or cubic feet.[3] Fuel, such as gasoline or diesel, is measured in gallons or liters.

Electricity

Electricity is used primarily for lighting, appliances, and other uses associated with the proposed Master Plan.

Natural Gas

Natural gas is used primarily for heating, water heating, and cooking purposes and is typically associated with commercial and residential uses.

Fuel

Fuel is used primarily for powering off-road equipment, trucks, and worker vehicles. The typical fuel types used are diesel and gasoline.

Electricity Generation, Distribution, and Use

State of California

The State of California generates approximately 206,336 gigawatt-hours (GWh)[4] of electricity. Approximately 43.4 percent of the energy generation is sourced from natural gas, 29.7 percent from renewable sources (i.e., solar, wind, and geothermal), 17.9 percent from large hydroelectric sources, and the remaining 9 percent is sourced from coal, nuclear, oil, and other non-renewable sources (CEC 2019).

In 2017, California ranked second in the nation in conventional hydroelectric generation and first as a producer of electricity from solar, geothermal, and biomass resources. In 2017, solar photovoltaic

[1] 1 kW = 1.000 watts; A watt is a derived unit of power that measure rate of energy conversion. 1 watt is equivalent to work being done at a rate of 1 joule of energy per second. In electrical terms, 1 watt is the power dissipated by a current of 1 ampere flowing across a resistance of 1 volt.
[2] 1 MW = 1 million watts
[3] A unit for quantity of heat that equals 100,000 British thermal units. A British thermal unit is the quantity of heat required to raise the temperature of 1 pound of liquid water 1 degree Fahrenheit at a constant pressure of 1 atmosphere.
[4] 1 GWh = 1 billion watt hours

(PV) systems and solar thermal installations provided about 16 percent of California's net electricity generation (United States Energy Information Administration 2018).

Electricity and natural gas are distributed through the various electric load-serving entities (LSEs) in California. These entities include investor-owned utilities (IOUs), publicly owned LSEs, rural electric cooperatives, community choice aggregators, and electric service providers (CEC 2019).

City of San Ramon

Marin Clean Energy (MCE) and Pacific Gas and Electric (PG&E) provide electricity to many of the cities throughout Contra Costa County, including the City of San Ramon (CEC 2015).

Master Plan Area

BR 2600 contains existing development that consumes electricity, including an approximately 1.75-million-square-foot multi-story office building, a parking structure, surface parking, and two water features. As noted in Section 2, Project Description, electricity in the Master Plan area is currently served, and would continue to be served, by MCE and PG&E.

Existing electrical lines are located within Bollinger Canyon Road, Camino Ramon, Bishop Drive, Executive Parkway and the Iron Horse Trail. The proposed Master Plan would connect to these existing facilities via new service laterals. Estimates of electricity consumption provided in this analysis are for the planned development that would be added to the existing infrastructure in the Master Plan area. A baseline of zero was assumed for the purposes of estimating electricity usage associated with the proposed Master Plan.

Natural Gas Generation, Distribution, and Use

State of California

Natural gas is used for everything from generating electricity to cooking and space heating, to an alternative transportation fuel. In 2012, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 2,313 billion cubic feet (BCF) per year (BCF/year), up from 2,196 BCF/year in 2010 (CEC 2019). Demand in all sectors except electric power generation remained relatively flat for the last decade due in large part to energy efficiency measures, but demand for power generation rose about 30 percent between 2011 and 2012 (CEC 2019).

Natural gas-fired generation has become the dominant source of electricity in California, as it fuels about 43 percent of electricity consumption followed by hydroelectric power. Because natural gas is a dispatchable resource that provides load when the availability of hydroelectric power generation and/or other sources decrease, use varies greatly from year to year. The availability of hydroelectric resources, the emergence of renewable resources for electricity generation, and overall consumer demand are the variables that shape natural gas use in electric generation. Due to above average precipitation in 2011, natural gas used for electricity generation was 617 BCF, compared to lower precipitation years in 2010 and 2012 when gas use for electric generation was 736 BCF and 855 BCF, respectively (CEC 2019).

In June 2019, several U.S. cities, including Berkeley, San Jose, and Brookline, Massachusetts, banned the use of natural gas equipment and infrastructure in new urban development. The purpose of the ban is primarily to reduce carbon footprints and greenhouse gas emissions. Buildings use natural gas for heating and cooking purposes, which makes up almost one-third of the natural gas consumed in the U.S.

City of San Ramon

PG&E provides natural gas services to customers in the City of San Ramon. PG&E's natural gas services cover approximately 70,000 square miles in Northern and Central California. The transmission and delivery system comprise 1.5 million miles of transmission pipelines and distribution systems delivering natural gas to over 16 million people.

Master Plan Area

BR 2600 contains existing development that consumes natural gas, including a 1.75-million square-foot multi-story office building. As noted in Chapter 2, Project Description, natural gas in the Master Plan area is currently served, and would continue to be served, by PG&E. Existing natural gas lines are located within Bollinger Canyon Road, Camino Ramon, Bishop Drive, Executive Parkway, and the Iron Horse Trail. The proposed Master Plan would connect to these existing facilities via new service laterals. Estimates of natural gas consumption provided in this analysis are for the planned development that would be added to the existing infrastructure in the Master Plan area. A baseline of zero was assumed for the purposes of estimating natural gas usage associated with the proposed Master Plan.

Fuel Use

State of California

The main category of fuel use in California is transportation fuel, specifically gasoline and diesel. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline sold in California being consumed by light-duty cars, pickup trucks, and sport utility vehicles (CEC 2019). In 2015, 15.1 billion gallons of gasoline were sold, which represents the largest transportation fuel used in California. Diesel is the second largest transportation fuel used in California. According to the State Board of Equalization, in 2015 4.2 billion gallons of diesel, including off-road diesel, was sold. Nearly all heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction, and heavy-duty military vehicles and equipment have diesel engines (CEC 2019).

Master Plan Area

Existing fuel use in the Master Plan area is mainly attributed to the use of vehicle fuel use—gasoline and diesel associated with the existing multi-story office building. A hydrogen fuel station is located adjacent to Norris Canyon Road in the northern portion of the Master Plan area that provides fueling for hydrogen fuel cell vehicles. Estimates of fuel consumption provided in this analysis are for the planned development that would be added to the existing infrastructure in the Master Plan area. A baseline of zero was assumed for the purposes of estimating fuel usage associated with the proposed Master Plan.

3.5.3 - Regulatory Framework

Federal

Energy Independence and Security Act

The Energy Policy Act of 2005 created the Renewable Fuel Standard (RFS) program. The Energy Independence and Security Act of 2007 expanded this program by:

- Expanding the RFS program to include diesel in addition to gasoline;
- Increasing the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022;
- Establishing new categories of renewable fuel, and setting separate volume requirements for each one; and
- Requiring the United States Environmental Protection Agency (EPA) to apply life-cycle greenhouse gas (GHG) emission performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

This expanded RFS program lays the foundation for achieving substantial reductions of GHG emissions from the use of renewable fuels, reducing the use of imported petroleum, and encouraging the development and expansion of the nation's renewable-fuels sector.

Signed on December 19, 2007, the Energy Independence and Security Act (EISA) of 2007 aims to:

- Move the United States toward greater energy independence and security;
- Increase the production of clean renewable fuels;
- Protect consumers;
- Increase the efficiency of products, buildings, and vehicles;
- Promote research on and deploy GHG capture and storage options;
- Improve the energy performance of the Federal Government; and
- Increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy.

EISA reinforces the energy reduction goals for federal agencies put forth in Executive Order 13423, as well as introduces more aggressive requirements. The three key provisions enacted are the Corporate Average Fuel Economy Standards, the RFS, and the appliance/lighting efficiency standards.

The EPA is committed to developing, implementing, and revising both regulations and voluntary programs under the following subtitles in EISA, among others:

- Increased Corporate Average Fuel Economy Standards
- Federal Vehicle Fleets
- Renewable Fuel Standard
- Biofuels Infrastructure
- Carbon Capture and Sequestration (EPA 2019)

The EPA and National Highway Traffic Safety Administration Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy Standards Final Rule

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, the President put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The first phase required these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO_2) per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

The EPA and the NHTSA issued final rules on a second-phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleet wide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 miles per gallon if achieved exclusively through fuel economy improvements.

The EPA and NHTSA issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20 percent reduction in CO_2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles, and a 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

The State of California has received a waiver from the EPA to have separate, stricter corporate average fuel economy standards. It should be noted that the EPA recently rescinded California's waiver for its GHG and zero-emission vehicle mandates; however, all California Air Resources Board (ARB) standards are still in effect at the time of this writing (Beveridge & Diamond PC. 2019; ARB 2019). Although global climate change did not become an international concern until the 1980s, efforts to reduce energy consumption began in California in response to the oil crisis in the 1970s, resulting in the incidental reduction of GHG emissions. In order to manage the State's energy needs

and promote energy efficiency, Assembly Bill (AB) 1575 created the California Energy Commission (CEC) in 1975.

State Regulations

California Assembly Bill 1493: Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011 (ARB 2013d). As previously mentioned, the EPA recently rescinded California's waiver for its GHG and zero-emission vehicle mandates; however, all ARB standards are still in effect at the time of this writing (Beveridge & Diamond PC. 2019; ARB 2019).

The standards are to be phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards were estimated to result in an approximately 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards were estimated to result in about a 30 percent reduction.

The second phase of the implementation for the Pavley Bill was incorporated into Amendments to the Low Emission Vehicle (LEV) Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California (ARB 2011c).

California Code of Regulations Title 13: Motor Vehicles

California Code of Regulations, Title 13: Division 3, Chapter 10, Article 1, Section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Thomas Reuters Westlaw 2019). This measure seeks to reduce public exposure to diesel particulate matter and other air contaminants by establishing idling restrictions, emission standards, and other requirements for heavy-duty diesel engines and alternative idle reduction technologies to limit the idling of diesel-fueled commercial motor vehicles. Any person that owns, operates, or causes to operate any diesel-fueled commercial motor vehicle must not allow a vehicle to idle for more than 5 consecutive minutes at any location, or operate a diesel-fueled auxiliary power system for greater than 5 minutes at any location when within 100 feet of a restricted area.

California Code of Regulations, Title 13: Division 3, Chapter 9, Article 4.8, Section 2449: General Requirements for In-Use Off-Road Diesel-Fueled Fleets. This measure regulates oxides of nitrogen (NO_X), diesel particulate matter (DPM), and other criteria pollutant emissions from in-use off-road

diesel-fueled vehicles. This measure also requires each fleet to meet fleet average requirements, or demonstrate that it has met "best available control technology" requirements. Additionally, this measure requires medium and large fleets to have a written idling policy that is made available to operators of the vehicles informing them that idling is limited to 5 consecutive minutes or less.

California Senate Bill 1078: Renewable Electricity Standards

On September 12, 2002, Governor Gray Davis signed Senate Bill (SB) 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a renewable portfolio standard (RPS) target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010, by Resolution 10-23.

California Senate Bill 350: Clean Energy and Pollution Reduction Act

In 2015, the State legislature approved and the Governor signed SB 350 which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum Statewide were removed from SB 350 due to opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce Statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission, the CEC, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

California Code of Regulations Title 24

Part 6 (Energy Efficiency Standards for Residential and Nonresidential Buildings)

California Code of Regulations Title 24 Part 6 (California's Energy Efficiency Standards for Residential and Nonresidential Buildings), was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards went into effect on January 1, 2017 (CEC 2016). The 2019 Building Energy Efficiency Standards went into effect on January 1, 2020.

Part 11 (California Green Building Standards Code)

California Code of Regulations Title 24, Part 11, is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect January 1, 2011. The code is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Standards Code (CALGreen) that became effective January 1, 2017 (CBSC 2016). Local jurisdictions are permitted to adopt more stringent requirements, as State law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance so long as they provide a minimum 50 percent diversion requirement. CALGreen also provides exemptions for areas not served by construction and demolition recycling infrastructure. State Building Code provides the minimum standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

California Public Utilities Code

The California Public Utilities Commission (CPUC) regulates privately owned telecommunication, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. It is the responsibility of the CPUC to (1) assure that California utility customers have safe, reliable utility service at reasonable rates; (2) protect utility customers from fraud; and (3) promote a healthy California economy. The California Public Utilities Code, adopted by the legislature, defines the jurisdiction of the CPUC.

Local Regulations

City of San Ramon General Plan 2035

The City of San Ramon General Plan 2035 contains policies pertaining to energy conservation. Chapter 5, Traffic and Circulation, of the General Plan contains the following applicable policies:

- **Policy 5.6-I-7:** Encourage new development to include a mix of uses and Complete Streets concepts that will allow people to walk and bike between destinations and reduce the amount of automobile vehicle-miles-traveled.
- **Policy 5.6-I-9:** Encourage employers and commercial complexes to emphasize public transit services or private alternatives to the single-occupant vehicle.
- **Policy 5.6-I-14:** Consider strategies such as shared parking, parking management plans (including valet parking), and/or the construction of public parking facilities in the City Center, North Camino Ramon Specific Plan, or other commercial areas to serve projected parking demand, while carefully balancing the need for adequate parking against the desire to minimize traffic growth and create a pedestrian/bicycle friendly environment using Complete Streets design concepts.
- **Policy 5.6-I-17:** Encourage “Park Once” concepts as a vehicle-miles-traveled reduction strategy for mixed-use, commercial, and public facilities through the integration of common design features and shared parking concepts including but not limited to Parking Benefit Districts.
- **Policy 5.6-I-18:** Encourage shared parking facilities and parking reductions for compatible land uses to minimize excessive parking to reduce inefficient use of land, unnecessary pavement and stormwater runoff, and encourage alternative transportation and reductions in vehicle-miles-traveled.

- **Policy 5.6-I-19:** Encourage infill and Transit-Oriented Development (TOD) concepts as a vehicle miles-traveled reduction strategy for existing and proposed development.
- **Policy 5.7-I-5:** Require bicycle parking, storage and other support facilities as part of any new office and retail developments and public facilities.
- **Policy 5.7-I-6:** Continue to promote and implement through the development review process, continuous circulation facilities within Bishop Ranch Business Park, commercial districts, and residential neighborhoods to enhance connectivity and promote pedestrian and bicycle modes of transportation consistent with Complete Streets concepts.

Chapter 8, Open Space and Conservation, of the General Plan contains the following applicable policies:

- **Policy 8.6-I-1:** Require new development projects to implement indoor water conservation and demand management measures.
- **Policy 8.6-I-2:** Require new development projects to implement outdoor water conservation and demand management measures.
- **Policy 8.6-I-3:** New development in areas where recycled water service exists or is planned shall be plumbed with "purple pipe" and other measures necessary to accommodate nonpotable water service.
- **Policy 8.6-I-4:** Require new development to meet the State Model Water Efficient Landscape Ordinance (MWELO).

Chapter 11, Housing, of the General Plan contains the following applicable policies:

- **Policy 11.5-G-4:** Promote energy conserving practices in the location, construction, renovation, and maintenance of San Ramon's housing units.

Chapter 12, Air Quality and Greenhouse Gas, of the General Plan contains the following applicable policies:

- **Policy 12.5-I-2:** Support and encourage projects proposing infill, and mixed-use development that creates walkable neighborhoods and communities and increases access to transit.
- **Policy 12.8-I-1:** Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development projects within the City.
- **Policy 12.8-I-2:** Encourage the use of solar-ready roofs into residential and commercial development. New residential development should include proper solar orientation (south-facing roof area sloped at 20 degrees to 55 degrees from the horizontal), clear access on the south sloped roof (no chimneys, heating vents, plumbing vents, etc.), electrical conduit installed for solar electric system wiring, plumbing installed for solar hot water systems, and space provided for a solar hot water storage tank. Roofs for commercial development should be designed to maximize potential area available for solar panels and provide electrical conduit to support future installation.

City of San Ramon Climate Action Plan

The City of San Ramon adopted its Climate Action Plan (CAP) in August 2011. The CAP meets the requirements for a "qualified" Greenhouse Gas Reduction Strategy, according to the guidance in the BAAQMD Air Quality Guidelines. The San Ramon CAP contains an Energy Conservation and Alternative Energy Strategy, which promote energy efficiency in new buildings and efficiencies. The CAP ensures consistency with AB 32 GHG reduction goals but does not address SB 32 GHG reduction goals. The CAP further identifies policies to achieve the State-recommended GHG target of 15 percent below 2008 levels by the year 2020. The CAP establishes the following strategies pertaining to energy conservation.

- **Strategy LU-3:** Increase transit orientation in new development and redevelopment areas near current and planned transit facilities.
- **Strategy LU-4:** Increase pedestrian orientation in new development and redevelopment areas.
- **Strategy LU-6:** Promote compact development by protecting open space and hillsides and encouraging infill and redevelopment of underutilized parcels in urbanized areas.
- **Strategy T-1:** Provide transit facilities and services that improve transit mode share.
- **Strategy T-2:** Provide pedestrian connections in new and existing development to improve pedestrian mobility and accessibility.
- **Strategy T-3:** Provide a safe and well-connected system of bicycle paths, lanes, and trails to increase bicycle use.
- **Strategy T-4:** Use traffic calming measures to improve traffic flow, pedestrian orientation, and bicycle use.
- **Strategy T-7:** Require projects to provide facilities that make travel by bicycle and transit more convenient.
- **Strategy T-8:** Use parking facility designs and parking management to reduce vehicle trips.
- **Strategy T-9:** Provide vehicle support infrastructure to encourage use of low and zero emission vehicles.
- **Strategy E-1:** Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development projects within the City.
- **Strategy E-2:** Reduce energy use from the transport and treatment of water.

3.5.4 - Methodology

The approach to analysis for energy use is based on the 2019 California Environmental Quality Act (CEQA) Guidelines Appendix F (Energy Conservation). CEQA Guidelines Appendix F is focused on the goal of conserving energy through the wise and efficient use of energy. The anticipated electricity, natural gas, and fuel consumption associated with the proposed project were estimated using assumptions consistent with those used to estimate GHG emissions generated by the proposed Master Plan.

Estimates of energy consumption associated with the project are based, in part, on information provided by the California Emissions Estimator Model (CalEEMod) output included in this Draft EIR as Appendix C. CalEEMod contains energy intensity rates for the various land uses selected; see Section 3.7, Greenhouse Gas Emissions—Approach to Analysis, for detailed information regarding

project-specific inputs used to estimate GHG emissions. Complete energy calculations are included in Appendix F.

3.5.5 - Thresholds of Significance

According to CEQA Guidelines Appendix G, Environmental Checklist, to determine whether impacts related to energy are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Energy Use

Impact ENER-1:	**The proposed Master Plan would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.**

Impact Analysis

A significant impact would occur if the proposed Master Plan would result in the inefficient, wasteful, or unnecessary use of energy.

Construction

During construction, the proposed Master Plan would result in energy consumption through the combustion of fossil fuels in construction vehicles, worker commute vehicles, and construction equipment, and the use of electricity for temporary buildings, lighting, and other sources. It is not anticipated that natural gas would be consumed as part of project construction. Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during site clearing, grading, paving, and building construction. The types of equipment could include gasoline- and diesel-powered construction and transportation equipment, including trucks, bulldozers, frontend loaders, forklifts, and cranes. Based on CalEEMod estimations within the modeling output files used to estimate GHG emissions associated with the proposed Master Plan, construction-related vehicle trips would result in approximately 220.2 million vehicle miles traveled, and consume an estimated 10,587,099 gallons of gasoline and diesel combined during the entire construction duration (Appendix F). Additionally, on-site construction equipment would consume an estimated 880,609 gallons of diesel fuel (Appendix F).

Limitations on idling of vehicles and equipment and requirements that equipment be properly maintained would result in fuel savings. California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, limit idling from both on-road and off-road diesel-powered equipment and are enforced by the ARB. Additionally, given the cost of fuel, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction.

Other equipment could include construction lighting, field services (office trailers), and electrically driven equipment such as pumps and other tools. Singlewide mobile office trailers, which are

commonly used in construction staging areas, generally range in size from 160 square feet to 720 square feet. A typical 720-square-foot office trailer would consume approximately 346,826 kilowatt-hour (kWh) during the approximately 27-year construction period, assuming a consistent buildout (Appendix F). Due to the temporary nature of construction and the financial incentives for developers and contractors to use energy-consuming resources in an efficient manner, the construction phase of the proposed Master Plan would not result in wasteful, inefficient, and unnecessary consumption of energy. Therefore, the construction-related impacts related to electricity and fuel consumption would be less than significant.

Operation

Electricity and Natural Gas

The operational phase of the proposed Master Plan would consume energy as part of building operations and transportation activities. Building operations for the proposed Master Plan would involve energy consumption for multiple purposes including, but not limited to, building heating and cooling, refrigeration, lighting, and electronics. Based on CalEEMod energy use estimations, operations would consume approximately 51.41 million kWh of electricity and an estimated 58.45 million kilo-British Thermal Unit (kBTU) (57.30 million cubic feet) of natural gas on an annual basis prior the incorporation of mitigation (Appendix F).[5] The parameters used to arrive at the CalEEMod-provided energy estimates are described in more detail in the Methodology, while complete CalEEMod output files are contained in Appendix C.

The proposed Master Plan would be designed and constructed in accordance with the City's latest adopted energy efficiency standards, which are based on the State's Title 24 energy efficiency standards. Title 24 standards include a broad set of energy conservation requirements that apply to the structural, mechanical, electrical, and plumbing systems in a building. For example, the Title 24 Lighting Power Density requirements define the maximum wattage of lighting that can be used in a building based on its square footage. Title 24 standards, widely regarded as the most advanced energy efficiency standards, would help reduce the amount of energy required for lighting, water heating, and heating and air conditioning in buildings and promote energy conservation. Furthermore, the proposed Master Plan would be required to comply with applicable policies in the City of San Ramon General Plan 2035 and CAP that promote efficient energy consumption. Additionally, implementation of MM AIR-2g requires the proposed Master Plan to commit to all-electric development for residential components; no natural gas equipment would be used in residential development. This mitigation measure is necessary to reduce air quality emissions and is not required for energy-related impacts. Implementation of this mitigation measure would further reduce the operational natural gas use of the Master Plan. Compliance with these policies would ensure that building energy consumption would not result in the use of energy in a wasteful, inefficient, or unnecessary manner. Therefore, the operational impact related to building electricity and natural gas consumption would be less than significant.

Fuel

Operational energy would also be consumed during vehicle trips associated with the proposed Master Plan. Fuel consumption would be primarily related to vehicle use by residents, visitors, and

[5] Operational energy calculations in Appendix C include all proposed land uses, including residential, non-residential, and parking.

employees associated with the proposed Master Plan. Based on energy use estimations contained within the CalEEMod output files used to estimate the proposed Master Plan's generation of GHG emissions, project-related vehicle trips would result in approximately 22.3 million vehicle miles traveled and consume an estimated 597,961 gallons of gasoline and diesel combined, annually at full buildout (CalEEMod output files and energy-specific calculations are included in Appendix C and Appendix F, respectively). The project applicant currently manages a TDM Plan that includes a set of strategies designed to reduce peak-hour vehicular traffic to and from the Bishop Ranch Business Park, which encompasses the Master Plan area. Several of the strategies aim to reduce vehicle miles traveled and fuel consumption demand, including promoting and supporting carpools and rideshare. Implementation of MM AIR-2e requires the proposed Master Plan to participate in the existing approved TDM Program for the Bishop Ranch Business Park that has been shown to promote trip reductions. MM AIR-2f requires the proposed Master Plan to meet or exceed electric vehicle parking provisions required by California Green Building Standard. These mitigation measures are necessary to reduce air quality emissions and are not required for energy-related impacts; however, implementation of MM AIR-2e and MM AIR-2f would further reduce the proposed Master Plan's consumption of fuel during operations. Additionally, an existing hydrogen fuel station is located adjacent to Norris Canyon Road east of I-680 that provides hydrogen fuel for vehicles. This hydrogen fuel station was included as part of the Bishop Ranch development to promote alternative fuel vehicle purchases.

The Master Plan area is located near the Interstate 680 (I-680) Bollinger Canyon Road interchange. Specifically, the Master Plan area is approximately 0.4 mile east of the Bollinger Canyon Road interchange. As such, it would be in proximity to a regional route of travel. Bus stops along County Connection bus routes 35, 36, 92X, 96X, 97X, and 321 are located throughout the Master Plan area on Bollinger Canyon Road, Bishop Drive Road, Executive Parkway, and Sunset Drive. The existing transportation facilities in the Master Plan area would provide future residents, visitors, and employees associated with the proposed Master Plan with access to public transportation, thus further reducing fuel consumption demand. In addition, the proposed Master Plan includes Mobility Hubs, which would serve public transit, private buses, ride-hailing services, and other forms of motorized transportation, at BR 1A, BR 3A, and BR 2600 (see Section 2, Project Description). For these reasons, operational-related transportation fuel consumption would not result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the operational impact related to vehicle fuel consumption would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Energy Efficiency and Renewable Energy Standards Consistency

Impact ENER-2: The proposed Master Plan would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Impact Analysis

A significant impact would occur if the proposed Master Plan would conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The City of San Ramon General Plan 2035 and CAP contain measures for promoting energy conservation.

Construction

As discussed under Impact ENER-1, the proposed Master Plan would result in energy consumption through the combustion of fossil fuels in construction vehicles, worker commute vehicles, and construction equipment, and the use of electricity for temporary buildings, lighting, and other sources. California Code of Regulations Title 13, Sections 2449(d)(3) and 2485, limit idling from both on-road and off-road diesel-powered equipment and are enforced by the ARB. The proposed Master Plan would comply with these regulations. Furthermore, the proposed Master Plan would repurpose existing amenities and maximize the use of existing infrastructure. Consistent with CAP Strategy E-1, implementation of the proposed Master Plan would increase the use of energy conservation features and renewable sources of energy within the City. Thus, it is anticipated that construction of the proposed Master Plan would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, construction-related energy efficiency and renewable energy standards consistency impacts would be less than significant.

Operation

The proposed Master Plan would be served with electricity provided by MCE (MCE 2020) and PG&E (PG&E 2020). MCE's 2017 Light Green Power Mix option included 61 percent eligible renewable resources, including wind, geothermal, solar, eligible hydroelectric, and biomass and biowaste, 26 percent large hydroelectric, 5 percent natural gas, 1 percent other, and 6 percent unspecified sources of power.[6] MCE's 2017 Deep Green Power Mix option included 100 percent eligible renewable resources, comprised of 50 percent solar and 50 percent wind. MCE's 2017 Local Sol Power Mix option included 100 percent locally produced solar (CEC 2018). Approximately 85 percent of the electricity that PG&E delivered in 2017 was a combination of renewable and GHG-emissions-free resources.[7] The 2017 power mix included 27 percent non-emitting nuclear generation, 18 percent large hydroelectric facilities, 33 percent eligible renewable resources, such as wind, geothermal, biomass, solar, and small hydro, 20 percent natural gas/other, and 2 percent unspecified power (CEC 2018). MCE and PG&E were both ahead of schedule in meeting the California's RPS 2020 mandate of serving their load with at least 33 percent RPS-eligible resources. MCE and PG&E would be required to meet California's RPS standards of 60 percent by 2030 and carbon-free sourced-electricity by 2045. Additionally, implementation of MM AIR-2g requires the proposed Master Plan

[6] "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

[7] Renewable sources included solar, wind, geothermal, biomass, and small hydroelectric sources. GHG-emissions-free sources of energy included nuclear and large hydro. "GHG-emissions-free resources" refers to energy sources other than renewable energy resources that also do not result in GHG emissions, such as non-emitting nuclear and hydroelectric.

to commit to all-electric development for residential components; no natural gas equipment would be used. This mitigation measure is necessary to reduce air quality emissions and are not required for energy related impacts. Implementation of this mitigation measure would further reduce the operational natural gas use of the proposed Master Plan.

Part 11, Chapter 4 and 5, of the State's Title 24 energy efficiency standards establishes mandatory measures for residential and nonresidential buildings, including solar, electric vehicle (EV) charging equipment, bicycle parking, energy efficiency, water efficiency and conservation, and material conservation and resource efficiency. The proposed Master Plan would be required to comply with these mandatory measures. The proposed Master Plan would locate housing next to jobs in order to reduce or eliminate motor vehicle travel for home-to-work trips and provide connectivity through pedestrian and bicycle connections. Compliance with these aforementioned mandatory measures would ensure that the proposed Master Plan would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, operational energy efficiency and renewable energy standards consistency impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

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3.6 - Geology, Soils, and Seismicity

3.6.1 - Introduction

This section describes the existing geology, soils, and seismic setting as well as the potential effects related to geology, soils, and seismicity from implementation of the Master Plan. The Master Plan area consists of three planning areas: BR 2600, BR 1A, and BR 3A. Descriptions and analyses in this section are based, in part, on information contained in the following: Final Geotechnical Investigation, Bishop Ranch City Center Project, Parcel 1 & 1A, performed by MACTEC Engineering and Consulting, Inc.; Geotechnical Investigation for Bishop Ranch—BR 3A, performed by Langan Treadwell Rollo; and the Geotechnical Investigation for 2600 Camino Ramon performed by Langan Treadwell Rollo. All three reports are included in Appendix G.

3.6.2 - Environmental Setting

Geologic Setting

San Ramon Area

The site is located within the San Ramon Valley, a portion of the California Coast Ranges geomorphic province. In general, the geologic structure and topography of the San Ramon Valley are characteristic of the San Francisco Bay Area. The region is generally defined by northwest-trending ridges and valleys that generally parallel the geologic structures, including the major fault systems. San Ramon Valley fill includes Quaternary-aged alluvium up to approximately 300 feet in thickness. The valley is drained by both North and South San Ramon Creeks, which are actively cutting into the alluvial surface soils.

The San Ramon Valley is bordered by the East Bay Hills to the west and the Mount Diablo foothills to the east. The East Bay Hills are part of a block of folded and faulted Upper Cretaceous age (approximately 62 million to 98 million years ago) marine sedimentary rocks of the Great Valley Sequence. The hills were formed from younger rocks, uplifted between the Hayward Fault and Calaveras Fault zones. The San Ramon area is underlain by Tertiary (approximately 2 million to 62 million years ago) marine and non-marine sedimentary rocks. Sandstone bedrock crops out locally on ridge crests and underlies upper hill slopes at shallow depths.

Seismicity

The term ‘seismicity’ describes the effects of seismic waves that radiate from an earthquake as it occurs. While most of the energy released during an earthquake results in the permanent displacement of the ground, as much as 10 percent of the energy may dissipate immediately in the form of seismic waves. To understand the implications of seismic events, a discussion of faulting and seismic hazards is provided below.

Faulting

Faults form in rocks when stresses overcome the internal strength of the rock, resulting in a fracture. Large faults develop in response to large regional stresses operating over a long time, such as those stresses caused by the relative displacement between tectonic plates. According to the elastic

rebound theory, these stresses cause strain to build up in the Earth's crust until enough strain has built up to exceed the strength along a fault and cause a brittle failure. The slip between the two stuck plates or coherent blocks generates an earthquake. Following an earthquake, strain will build once again until the occurrence of another earthquake. The magnitude of slip is related to the maximum allowable strain that can be built up along a particular fault segment. The greatest buildup in strain due to the largest relative motion between tectonic plates or fault blocks over the longest period will generally produce the largest earthquakes. The distribution of these earthquakes is a study of much interest for both hazard prediction and the study of active deformation of the Earth's crust. Deformation is a complex process and strain caused by tectonic forces is not only accommodated through faulting, but also by folding, uplift, and subsidence, which can be gradual or in direct response to earthquakes.

Faults are mapped to determine earthquake hazards, since they occur where earthquakes tend to recur. A historic plane of weakness is more likely to fail under stress and strain than a previously unbroken block of crust. Faults are, therefore, a prime indicator of past seismic activity, and faults with recent activity are presumed to be the best candidates for future earthquakes. However, since slip is not always accommodated by faults that intersect the surface along traces, and since the orientation of stress and strain in the crust can shift, predicting the location of future earthquakes is complicated. Earthquakes sometimes occur in areas with previously undetected faults or along faults previously thought inactive.

Local Faulting

There are several active faults in the immediate and surrounding area that could affect the Master Plan area. The major active fault in the vicinity is the Calaveras Fault, which lies parallel to and west of Interstate 680 (I-680). The California Legislature has established an Alquist-Priolo Earthquake Fault Zone along the Calaveras Fault, requiring detailed studies of rupture hazards prior to construction. The Master Plan area is not located within the Calaveras Fault Zone. The seismic activity, along with the approximate distance and direction of all known mapped active faults with the potential to affect the Master Plan Area, is summarized in Table 3.6-1. Exhibit 3.6-1 depicts the location of the faults.

Table 3.6-1: Regional Faults and Seismicity

Fault/Fault Zone	Distance from Master Plan Area (miles)	Direction from Master Plan Area	Maximum Moment Magnitude (M_w)
Calaveras	0.4 – 0.9	West	7.03
Mount Diablo Thrust	4.6	Northeast	6.70
Hayward	15.0	West	7.00
Hayward-Rodgers Creek	15.0	West	7.33
Green Valley Connected	15.0	North	6.80
Greenville Connected	16.0	East	7.00
Great Valley 5, Pittsburg Kirby Hills	30.0	Northeast	6.70
Great Valley 7	38.0	East	6.9

Fault/Fault Zone	Distance from Master Plan Area (miles)	Direction from Master Plan Area	Maximum Moment Magnitude (M_w)
North San Andreas-Peninsula	44.0	West	7.9
North San Andreas—1906 Event	44.0	West	8.05
Monte Vista-Shannon	45.0	Southwest	6.50
Source: Langdon Treadwell Rollo 2016.			

Exhibit 3.6-1 also shows the earthquake epicenters for events with magnitude greater than 5.0 from January 1800 through January 1996. In 1868, an earthquake with an estimated M_w of 7.0 occurred on the southern segment (between San Leandro and Fremont) of the Hayward Fault. In 1861, an earthquake of unknown magnitude (probably a M_w of about 6.5) was reported on the Calaveras Fault. The most recent significant earthquake on the Calaveras Fault was the 1984 Morgan Hill earthquake (M_W = 6.2).

Seismic Hazards

Seismic hazards pose a substantial danger to property and human safety and are present because of the risk of naturally occurring geologic events and processes impacting human development. Therefore, the hazard is as influenced by the conditions of human development as by the frequency and distribution of major geologic events. Seismic hazards present in California include ground rupture along faults, strong seismic shaking, liquefaction, ground failure, landsliding, and slope failure.

Fault Rupture

Fault rupture is a seismic hazard that affects structures sited above an active fault. The hazard from fault rupture is the movement of the ground surface along a fault during an earthquake. Typically, this movement takes place during the short duration of an earthquake but can also occur slowly over many years in a process known as 'creep.' Most structures and underground utilities cannot accommodate the surface displacements of several inches to several feet commonly associated with fault rupture or creep.

Ground Shaking

The severity of ground shaking depends on several variables such as earthquake magnitude, epicenter distance, local geology, thickness, and seismic wave-propagation properties of unconsolidated materials, groundwater conditions, and topographic setting. Ground shaking hazards are most pronounced in areas near faults or with unconsolidated alluvium.

The most common type of damage from ground shaking is structural damage to buildings, which can range from cosmetic stucco cracks to total collapse. The overall level of structural damage from a nearby large earthquake would likely be moderate to heavy, depending on the characteristics of the earthquake, the type of ground, and the condition of the building. Besides damage to buildings, strong ground shaking can cause severe damage from falling objects or broken utility lines. Fire and explosions are also hazards associated with strong ground shaking.

While Richter magnitude provides a useful measure of comparison between earthquakes, the moment magnitude (M_W) is more widely used for scientific comparison, since it accounts for the actual slip that generated the earthquake. Actual damage is due to the propagation of seismic or ground waves as a result of initial failure, and the intensity of shaking is related as much to earthquake magnitude as to the condition of underlying materials. Loose materials tend to amplify ground waves, while hard rock can quickly attenuate them, causing little damage to overlying structures.

Ground Failure

Ground failure includes liquefaction and the liquefaction-induced phenomena of lateral spreading, and lurching.

Liquefaction is a process by which sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high groundwater levels. The process of liquefaction involves seismic waves passing through saturated granular layers, distorting the granular structure, and causing the particles to collapse. This causes the granular layer to behave temporarily as a viscous liquid rather than a solid, resulting in liquefaction.

Liquefaction can cause the soil beneath a structure to lose strength, which may result in the loss of foundation-bearing capacity. This loss of strength commonly causes the structure to settle or tip. Loss of bearing strength can also cause light buildings with basements, buried tanks, and foundation piles to rise buoyantly through the liquefied soil.

Lateral spreading is lateral ground movement, with some vertical component, as a result of liquefaction. In effect, the soil rides on top of the liquefied layer. Lateral spreading can occur on relatively flat sites with slopes less than 2 percent, under certain circumstances, and can cause ground cracking and settlement.

Lurching is the movement of the ground surface toward an open face when the soil liquefies. An open face could be a graded slope, stream bank, canal face, gully, or other similar feature.

Landslides and Slope Failure

Landslides and other forms of slope failure form in response to the long-term geologic cycle of uplift, mass wasting, and disturbance of slopes. Mass wasting refers to a variety of erosional processes from gradual downhill soil creep to mudslides, debris flows, landslides and rock fall—processes that are commonly triggered by intense precipitation, which varies according to climactic shifts. Often, various forms of mass wasting are grouped together as landslides, which are generally used to describe the downhill movement of rock and soil.

Geologists classify landslides into several different types that reflect differences in the type of material and type of movement. The four most common types of landslides are translational, rotational, earth flow, and rock fall. Debris flows are another common type of landslide similar to

earth flows, except that the soil and rock particles are coarser. Mudslide is a term that appears in non-technical literature to describe a variety of shallow, rapidly moving earth flows.

Subsurface Profile

According to the California Department of Conservation, Geologic Map of California, the materials beneath the Master Plan area are classified as Quaternary unconsolidated and semi-consolidated alluvium, lake, playa, and terrace deposits (CDC 2015). The Master Plan area is bounded on to the east and west by mostly loosely consolidated Pleistocene and/or Pliocene sandstone, shale and gravel deposits.

Soils

Soils underlying the Master Plan area consist primarily of Clear Lake clay and Botella clay loam. These soils typically consist of clays derived from metamorphic and sedimentary rock and are often found in areas between sea level and 1,100 feet above mean sea level. Both Botella clay loam and Clear Lake clay soils are identified as prime farmland if irrigated. Additional soils found on the Master Plan area include artificial fills, and Pescadero Clay Loam. Exhibit 3.3-2 in Section 3.3, Biological Resources, shows the soil mapping for the Master Plan area. Table 3.6-2 summarizes the soils by parcel.

Table 3.6-2: Soil Type by Parcel

Bishop Ranch No.	Soil Type	Total Acreage (approximate)
2600, 1A, 3A	Clear Lake Clay	71.76
2600	Botella Clay Loam	37.06
1A, 3A	Pescadero Clay Loam	4.76
1A, 3A	Conejo Clay Loam	5.38
Source: United States Department of Agriculture, Natural Resources Conservation Service. 2019.		

A summary of soil properties for the on-site soils is provided in Table 3.6-3. As shown in the table, soils on-site have low or moderate erosion potentials and moderate to very slow infiltration rates. Soils have a relatively high clay content indicating a high shrink-swell potential and, therefore, are considered expansive soils.

Table 3.6-3: Soil Properties Summary

Soil	Soil Surface Texture	Infiltration Rate	K-Factor	pH	Percent of Clay
Botella Clay Loam	Clay Loam	Moderate	0.24	6.7	32.5
Clear Lake Clay	Clay	Very Slow	0.20	7.6	48.7
Conejo Clay Loam	Clay Loam	Slow	0.20	6.7	31.0
Pescadero Clay Loam	Clay Loam	Very Slow	0.28	8.4	42.6

Soil	Soil Surface Texture	Infiltration Rate	K-Factor	pH	Percent of Clay

Notes:
K-Factor = Measurement of soil erodibility: values of less than 0.25 indicate low erosion potential; values of 0.25–0.40 indicate moderate erosion potential; values above 0.40 indicate high erosion potential.
Infiltration rate is an indicator of the runoff rate of a soil when not protected by vegetation, thoroughly wet, and receives precipitation from storms of long duration. The slower the infiltration rate, the higher the runoff rate.
Source: United States Department of Agriculture, Natural Resources Conservation Service. 2019. Web Soil Survey. Website: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed October 1, 2019.

Surface Water and Groundwater

Two significant water features are located with BR 2600 and represent the nearest surface water to the Master Plan area. Combined, Annabelle Lake and Cecilia Lake on the Master Plan area comprise approximately 13 acres. Based on borings conducted at the Master Plan area as part of three separate geotechnical reports, groundwater was encountered on the Master Plan area at depths as shallow as 7 feet below ground surface, and as deep as 29 feet below ground surface. Groundwater levels are expected to fluctuate seasonally.

3.6.3 - Regulatory Framework

Federal

National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) was established by the United States Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law 95–124. In establishing the NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic goals remain unchanged:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.

Several key federal agencies contribute to earthquake mitigation efforts. There are four primary NEHRP agencies:

- National Institute of Standards and Technology of the Department of Commerce
- National Science Foundation
- United States Geological Survey (USGS) of the Department of the Interior
- Federal Emergency Management Agency (FEMA) of the Department of Homeland Security

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide State, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program, authorized by Section 402(p) of the federal Clean Water Act, controls water pollution by regulating point sources, such as construction sites and industrial operations that discharge pollutants into waters of the United States. A Storm Water Pollution Prevention Plan (SWPPP) is required to control discharges from a project site, including soil erosion, to protect waterways. A SWPPP describes the measures or practices to control discharges during both the construction and operational phases of the project. A SWPPP identifies project design features and structural and nonstructural Best Management Practices (BMPs) that will be used to control, prevent, remove, or reduce stormwater pollution from the site, including sediment from erosion.

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code [PRC] §§ 2621 to 2630) was passed in 1972 to provide a Statewide mechanism for reducing the hazard of surface fault rupture to structures used for human occupancy. The main purpose of the Act is to prevent the siting of buildings used for human occupancy across the traces of active faults. It should be noted that the Act addresses the potential hazard of surface fault rupture and is not directed toward other earthquake hazards, such as seismically-induced ground shaking or landslides.

The law requires the State Geologist to identify regulatory zones (known as Earthquake Fault Zones or Alquist-Priolo Zones) around the surface traces of active faults, and to depict these zones on topographic base maps, typically at a scale of 1 inch to 2,000 feet. Earthquake Fault Zones vary in width, although they are often 0.75 mile wide. Once published, the maps are distributed to the affected cities, counties, and State agencies for their use in planning and controlling new or renewed construction. With the exception of single-family wood-frame and steel-frame dwellings that are not part of a larger development (i.e. four units or more), local agencies are required to regulate development within the mapped zones. In general, construction within 50 feet of an active fault zone is prohibited.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (PRC §§ 2690–2699.6), which was passed in 1990, addresses earthquake hazards other than surface fault rupture. These hazards include strong ground shaking, earthquake-induced landslides, liquefaction, or other ground failures. Much like the Alquist-Priolo Earthquake Fault Zoning Act discussed above, these seismic hazard zones are mapped by the State Geologist to assist local government in the land use planning process. The Act states, “It is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety.” The Act also

states, "Cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard."

California Building Code

The State of California provides minimum standards for building design through the California Building Standards Code (California Code of Regulations [CCR], Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The California Building Standards Code (CBC) applies to building design and construction in the State and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with more detailed and/or more stringent regulations.

The State earthquake protection law (California Health and Safety Code § 19100 *et seq*.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, and Appendix Chapter A33 regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

The CBC is updated every 3 years, and the current 2019 CBC took effect January 1, 2020. The 2016 CBC has been adopted by the City of San Ramon.

Local Regulations

City of San Ramon General Plan 2035

The City of San Ramon General Plan 2035 sets forth the following guiding and implementing policies that are relevant to geology, soils, and seismicity:

- **Implementing Policy 9.2-I-1:** Review proposed development sites during the planning process to identify and mitigate any potential geologic or seismic hazards.
- **Implementing Policy 9.2-I-2:** Require the preparation of a fault investigation study to identify appropriate setbacks for any proposed structure intended for human occupancy within 50 feet of an active fault trace.
- **Implementing Policy 9.2-I-3:** Where appropriate, require an independent registered engineering geologist or geotechnical engineer to review geotechnical reports submitted by applicants on sites in seismically hazardous areas.
- **Implementing Policy 9.2-I-4:** Require comprehensive geologic and engineering studies of critical structures regardless of location.
- **Implementing Policy 9.2-I-5:** Require geotechnical field review during the construction phase of any new development as determined by the City Engineer.
- **Implementing Policy 9.2-I-6:** Require preparation of a soils report as part of the development review and/or building permit process.

- **Implementing Policy 9.2-I-7:** Limit cut-and-fill slopes to 3:1 (33 percent slope) except where an engineering geologist or geotechnical engineer can establish to the satisfaction of the City Engineer that a steeper slope would not pose undue risk to people and property.
- **Implementing Policy 9.2-I-8:** Blend cut-and-fill slopes with existing contours to avoid the appearance of artificial slopes.
- **Implementing Policy 9.2-I-9:** Provide information and establish incentives for property owners to rehabilitate existing buildings using construction techniques to protect against seismic hazards.
- **Implementing Policy 9.2-I-10:** Control erosion of graded areas with revegetation or other acceptable methods.
- **Implementing Policy 9.2-I-11:** Require financial protection for public agencies and individuals as a condition of development approval where geologic conditions indicate a potential for high maintenance costs for areas of public benefit.
- **Implementing Policy 9.2-I-12:** Encourage continued investigation by State agencies of geologic conditions within the City's Planning Area to promote public awareness of potential geologic and seismic hazards.
- **Implementing Policy 9.2-I-13:** Review and update, as appropriate, City Code requirements for excavation, grading and filling to ensure that they conform to currently accepted standards.

City of San Ramon Code

Building and Construction

The San Ramon City Code Division C7 establishes requirements related to grading and erosion control. The division sets forth rules and regulations to control excavation, grading, and earthwork construction, including fills and embankments, and establishes administrative requirements for issuance of permits and approval of plans and inspection of grading construction in accordance with the requirements for grading and excavation. All projects within the city limits involving earthwork activities must obtain a grading permit and adhere to the requirements stipulated in the City Code.

Grading, Soils, and Erosion Control Ordinances

Chapter VII of the Engineering Design, Grading, and Procedures Manual, published by the City of San Ramon in April of 2010 sets forth guiding policies and regulations pertaining to grading, soil erosion control, and natural resources management. The purpose of the manual is to establish guidelines and standards for the design, preparation, submittal, and approval of plans for both public and private improvements (excluding buildings and structures) within the City of San Ramon. The manual is designed to assist all persons involved in the land development process and to help ensure the highest quality infrastructure for the community by outlining design standards and requirements.

It is the intent of the Division to safeguard life, limb, property, and the public welfare by regulating grading on private property in the incorporated areas of the City. (Ord. No. 409, §§ 1, 2, 2008).

3.6.4 - Methodology

FirstCarbon Solutions (FCS) evaluated potential impacts on geology, soils, and seismicity through review of the following geotechnical studies:

MACTEC Engineering and Consulting, Inc.
Final Geotechnical Investigation
Bishop Ranch City Center Project
Parcel 1 & 1A
San Ramon, California
October 9, 2008

Langan Treadwell Rollo
Geotechnical Investigation for 2600 Camino Ramon
San Ramon, California
June 12, 2014

Langan Treadwell Rollo
Geotechnical Investigation
Bishop Ranch—BR3A
San Ramon, California
July 28, 2016

The above studies were conducted in accordance with American Society for Testing and Materials (ASTM) standard practices and included laboratory testing of soils obtained from the Master Plan area and neighboring properties considered to be representative of the Master Plan area. Laboratory tests performed are listed below, and results are included in Appendix D.

- Unconfined Compression Strength (ASTM D2216)
- Particle Size Analysis (ASTM D422)
- Atterberg Limits (ASTM D4318)
- Expansion Index (UBC 29-2)
- Consolidation/Swell Test (D2435, and D4546)
- Direct Shear (modified ASTM D3080)
- Modified Proctor Compaction (ASTM D1557)
- R-Value—Caltrans Method 301 (ASTM D2844)
- Soil Corrosivity, Redox, pH, Conductivity, Sulfide, Chloride, and Sulfate (ASTM D1498, D4972, D1125Mod, G57m D4658Mod, and D4327)
- Natural Unit Weight and Moisture Content
- Unconfined Compression Test (ASTM D2166)

3.6.5 - Thresholds of Significance

According to the CEQA Guidelines Appendix G Environmental Checklist, to determine whether impacts to geology and soils are significant environmental effects, the following questions are analyzed and evaluated.

Would the proposed Master Plan:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:
   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
   ii. Strong seismic ground shaking?
   iii. Seismic-related ground failure, including liquefaction?
   iv. Landslides?

b) Result in substantial soil erosion or the loss of topsoil?

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed Master Plan, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? (Refer to Section 7, Effects Found not to be Significant)

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

3.6.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed Master Plan and provides mitigation measures where necessary.

Earthquakes

Impact GEO-1: The proposed Master Plan would not be exposed to seismic hazards.

Impact Analysis

This impact discussion addressed seismic hazards including fault rupture, strong ground shaking, liquefaction, and landsliding.

Fault Rupture

As shown in Exhibit 3.6-1, the Calaveras Fault runs through the San Ramon city limits paralleling I-680, approximately 0.4 – 0.9 mile to the west of the Master Plan area. There is a designated Alquist-Priolo Zone of the Calaveras Fault on the west side of I-680. The Master Plan area is located on the east side of I-680 and is not within a designated Alquist-Priolo Zone. Furthermore, none of the Geotechnical Investigations found indications of faulting within the Master Plan area. This condition precludes the possibility of fault rupture. No impact would occur.

Strong Ground Shaking

San Ramon is located within a seismically active region of California. The Calaveras Fault could be susceptible to an earthquake of up to M_w 7.03, which would be consistent with strong ground shaking. Other regional faults such as the Hayward and San Andreas Faults could also expose the Master Plan area to strong ground shaking.

The project applicant commissioned separate Geotechnical Investigations for each of the three areas that constitute the Master Plan area (BR 1A, BR 3A, and BR 2600). The Geotechnical Investigations provided recommendations for soil engineering and construction practices that would abate potential hazards from strong ground shaking. Examples include over-excavation of native soils and replacement with imported fill, lime treatment of native soils, and use of mat foundations and spread footings. These are standard construction practices and the use of the current building code would abate strong ground shaking hazards and would reduce impacts to a level of less than significant.

Liquefaction

The project specific Geotechnical Investigations found that the Master Plan area may be susceptible to liquefaction during a seismic event because of the high groundwater levels and presence of loose to medium dense sand below the groundwater table.

The project applicant commissioned separate Geotechnical Investigations for each of the three areas that constitute the Master Plan area (BR 1A, BR 3A, and BR 2600). The Geotechnical Investigations provided recommendations for soil engineering and construction practices that would abate potential hazards from liquefaction. Examples include dewatering subgrade areas in the event that groundwater is encountered, over-excavation of native soils and replacement with imported fill, and use of mat foundations and spread footings. These standard construction practices and the use of the current building code would abate liquefaction hazards and would reduce impacts to a level of less than significant.

Landsliding

The Master Plan would not be susceptible to landslide hazards during a seismic event due to the flat relief of the area and the distance from hillsides. No impact would occur.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Soil Erosion or Topsoil Loss

Impact GEO-2: The proposed Master Plan may result in substantial soil erosion or the loss of topsoil.

Impact Analysis

Construction activities associated with buildout of the Master Plan would involve vegetation removal, grading, and excavation activities that could expose barren soils to sources of wind or water, resulting in erosion and sedimentation on and off the Master Plan area. NPDES stormwater permitting programs regulate stormwater quality from construction sites, which includes erosion and sedimentation. Under the NPDES permitting program, the preparation and implementation of SWPPPs are required for construction activities more than 1 acre in size. The SWPPP must identify potential sources of erosion or sedimentation that may be reasonably expected to affect the quality of stormwater discharges as well as identify and implement BMPs that ensure the reduction of these pollutants during stormwater discharges. Typical BMPs intended to control erosion include sandbags, detention basins, silt fencing, landscaping, hydroseeding, storm drain inlet protection, street sweeping, and monitoring of water bodies.

Prior to construction grading, the project applicant must file a notice to comply with the General NPDES Permit issued to the Regional Water Quality Control Board (RWQCB) and prepare the SWPPP, which addresses the measures that would be included in the proposed Master Plan to minimize and control construction and post-construction runoff to the "maximum extent practicable." In addition, the proposed Master Plan would be required to comply with the City requirements pertaining to grading and excavation.

These requirements have been incorporated into the proposed Master Plan as Mitigation Measure (MM) HYD-1a, as detailed in Section 3.9, Hydrology and Water Quality. The implementation of the above requirements (including the preparation and implementation of a SWPPP and compliance with City Code requirements) would reduce potential construction-related erosion impacts to a level of less than significant.

The proposed Master Plan would result in the coverage of the Master Plan area with mostly impervious surfaces and landscaping, which would eliminate the potential for erosion to occur once the proposed Master Plan has been completed. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Implement MM HYD-1a.

Level of Significance After Mitigation

Less than significant impact.

Unstable Geologic Location

Impact GEO-3: The proposed Master Plan would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed Master Plan, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

Impact Analysis

The Geotechnical Investigations found that the Master Plan area may be susceptible to liquefaction during a seismic event because of the high groundwater levels and presence of loose to medium dense sand below the groundwater table.

The project applicant commissioned separate Geotechnical Investigations for each of the three areas that constitute the Master Plan area (BR 1A, BR 3A, and BR 2600). The Geotechnical Investigations provided recommendations for soil engineering and construction practices that would abate potential hazards from liquefaction. Examples include dewatering subgrade areas in the event that groundwater is encountered, overexcavation of native soils and replacement with imported fill, lime treatment of native soils, and use of mat foundations and spread footings. These standard construction practices and the use of the current building code would abate liquefaction hazards and would reduce impacts to a level of less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Expansive Soils

Impact GEO-4: The proposed Master Plan would not be susceptible to expansive soil hazards.

Impact Analysis

The Geotechnical Investigations indicate that the near surface soils within the Master Plan area are moderately to highly expansive. As such, Master Plan structures would be susceptible to expansive soil hazards unless abated.

The applicant commissioned separate Geotechnical Investigations for each of the three areas that constitute the master Plan area (BR 1A, BR 3A, and BR 2600). The Geotechnical Investigations provided recommendations for soil engineering and construction practices that would abate potential hazards from expansive soils. Examples include over-excavation of native soils and replacement with imported fill or lime treatment of native soils. These are standard construction practices that would abate expansive soil hazards and would reduce impacts to a level of less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Paleontological Resources

Impact GEO-5: The proposed Master Plan would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Impact Analysis

No recorded paleontological resources are known to be present within the Master Plan area, nor were any encountered during the field survey. However, the Master Plan area was a lowland of riparian woodlands and grassy plains during the Pleistocene Epoch and could contain significant vertebrate fossils. Vertebrate fossils from these sediments may include, but are not limited to, mammoth, mastodon, tapir, horse, camel, pronghorn sheep, elk, rodents, birds, and reptiles. As such, subsurface construction activities associated with deep trenching or excavation could potentially damage or destroy previously undiscovered paleontological resources. This is a potentially significant impact. MM GEO-5 is proposed to reduce this potentially significant impact to a level of less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM GEO-5 Prior to initiation of deep excavation procedures at depths greater than 10 feet, a qualified Paleontological Monitor shall be retained to conduct an on-site monitoring program to ensure protection of previously unknown paleontological specimens. In the event a fossil is discovered during construction of the proposed Master Plan area when the Paleontological Monitor is not present, excavation within 100 feet of the find shall be temporarily halted until the discovery is examined by a qualified Paleontologist, in accordance with Society of Vertebrate Paleontology standards. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. The Paleontologist shall notify the City of San Ramon and the project applicant of the procedures that must be followed before construction is allowed to resume at the location of the find. If the find is determined to be significant and the City determines that avoidance is not feasible, the Paleontologist shall design and carry out a data recovery plan consistent with the Society of Vertebrate Paleontology standards. The plan shall be submitted to the City for review and approval.

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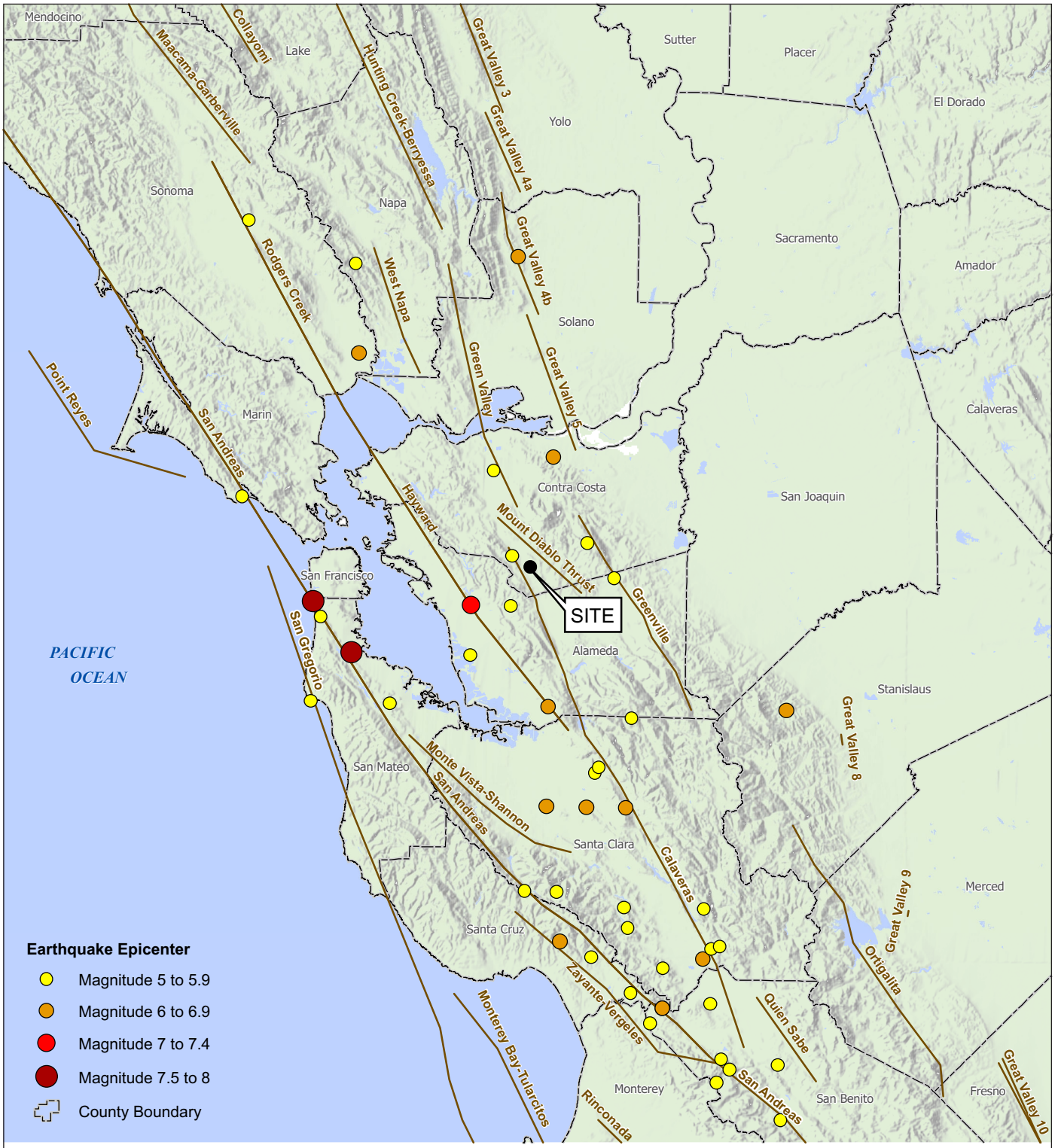

Notes:

1. The earthquake source data is provided by the California Department of Conservation's (DOC) California Geological Survey (CGS).
2. Basemap hillshade and County boundaries provided by USGS and California Department of Transportation.
3. Map displayed in California State Coordinate System, California (Teale) Albers, North American Datum of 1983 (NAD83), Meters.

Source: Langan Treadwell Rollo, January 7, 2014.

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Exhibit 3.6-1
Fault Map

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3.7 - Greenhouse Gas Emissions

3.7.1 - Introduction

This section describes the existing greenhouse gas (GHG) emissions and energy setting as well as the relevant regulatory framework. This section also evaluates the potential impacts related to GHG emissions that could result from implementation of the proposed Master Plan. Information in this section is based, in part, on GHG emissions and energy modeling outputs included in Appendix C.

3.7.2 - Environmental Setting

Greenhouse Effect, Global Warming, and Climate Change

Most of the energy that affects the Earth's climate comes from the sun. Some solar radiation is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected by the atmosphere back toward space. As the Earth absorbs high-frequency solar radiation, its surface gains heat and then re-radiates lower frequency infrared radiation back into the atmosphere.[1]

Most solar radiation passes through gases in the atmosphere classified as GHGs; however, infrared radiation is selectively absorbed by GHGs. GHGs in the atmosphere play a critical role in maintaining the balance between the Earth's absorbed and radiated energy, the Earth's radiation budget,[2] by trapping some of the infrared radiation emitted from the Earth's surface that otherwise would have escaped to space (Figure 3.7-1). Radiative forcing is the difference between the incoming energy and outgoing energy.[3] Specifically, GHGs affect the radiative forcing of the atmosphere,[4] which in turn affects the Earth's average surface temperature. This phenomenon, the *greenhouse effect*, keeps the Earth's atmosphere near the surface warmer than it would be otherwise and allows successful habitation by humans and other forms of life.

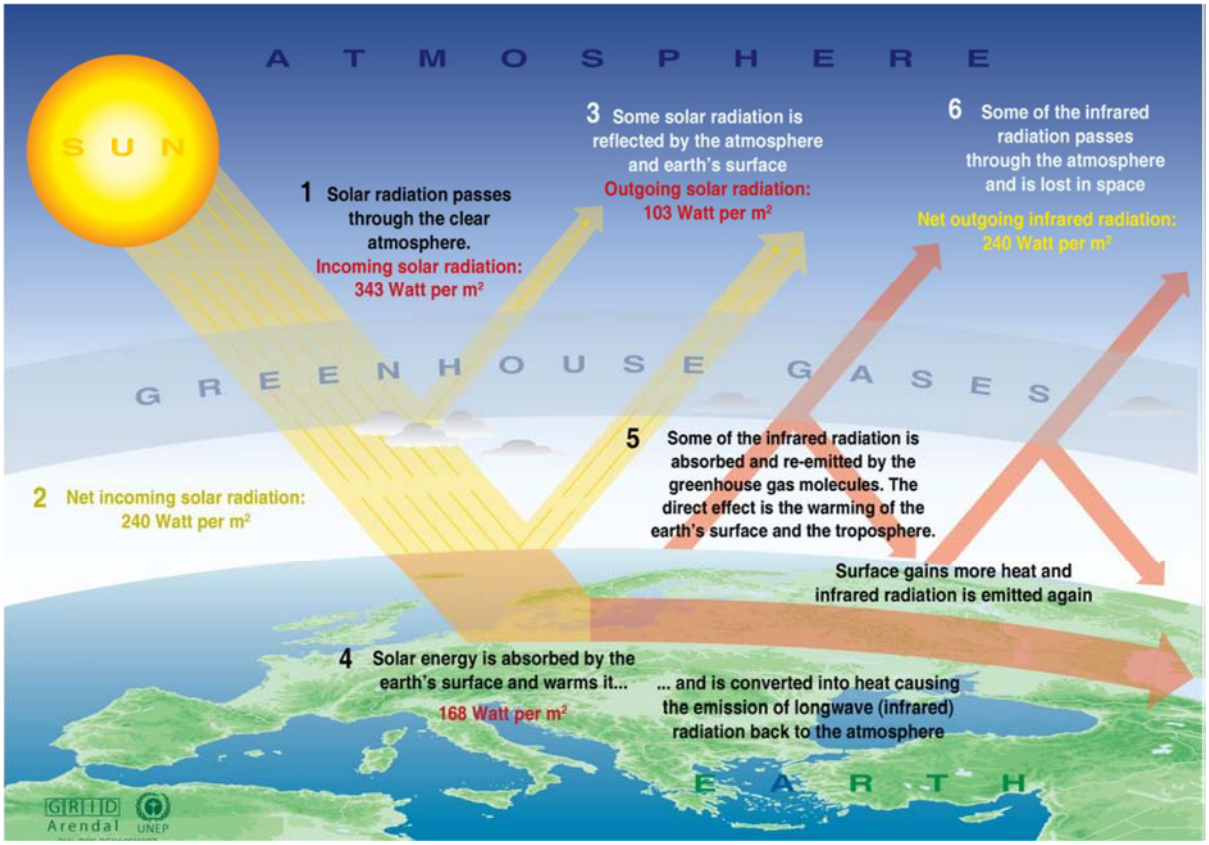
Combustion of fossil fuels and deforestation release carbon into the atmosphere that historically has been stored underground in sediments or in surface vegetation, thus exchanging carbon from the geosphere and biosphere to the atmosphere in the carbon cycle. With the accelerated increase in fossil fuel combustion and deforestation since the Industrial Revolution of the 19th Century, concentrations of GHGs in the atmosphere have increased exponentially. Such emissions of GHGs in excess of natural ambient concentrations contribute to the enhancement of the natural greenhouse effect. This enhanced greenhouse effect has contributed to *global warming*, an increased rate of warming of the Earth's average surface temperature.[5] Specifically, increases in GHGs lead to increased absorption of infrared radiation by the Earth's atmosphere and warm the lower atmosphere further, thereby increasing temperatures and evaporation rates near the surface.

Variations in natural phenomena such as volcanoes and solar activity produced most of the global temperature increase that occurred during preindustrial times; more recently, however, increasing

[1] Frequencies at which bodies emit radiation are proportional to temperature. The Earth has a much lower temperature than the sun and emits radiation at a lower frequency (longer wavelength) than the high frequency (short-wavelength) solar radiation emitted by the sun.
[2] This includes all gains of incoming energy and all losses of outgoing energy; the planet is always striving to be in equilibrium.
[3] Positive forcing tends to warm the surface while negative forcing tends to cool it.
[4] This is the change in net irradiance at the tropopause after allowing stratospheric temperatures to readjust to radiative equilibrium, but with surface and tropospheric temperatures and state held fixed at the unperturbed values.
[5] This condition results when the Earth has to work harder to maintain its radiation budget, because when more GHGs are present in the atmosphere, the Earth must force emissions of additional infrared radiation out into the atmosphere.

atmospheric GHG concentrations resulting from human activity have been responsible for most of the observed global temperature increase.[6]

Figure 3.7-1: The Greenhouse Effect



Source: UNEP/GRID-Arendal, 2005

Global warming affects global atmospheric circulation and temperatures; oceanic circulation and temperatures; wind and weather patterns; average sea level; ocean acidification; chemical reaction rates; precipitation rates, timing, and form; snowmelt timing and runoff flow; water supply; wildfire risks; and other phenomena, in a manner commonly referred to as *climate change*. Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

Temperature Predictions by the Intergovernmental Panel on Climate Change

The United Nations Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific,

[6] These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1°C (degrees Celsius) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC 2007). The report also concluded that "[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th Century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations." Warming of the climate system is now considered to be unequivocal, (IPCC 2007) with the global surface temperature increasing approximately 1.33°F (degrees Fahrenheit) over the last 100 years. The IPCC predicts increases in global average temperature of between 2°F and 11°F over the next 100 years, depending on the scenario (IPCC 2007).

Greenhouse Gases and Global Emission Sources

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat. Prominent GHGs that naturally occur in the earth's atmosphere are water vapor, carbon dioxide (CO_2), methane (CH_4), oxides of nitrogen (NO_X), and ozone. Anthropogenic (human-caused) GHG emissions include releases of these GHGs plus release of human-made gases with high global warming potential (GWP) (ozone-depleting substances such as chlorofluorocarbons (CFCs) and aerosols, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The GHGs listed by the IPCC (CO_2), methane, nitrous oxide, HFCs, PFCs, and sulfur hexafluoride) are discussed below, in order of abundance in the atmosphere. Water vapor, despite being the most abundant GHG, is not discussed below because natural concentrations and fluctuations far outweigh anthropogenic influences, making it impossible to predict. Ozone is not included because it does not directly affect radiative forcing. Ozone-depleting substances, which include chlorofluorocarbons, halons, carbon tetrachloride, methyl chloroform, and hydrochlorofluorocarbons, are not included because they have been primarily replaced by HFCs and PFCs.

The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, carbon dioxide (CO_2).

Individual GHG compounds have varying potential for contributing to global warming. For example, methane is 25 times as potent as CO_2, while sulfur hexafluoride is 22,200 times more potent than CO_2 on a molecule-per-molecule basis. To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas. The most commonly accepted method for comparing GHG emissions is the GWP methodology defined in the IPCC reference documents (IPCC 2014). The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (CO_2e), which compares the gas in question to that of the same mass of CO_2 (by definition, CO_2 has a GWP of 1). The global warming potential of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming. Thus, to describe how much global warming a given type and amount of GHG may cause, the CO_2e is used. A CO_2e is the mass emissions of an individual GHG multiplied by its global warming potential. As such, a high GWP represents high absorption of infrared radiation and a long atmospheric lifetime

compared to CO_2. One must also select a time horizon to convert GHG emissions to equivalent CO_2 emissions to account for chemical reactivity and lifetime differences among various GHG species. The standard time horizon for climate change analysis is 100 years. Generally, GHG emissions are quantified in terms of metric tons (MT) of CO_2e (MT CO_2e) emitted per year.

The atmospheric residence time of a gas is equal to the total atmospheric abundance of the gas divided by its rate of removal (Seinfeld, J.H. and S.N. Pandis 2006). The atmospheric residence time of a gas is, in effect, a half-life measurement of the length of time a gas is expected to persist in the atmosphere when accounting for removal mechanisms such as chemical transformation and deposition.

Table 3.7-1 lists the GWP of each GHG and its lifetime. Units commonly used to describe the concentration of GHGs in the atmosphere are parts per million (ppm), parts per billion (ppb), and parts per trillion (ppt), referring to the number of molecules of the GHG in a sampling of 1 million, 1 billion, or 1 trillion molecules of air. Collectively, HFCs, PFCs, and sulfur hexafluoride are referred to as high-GWP gases. CO_2 is by far the largest component of worldwide CO_2e emissions, followed by methane, nitrous oxide, and high-GWP gases, in order of decreasing contribution to CO_2e.

The primary human processes that release GHGs include the burning of fossil fuels for transportation, heating, and electricity generation; agricultural practices that release methane, such as livestock grazing and crop residue decomposition; and industrial processes that release smaller amounts of high-GWP gases. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing the earth's capacity to remove CO_2 from the air and altering the earth's albedo or surface reflectance, thus allowing more solar radiation to be absorbed. Specifically, CO_2 emissions associated with fossil fuel combustion are the primary contributors to human-induced climate change. CO_2, methane, and nitrous oxide emissions associated with human activities are the next largest contributors to climate change.

GHGs of California concern are defined by California Assembly Bill (AB) 32 (see the Regulatory Environment subsection below for a description) and include CO_2, CH_4, NO_X, HFCs, PFCs, and SF_6. A seventh GHG, nitrogen trifluoride (NF_3), was also added under the California Health and Safety Code Section 38505(g)(7) as a GHG of concern. These GHGs are described in terms of their physical description and properties, global warming potential, atmospheric residence lifetime, sources, and atmospheric concentration in 2005 in Table 3.7-1.

Table 3.7-1: Description of Greenhouse Gases of California Concern

Greenhouse Gas	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
Carbon dioxide (CO_2)	Odorless, colorless, natural gas.	1	50-200	burning coal, oil, natural gas, and wood; decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; oceanic evaporation; volcanic outgassing;

Greenhouse Gas	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
				cement production; land use changes
Methane (CH_4)	Flammable gas and is the main component of natural gas.	25	12	geological deposits (natural gas fields) extraction; landfills; fermentation of manure; and decay of organic matter
Nitrous oxide (N_2O)	Nitrous oxide (laughing gas) is a colorless GHG.	298	114	microbial processes in soil and water; fuel combustion; industrial processes
Chloro-fluoro-carbons (CFCs)	Nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (level of air at the earth's surface); formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms.	3,800-8,100	45-640	refrigerants aerosol propellants; cleaning solvents.
Hydro-fluoro-carbons (HFCs)	Synthetic human-made chemicals used as a substitute for CFCs and contain carbon, chlorine, and at least one hydrogen atom.	140 to 11,700	1-50,000	automobile air conditioners; refrigerants
Per-fluoro-carbons (PFCs)	Stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface.	6,500 to 9,200	10,000-50,000	primary aluminum production; semiconductor manufacturing
Sulfur hexafluoride (SF_6)	Human-made, inorganic, odorless, colorless, and nontoxic, nonflammable gas.	22,800	3,200	electrical power transmission equipment insulation; magnesium industry, semiconductor manufacturing; a tracer gas
Nitrogen trifluoride (NF_3)	Inorganic, is used as a replacement for PFCs, and is a powerful oxidizing agent.	17,200	740	electronics manufacture for semiconductors and liquid crystal displays.
Sources: Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller [eds.]). Cambridge University Press,				

Greenhouse Gas	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
Cambridge, United Kingdom and New York, NY, USA, Website: www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Accessed June 5, 2018. Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Core Writing Team, Pachauri, R.K. and Reisinger, A. [eds.]). IPCC, Geneva, Switzerland. Website: www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html. Accessed June 5, 2018.				

The State has begun the process of addressing pollutants referred to as short-lived climate pollutants. Senate Bill (SB) 605, approved by the Governor on September 14, 2014, required the California Air Resources Board (ARB) to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016. The ARB released the Proposed Short-Lived Climate Pollutant Reduction Strategy in April 2016. The ARB has completed an emission inventory of these pollutants, identified research needs, identified existing and potential new control measures that offer co-benefits, and coordinated with other state agencies and districts to develop measures.

The short-lived climate pollutants include three main components: black carbon, fluorinated gases, and methane. Fluorinated gases and methane are described in Table 3.7-1 and are already included in the California GHG inventory. Black carbon has not been included in past GHG inventories; however, the ARB will include it in its comprehensive strategy (ARB 2015).

Black carbon is a component of fine particulate matter. Black carbon is formed by incomplete combustion of fossil fuels, biofuels, and biomass. Sources of black carbon within a jurisdiction may include exhaust from diesel trucks, vehicles, and equipment, as well as smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels used for transportation, the burning of biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Black carbon is not a gas but an aerosol—particles or liquid droplets suspended in air. Black carbon only remains in the atmosphere for days to weeks, whereas other GHGs can remain in the atmosphere for years. Black carbon can be deposited on snow, where it absorbs sunlight, reduces sunlight reflectivity, and hastens snowmelt. Direct effects include absorbing incoming and outgoing radiation; indirectly, black carbon can also affect cloud reflectivity, precipitation, and surface dimming (cooling).

Global warming potentials for black carbon were not defined by the IPCC in its Fourth Assessment Report. The ARB has identified a global warming potential of 3,200 using a 20-year time horizon and 900 using a 100-year time horizon from the IPCC Fifth Assessment. Sources of black carbon are already regulated by the ARB and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion sources (ARB 2015c). Additional controls on the sources of black carbon specifically for their GHG impacts beyond those required for toxic and fine particulates are not likely to be needed.

Ozone is another short-lived climate pollutant that will be part of the strategy. Ozone affects evaporation rates, cloud formation, and precipitation levels. Ozone is not directly emitted, so its

precursor emissions, volatile organic compounds (VOC) and oxides of nitrogen (NO_X) on a regional scale and CH_4 on a hemispheric scale will be subject of the strategy (ARB 2015c).

Water vapor is also considered a GHG. Water vapor is an important component of our climate system and is not regulated. Increasing water vapor leads to warmer temperatures, which causes more water vapor to be absorbed into the air. Warming and water absorption increase in a spiraling cycle. Water vapor feedback can also amplify the warming effect of other GHGs, such that the warming brought about by increased carbon dioxide allows more water vapor to enter the atmosphere (NASA 2015).

Introduction to Global Climate Change

Global climate change is defined as the change in average meteorological conditions on Earth with respect to temperature, precipitation, and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2, N_2O, CH_4, hydrofluorocarbons, perfluorocarbons and SF_6. These particular gases are important because of their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the Earth's atmosphere, but prevent radioactive heat from escaping, thus warming the Earth's atmosphere. Global climate change can occur naturally, as it has in the past with the previous ice ages. According to the ARB, the climate change since the industrial revolution differs from previous climate changes in both rate and magnitude.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse effect, the Earth's average temperature would be approximately 61°F cooler than it is currently. The cumulative accumulation of these gases in the Earth's atmosphere is considered the cause for the observed increase in the Earth's temperature.

In 2017, emissions from Statewide emitting activities were 424 million metric tons (MMT) of CO_2 equivalent (CO_2e), which is 5 MMT CO_2e lower than 2016 levels. 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT CO_2e below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 tons per person to 10.7 tons per person in 2017, a 24 percent decrease (ARB 2019).

Global Climate Change Issue

Climate change is a global problem because GHGs are global pollutants, unlike criteria air pollutants and hazardous air pollutants (also called toxic air contaminants), which are pollutants of regional and local concern. Pollutants with localized air quality effects have relatively short atmospheric lifetimes, approximately 1 day; by contrast, GHGs have long atmospheric lifetimes, several years to several thousand years. GHGs persist in the atmosphere for a long enough time to be dispersed around the globe.

Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, more CO_2 is currently emitted into the atmosphere than is sequestered. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through photosynthesis and

dissolution, respectively. These are two of the most common processes of CO_2 sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, Northern Hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions is stored in the atmosphere (Seinfeld, J. H. and S.N. Pandis 1998).

Similarly, effects of GHGs are borne globally, as opposed to the localized air quality effects of criteria air pollutants and hazardous air pollutants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known and cannot be quantified, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global or local climates or microclimate.

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. A cumulative discussion and analysis of project impacts on global climate change is presented in this Draft EIR because, although it is unlikely that a single project will contribute significantly to climate change, cumulative emissions from many projects affect global GHG concentrations and the climate system.

Global climate change has the potential to result in sea level rise (resulting in flooding of low-lying areas), to affect rainfall and snowfall (leading to changes in water supply), to affect temperatures and habitats (affecting biological resources and public health), and to result in many other adverse environmental consequences.

Although the international, national, state, and regional communities are beginning to address GHGs and the potential effects of climate change, worldwide GHG emissions will likely continue to rise over the next decades.

Climate and Topography

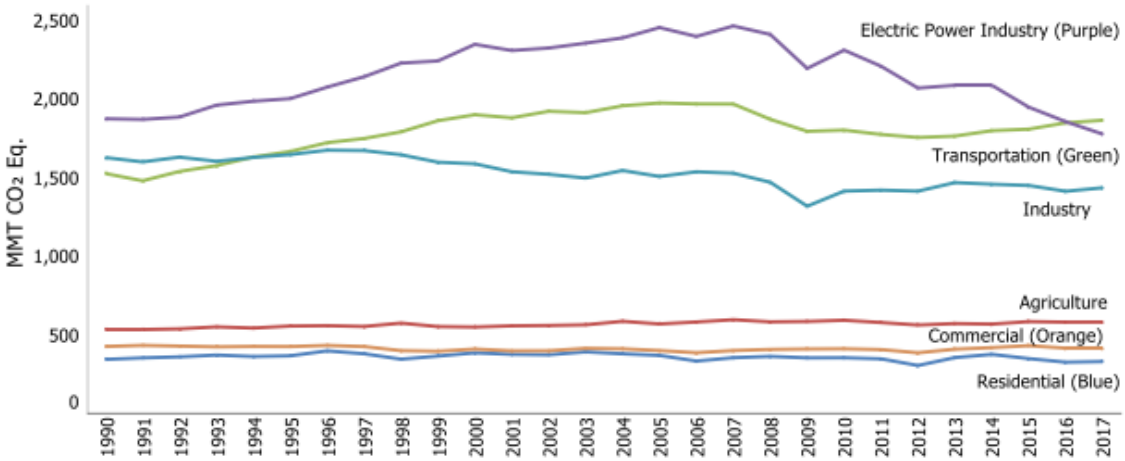
Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place. For a detailed discussion of existing regional and Master Plan area climate and topography, see Section 3.2, Air Quality.

Existing GHG Emissions

U.S. GHG Inventory

Total U.S. GHG emissions were approximately 0.5 percent lower in 2017 than in 2016 (EPA 2016). In 2017, total gross U.S. GHG emissions were 6,456.7 MMT CO_2e. Total U.S. emissions have increased by 1.3 percent from 1990 to 2017, and emissions decreased from 2016 to 2017 by 0.5 percent (35.5 MMT CO_2e). The decrease in total GHG emissions between 2016 and 2017 was driven in part by a decrease in CO_2 emissions from fossil fuel combustion. Figure 3.7-2 presents 2014 U.S. Transportation emissions also increased because of a small increase in vehicle miles traveled. There was also an increase in industrial production across multiple sectors, resulting in slight increases in industrial-sector emissions (EPA 2016).

Figure 3.7-2: U.S. Greenhouse Gas Emissions Allocated to Economic Sectors (MMT CO_2 Eq.)

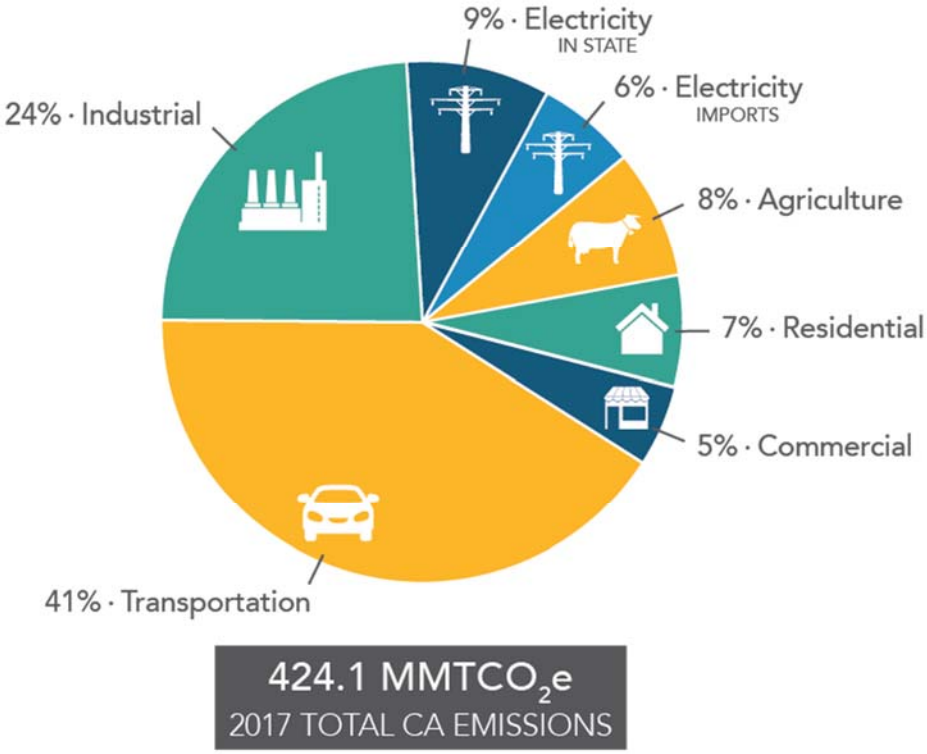


Source: EPA, 2016
Source: United States Environmental Protection Agency (EPA). 2016. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017. EPA 430-R-19-001. Website: https://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf. Accessed September 25, 2019

California GHG Inventory

As the second largest emitter of GHG emissions in the U.S. and the 12th to 16th largest GHG emissions emitter in the world, California contributes a large quantity (424.1 MMT CO_2e in 2017) of GHG emissions to the atmosphere (CCCC 2006; ARB 2019d). Emissions of CO_2 are byproducts of fossil-fuel combustion and are attributable in large part to human activities associated with transportation, industry/manufacturing, electricity and natural gas consumption, and agriculture. In California, the transportation sector is the largest emitter at 41 percent of GHG emissions, followed by industry/manufacturing at 24 percent of GHG emissions (Figure 3.7-3).

Figure 3.7-3: 2017 California Greenhouse Gas Emissions by Sector



Sources: California Air Resources Board (ARB). 2019. California Greenhouse Gas Emission Inventory - 2019 Edition. Website: https://ww3.arb.ca.gov/cc/inventory/data/data.htm. Accessed May 18, 2020.

Bay Area Air Quality Management District GHG Inventory

The Bay Area Air Quality Management District (BAAQMD) published a GHG inventory for the San Francisco Bay Area (Bay Area), which provides an estimate of GHG emissions in the base year 2011 for all counties located in the jurisdiction of the BAAQMD: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Napa, and the southern portions of Solano and Sonoma counties (BAAQMD 2015). This GHG inventory is based on the standards for criteria pollutant inventories and is intended to support BAAQMD's climate protection activities.

Table 3.7-2 shows the 2011 breakdown of emissions by end-use sector for each county within the BAAQMD jurisdiction. The estimated GHG emissions are presented in CO_2e, which weights each GHG by its GWP. The GWPs used in the BAAQMD inventory are from the Second Assessment Report of the IPCC.

In 2011, GHG emissions from Contra Costa County accounted for approximately 31 percent of the Bay Area's total GHG emissions, with 17.8 percent of the Bay Area's total GHG emissions coming from the industrial/commercial land uses in Contra Costa County (BAAQMD 2015). Transportation is the largest GHG emissions sector in the Bay Area, followed by industrial/commercial, electricity generation and cogeneration, and residential fuel usage. In Contra Costa County, the largest amount of GHG emissions are generated by the industrial/commercial sector, followed by the electricity/co-generation sector.

Table 3.7-2: 2011 County Emissions Breakdown by Sector (MMT CO_2e/year)

Sector	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano*	Sonoma*
Industrial/Commercial	2.7	17.8	0.4	0.2	1.2	1.4	4.1	2.7	0.5
Residential Fuel	1.3	1.0	0.3	0.1	0.9	0.8	1.5	0.3	0.4
Electricity/Co-generation	0.9	7.2	0.1	0.1	0.5	0.4	2.2	0.4	0.2
Off-Road Equipment	0.2	0.2	0.0	0.0	0.2	0.1	0.4	0.0	0.
Transportation	7.9	5.0	1.3	0.9	3.0	5.0	7.6	1.6	2.0
Agriculture/Farming	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.2
Total	**13.2**	**31.4**	**2.4**	**1.5**	**5.7**	**7.7**	**16.0**	**5.1**	**3.5**

Notes:
* Portion within BAAQMD jurisdiction
BAAQMD = Bay Area Air Quality Management District; CO_2e = carbon dioxide equivalent; co-gen = cogeneration
Source: Bay Area Air Quality Management District (BAAQMD). 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011. January. Website: http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf. Accessed June 5, 2018.

Climate Change Trends and Effects

CO_2 accounts for more than 75 percent of all anthropogenic GHG emissions, the atmospheric residence time of CO_2 is decades to centuries, and global atmospheric concentrations of CO_2 continue to increase at a faster rate than ever previously recorded. Thus, the warming impacts of CO_2 will persist for hundreds of years after mitigation is implemented to reduce GHG concentrations.

California

Substantially higher temperatures, more extreme wildfires, and rising sea levels are just some of the direct effects experienced in California (CNRA 2009 and CEC 2012). As reported by the California Natural Resources Agency in 2009, despite annual variations in weather patterns, California has seen a trend of increased average temperatures, more extreme hot days, fewer cold nights, longer growing seasons, less winter snow, and earlier snowmelt and rainwater runoff. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and a larger proportion of total precipitation is falling as rain instead of snow (CEC 2006). Sea level rose by as much as 7 inches along the California coast over the last century, leading to increased erosion and adding pressure to the State's infrastructure, water supplies, and natural resources.

These observed trends in California's climate are projected to continue in the future. Research indicates that California will experience overall hotter and drier conditions with a continued reduction in winter snow (with concurrent increases in winter rains), as well as increased average temperatures and accelerating sea level rise. The frequency, intensity, and duration of extreme weather events such as heat waves, wildfires, droughts, and floods will also change (CNRA 2009). In addition, increased air pollution and spread of insects potentially carrying infectious diseases will also occur as the climate-associated temperature and associated species clines shift in latitude.

The following is a summary of climate change factors and predicted trends specific to California.

In California, climate change may result in consequences such as the following (CCCC 2006 and Moser et al. 2009).

- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of Southern California are estimated to increase by approximately 30 percent toward the end of the 21st Century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more Northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

Bay Area

The following is a summary of climate change factors and predicted trends specific to the Bay Area.

Temperature, Heat, Drought, and Wildfire Events

The Bay Area is expected to experience warming over the rest of the 21st Century. Consistent with State-wide projections, the annual average temperature in the Bay Area will likely increase by 2.7°F

between 2000 and 2050, based on GHGs that have already been emitted into the atmosphere. By the end of the century, the increase in the Bay Area's annual average temperature may range from approximately 3.5°F to 11°F relative to the average annual temperature simulated for the 1961–1990 baseline period used for the study, depending on the GHG emissions scenarios (CCCC 2009). The projected rate of warming, especially in the latter half of the 21st Century, is considerably greater than warming rates derived from historical observed data.

Specific predictions related to temperature/heat are summarized below.

- The annual average temperature in the Bay Area has been increasing over the last several decades.
- The Bay Area is expected to see an increase in average annual temperature of 2.7°F by 2050, and 3.5°F to 11°F by 2100. Projections show a greater warming trend during the summer season. The coastal parts of the Bay Area will experience the most moderate warming trends (Cal-Adapt 2014).
- Extreme heat events are expected to increase in duration, frequency, and severity by 2050. Extreme freeze events are expected to decrease in frequency and severity by 2100, but occasional colder-than-historical events may occur by 2050 (Cal-Adapt 2014).

Precipitation, Rainfall, and Flooding Events

Studies of the effect of climate change on the long-term average precipitation for California show some disagreement (CCCC 2009). Considerable variability exists across individual models, and examining the average changes can mask more extreme scenarios that project much wetter or drier conditions. California is expected to maintain a Mediterranean climate through the next century, with dry summers and wet winters that vary between seasons, years, and decades. Wetter winters and drier springs are also expected, but overall annual precipitation is not projected to change substantially. By mid-century, more precipitation is projected to occur in winter in the form of less frequent but larger events. The majority of global climate models predict drying trends across the State by 2100 (CNRA 2009).

Specific factors related to precipitation/rainfall/extreme events are summarized below.

- The Bay Area has not experienced substantial changes in rainfall depth or intensities over the past 30 years.
- The Bay Area will continue to experience a Mediterranean climate, with little change in annual precipitation projected by 2050, although a high degree of variability may persist.
- An annual drying trend is projected to occur by 2100. The greatest decline in precipitation is expected to occur during the spring months, while minimal change is expected during the winter months.
- Increases in drought duration and frequency coupled with higher temperatures, as experienced in 2012, 2013, and 2014, will increase the likelihood of wildfires.

- California is expected to see increases in the magnitude of extreme events, including increased precipitation delivered from atmospheric river events, which would bring high levels of rainfall during short time periods and increase the chance of flash floods. The Bay Area is also expected to see an increase in precipitation intensities, but possibly through less frequent events (CCCC 2009).

Reduced Sierra Nevada Snowpack and Water Supply Shortages

If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate surface water supplies.

Vectors and Disease Events

Climate change will likely increase the vectors of insects and, in turn, may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects, such as malaria, dengue fever, yellow fever, and encephalitis.

Air Quality and Pollution Events

Respiratory disorders will be exacerbated by warming-induced increases in the frequency of smog (ground-level ozone) events and particulate air pollution (EPA 2009). Although there could be health effects resulting from changes in the climate and the consequences that can occur, inhalation of GHGs at levels currently in the atmosphere would not result in adverse health effects, with the exception of ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, SF_6, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen (CDC 2010 and OSHA 2003).

3.7.3 - Regulatory Framework

International

Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of 5 percent against 1990 levels over the 5-year period from 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature

increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 heads of state and government, and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

United Nations Climate Change Framework Convention

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Climate Change Framework Convention. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Paris Climate Change Agreement

Parties to the United Nations Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a 4-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or "COP 21." Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every 5 years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;

- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015).

On June 1, 2017, President Trump announced the decision for the United States to withdraw from the Paris Climate Accord (White House 2017). The earliest possible effective withdrawal date by the United States cannot be before November 4, 2020. California remains committed to combating climate change through programs aimed to reduce GHGs (ARB 2017).

Western Climate Initiative (Western North America Cap-and-Trade Program)

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Each emitter caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce North America GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Currently only California and Quebec are participating in the cap-and-trade program (C2ES 2015).

Federal

Clean Air Act

Coinciding with the 2009 meeting in Copenhagen, on December 7, 2009, the United States Environmental Protection Agency (EPA) issued an Endangerment Finding under Section 202(a) of the Clean Air Act, opening the door to federal regulation of GHGs. The Endangerment Finding notes that GHGs threaten public health and welfare and are subject to regulation under the Clean Air Act. To date, the EPA has not promulgated regulations on GHG emissions, but it has already begun to develop them.

Previously the EPA had not regulated GHGs under the Clean Air Act, because it asserted that the Act did not authorize it to issue mandatory regulations to address global climate change and that such regulation would be unwise without an unequivocally established causal link between GHGs and the increase in global surface air temperatures. In Massachusetts v. Environmental Protection Agency et al. (127 S. Ct. 1438 (2007)), however, the U.S. Supreme Court held that GHGs are pollutants under the Clean Air Act and directed the EPA to decide whether the gases endangered public health or welfare (see discussion below).

The EPA had also not moved aggressively to regulate GHGs because it expected Congress to make progress on GHG legislation, primarily from the standpoint of a cap-and-trade system. However, proposals circulated in both the House of Representative and Senate have been controversial and it may be some time before the U.S. Congress adopts major climate change legislation. The EPA's Endangerment Finding paves the way for federal regulation of GHGs with or without Congress.

U.S. Clean Air Act Permitting Programs (New GHG Source Review)

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the federal code of regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Energy Independence and Security Act

The Energy Policy Act of 2005 created the Renewable Fuel Standard program. The Energy Independence and Security Act of 2007 expanded this program by:

- Expanding the Renewable Fuel Standard program to include diesel in addition to gasoline;
- Increasing the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022;
- Establishing new categories of renewable fuel, and setting separate volume requirements for each one; and
- Requiring the EPA to apply life-cycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

This expanded Renewable Fuel Standard program lays the foundation for achieving substantial reductions of GHG emissions from the use of renewable fuels, reducing the use of imported petroleum, and encouraging the development and expansion of the nation's renewable-fuels sector.

Signed on December 19, 2007, by President George W. Bush, the Energy Independence and Security Act of 2007 aims to:

- Move the United States toward greater energy independence and security;
- Increase the production of clean renewable fuels;
- Protect consumers;
- Increase the efficiency of products, buildings, and vehicles;
- Promote research on and deploy GHG capture and storage options;
- Improve the energy performance of the Federal Government; and
- Increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy.

The Energy Independence and Security Act reinforces the energy reduction goals for federal agencies put forth in Executive Order 13423, as well as introduces more aggressive requirements. The three key provisions enacted are the Corporate Average Fuel Economy Standards, the Renewable Fuel Standard, and the appliance/lighting efficiency standards.

The EPA is committed to developing, implementing, and revising both regulations and voluntary programs under the following subtitles in the Act, among others:

- Increased Corporate Average Fuel Economy Standards;
- Federal Vehicle Fleets;
- Renewable Fuel Standard;
- Biofuels Infrastructure; and
- Carbon Capture and Sequestration (EPA 2019).

United States Environmental Protection Agency and National Highway Traffic Safety Administration Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy Standards Final Rule

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Barack Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely

through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

The EPA and the NHTSA issued final rules on a second-phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleet wide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The EPA and NHTSA issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20-percent reduction in CO_2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles, and a 15-percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10-percent reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

The State of California has received a waiver from the EPA to have separate, stricter corporate average fuel economy standards. Although global climate change did not become an international concern until the 1980s, efforts to reduce energy consumption began in California in response to the oil crisis in the 1970s, resulting in the incidental reduction of GHG emissions. In order to manage the State's energy needs and promote energy efficiency, AB 1575 created the California Energy Commission in 1975. It should be noted that the EPA recently rescinded California's waiver for its GHG and zero-emission vehicle mandates; however, all ARB standards are still in effect at the time of this writing (Beveridge & Diamond PC. 2019 and ARB 2019).

Massachusetts et al. v. EPA (U.S. Supreme Court GHG Endangerment Ruling)

Massachusetts et al. v. EPA (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four GHGs, including CO_2, under Section 202(a)(1) of the Clean Air Act (CAA). A decision was made on April 2, 2007, in which the Supreme Court found that GHGs are air pollutants covered by the CAA. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations; and

- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed under "Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling upholding that upheld the EPA Administrator findings.

U.S. Consolidated Appropriations Act (Mandatory GHG Reporting)

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to EPA in 2011.

State

California AB 1493: Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011 (ARB 2013). As previously noted, the EPA recently rescinded California's waiver for its GHG and zero-emission vehicle mandates; however, all ARB standards are still in effect at the time of this writing (Beveridge & Diamond PC. 2019 and ARB 2019).

The standards are to be phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in an approximately 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant (ARB 2013).

The second phase of the implementation for the Pavley Bill was incorporated into Amendments to the Low-Emission Vehicle (LEV) Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG

emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California (ARB 2011).

California SB 1078: Renewable Electricity Standards

On September 12, 2002, Governor Gray Davis signed SB 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23.

California Executive Order S-3-05 (GHG Emissions Reduction Targets)

Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an Executive Order, the goals are not legally enforceable for local governments or the private sector.

California Assembly Bill 32: Global Warming Solutions Act and Scoping Plan

The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB approved the 1990 GHG emissions level of 427 million metric tons of carbon dioxide equivalents (MMT CO_2e) on December 6, 2007 (ARB 2007). Therefore, to meet the State's target, emissions generated in California in 2020 are required to be equal to or less than 427 MMT CO_2e. Emissions in 2020 in a Business as Usual (BAU) scenario were estimated to be 596 MMT CO_2e, which do not account for reductions from AB 32 regulations (ARB 2008). At that rate, a 28 percent reduction was required to achieve the 427 MMT CO_2e 1990 inventory. In October 2010, the ARB prepared an updated 2020 forecast to account for the effects of the 2008 recession and slower forecasted growth. The 2020 inventory without the benefits of adopted regulation is now estimated at 545 MMT CO_2e. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (ARB 2010).

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by ARB for 2000 through 2012 to show progress achieved to date (ARB 2014). The State has also achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target. Also shown are the average reductions needed from all Statewide sources (including all existing sources) to reduce GHG emissions back to 1990 levels.

- **1990:** 427 MMT CO_2e (AB 32 2020 Target)
- **2000:** 463 MMT CO_2e (an average 8-percent reduction needed to achieve 1990 base)
- **2010:** 450 MMT CO_2e (an average 5-percent reduction needed to achieve 1990 base)
- **2020:** 545 MMT CO_2e BAU (an average 21.7-percent reduction from BAU needed to achieve 1990 base)

The ARB Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a Statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and

- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. Capped strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. Uncapped strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions (ARB 2008).

ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities Climate for the next several years. The Update does not set new targets for the State, but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050.

AB 32 does not give the ARB a legislative mandate to set a target beyond the 2020 target from AB 32 or to adopt additional regulations to achieve a post-2020 target. The Update estimates that reductions averaging 5.2 percent per year would be required after 2020 to achieve the 2050 goal. With no estimate of future reduction commitments from the State, identifying a feasible strategy including plans and measures to be adopted by local agencies is not currently possible (ARB 2014).

The Cap-and-Trade Program is a key element of the Scoping Plan. It sets a Statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest cost options to reduce emissions. The program conducted its first auction in November 2012. Compliance obligations began for power plants and large industrial sources in January 2013. Other significant milestones include linkage to Quebec's cap-and-trade system in January 2014 and starting the compliance obligation for distributors of transportation fuels, natural gas, and other fuels in January 2015 (ARB 2015).

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 Statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by the ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (ARB 2014).

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (ARB 2014).

California SB 375: Sustainable Communities and Climate Protection Act

SB 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning California Environmental Quality Act (CEQA), SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets;
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies); and
3. Incorporates the mitigation measures required by an applicable prior environmental document.

California SB 1368: Emission Performance Standards

In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 pounds CO_2 per megawatt-hour (MWh).

California Executive Order S-01-07: Low Carbon Fuel Standard

The Governor signed Executive Order S 01-07 on January 18, 2007. The order mandates that a Statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to the ARB for consideration as an "early action" item under AB 32. The ARB adopted the LCFS on April 23, 2009.

The LCFS was subject to legal challenge in 2011. Ultimately, on August 8, 2013, the Fifth District Court of Appeal (California) ruled that ARB failed to comply with CEQA and the Administrative Procedure Act when adopting regulations for Low Carbon Fuel Standards. In a partially published

opinion, the Court of Appeal directed that Resolution 09-31 and two Executive Orders of ARB approving LCFS regulations promulgated to reduce GHG emissions be set aside. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, ARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing for the new LCFS regulation was held on September 24, 2015 and September 25, 2015, where the LCFS Regulation was adopted. The Final Rulemaking Package adopting the regulation was filed with the Office of Administrative Law (OAL) on October 2, 2015. The OAL approved the regulation on November 16, 2015 (ARB 2015).

California Executive Order S-13-08

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy was adopted, which is the ". . . first Statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

California SBX 7-7: Water Conservation Act

This 2009 legislation directs urban retail water suppliers to set individual 2020 per capita water use targets and begin implementing conservation measures to achieve those goals. Meeting this Statewide goal of 20 percent decrease in demand will result in a reduction of almost 2 million acre-feet in urban water use in 2020.

California SB 350: Clean Energy and Pollution Reduction Act

In 2015, the State legislature approved and the Governor signed SB 350 that reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the Renewables Portfolio Standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum Statewide were removed from the Bill due to opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce Statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.

- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission, the California Energy Commission, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

California Executive Order B-30-15

On April 29, 2015, an Executive Order was issued by the Governor to establish a California GHG emissions reduction target of 40 percent below 1990 levels by 2030. The Governor's Executive Order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The Executive Order sets a new interim Statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050, and directs the ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of MMT CO_2e. The Executive Order also requires the State's climate adaptation plan to be updated every 3 years and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Executive Order is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to make post-2020 targets and requirements a mandate is in process in the State Legislature.

California Senate Bill 32

The Governor signed SB 32 in September of 2016, giving the ARB the statutory responsibility to include the 2030 target previously contained in Executive Order B-30-15 in the 2017 Scoping Plan Update. SB 32 states, "In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that Statewide GHG emissions are reduced to at least 40 percent below the Statewide GHG emissions limit no later than December 31, 2030." The 2017 Climate Change Scoping Plan Update addressing the SB 32 targets was adopted on December 14, 2017. The major elements of the framework proposed to achieve the 2030 target are as follows:

1. SB 350
   - Achieve 50 percent Renewables Portfolio Standard by 2030.
   - Doubling of energy efficiency savings by 2030.
2. Low Carbon Fuel Standard
   - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
3. Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
   - Maintaining existing GHG standards for light- and heavy-duty vehicles.
   - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
   - Increase ZEV buses, delivery and other trucks.
4. Sustainable Freight Action Plan

- Improve freight system efficiency.
- Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
- Deploy over 100,000 zero-emission trucks and equipment by 2030.

5. Short-Lived Climate Pollutant Reduction Strategy
   - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
   - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
6. SB 375 Sustainable Communities Strategies
   - Increased stringency of 2035 targets.
7. Post-2020 Cap-and-Trade Program
   - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
   - The ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, the ARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
8. 20 percent reduction in GHG emissions from the refinery sector.
9. By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

California Code of Regulations Title 13: Motor Vehicles

California Code of Regulations, Title 13, Division 3, Chapter 10, Article 1, Section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, seeks to reduce public exposure to diesel particulate matter and other air contaminants by establishing idling restrictions, emission standards, and other requirements for heavy-duty diesel engines and alternative idle reduction technologies to limit the idling of diesel-fueled commercial motor vehicles (Thomas Reuters Westlaw 2019). Any person that owns, operates, or causes to operate any diesel-fueled commercial motor vehicle must not allow a vehicle to idle for more than 5 consecutive minutes at any location, or operate a diesel-fueled auxiliary power system for greater than 5 minutes at any location when within 100 feet of a restricted area.

California Code of Regulations, Title 13, Division 3, Chapter 9, Article 4.8, Section 2449: General Requirements for In-Use Off-Road Diesel-Fueled Fleets, regulates NO_X, diesel particulate matter (DPM), and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles. This measure also requires each fleet to meet fleet average requirements, or demonstrate that it has met "best available control technology" requirements. Additionally, this measure requires medium and large fleets to have a written idling policy that is made available to operators of the vehicles informing them that idling is limited to 5 consecutive minutes or less.

California Code of Regulations Title 20: Appliance Efficiency Regulations

California Code of Regulations, Title 20, Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations, regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

California Code of Regulations Title 24: Energy Efficiency Standards

California Code of Regulations, Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2019 Building Energy Efficiency Standards went into effect on January 1, 2020 (CEC 2018).

California Code of Regulations Title 24: California Green Building Standards Code

California Code of Regulations, Title 24, Part 11, is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect January 1, 2011. The code is updated on a regular basis, with the most recent update consisting of the 2019 California Green Building Standards Code (CALGreen) that became effective January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as California law provides methods for local enhancements. The code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The California Building Standards Code provides the minimum standard that buildings need to meet in order to be certified for occupancy, and is enforced by the local government building or planning department that has jurisdiction for where the building or residence is located.

California Model Water Efficient Landscape Ordinance

The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881 Water Conservation Act. As such, AB 1881 required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected as a result of implementation of the Ordinance. Governor Brown's Drought Executive Order of April 1, 2015, (Executive Order B-29-15) directed the Department of Water Resources to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015, which became effective on December 15, 2015. New development projects that include landscaped areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

As noted in the City's Municipal Code discussion below, Chapter 18.52, is the City's adopted applicable water-efficient landscape ordinance and is at least as effective as the updated 2015 State Model Water Efficient Landscape Ordinance.

California SB 97 and the CEQA Guidelines Update

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The Code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)."

Section 21097 was also added to the Public Resources Code, which provided an exemption until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA. The Natural Resources Agency completed the approval process and the Amendments became effective on March 18, 2010.

The 2010 CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of GHG emissions:

- The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or
- The extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively

considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guidelines amendments do not identify a threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, they call for a "good-faith effort, based on available information, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project." The amendments encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies' discretion to make their own determinations based upon substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable; however, it does not answer the question of what constitutes a cumulatively considerable contribution for CEQA purposes.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

CEQA emphasizes that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis (see CEQA Guidelines § 15130(f)).

Center for Biological Diversity v. California Department of Fish and Wildlife (California Supreme Court GHG Ruling)

In a November 30, 2015 ruling, the California Supreme Court in *Center for Biological Diversity v. California Department of Fish and Wildlife* on the Newhall Ranch project concluded that whether the Newhall project was consistent with meeting Statewide emission reduction goals is a legally permissible criterion of significance, but the significance finding for the Newhall project was not supported by a reasoned explanation based on substantial evidence. The Court offered potential solutions on pages 25–27 of the ruling to address this issue summarized below:

Specifically, the Court advised that:

- **Substantiation of Project Reductions from BAU**. A lead agency may use a BAU comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with Statewide goals. The Court suggested a lead agency could examine the

"data behind the Scoping Plan's business-as-usual model" to determine the necessary project-level reductions from new land use development at the proposed location (p. 25).

- **Compliance with Regulatory Programs or Performance Based Standards**. A lead agency "might assess consistency with AB 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities. (See Final Statement of Reasons, supra, at p. 64 [greenhouse gas emissions 'may be best analyzed and mitigated at a programmatic level.'].)" To the extent a project's design features comply with or exceed the regulations outlined in the Scoping Plan and adopted by the Air Resources Board or other state agencies, a lead agency could appropriately rely on their use as showing compliance with 'performance based standards' adopted to fulfill 'a statewide . . . plan for the reduction or mitigation of greenhouse gas emissions' (CEQA Guidelines § 15064.4(a)(2), (b)(3); see also id., § 15064(h)(3) [determination that impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including 'plans or regulations for the reduction of greenhouse gas emissions']) (p. 26).
- **Compliance with GHG Reduction Plans or Climate Action Plans (CAPs)**. A lead agency may utilize "geographically specific GHG emission reduction plans" such as climate action plans or greenhouse gas emission reduction plans to provide a basis for the tiering or streamlining of project-level CEQA analysis (p. 26).
- **Compliance with Local Air District Thresholds**. A lead agency may rely on "existing numerical thresholds of significance for greenhouse gas emissions" adopted by, for example, local air districts (p. 27).

Therefore, consistent with CEQA Guidelines Appendix G, the three factors identified in CEQA Guidelines Section 15064.4 and the Newhall Ranch opinion, the GHG impacts would be considered significant if the proposed Master Plan would:

- Conflict with a compliant GHG Reduction Plan if adopted by the lead agency;
- Exceed the applicable GHG Reduction Threshold; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

Local

City of San Ramon General Plan 2035

The City of San Ramon General Plan 2035 contains policies pertaining to GHG emissions. Chapter 2, Economic Development, of the General Plan contains the following applicable policies:

- **Policy 2.3-I-12:** Promote and encourage public transit, carpool and vanpool opportunities into San Ramon's business areas including Bishop Ranch, Crow Canyon business area, and the San Ramon Valley Boulevard business area.
- **Policy 2.3-I-13:** Encourage and facilitate non-motorized means of transportation to business areas.

Chapter 5, Traffic and Circulation, of the General Plan contains the following applicable policies:

- **Policy 5.6-I-7:** Encourage new development to include a mix of uses and Complete Streets concepts that will allow people to walk and bike between destinations and reduce the amount of automobile vehicle-miles-traveled.
- **Policy 5.6-I-9:** Encourage employers and commercial complexes to emphasize public transit services or private alternatives to the single-occupant vehicle.
- **Policy 5.6-I-14:** Consider strategies such as shared parking, parking management plans (including valet parking), and/or the construction of public parking facilities in the City Center, North Camino Ramon Specific Plan, or other commercial areas to serve projected parking demand, while carefully balancing the need for adequate parking against the desire to minimize traffic growth and create a pedestrian/bicycle friendly environment using Complete Streets design concepts.
- **Policy 5.6-I-17:** Encourage "Park Once" concepts as a vehicle-miles-traveled reduction strategy for mixed-use, commercial, and public facilities through the integration of common design features and shared parking concepts including but not limited to Parking Benefit Districts.
- **Policy 5.6-I-18:** Encourage shared parking facilities and parking reductions for compatible land uses to minimize excessive parking to reduce inefficient use of land, unnecessary pavement and stormwater runoff, and encourage alternative transportation and reductions in vehicle-miles-traveled.
- **Policy 5.6-I-19:** Encourage infill and Transit-Oriented Development (TOD) concepts as a vehicle miles-traveled reduction strategy for existing and proposed development.
- **Policy 5.7-I-5:** Require bicycle parking, storage and other support facilities as part of any new office and retail developments and public facilities.
- **Policy 5.7-I-6:** Continue to promote and implement through the development review process, continuous circulation facilities within Bishop Ranch Business Park, commercial districts, and residential neighborhoods to enhance connectivity and promote pedestrian and bicycle modes of transportation consistent with Complete Streets concepts.

Chapter 8, Open Space and Conservation, of the General Plan contains the following applicable policies:

- **Policy 8.6-I-1:** Require new development projects to implement indoor water conservation and demand management measures.
- **Policy 8.6-I-2:** Require new development projects to implement outdoor water conservation and demand management measures.
- **Policy 8.6-I-3:** New development in areas where recycled water service exists or is planned shall be plumbed with "purple pipe" and other measures necessary to accommodate nonpotable water service.
- **Policy 8.6-I-4:** Require new development to meet the State Model Water Efficient Landscape Ordinance (MWELO).

Chapter 11, Housing, of the General Plan contains the following applicable policies:

- **Policy 11.5-G-4:** Promote energy conserving practices in the location, construction, renovation, and maintenance of San Ramon's housing units.

Chapter 12, Air Quality and Greenhouse Gas, of the General Plan contains the following applicable policies:

- **Policy 12.5-I-2:** Support and encourage projects proposing infill, and mixed-use development that creates walkable neighborhoods and communities and increases access to transit.
- **Policy 12.7-I-5:** Construct and promote infrastructure and facilities that support and encourages the use of low-emission transportation and alternative modes of travel, including a safe and comprehensive bicycle and pedestrian system that connects all parts of the City.
- **Policy 12.8-I-1:** Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development projects within the City.
- **Policy 12.8-I-2:** Encourage the use of solar-ready roofs into residential and commercial development. New residential development should include proper solar orientation (south-facing roof area sloped at 20 degrees to 55 degrees from the horizontal), clear access on the south sloped roof (no chimneys, heating vents, plumbing vents, etc.), electrical conduit installed for solar electric system wiring, plumbing installed for solar hot water systems, and space provided for a solar hot water storage tank. Roofs for commercial development should be designed to maximize potential area available for solar panels and provide electrical conduit to support future installation.

City of San Ramon Climate Action Plan (CAP)

The City of San Ramon adopted its CAP in August 2011. The CAP identifies policies that will achieve the State-recommended GHG target of 15 percent below 2008 levels by the year 2020. The CAP establishes the following strategies pertaining to GHG emissions.

- **Strategy LU-3:** Increase transit orientation in new development and redevelopment areas near current and planned transit facilities.
- **Strategy LU-4:** Increase pedestrian orientation in new development and redevelopment areas.
- **Strategy LU-6:** Promote compact development by protecting open space and hillsides and encouraging infill and redevelopment of underutilized parcels in urbanized areas.
- **Strategy T-1:** Provide transit facilities and services that improve transit mode share.
- **Strategy T-2:** Provide pedestrian connections in new and existing development to improve pedestrian mobility and accessibility.
- **Strategy T-3:** Provide a safe and well-connected system of bicycle paths, lanes, and trails to increase bicycle use.
- **Strategy T-4:** Use traffic calming measures to improve traffic flow, pedestrian orientation, and bicycle use.
- **Strategy T-6:** Improve the effectiveness of existing Transportation Demand Management (TDM) Programs and ensure that new developments with large employee concentrations implement TDM Programs.
- **Strategy T-7:** Require projects to provide facilities that make travel by bicycle and transit more convenient.
- **Strategy T-8:** Use parking facility designs and parking management to reduce vehicle trips.
- **Strategy T-9:** Provide vehicle support infrastructure to encourage use of low and zero emission vehicles.

- **Strategy E-1:** Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development projects within the City.
- **Strategy E-2:** Reduce energy use from the transport and treatment of water.

Approach to Analysis

GHG Emissions Generation Calculation Methodology

The emission estimates were developed consistent with the proposed land uses and construction schedule described in Section 2, Project Description. The California Emissions Estimator Model (CalEEMod version 2016.3.2) was used to estimate the proposed Master Plan's construction and operational-related GHG emissions. CalEEMod was developed in cooperation with air districts throughout the State and is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential GHG emissions associated with construction and operation from a variety of land uses.

Construction

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction-related GHG emissions result from on-site and off-site activities. On-site GHG emissions principally consist of exhaust emissions from heavy-duty construction equipment. Off-site GHG emissions would occur from motor vehicle exhaust from material delivery vehicles and construction worker traffic. Unlike air quality emissions that have both localized and regional impacts, GHG emissions are evaluated based on the total emissions generated. The construction parameters used to estimate construction-related GHG emissions were based on assumptions described in Section 3.2, Air Quality. Full assumptions are detailed in the CalEEMod modeling output contained in Appendix C.

Operation

Operational GHG emissions are those GHG emissions that occur during operation of the proposed Master Plan. Operational emissions were analyzed assuming full buildout of the proposed Master Plan in years 2030 and 2048. Emissions for 2048 were provided by interpolating emission estimates for the operational year 2045 and 2050. Full buildout of the proposed Master Plan is anticipated in 2048, consistent with the schedule presented in Table 3.2-10 in Section 3.2, Air Quality.

The major sources and operational parameters used to estimate GHG emissions from long-term operations of buildout under the proposed Master Plan are summarized below. Full assumptions are detailed in the CalEEMod modeling output contained in Appendix C.

Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the Master Plan area. The emissions were estimated using CalEEMod. The weekday trip generation rates for operations associated with the proposed Master Plan were obtained from the Transportation Impact Study (included in Appendix J). As weekend trips were not explicitly stated in the Transportation Impact Study, weekend trips were obtained from the ITE Trip Generation Manual 10th Edition for land uses consistent with those presented in the TIS. Different

from the trip generation presented in the TIS, trip rates used to estimate GHG emissions were not adjusted to account for internal capture and model split reductions.

Development under the proposed Master Plan would include design features, be located within an existing community, and locate housing next to jobs, all of which would reduce project vehicle miles traveled compared to default values. Note that CalEEMod nominally treats these design elements and conditions as "mitigation measures," despite their inclusion in the project description. A full accounting of the on-site measures and factors related the proposed Master Plan's design and to the proposed Master Plan's location in existing community are included as part of Appendix C.

The CalEEMod default round trip lengths for an urban setting for Contra Costa County were used in this analysis. The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the proposed Master Plan. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix for Contra Costa County was used for this analysis.

Landscape Equipment

The use of landscaping equipment (leaf blowers, chain saws, mowers) would generate GHG emissions as a result of fuel combustion based on assumptions in CalEEMod.

Electricity

As noted in Section 2, Project Description, the Master Plan area is currently served, and would continue to be served, by Marin Clean Energy (MCE) and Pacific Gas and Electric (PG&E) with electricity. The factors listed below were applied in estimating emissions for the year 2030.

- **Carbon dioxide:** 331 lb/MWh
- **Methane:** 0.029 lb/MWh
- **Nitrous oxide:** 0.006 lb/MWh

SB 100 requires all of California's electricity to come from carbon-free resources by 2045, which is an increase in the RPS targets compared to previous years.

The factors listed below were applied in estimating emissions for the years 2045 and 2050.

- **Carbon dioxide:** 0 lb/MWh
- **Methane:** 0 lb/MWh
- **Nitrous oxide:** 0 lb/MWh

CalEEMod has three categories for electricity consumption: Title 24-electricity; non-Title 24-electricity; and lighting. Title 24-electricity uses are defined as the major building envelope systems covered by California Building Standards Code Title 24, Part 6, such as space heating, space cooling, water heating, and ventilation. Lighting is separate since it can be both part and not part of Title 24. Since lighting is not part of the building envelope energy budget, CalEEMod does not consider lighting to have any further association with Title 24 references in the program. Non-Title 24-electricity includes everything else such as appliances and electronics. To properly divide the total

electricity consumption into the three categories, the percentage for each category is determined by using percentages derived from the CalEEMod default electricity intensity. The percentages are applied to the electricity consumption to obtain the values used in the analysis.

Natural Gas

There would be emissions from the combustion of natural gas used for the proposed Master Plan (water heaters, heat, etc.). CalEEMod has two categories for natural gas consumption: Title 24-natural gas, and non-Title 24-natural gas. For purposes of this analysis, CalEEMod defaults were used.

Water and Wastewater

GHG emissions are emitted from the use of electricity to pump water to the Master Plan area and to treat wastewater. CalEEMod default values were used in the analysis.

Solid Waste

GHG emissions would be generated from the decomposition of solid waste generated by the proposed Master Plan. CalEEMod was used to estimate the GHG emissions from this source. The CalEEMod default for the mix of landfill types is as follows:

- Landfill no gas capture—6 percent;
- Landfill capture gas flare—94 percent;
- Landfill capture gas energy recovery—0 percent.

Vegetation

There is currently some minor degree of carbon sequestration occurring on-site from existing vegetation. Specifically, the existing Master Plan area consists of areas of undeveloped land with grassland and ornamental landscaping. While some existing vegetation would be removed, the proposed Master Plan would include the planting of numerous trees and would integrate landscaping throughout the design. As described in Section 2, Project Description, landscaping will be provided along public streets, around buildings, and in public areas in accordance with the document titled CityWalk Design Guidelines (Appendix B). For purposes of this analysis, it was assumed that the loss and addition of carbon sequestration would be balanced; therefore, emissions due to carbon sequestration were not included.

Life Cycle Emissions

An upstream GHG emissions source (also known as life cycle emissions) refers to emissions that are generated during the manufacturing and transportation of products that would be utilized for construction. Upstream emission sources for construction include but are not limited to GHG emissions from the manufacturing of cement and steel as well as from the transportation of building materials to the seller of such products. The upstream emissions associated with implementation of the proposed Master Plan are difficult to estimate because (1) upstream emissions are not within the control of the proposed Master Plan and (2) the information is not readily available. Therefore, to characterize these emissions would be speculative, and upstream emissions associated with construction have not been estimated as part of this impact analysis. Additionally, the California Air Pollution Control Officers Association (CAPCOA) White Paper on CEQA and Climate Change supports this approach by stating,

"The full life-cycle of GHG emissions from construction activities is not accounted for . . . and the information needed to characterize [life-cycle emissions] would be speculative at the CEQA analysis level (CAPCOA 2008)." Therefore, pursuant to CEQA Guidelines Sections 15144 and 15145, upstream/life cycle emissions are speculative, and is not further discussed as part of this impact analysis.

Service Population

As described in Section 3.12, Population and Housing, the proposed Master Plan would add an estimated 13,365 persons to the City's population at full project buildout. The proposed Master Plan would create new employment opportunities associated with the hotel and retail uses. Hotel employment is estimated at 200 and the retail uses are estimated to employ 332 workers. Service population is defined by the BAAQMD as residents plus employees. At full buildout, the proposed Master Plan would have a service population of approximately 13,897 total residents plus employees.

3.7.4 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether greenhouse emissions impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

GHG Emissions Generation

The City of San Ramon utilizes BAAQMD's quantitative thresholds for evaluation of GHG emissions and to determine whether a plan or project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The BAAQMD provides multiple options in its 2017 BAAQMD CEQA Guidelines for operational GHG emissions generation significance thresholds. However, the BAAQMD does not provide a construction-related GHG emissions generation significance threshold, but it does recommend that construction-generated GHGs be quantified and disclosed.

The BAAQMD provides the following thresholds of significance for GHGs for plans:

- Compliance with a qualified GHG Reduction Strategy, or
- 6.6 MT CO_2e per service population (employees plus residents) per year.

As stated in the 2017 BAAQMD CEQA Guidelines, the efficiency threshold should only be applied to general plans. Other plans, e.g. specific plans, congestion management plans, etc., should use the project-level threshold of 4.6 CO_2e/SP/yr. Therefore, project-level thresholds would be appropriate to use when determining the potential GHG impacts associated with the proposed Master Plan. The BAAQMD's project-level significance threshold for operational GHG generation included in the 2017 BAAQMD CEQA Guidelines are as follows:

- Compliance with a qualified GHG Reduction Strategy, or
- 1,100 MT CO_2e per year, or
- 4.6 MT CO_2e per service population (employees plus residents) per year.

It should be noted that the BAAQMD's thresholds of significance were established based on meeting the 2020 GHG targets set forth in the AB 32 Scoping Plan. For developments that would occur beyond 2020, the service population threshold of significance (4.6 MT CO_2e/service population/year) was adjusted to a "substantial progress" threshold that was calculated based on the GHG reduction goals of SB 32/Executive Order B-30-15 and the projected 2030 Statewide population and employment levels (BAAQMD 2020). The 2017 Scoping Plan provides an intermediate target that is intended to achieve reasonable progress towards goals for 2050 under Executive Order S-3-05. The efficiency threshold of 2.6 MT CO_2e/service population/year is needed to meet the 2030 target. To determine significance for this criterion, the proposed Master Plan's GHG emissions are assessed against the following thresholds: 2.6 MT CO_2e/service population/year for the 2030 operational year and 2.6 MT CO_2e/service population/year for the 2048 operational year. Although BAAQMD does not have an adopted threshold for 2030, BAAQMD is currently recommending evaluation of GHG significance based on 2030 GHG targets established in SB 32 (AEP 2016).

GHG Emissions Reduction Plan Consistency

In determining whether a project or plan conflicts with any applicable plan, policy, or regulation, the California Natural Resources Agency has stated that in order to be used for the purpose of determining significance, an applicable plan, policy, or regulation must contain specific requirements that result in reductions of GHG emissions to a less than significant level. The proposed Master Plan is assessed for its consistency with the ARB adopted 2017 Climate Change Scoping Plan Update to determine significance for this criterion. Consistency would be achieved with an assessment of the proposed Master Plan's compliance with applicable Scoping Plan measures.

3.7.5 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed Master Plan and provides mitigation measures where necessary.

Greenhouse Gas Emissions

Impact GHG-1:	**The proposed Master Plan could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

Impact Analysis

This GHG emissions generation analysis is restricted to emissions of the GHGs identified as those of California concern by AB 32, which include CO_2, methane, nitrous oxide, HFC, PFC, and SF_6. The proposed Master Plan would generate a variety of GHG emissions during construction and operation, including several defined by AB 32 such as CO_2, methane, nitrous oxide, and HFCs. Certain GHGs defined by AB 32 such as PFCs and SF_6 would not be generated by the proposed Master Plan. As such, CO_2e emissions discussed below are limited to a combination of emissions of CO_2, methane, nitrous oxide, HFC, PFC, and SF_6.

Construction

Construction of the proposed Master Plan would emit GHG emissions during construction from the off-road construction equipment, worker vehicles, and any hauling that may occur. Total GHG emissions generated during all construction activities were quantified and combined and are presented in Table 3.7-3. In order to assess the construction emissions, the total emissions generated during construction were amortized based on the life of the development (30 years) and added to the operational emissions (SCAQMD 2008). As shown in Table 3.7-3 construction of the proposed Master Plan would generate approximately 102,847 MT CO_2e over the entire construction duration, which is approximately 3,428 MT CO_2e per year when amortized over 30 years. The amortized emissions from construction were added to the operational emissions to determine the total emissions.

Table 3.7-3: Unmitigated Project Construction GHG Emissions

Construction Area	Construction Emissions (MT CO_2e/year)
Bishop Ranch 1A	3,681
Bishop Ranch 3A	6,670
Bishop Ranch 2600	92,495
Total Construction Emissions	**102,847**
Construction Emissions Amortized Over 30 Years	**3,428**

Note:
Calculations use rounded numbers.
Source: CalEEMod Output (see Appendix C).

Operation

Operational or long-term emissions occur over the life of a project. The operational GHG emissions are combined with the amortized construction emissions and compared with the applicable threshold to make a significance determination. Major sources for operational emissions are summarized below and are described in more detail above under the Approach to Analysis section. Sources for operational emissions include:

- **Motor Vehicles:** These emissions refer to GHG emissions contained in the exhaust from the cars and trucks that would travel to and from the Master Plan area. As described in the Approach to Analysis section, the CalEEMod default vehicle fleet mix for Contra Costa County was used in estimating GHG emissions. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). Default vehicle fleet mixes and emission factors change from year to year. The changes to the vehicle fleet mixes and the emission factors result in the lower mobile-source emissions in the 2048 operational year compared to the 2030 operational year.

- **Natural Gas:** These emissions refer to the GHG emissions that occur when natural gas is burned within the Master Plan area. Natural gas uses could include heating water, space heating, dryers, stoves, or other uses.
- **Indirect Electricity:** These emissions refer to those generated by off-site power plants to supply electricity required for the proposed Master Plan. As described in Section 3.7.3, Regulatory Framework, 60 percent of the amount of electricity procured from renewable energy sources is required by 2030. This is an increase from the 33 percent RPS requirement for 2020, which would remain the applicable standards in effect in up until the 2030 operational year. SB 100 requires all of California's electricity to come from carbon-free resources by 2045, which is an increase in the RPS targets compared to previous years. Therefore, GHG emissions associated with electricity for the proposed Master Plan are expected to decrease in 2048 compared to 2030.
- **Water Transport:** These emissions refer to those generated by the electricity required to transport and treat the water to be used by the proposed Master Plan.
- **Waste:** These emissions refer to the GHG emissions produced by decomposing waste generated by the proposed Master Plan.

Operational GHG emissions by source are shown in Table 3.7-4. As previously indicated, the analysis includes construction emissions amortized over the life of the proposed Master Plan. Full buildout of the proposed Master Plan is anticipated to occur in 2048. Emissions were assessed for full buildout operations in years 2030, 2048, and 2050. The 2030 scenario summarized in Table 3.7-4 was prepared to assess the proposed Master Plan's consistency with the SB 32 2030 target. The proposed Master Plan would generate approximately 24,435 MT CO_2e per year in the 2030 scenario with the addition of amortized construction emissions. The estimated total annual emissions that would be generated by the proposed Master Plan, including operational emissions and amortized construction emissions, were compared with the applicable threshold of 2.6 MT CO_2e/service population/year. Operational emissions for the year 2048 are shown in Table 3.7-4, when full operations are anticipated.

Table 3.7-4: Unmitigated Project Operational GHG Emissions

Emission Source	Year 2030 Total Emissions (MT CO_2e per year)	Year 2048 Total Emissions (MT CO_2e per year)
Entire Project Site (Bishop Ranch 1A, Bishop Ranch 3A, and Bishop Ranch 2600)		
Area	141	141
Energy	10,915	3,138
Mobile	8,098	7,425
Waste	1,219	1,219
Water	634	339
Amortized Construction Emissions	3,428	3,428

Emission Source	Year 2030 Total Emissions (MT CO_2e per year)	Year 2048 Total Emissions (MT CO_2e per year)
Total Project Emissions	*24,435*	*15,690*
Service Population	13,897	13,897
Proposed Master Plan emission generation (MT CO_2e/year/service population)	**1.8**	**1.1**
Applicable Threshold of Significance (MT CO_2e/year/service population)	**2.6[1]**	**2.6[1]**
Does proposed Master Plan exceed threshold?	**No**	**No**

Notes:
MT CO_2e = metric tons of carbon dioxide equivalent.
[1] Adjusted threshold to meet SB 32 2030 reduction goals.
Source of Emissions: CalEEMod Output (Appendix C).

As shown in Table 3.7-4, the proposed Master Plan's combined long-term operational emissions and amortized construction emissions would not exceed applicable thresholds of significance in the 2030 or 2048 scenarios. Therefore, the proposed Master Plan would not result in a significant generation of GHG emissions.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Conflict with Plan, Policy, or Regulation that Reduces Emissions

Impact GHG-2: **The proposed Master Plan could conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.**

Impact Analysis

Significance for this impact is determined by the proposed Master Plan's compliance with the City of San Ramon Climate Action Plan (CAP) and the ARB adopted 2017 Climate Change Scoping Plan Update.

The CAP has been determined to be "Qualified Greenhouse Gas Reduction Strategy" and can be used as guidance document for local decision makers and staff to ensure that future actions and land use decisions are also consistent with State and local GHG reduction goals as they relate to climate change and CEQA. However, the CAP ensures consistency with AB 32 GHG reduction goals but does not address SB 32 GHG reduction goals. Since AB 32 GHG goals are based on targets for the year 2020, the CAP can no longer solely be relied upon to determine project significance. To address post-2020 GHG reduction goals, the proposed Master Plan is also assessed for compliance with the ARB adopted 2017 Climate Change Scoping Plan Update. This would be achieved with an assessment of the proposed Master Plan's compliance with applicable Scoping Plan measures.

Construction

Impacts related to a project's consistency with a GHG emissions reduction plan are primarily related to long-term operational activities. However, short-term construction activities would comply with and use equipment and fuel consistent with Statewide requirements set forth in the 2017 Scoping Plan Update. For example, fuel used during construction of the proposed Master Plan would be compliant with the California Low Carbon Fuel Standard. Because construction of the proposed Master Plan would not conflict with the 2017 Scoping Plan Update, the construction impact related to consistency with an applicable GHG emissions reduction plan would be less than significant.

Operation

City of San Ramon Climate Action Plan Consistency

The City of San Ramon adopted its CAP in August 2011. The CAP identifies policies that will achieve the State-recommended GHG target of 15 percent below 2008 levels by the year 2020. The proposed Master Plan will adopt various strategies stated in the CAP for the purpose of reducing or avoiding impacts related to GHG are listed below.

Table 3.7-5: City of San Ramon Climate Action Plan Consistency Analysis

Measure	Proposed Master Plan Consistency
Energy	
E-1: Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development projects within the City.	**Consistent.** The proposed Master Plan would comply with the applicable Title 24 Energy Efficiency Standards in effect at the time building permits are received. Title 24 Energy Efficiency Standards are expected to increase in stringency over time. Adherence to Title 24 Energy Efficiency Standards would ensure that development under the proposed Master Plan would include energy conservation features.
E-2: Reduce energy use from the transport and treatment of water.	**Consistent.** The proposed Master Plan would comply with the California Energy Code, the California Updated Model Landscape Ordinance, and local regulations. General Plan policies 8.6-I-1, 8.6-I-2, 8.6-I-3, and 8.6-I-4 irrigation design standards includes several items to ensure the efficient use of water, including the requirement for new development projects to implement water conservation and demand

Measure	Proposed Master Plan Consistency
	management measures for both indoor and outdoor uses. Policy 8.6-I-3 requires new development in areas where recycled water service exists or is planned to be plumbed with "purple pipe" and other measures necessary to accommodate nonpotable water service. An existing recycled water main is located within the Iron Horse Trail corridor. The proposed Master Plan uses would connect to this existing recycled water main located within the Iron Horse Trail corridor. With adherence to these regulations and General Plan policies, the proposed Master Plan would consume energy and water in an efficient manner and would be consistent with CAP measure E-2.
Land use and Mobility	
LU-3: Increase transit orientation in new development and redevelopment areas near current and planned transit facilities.	**Consistent.** The proposed Master Plan contemplates transit hubs within BR 1A, BR 3A, and BR 2600 that would be integrated into the existing TDM program. One of the objectives of the transit hubs is to centralize pick-up and drop-off points so as to avoid circuitous and lengthy bus routes within the Bishop Ranch Business Park. Inclusions of the transit hubs would improve the effectiveness and efficiency of transit.
LU-4: Increase pedestrian orientation in new development and redevelopment areas.	**Consistent.** Pedestrian circulation internal to the Master Plan area would be provided via sidewalks and off-street pedestrian pathways.
Transportation	
T-1: Provide transit facilities and services that improve transit mode share.	**Consistent.** The proposed Master Plan contemplates transit hubs within BR 1A, BR 3A, and BR 2600 that would be integrated into the existing TDM program. One of the objectives of the transit hubs is to centralize pick-up and drop-off points so as to avoid circuitous and lengthy bus routes within the Bishop Ranch Business Park. This would improve the effectiveness and efficiency of transit.
T-2: Provide pedestrian connections in new and existing development to improve pedestrian mobility and accessibility.	**Consistent.** Pedestrian circulation internal to the Master Plan area would be provided via sidewalks and off-street pedestrian pathways.
T-3: Provide a safe and well-connected system of bicycle paths, lanes, and trails to increase bicycle use.	**Consistent.** The proposed Master Plan would include bicycle facilities and envisions including connections to the Iron Horse Trail.
T-6: Improve the effectiveness of existing Transportation Demand Management (TDM) Programs and ensure that new developments with large employee concentrations implement TDM Programs.	**Consistent with incorporation of MM AIR-2e.** The project applicant currently manages a TDM Plan that includes a set of strategies designed to reduce peak-hour vehicular traffic to and from the Bishop Ranch Business Park, which encompasses the Master Plan area. Implementation of MM AIR-2e, which requires the project to participate in the existing approved TDM

Measure	Proposed Master Plan Consistency
	Program for the Bishop Ranch Business Park, would ensure compliance with this measure. Furthermore, the proposed Master Plan envisions several transit hubs, which would serve public transit, private buses, ride hailing services, and other forms of transportation, consistent with the City's TDM Program.
T-7: Require projects to provide facilities that make travel by bicycle and transit more convenient.	**Consistent.** In order to encourage and facilitate bicycle use, the proposed Master Plan would provide code-required bicycle parking spaces throughout the Master Plan area. The proposed Master Plan would also include bicycle parking and storage facilities.
Source of measures: City of San Ramon. 2011. City of San Ramon Climate Action Plan. August 23. Website: http://www.sanramon.ca.gov/UserFiles/Servers/Server_10826046/File/Our%20City/Departments/Community%20Development/Planning/General%20Plan/Climate%20Action%20Plan/adoptedcap.pdf. Accessed February 26, 2020.	

In addition, the CAP strategy is primarily based upon the land use, transportation, and conservation policies that are part of the General Plan 2030. The City of San Ramon General Plan 2035, Policy 5.7-I-5 requires bicycle parking, storage and other support facilities as part of any new office and retail developments and public facilities. The proposed Master Plan would implement and supplement the City's Bicycle Master Plan so that visitors and employees arriving by bicycle would have a continuous access system similar to that provided to pedestrians and vehicles. In order to encourage and facilitate bicycle use, the proposed Master Plan would provide code-required bicycle parking spaces throughout the Master Plan area. The proposed Master Plan would also include bicycle parking and storage facilities.

Consistency with the goals, policies, and actions set forth in San Ramon's CAP ensures that the proposed Master Plan would not impede or interfere with the City's goal to achieve the AB 32 State-recommended reduction targets. As shown in Table 3.7-5 the proposed Master Plan would be consistent the provisions of the City of San Ramon's CAP after the incorporation of MM AIR-2e.

ARB 2017 Climate Change Scoping Plan Update Consistency

The 2017 Climate Change Scoping Plan Update addressing the SB 32 targets was adopted on December 14, 2017. Table 3.7-6 provides an analysis of the proposed Master Plan's consistency with the 2017 Scoping Plan Update measures. As shown in Table 3.7-6, many of the measures are not applicable to the proposed Master Plan. The proposed Master Plan is consistent with all strategies that are applicable.

Table 3.7-6: SB 32 (ARB-adopted 2017 Climate Change Scoping Plan Update) Consistency Analysis

2017 Scoping Plan Update Reduction Measure	Proposed Master Plan Consistency
SB 350: 50 Percent Renewable Mandate. Utilities subject to the legislation will be required to increase their renewable energy mix from 33 percent in 2020 to 50 percent in 2030.	**Not applicable.** This measure would apply to utilities and not to individual development projects. The proposed Master Plan would purchase electricity from a utility subject to the SB 350 Renewable Mandate and the RPS requirements. SB 100 has increased the 2030 RPS standards to 60 percent by 2030, superseding the increase required by SB 350. The Master Plan area is currently served, and would continue to be served, by MCE and PG&E with electricity. MCE is ahead of schedule in meeting the 2030 RPS standards, with 61 percent of energy produced from eligible renewable sources in 2018.[1]
SB 350: Double Building Energy Efficiency by 2030. This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels.	**Not applicable**. This measure applies to existing buildings. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency over time. The proposed Master Plan would comply with the applicable Title 24 Energy Efficiency Standards in effect at the time building permits are received.
Low Carbon Fuel Standard. This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030.	**Not applicable.** This is a Statewide measure that cannot be implemented by a project applicant or lead agency. However, vehicles accessing the proposed Master Plan would be benefit from the standards.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario). Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Not applicable.** This measure is not applicable to the proposed Master Plan; however, vehicles accessing the proposed Master Plan would benefit from the increased availability of cleaner technology and fuels. Future residents, visitors, and employees can be expected to purchase increasing numbers of more fuel efficient and zero emission cars and trucks each year. Furthermore, delivery trucks and buses that would serve future residents, visitors, and employees accessing the Master Plan area would be made by increasing numbers of ZEV delivery trucks.
Sustainable Freight Action Plan The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.	**Not applicable.** This measure applies to owners and operators of trucks and freight operations and therefore does not apply to the proposed Master Plan.

2017 Scoping Plan Update Reduction Measure	Proposed Master Plan Consistency
Short-lived Climate Pollutant Reduction Strategy. The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030.	**Consistent.** Consistent with the provisions of BAAQMD Regulation 6, Rule 3, no wood-burning devices are proposed as part of the proposed Master Plan. Natural gas hearths produce very little black carbon compared to wood-burning fireplace. Furthermore, MM AIR-2g identified in Section 3.2-Air Quality, requires all new residential land uses to be designed as all-electric developments. Inclusion of MM AIR-2g residential further ensures that development under the proposed Master Plan would not include major sources of black carbon. The remaining non-residential portions of the proposed Master Plan would not be major sources of black carbon. Therefore, the proposed Master Plan would not include major sources of black carbon.
SB 375: Sustainable Communities Strategies. Requires Regional Transportation Plans to include a Sustainable Communities Strategy for reduction of per capita vehicle miles traveled.	**Not applicable.** This measure applies to projects or plans that include the development of a Regional Transportation Plan. However, the proposed Master Plan does not include the development of a Regional Transportation Plan.
Post-2020 Cap-and-Trade Program. The post-2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Not applicable.** The proposed Master Plan is not targeted by the cap-and-trade system regulations, and, therefore, this measure does not apply. However, the post-2020 Cap-and-Trade Program indirectly affects people and entities who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers.
Natural and Working Lands Action Plan. The ARB is working in coordination with several other agencies at the federal, State, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not applicable**. The proposed Master Plan site is in a built-up urban area and would not be considered natural or working lands.

[1] Marin Clean Energy. 2018. Power Content Label. Website: https://www.mcecleanenergy.org/wp-content/uploads/2019/12/MCE-Power-Content-Label_2018.pdf. Accessed February 28, 2020.
Source of ARB Scoping Plan Reduction Measures: California Air Resources Board (ARB). 2017. California's 2017 Climate Change Scoping Plan, the strategy for achieving California's 2030 GHG target. Website: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed March 1, 2019.

As shown in Table 3.7-6 the proposed Master Plan is consistent with the applicable strategies and would not conflict with the recommendations of SB 32 in achieving a Statewide reduction in GHG emissions. Therefore, the proposed Master Plan would not significantly hinder or delay the State's ability to meet the reduction targets contained in SB 32 or conflict with implementation of the Scoping Plan Update.

Conclusion

The proposed Master Plan contemplates mixed-use development that includes several design features that promote goals and measures contained in the City of San Ramon CAP and the ARB-adopted 2017 Climate Change Scoping Plan Update. Designed as a mixed-use development, the proposed Master Plan would locate housing adjacent to employment, entertainment, and retail nodes and would create a significant amount of internal capture between its components. The proposed Master Plan would develop housing on undeveloped and underutilized infill sites within the Bishop Ranch Business Park. Development of the housing contemplated in the proposed Master Plan would complement the existing employment center and maximize the use of existing infrastructure. Buildout of the proposed Master Plan would provide future residents, visitors, and employees connectivity to adjoining land uses including the Iron Horse Trail, Central Park, City Center Bishop Ranch, The Shops at Bishop Ranch, and the Marketplace through pedestrian and bicycle connections.

The proposed Master Plan is designed to make walking a convenient and practical mode of transportation for residents, employees, and patrons of the development contemplated in the proposed Master Plan. The inclusion of transit hubs would increase the proposed Master Plan's accessibility to public transportation and would improve mobility within Bishop Ranch, allowing for pick-up and drop-off at convenient locations easily accessible from major arterial roadways. In addition, new buildings associated with the proposed Master Plan would be compliant with all applicable energy efficiency standards such as Title 24 and CALGreen. Title 24 standards, widely regarded as the most advanced energy efficiency standards, would help reduce the amount of energy required for lighting, water heating, and heating and air conditioning in buildings and promote energy conservation.

As outlined in Table 3.7-5, the proposed Master Plan is consistent with the goals, policies, and actions set forth in San Ramon's CAP. As shown in Table 3.7-6, implementation of the proposed Master Plan would not conflict with the reduction measures outlined in the 2017 Scoping Plan Update addressing the SB 32 targets. Therefore, the proposed Master Plan would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of GHGs. The impact would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Implement MM AIR-2e.

Level of Significance After Mitigation

Less than significant impact.

3.8 - Hazards and Hazardous Materials

3.8.1 - Introduction

This section describes the existing hazards and hazardous materials setting and potential effects from implementation of the proposed Master Plan on hazards and hazardous materials within the Master Plan area and in the surrounding areas. Descriptions and analyses in this section are based on Phase I Environmental Site Assessments (Phase I ESAs) and Subsurface Investigations prepared by ATC Group Services LLC (ATC). These reports are provided in Appendix H. Additional information was provided by the California State Water Resources Control Board (State Water Board) 'Geotracker' database, the California Department of Public Health Indoor Radon Test Results, and site reconnaissance.

3.8.2 - Environmental Setting

Hazardous Materials

Hazardous materials, as defined by the California Code of Regulations, are substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. Hazardous materials are grouped into the following four categories, based on their properties:

- Toxic (causes human health effects)
- Ignitable (has the ability to burn)
- Corrosive (causes severe burns or damage to materials)
- Reactive (causes explosions or generates toxic gases)

A hazardous waste is any hazardous material that is discarded, abandoned, or slated to be recycled. If improperly handled, hazardous materials and hazardous waste can result in public health hazards if released into the soil or groundwater or through airborne releases in vapors, fumes, or dust. Soil and groundwater having concentrations of hazardous constituents higher than specific regulatory levels must be handled and disposed of as hazardous waste when excavated or pumped from an aquifer. The California Code of Regulations, Title 22, Sections 66261.20–24 contains technical descriptions of toxic characteristics that could cause soil or groundwater to be classified as hazardous waste.

Hazardous Materials Studies

The applicant, Sunset Development, commissioned several studies between 2016 and 2020 to evaluate the potential presence of hazardous materials within the Master Plan area. The studies are summarized in Table 3.8-1.

Table 3.8-1: Hazardous Materials Studies Summary

Preparer	Date	Document	Summary of Findings
ATC	January 18, 2016	Phase I ESA—Bishop Ranch 3A	• Soil should be characterized for herbicides/pesticides and petroleum hydrocarbons.

Preparer	Date	Document	Summary of Findings
			• Open buckets of oily materials and trash/debris should be removed and disposed of.
ATC	July 8, 2019	Phase I ESA—Bishop Ranch 1A	• Soil should be characterized for herbicides/pesticides and petroleum hydrocarbons.
ATC	July 31, 2019	Phase I ESA—Bishop Ranch 2600	• Asbestos containing materials found and removed in 2016. No further action needed.
ATC	September 16, 2019	Subsurface Investigation—Bishop Ranch 1A	• No recognized environmental conditions were identified. No further action needed.
ATC	September 16, 2019	Subsurface Investigation—Bishop Ranch 3A	• Diesel and motor oil detected 1 foot below grade were above applicable screening levels (ESLs). Diesel and motor oil detected approximately 3 feet below grade did not exceed applicable ESLs. The source is unknown.
ATC	January 7, 2020	Phase I ESA—Bishop Ranch 3A—Hotel Site	• No recognized environmental conditions were identified. No further action needed.
Source: ATC 2020.			

As shown in Table 3.8-1, there are no recognized environmental constraints existing on BR 1A or BR 2600. There was one recognized environmental constraint on BR 3A consisting of small quantities of diesel and motor oil detected in upper soil layers. Refer to Impact HAZ-2 for further discussion.

Database Search—Cortese List

Table 3.8-2 summarizes all of the recorded hazardous material sites within 0.5 mile of the Master Plan area based on a GeoTracker[1] search conducted in 2020. As shown in the table, four sites are listed, all of which are associated with underground storage tanks (USTs).

Table 3.8-2: Database Search Summary

Name	Address	Distance from Master Plan Area	Summary
AT&T California—W1245	2600 Camino Ramon	Within Master Plan area	Permitted UST; No reported releases
7-Eleven	1091 Market Place	350 feet	Permitted UST; No reported releases
Exxon	1091 Market Place	350 feet	Closed (2000); A suspected leaking gasoline UST was removed in 1998; Groundwater monitoring occurred from November 1998 to December 1999. Petroleum hydrocarbon concentrations found to be within

[1] GeoTracker includes sites listed on the Cortese List. Refer to Regulatory Framework section for discussion of the Cortese List.

Name	Address	Distance from Master Plan Area	Summary
			acceptable levels; Case Closure Letter issued in 2000.
Chevron Corporate Headquarters	6001 Bollinger Canyon Road	500 feet	Permitted UST; No reported releases
Notes: UST = underground storage tank Source: State Water Board 2020.			

Of the four sites, three are permitted UST sites with no reported releases. The fourth was a suspecting leaking UST at the gas station at 1091 Market Place. Groundwater was monitored at that location for petroleum hydrocarbon concentrations and a Case Closure letter was issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in 2000. As such, none of the four sites present a risk to human health or the environment from past or current USTs.

Asbestos

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals mined for their useful properties, such as thermal insulation, chemical and thermal stability, and high tensile strength. Asbestos is commonly used as an acoustic insulator, thermal insulation, fireproofing, and in other building materials. Asbestos is made up of microscopic bundles of fibers that may become airborne when asbestos-containing materials are damaged or disturbed. When these fibers get into the air they may be inhaled into the lungs, where they can cause significant health problems. The California Occupational Health and Safety Administration (Cal/OSHA) defines asbestos-containing materials as any material that contains 0.1 percent asbestos by weight.

The Phase I ESA prepared for BR 2600 indicated that asbestos containing materials were identified and removed in 2016. BR 1A and BR 3A are undeveloped. Thus, asbestos does not pose a risk to human health of the environment.

Lead

Lead is a highly toxic metal that was used until the late 1970s in a number of products, most notably paint. Lead may cause a range of health effects, from behavioral problems and learning disabilities to seizures and death. Primary sources of lead exposure are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated soil.

The Phase I ESA prepared for BR 2600 indicated that lead based paint was not found and would not be expected to be present due to the recent ages of the buildings. BR 1A and BR 3A are undeveloped. Thus, lead based paint does not pose a risk to human health of the environment.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are mixtures of man-made chemicals with similar chemical structures. PCBs can range from oily liquids to waxy solids. Because of their non-flammability,

chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications, including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other applications. More than 1.5 billion pounds of PCBs were manufactured in the United States prior to cessation of production in 1977.

No electrical transformers were observed on the parcels comprising the Master Plan area. A Chevron Corporation utility corridor that contains electrical transformers is located south of BR 1A on the opposite side of the Bishop Ranch 1 East roadway. This utility corridor is monitored by a security camera and appeared to be good condition. Electrical transformers may contain transformer oil. Although oil is typically not highly toxic or mobile in the environment, transformer oil may contain PCBs. Because of the maintained condition of the facility, it does not pose a risk to human health of the environment.

Pesticides

A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. The term pesticide applies to insecticides, herbicides, fungicides, and various other substances used to control pests. The health effects of pesticides depend on the type of pesticide. Examples of health risks posed by pesticides include cancer, nervous system damage, hormone or endocrine disruption, and eye or skin irritation.

The Master Plan area contained orchards until the late 1970s/early 1980s. Pesticides may have been applied for pest abatement. The orchards were all removed by the early 1980s, and all areas of the Master Plan area have either been developed or substantially graded since then. Subsurface investigations conducted for BR 1A and BR 3A found that concentrations of organochloride pesticides were below Environmental Screening Levels (ESLs). Thus, pesticides do not pose a risk to human health of the environment.

Radon

Radon is a carcinogenic, radioactive gas resulting from the natural breakdown of uranium in soil, rock, and water. Radon gas enters a building through cracks in foundations and walls. Once inside the building, radon decay products may become attached to dust particles and inhaled, or the decayed radioactive particles alone may be inhaled and cause damage to lung tissue. The United States Environmental Protection Agency (EPA) has established a safe radon exposure threshold of 4 picocuries per liter (pCi/l) of air.

The California Department of Health Services has conducted more than 48,000 indoor radon tests in more than 1,700 zip codes through the State, including 52 tests in the 94583 zip code (San Ramon). The 52 tests conducted in the 94583 zip code yielded four results that exceeded 4 pCi/l (7.7 percent). This corresponds to a moderate indoor radon potential.

Low-Frequency Electromagnetic Fields

Electrical transmission and distribution lines emit extremely low-frequency electromagnetic fields (EMFs), which have been suspected to be linked to cancer. However, scientific research has never

conclusively established a link between EMFs and cancer. In 2007, the World Health Organization issued a report titled "Extremely Low Frequency Fields, Environmental Health Criteria Monograph No. 238" that concluded that evidence between extremely low-frequency EMFs and childhood leukemia is not strong enough to be considered causal, although it did note that the issue still was of concern. The same report indicated that there is inadequate evidence or no evidence linking low-frequency EMFs and health effects associated with all other diseases.

An existing 220-kilovolt (kV), high-voltage, Pacific Gas and Electric Company (PG&E) power line parallels the Iron Horse Trail in Central Park, approximately 100 feet east of BR 1A and 3A. The line is known as the 'Research Tap' and connects the PG&E research facility on Crow Canyon Road to a regional transmission in south San Ramon.

Hydrocarbons/Aboveground and Underground Storage Tanks

Petroleum hydrocarbons are derived from crude oil, which is refined into various petroleum products such as diesel, gasoline, kerosene, lubricants, and heavy fuel oils. Hydrocarbons constituents include benzene, N-heptane, and toluene, and generate health effects such as cancer, leukemia, asthmatic bronchitis, kidney damage, and eye irritation. Hydrocarbons are stored in aboveground storage tanks (ASTs) and USTs. Leaking ASTs and USTs can result in contamination of groundwater sources or fire and explosion.

BR 2600

BR 2600 contained two USTs, one 10,000-gallon UST and one 12,000-gallon UST that were installed in 1985 in order to provide a fuel source for fleet vehicles associated with Pacific Bell. In 2001, the 12,000-gallon UST was removed from the property and was closed under the oversight of the Contra Costa County Environmental Health Department with no further assessment required. The 10,000-gallon UST was not removed and has remained in use.

Currently, BR 2600 contains two USTs: a 10,000-gallon diesel fuel UST located within the southeastern-most parking lot (installed 1985), and a 2,000-gallon diesel fuel UST located within the northwestern-most parking lot (installed 1996). The USTs are permitted with the County of Contra Costa and no reported releases have occurred. The property is listed as an active AST site due to the onsite operation of ASTs containing diesel fuel. The site listing is related to the onsite operation of ASTs and USTs on the property.

BR 1A and BR 3A

There are no ASTs or USTs within BR 1A or BR 3A.

3.8.3 - Regulatory Framework

Federal

Resource Conservation and Recovery Act

The 1976 Federal Resource Conservation and Recovery Act (RCRA) and the 1984 RCRA Amendments regulate the treatment, storage, and disposal of hazardous and non-hazardous wastes. The legislation mandated that hazardous wastes be tracked from the point of generation to their

ultimate disposal, including detailed tracking of hazardous materials during transport and permitting of hazardous material handling facilities.

The 1984 RCRA Amendments provided the framework for a regulatory program designed to prevent releases from USTs. The program establishes tank and leak detection standards, including spill and overflow protection devices for new tanks. The tanks must also meet performance standards to ensure that the stored material will not corrode the tanks. Owners and operators of USTs had until December 1998 to meet the new tank standards.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 introduced active federal involvement to emergency response, site remediation, and spill prevention, most notably the Superfund program. CERCLA was intended to be comprehensive in encompassing both the prevention of, and response to, uncontrolled hazardous substances releases. CERCLA deals with environmental response, providing mechanisms for reacting to emergencies and to chronic hazardous material releases. In addition to establishing procedures to prevent and remedy problems, it establishes a system for compensating appropriate individuals and assigning appropriate liability. It is designed to plan for and respond to failure in other regulatory programs and to remedy problems resulting from action taken before the era of comprehensive regulatory protection.

State

Cortese List

The provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List." The list, or a site's presence on the list, has bearing on the local permitting process as well as on compliance with the California Environmental Quality Act (CEQA). While Government Code Section 65962.5 refers to the preparation of a 'list,' many changes have occurred related to web-based information access since 1992 and this information is now largely available on the State Water Board websites of GeoTracker and EnviroStor. Those requesting a copy of the Cortese "list" are now referred directly to the appropriate information resources contained on the Internet websites (e.g., GeoTracker and EnviroStor).

California Health and Safety Code

The California Environmental Protection Agency (Cal/EPA) has established rules governing the use of hazardous materials and the management of hazardous wastes. California Health and Safety Code Section 25531, *et seq*. incorporates the requirements of Superfund Amendments and Reauthorization Act and the Clean Air Act as they pertain to hazardous materials. Health and Safety Code Section 25534 directs facility owners storing or handling acutely hazardous materials in reportable quantities to develop a Risk Management Plan. The Risk Management Plan must be submitted to the appropriate local authorities, the designated local administering agency, and the EPA for review and approval.

Local

City of San Ramon

General Plan

The City of San Ramon General Plan 2035 establishes the following relevant policies related to hazards and hazardous materials:

- **Policy 9.1-I-1:** Maintain and update the City's Emergency Operations Plan, as required by State and Federal laws, to minimize the risk to life and property of seismic and geologic hazards, hazardous materials and waste, and fire.
- **Policy 9.3-G-1:** Minimize the risk of property damage and personal injury resulting from the production, use, storage, disposal, or transportation of hazardous materials.
- **Policy 9.3-I-1**: Promote the reduction, recycling, and safe disposal of household hazardous wastes through public education and awareness.
- **Policy 9.3-I-2:** Continue to investigate options for establishing household hazardous waste drop off locations that are convenient to San Ramon residents.
- **Policy 9.3-I-3**: Require the clean-up of sites contaminated with hazardous substances.
- **Policy 9.3-I-4:** Support and implement policies contained in the Contra Costa County Hazardous Waste Management Plan that encourage and assist the reduction of hazardous waste from businesses and homes in San Ramon.
- **Policy 9.3-I-5:** Require businesses generating hazardous waste to pay necessary costs for local implementation of programs specified in the County Hazardous Waste Management Plan, as well as the costs associated with emergency response services for a hazardous materials release.
- **Policy 9.3-I-6:** Work with the San Ramon Valley Fire Protection District to minimize potentially dangerous conditions from storing, dispensing, using and handling of hazardous materials.

Contra Costa Hazardous Materials Program

The Contra Costa Hazardous Materials Program serves area residents by responding to emergencies and monitoring hazardous materials. The 2016 Contra Costa County Hazardous Materials Area Plan is a comprehensive document that includes the identification of hazardous materials incident planning, operations, organization, and responsibilities for handling a hazardous materials incident that may impact Contra Costa County. It also provides support for hazardous materials management in Contra Costa County, including the coordination of data management, business plans, and facility inspections. The 2016 Contra Costa County Hazardous Materials Area Plan is designed to protect human health and the environment through hazardous materials emergency planning and community right-to-know programs within the County.

The Contra Costa Health Services—Hazardous Materials Programs (CCHS-HMP) is authorized by Cal/EPA to be the Certified Unified Program Agency (CUPA) for all cities and unincorporated areas within Contra Costa County. As the CUPA, CCHS-HMP is the local agency responsible for administering the six elements of the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program).

San Ramon Emergency Operations Plan

The City of San Ramon adopted the Strategic Plan for the City Office of Emergency Services in 2007, and the Emergency Operations Plan in 2019 to address potential impacts from a major earthquake, hazardous materials incident, flood, national security emergency, wildfire, landslide, and dam failure. The objectives of the Emergency Operations Plan are to reduce injury and loss of life and property through effective management of emergency forces. The Emergency Operations Plan identifies the City's emergency planning, organizational, and response policies and procedures, integrating and coordinating these with other governmental levels when required.

3.8.4 - Methodology

FirstCarbon Solutions (FCS) prepared this section using information provided by the Phase I ESAs and Subsurface Investigations prepared by ATC; the State Water Board 'Geotracker' database; the California Department of Public Health Indoor Radon Test Results; and site reconnaissance.

3.8.5 - Thresholds of Significance

According to CEQA Guidelines Appendix G, Environmental Checklist, hazards and hazardous materials impacts resulting from the implementation of the proposed Master Plan would be considered significant if the Master Plan would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working the project area? (Refer to Chapter 7, Effects Found not to be Significant)

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury, or death involving wildland fires? (Refer to Chapter 7, Effects Found not to be Significant)

3.8.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed Master Plan and provides mitigation measures where appropriate.

Routine Transport, Use, or Disposal of Hazardous Materials

Impact HAZ-1:	**The proposed Master Plan would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.**

Impact Analysis

This impact is associated with hazards caused by the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Construction

Construction activities for the proposed Master Plan may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. Transportation, storage, use, and disposal of hazardous materials during construction activities would be required to comply with applicable federal, State, and local statutes and regulations (e.g., RCRA, California Health and Safety Code, CCHS-HMP, San Ramon General Plan). Compliance would ensure that human health and the environment are not exposed to hazardous materials and that impacts would remain less than significant during construction activities.

Operation

The residential, hotel, retail, and office uses, and well as the parks, open space, other public facilities, and improvements to existing BR 2600 facilities, envisioned by the proposed Master Plan would not require the use of large quantities of hazardous materials. Small quantities of hazardous materials would be used on-site, including cleaning solvents (e.g., degreasers, paint thinners, and aerosol propellants), paints (both latex- and oil-based), acids and bases (such as many cleaners), disinfectants, and fertilizers. These substances would be stored in maintenance areas and would comply with all applicable storage, handling, usage, and disposal requirements. The potential risks posed by the use and storage of these hazardous materials are primarily limited to the immediate vicinity in which the materials are used and stored. The transport of these materials would be handled by commercial vendors who would be required to comply with various federal and State laws regarding hazardous materials transportation (e.g., RCRA, California Health and Safety Code, CCHS-HMP, San Ramon General Plan). As such, the use of hazardous materials at operation of the proposed Master Plan is not expected to create a significant hazard to the public or the environment and impacts would be less than significant.

Hazardous Materials Business Plans

Future tenants will be required to submit a Hazardous Materials Business Plan to the Contra Costa Health Services Hazardous Materials Program if they intend to store 55 gallons of hazardous materials as a liquid, 500 pounds of hazardous materials as a solid, or 200 cubic feet of hazardous materials as a gas on-site. Compliance with the CUPA program is required during the building permit and fire clearance review process for all tenants within the proposed Master Plan.

Conclusion

In summary, the proposed Master Plan would not have the potential to create a significant hazard to the public or the environment from routine transport, use, or disposal of hazardous materials or through the reasonably foreseeable upset and accident conditions. Impacts would be less than significant

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Risk of Upset

Impact HAZ-2:	**The proposed Master Plan may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.**

Impact Analysis

This impact analysis assesses the proposed Master Plan's potential to expose human health or the environment to contamination, both on-site and on nearby land uses.

BR 3A

The Subsurface Investigation for BR 3A found that small concentrations of diesel and motor oil were detected in upper soil layers (i.e., 3 feet or less). The source is unknown. The Subsurface Investigation noted that standard grading and soil engineering practices would abate this condition. The Subsurface Investigation noted that soils excavated during site grading may not be suitable for unrestricted use and recommended that the soils be tested for petroleum hydrocarbons prior to disposal. This recommendation is reflected in Mitigation Measure (MM) HAZ-2. With implementation of MM HAZ-2, impacts would be less than significant.

BR 2600

BR 2600 previously contained asbestos containing materials that were identified and removed in 2016. The Phase I ESA advised that no further action was required. As such there is a low possibility of risk of upset from development within BR 2600.

The two existing USTs are permitted with the Contra Costa County Health Services Department. No reported releases have occurred. Additionally, the USTs are not proposed for removal or relocation. As such there is a low possibility of risk of upset from the two existing USTs within BR 2600.

Indoor Radon

San Ramon has a moderate potential for elevated indoor radon concentrations. Indoor radon is of most concern in subgrade spaces such as basements and parking garages. Standard design and

construction practices such as slab-on-grade construction and forced air systems abate the potential for elevated indoor radon concentrations.

Several of the residential and non-residential buildings may utilize a subgrade level for parking. Most of the structural foundations would be slab-on-grade and forced air systems would be utilized as appropriate to address any potential for elevated indoor radon concentrations.

Low-Frequency Electromagnetic Fields

The PG&E 220 kV 'Research Tap' parallels the east side of the Iron Horse Trail Corridor and is approximately 100 feet from the Master Plan area. As previously discussed, no authoritative medical or scientific body has ever established a causal link between the types of extremely low-frequency EMFs emitted by high-voltage power lines and diseases such as cancer. Extremely low-frequency EMFs emitted from common household appliances and electronics such as microwaves, clothes washers, and electric ranges occur at levels equivalent to those found at the edge of high-voltage power line rights-of-way.[2] As such, human exposure to extremely low-frequency EMFs is quite common in modern society and is not limited to areas near high-voltage power lines. The only adopted guidelines in California for high-voltage power line setbacks are for new public schools (California Department of Education Code of Regulations, Title 5, Section 14010(c); there are no setback requirements or guidance for private, commercial, and residential projects.[3] For these reasons, impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM HAZ-2 Soil generated by construction activities on BR 3A shall be stockpiled onsite in a secure and safe manner or if designated for off-site disposal at a permitted facility, the soil shall be loaded, transported and disposed of in a safe and secure manner. Prior to off-site disposal of any excavated soils from BR 3A, the applicant shall retain a qualified consultant to test the soils for petroleum hydrocarbons. If testing reveals concentrations above acceptable levels, the applicant shall either treat the soils or dispose of them at an approved disposal facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state and federal agencies laws, in particular, the Regional Water Quality Control Board (RWQCB), Contra Costa Health Services and policies of the City of San Ramon.

Level of Significance After Mitigation

Less than significant impact.

[2] For example, A 2010 EPRI Appliance Measurement Study found that an electric range emits EMFs between 66 and 2,000 milligauss at a distance of 1.2 feet, while high-voltage power lines emit EMFs between 1 to 300 milligauss at the edge of right-of-way.

[3] California Department of Education. 2006. Power Line Setback Exemption Guidance. Website: https://www.cde.ca.gov/ls/fa/sf/powerlinesetback.asp.

Hazardous Emissions Proximate to a School

Impact HAZ-3: **The proposed Master Plan would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

Impact Analysis

This impact is related to hazardous emissions within 0.25 mile (approximately 1,320 feet) from a school. Iron Horse Middle School is located approximately 770 feet from BR 2600 and approximately 1,300 feet from BR 3A.

Construction

Construction activity would be expected to involve the transport, use, and disposal of hazardous materials, such as diesel fuels, aerosols, and paints. However, all materials will be staged in designated construction areas and properly stored and contained. In addition, the use of these materials would be subject to the Hazardous Materials Transportation Act, California Public Resources Code, and other State and local regulations that would limit the use of hazardous materials and reduce the associated risks of exposure. As such, construction impacts related to hazardous emissions proximate to a school would be less than significant.

Operation

As stated under Impact HAZ-1, small quantities of hazardous materials would be used on-site, including cleaning solvents (e.g., degreasers, paint thinners, and aerosol propellants), paints (both latex- and oil-based), acids and bases (such as many cleaners), disinfectants, and fertilizers. These substances would be stored in maintenance areas and would comply with all applicable storage, handling, usage, and disposal requirements. Unlike industrial development that involves hazardous materials such as gas stations, paint stores, or auto parts stores, the proposed Master Plan does not involve the type or quantity of hazardous materials that could pose a significant environmental accident. Therefore, operational impacts related to hazardous emissions proximate to a school would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Government Code Section 65962.5 Sites

Impact HAZ-4: **The proposed Master Plan would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.**

Impact Analysis

Impacts related to locating the proposed Master Plan on a hazardous materials site per Government Code Section 65962.5 are limited to operational impacts. No respective construction impacts would occur.

A regulatory records review of the Cal/EPA, State Water Board, California Facility Inventory Database (CA FID) UST and State Water Efficiency and Enhancement Program (SWEEP), Hazardous Waste Information System (HAZNET), California Department of Toxic Substances Control (DTSC) EnviroStor, Bay Area Air Quality Management District (BAAQMD), and GeoTracker regulated facilities databases for files related to possible Recognized Environmental Conditions (RECs) was conducted for the Master Plan area. The results are compiled in the Phase I ESAs included as Appendix E. As discussed in Section 3.8.2, Environmental Setting, there are no recognized environmental constraints that exist on BR 1A or BR 2600. There was one recognized environmental constraint on BR 3A consisting of small quantities of diesel and motor oil detected in upper soil layers. As discussed in Impact HAZ-2, implementation of MM HAZ-2, which requires that excavated soils be tested for petroleum hydrocarbons prior to disposal, would reduce potential impacts to less than significant.

As detailed in Section 3.8.2, Environmental Setting, based on a review of all recorded hazardous material sites within 0.5 mile of the Master Plan area, four sites are listed, all of which are associated with USTs. Of the four sites, three are permitted UST sites with no reported releases. The fourth was a suspecting leaking UST at the gas station at 1091 Market Place. Groundwater at that location was monitored for petroleum hydrocarbon concentrations and a Case Closure letter was issued by the San Francisco Bay RWQCB in 2000. As such, none of the four sites present a risk to human health or the environment from past or current USTs. Therefore, impacts related to locating development on a hazardous materials site and, thus, creating a hazard to the public or environment, would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Emergency Response and Evacuation

Impact HAZ-5: The proposed Master Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Impact Analysis

This impact is related to impairment or interference with an adopted emergency response plan or emergency evacuation plan.

Construction

During construction, it is expected that construction equipment and vehicles would be accessing and leaving the Master Plan area, which in turn could potentially impede evacuation or emergency vehicle access. However, as discussed under Impact TRANS-5 in Section 3.14, Transportation, the proposed Master Plan would result in less than significant impacts related to emergency vehicle access. In addition, the proposed Master Plan would comply with the San Ramon Emergency Operations Plan, ensuring efficient response to emergency incidents associated with emergencies affecting San Ramon. Therefore, construction impacts related to emergency response and evacuation would be less than significant.

Operation

The San Ramon Emergency Operations Plan identifies the appropriate actions to take when an event occurs due to a major earthquake, hazardous materials incident, flood, national security emergency, wildfire, landslide, and dam failure. Included in this Plan is information regarding evacuations and shelter-in-place orders as well as who has the authority to issue these orders. The main arterial roads into and out of the Master Plan vicinity would be Bollinger Canyon Road in the east-west direction and Camino Ramon, Alcosta Boulevard, and Interstate 680 (I-680) in the north-south direction. These roads would act as the main evacuation routes into and out of the Master Plan vicinity. With adherence to the procedures of the San Ramon Emergency Operations Plan, the proposed Master Plan would not conflict with an adopted emergency response plan.

The proposed Master Plan would have multiple roadway connections to adjoining roadways. BR 1A would be accessed from the roads that connect to Bollinger Canyon Road. BR 3 would be accessed from Camino Ramon and the planned extension of Bishop Drive. BR 2600 would either maintain or relocate its existing access points with Camino Ramon, Bishop Drive, and Executive Parkway. In sum, a minimum of two points would be provided to all structures within the Master Plan area in accordance with Fire Code requirements. Therefore, operational impacts related to emergency response and evacuation would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

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3.9 - Hydrology and Water Quality

3.9.1 - Introduction

This section describes the existing hydrology and water quality setting and potential effects from Master Plan implementation on hydrology and water quality within the Master Plan area and its surrounding area.

3.9.2 - Environmental Setting

Climate

San Ramon is characterized by an Inland Mediterranean climate, which is noted for hot, dry summers, mild winters, and moderate precipitation. The average monthly high temperature is 89° F (degrees Fahrenheit) in July and the average month low temperature is 36.7°F in January. Average annual rainfall is 14.18 inches. Table 3.9-1 summarizes the monthly climate averages, as measured at the Livermore Cooperative Observer Program weather station, the closest station to San Ramon.

Table 3.9-1: San Ramon Monthly Climate Summary

Month	Temperature (°F)		Precipitation (inches)
	Average High	Average Low	
January	56.8	36.7	2.97
February	61.2	39.4	2.47
March	65.2	41.3	2.15
April	70.5	43.6	1.00
May	76.4	47.6	0.44
June	83.1	51.7	0.11
July	89.0	54.2	0.02
August	88.2	54.0	0.04
September	86.0	52.5	0.22
October	77.7	47.7	0.67
November	66.3	41.1	1.54
December	57.5	37.0	2.56
Annual Average	**73.2**	**45.6**	**14.18**

Notes:
As measured at Livermore weather station between January 1, 1903, to May 31, 2016.
Source: Western Regional Climate Center 2020.

Regional Hydrology

A review of the Contra Costa County Watershed Atlas indicates that the Master Plan area is located within the upper portion of the South San Ramon Creek Watershed, which is part of the larger Alameda Creek Watershed (CCCDD 2003). The upper basin of the Alameda Creek Watershed encompasses approximately 630 square miles and is divided into the Livermore and Sunol drainage units. The major streams within Livermore drainage unit are the Arroyo del Valle, Arroyo Mocho, and San Ramon and Tassajara creeks. The Arroyo del Valle and Arroyo Mocho have the largest drainage areas and converge on the floor of the Livermore-Amador Valley, south of the Master Plan area, to form the Arroyo de la Laguna.

Locally, all surface water originating from within the Master Plan area drains into South San Ramon Creek, which flows in a southerly direction through the southern portion of the San Ramon Valley and into the Arroyo de la Laguna. The Arroyo de la Laguna continues to the south, roughly parallel to Interstate 680 (I-680), where it confluences with Alameda Creek near Sunol. Alameda Creek flows to the west from this location and empties into San Francisco Bay in Fremont. Exhibit 3.9-1 depicts the Alameda Creek watershed boundaries.

Localized Drainage

The Master Plan area is generally level with no prominent topographical characteristics. The southern portion of the San Ramon Valley naturally slopes to the southeast at a grade of approximately 1 percent. South San Ramon Creek is generally a channelized water feature that is piped underground at several locations to facilitate urban development. Under existing conditions, the developed and undeveloped portions of the Master Plan area drain into local catch basins or storm drain inlets, which enter into the City's municipal storm drainage system.

The Master Plan area has existing storm drainage infrastructure with BR 2600 and along the streets surrounding BR 1A and BR 3A. Within BR 1A and BR 3A, no stormwater infrastructure exists. As such, runoff ponds on-site (and percolates into the soil or evaporates) or sheet flows onto streets and into the municipal storm drainage system.

Groundwater

The Master Plan area overlies the San Ramon Valley Groundwater Basin. The California Department of Water Resources provides the following summary of the basin, as published in Bulletin 118 (DWR 1998).

The San Ramon Valley Groundwater Basin is located with southern Contra Costa County and is generally bounded by Las Trampas Ridge (west), Stone Valley (north), the Mount Diablo foothills (east), and the Livermore Groundwater Basin (south). The dominant water bearing geologic formation is Holocene Alluvium, which consist of sediments deposited onto the valley floor by streams. Faults are major restrictive structures and serve as barriers to the lateral movement of groundwater. Limited information is available about groundwater level trends, storage capacity, or budget, largely due to the fact that potable water is provided by imported sources and the transition of the San Ramon Valley from agricultural to urban use in the 1960s through 1980s, which significantly reduced reliance on groundwater.

Water Quality

Surrounding land uses largely affect surface water quality, with both point-source and nonpoint-source discharges contributing contaminants to surface waters. A majority of the surrounding land uses contain business parks, high-density residential developments, and scattered undeveloped lots. Pollutant sources in residential areas and business parks include streets, parking areas, rooftops, exposed earth at construction sites, automobiles, and landscaped areas. Pollutants of concern in discharges from these uses include certain heavy metals, excessive sediment production from erosion, petroleum hydrocarbons from sources such as motor oil, certain pesticides associated with the risk of acute aquatic toxicity, excessive nutrient loads, and trash.

3.9.3 - Regulatory Framework

Federal

Clean Water Act

The Clean Water Act (CWA), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important applicable sections of the Act are as follows:

- Section 301 prohibits the discharge of any pollutant by any person, except as in compliance with Sections 302, 306, 307, 318, 402, and 404 of the CWA. Sections 303 and 304 provide water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity which may result in a discharge to "waters of the United States" to obtain certification from the State that the discharge will comply with other provisions of the Act. Certification is provided by the Regional Water Quality Control Boards (RWQCBs).
- Section 402 establishes the National Pollution Discharge Elimination System (NPDES) a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. This permit program is administered by the RWQCB.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the United States Army Corps of Engineers (USACE).

Potential impacts on jurisdictional waters and wetlands are evaluated in Section 3.3, Biological Resources.

State

Porter-Cologne Water Quality Control Act

The State of California's Porter-Cologne Water Quality Control Act (California Water Code Section 13000, *et seq*.) provides the basis for water quality regulation within California. The Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the State. Waste Discharge

Requirements (WDRs) resulting from the Report are issued by the RWQCB, as discussed further below. In practice, these requirements are typically integrated with the NPDES permitting process.

The California State Water Resources Control Board (State Water Board) carries out its water quality protection authority through the adoption of specific Water Quality Control Plans (Basin Plans). These Basin Plans establish water quality standards for particular bodies of water. California water quality standards are composed of three parts: the designation of beneficial uses of water, water quality objectives to protect those uses, and implementation programs designed to achieve and maintain compliance with the water quality objectives.

The San Francisco Bay RWQCB is responsible for the Basin Plan that covers the portions the nine-county Bay Area region nearest to San Francisco Bay. The RWQCB implements management plans to modify and adopt standards under provisions set forth in Section 303(c) of the Federal CWA and California Water Code (Division 7, § 13240). Under Section 303(d) of the 1972 CWA, the State is required to develop a list of waters with segments that do not meet water quality standards.

General Construction Stormwater NPDES Permit

The San Francisco Bay RWQCB administers the NPDES stormwater permitting program in the nine-county Bay Area for construction activities. Construction activities disturbing 1 acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). For qualifying projects, the project applicant must submit a Notice of Intent (NOI) to the RWQCB to be covered by the General Construction Permit prior to the beginning of construction. The General Construction Permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which must also be completed before construction begins. Implementation of the SWPPP starts with the commencement of construction and continues through the completion of the project. Upon completion of the proposed Master Plan, the applicant must submit a Notice of Termination to the RWQCB to indicate that construction is completed.

The disturbance areas associated with the construction of structures and facilities associated with the proposed Master Plan would exceed the threshold requiring coverage under the General Construction Permit.

City of San Ramon

General Plan

The City of San Ramon General Plan 2035 establishes the following policies related to hydrology and water quality:

- **Policy 8.6-G-1:** Encourage the implementation of water quality and conservation programs and measures by San Ramon employers, residents, and service providers.
- **Policy 8.6-I-1:** Require new development projects to implement indoor water conservation and demand management measures.
- **Policy 8.6-I-3:** New development in areas where recycled water service exists or is planned shall be plumbed with “purple pipe” and other measures necessary to accommodate nonpotable water service.

- **Policy 8.6-I-5:** Collaborate with DERWA (Dublin San Ramon Services District and East Bay Municipal Utilities District Recycled Water Authorities)
- **Policy 8.6-I-6:** Continue implementation of the City of San Ramon Stormwater Management Program to reduce stormwater pollution, provide public education, and to protect the water quality of the City's local creeks and streams.
- **Policy 8.6-I-7:** Promote the protection of groundwater resources by collaborating with agencies that monitor and oversee clean-up efforts at existing sources of pollution.
- **Policy 9.4-G-1:** Protect the community from risks to lives and property posed by flooding and stormwater runoff.
- **Policy 9.4-I-1:** Reduce hazards caused by local flooding through improvements and ongoing maintenance to the storm drain system and/or creek corridors.
- **Policy 9.4-I-2:** Require new development to prepare hydrologic studies to assess storm runoff impacts on the local and subregional storm drainage systems and/or creek corridors. New development shall implement all applicable and feasible recommendations from the studies.
- **Policy 9.4-I-3:** Require new development to provide a funding mechanism for ongoing maintenance of drainage facilities and other stormwater control measures. Maintenance may be by the City under contract, or by a private entity.
- **Policy 9.4-I-4:** Establish landscape and maintenance guidelines for required detention basins to ensure that such facilities achieve a look and quality that is consistent with the landscape of San Ramon and applicable regulatory requirements.
- **Policy 9.4-I-5:** Maintain flood insurance rate maps and post for public education. Encourage all property owners within flood hazard areas to carry flood insurance.
- **Policy 9.4-I-6:** Explore new funding mechanisms for enhancing the riparian environment and converting, where possible, flood control channels back to a more natural setting while keeping the existing uses and maintaining sufficient carrying capacity of the channels.
- **Policy 9.4-I-7:** All new developments shall not increase runoff to the 100-year peak flow in the City's flood control channels or to local creeks and shall be substantially equal to pre-development conditions. All new stormwater systems shall be in compliance with the requirements of the City's Stormwater Municipal Regional Permit issued by the San Francisco Bay Regional Water Quality Control Board.
- **Policy 9.4-I-8:** New development shall be required to locate buildings above the 100-year floodplain and outside the special flood hazard area to minimize potential flood damages.

3.9.4 - Methodology

The impact analysis assesses the proposed Master Plan's potential to impact local drainage patterns, water quality, local groundwater resources, and South San Ramon Creek. The impact analysis focuses on foreseeable changes to the existing hydrological conditions of the Master Plan area. Impacts to hydrology are quantitatively assessed, while those for water 7quality are generally qualitative. Impacts of the proposed Master Plan are identified for both the construction and operation of all Master Plan facilities, including construction staging areas.

3.9.5 - Thresholds of Significance

According to California Environmental Quality Act (CEQA) Guidelines, Appendix G Environmental Checklist, hydrology and water quality impacts resulting from the implementation of the proposed Master Plan would be considered significant if the Master Plan would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
   (i) result in substantial erosion or siltation on- or off-site;
   (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; or
   (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? (Refer to Section 7, Effects Found not to be Significant)

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (Refer to Section 7, Effects Found not to be Significant)

3.9.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed Master Plan and provides mitigation measures where appropriate.

Water Quality

Impact HYD-1:	**Construction and operation activities associated with the proposed Master Plan would have the potential to violate water quality standards, waste discharge requirements, and degrade surface water quality in downstream water bodies or ground water quality.**

Impact Analysis

Construction

Construction activities associated with buildout of the Master Plan would involve vegetation removal, grading, and excavation activities on-site. Ground-disturbing activities related to construction would temporarily increase the amount of debris on-site. Grading activities may increase erosion and sedimentation that could be carried by runoff, along with other pollutants on-site, into the storm drainage system, thereby potentially degrading downstream water quality or groundwater quality.

Construction would also require the use of gasoline and diesel-powered heavy equipment, such as bulldozers, backhoes, water pumps, and air compressors. Chemicals such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, solvents, glues, and other substances would be utilized during construction. An accidental release of any of these substances could degrade surface water quality in downstream water bodies or groundwater quality.

NPDES stormwater permitting is required by the State Water Board's Construction General Stormwater Permit (General Permit). The General Permit regulates stormwater discharges from construction sites. Under the General Permit, the preparation and implementation of SWPPPs are required for construction activities that disturb more than 1 acre of land. The SWPPP must identify potential sources of pollution that may be reasonably expected to affect the quality of stormwater discharges as well as identify and implement BMPs that ensure the reduction of these pollutants during stormwater discharges.

Implementation of Mitigation Measure (MM) HYD-1a, which would require the project applicant to prepare and implement a SWPPP, would ensure that potential, short-term, construction water quality impacts are reduced to a level of less than significant. Final elements of the SWPPP would be confirmed by the City of San Ramon prior to the issuance of a grading permit. However, typical SWPPP elements may include, but are not limited to, the following:

- Comply with the requirements of the State of California's most current Construction Stormwater Permit.
- Temporary erosion control measures shall be implemented on all disturbed areas.
- Disturbed surfaces shall be treated with erosion control measures during the October 15 to April 15 rainy season.
- Sediment shall be retained on-site by a system of sediment basins, traps, or other Best Management Practices (BMPs).
- The construction contractor shall prepare Standard Operating Procedures for the handling of hazardous materials on the construction site to eliminate discharge of materials to storm drains.
- BMP performance and effectiveness shall be determined either by visual means where applicable (e.g., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination (such as inadvertent petroleum release) is required by the San Francisco Bay Regional Water Quality Control Board to determine adequacy of the measure.
- In the event of significant construction delays or delays in final landscape installation, native grasses or other appropriate vegetative cover shall be established on the construction site as soon as possible after disturbance, as an interim erosion control measure throughout the wet season.

Operation

Buildout of the Master Plan would increase the amount of impervious surface coverage and would create the potential for discharge of urban pollutants into downstream waterways. Such pollutants would include sediment and turbidity, nutrients, organic compounds, oxygen demanding substances, trash and debris, bacteria and viruses, oil and grease, pesticides, and metals.

The proposed Master Plan identifies the Low Impact Development (LID) stormwater quality measures to be implemented, including structural BMPs, landscaped areas, and storm drainage infrastructure. Additionally, the proposed Master Plan would incorporate vegetated swales, detention and infiltration, and detention basins into the on-site storm drainage system. These measures would serve to trap larger objects and promote percolation of runoff into the soil, which would serve to sequester pollutants and minimize the amount of pollutants leaving the Master Plan area.

To ensure that stormwater quality measures are employed on the Master Plan area, MM HYD-1b would be required. MM HYD-1b requires the project applicant to prepare and submit a Stormwater Control Plan (SCP) to the City of San Ramon for review and approval. Final elements of the SCP would be confirmed by the City of San Ramon prior to the issuance of a grading permit. However, typical elements within a SCP include identifying pollution prevention measures and practices that comply with the most recently adopted provisions of the Municipal Regional Permit. Examples of stormwater pollution prevention measures and practices to be contained in the SCP include, but are not limited to, the following:

- Bioswales and landscaped areas that promote percolation of runoff
- Elimination of all trash from stormwater leaving the site
- Pervious pavement
- Roof drains that discharge to landscaped areas
- Trash enclosures with screen walls and roofs
- Stenciling on storm drains
- Curb cuts in parking areas to allow runoff to enter landscaped areas
- Rock-lined areas along landscaped areas in parking lots
- Regular sweeping of parking areas and cleaning of storm drainage facilities
- Employee training to inform store personnel of stormwater pollution prevention measures

Implementation of MM HYD-1b would ensure that potential, long-term, operational water quality impacts are reduced to a level of less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM HYD-1a Prior to the issuance of grading permits, the project applicant shall file a Notice of Intent (NOI) with and obtain a facility identification number from the State Water Resources Control Board. The project applicant shall also submit a Storm Water Pollution Prevention Plan (SWPPP) to the City of San Ramon that identifies specific

actions and Best Management Practices (BMPs) to prevent stormwater pollution during construction activities. The SWPPP shall identify a practical sequence for BMP implementation, site restoration, contingency measures, responsible parties, and agency contacts.

MM HYD-1b Prior to the issuance of site development permits, the project applicant shall submit a final Stormwater Control Plan (SCP) to the City of San Ramon for review and approval. The SCP shall be developed using the Contra Costa Stormwater C.3 Guidebook and be designed to discourage prolonged standing/ponding of water on-site.

Level of Significance After Mitigation

Less than significant impact.

Groundwater

Impact HYD-2:	**The proposed Master Plan would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed Master Plan may impede sustainable groundwater management of the basin.**

Impact Analysis

The San Ramon Valley Groundwater Basin is not in a state of overdraft and is not a primary municipal water supply source.

The proposed Master Plan would be supplied with potable water by East Bay Municipal Utility District (EBMUD). Potable water used in San Ramon is imported from the Mokelumne River reservoirs in Amador County. Additionally, the Master Plan area would be served by San Ramon Valley Water Recycling Program for non-potable landscape irrigation. No groundwater resources would be used by the proposed Master Plan. Thus, the proposed Master Plan would not interfere substantially with groundwater supply, recharge, or groundwater management. Therefore, impacts related to groundwater recharge and supply would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Drainage

Impact HYD-3: **The proposed Master Plan would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces.**

Impact Analysis

Buildout of the Master Plan has the potential to alter the infiltration characteristics of the Master Plan area, increasing both the volume and discharge rate of stormwater runoff, which could contribute to downstream flooding or exceed the capacity of stormwater drainage systems. Grading within the Master Plan area would also change the drainage pattern of the site.

The Master Plan area is currently served by existing storm drainage infrastructure owned and maintained by the City of San Ramon.

Existing storm drains are located within Camino Ramon (72-inch diameter), Bishop Drive (24- to 54-inch diameter), and Executive Parkway (60-inch diameter). The proposed Master Plan would install LID storm drainage systems throughout the Master Plan area consisting of inlets, underground piping, bioretention swales, and basins that would collect and detain runoff during storm events and meter its release into downstream drainage facilities in a manner designed to prevent flooding.

Collectively, these measures would serve to slow, reduce, and meter the volume of runoff leaving the Master Plan area and ensure that downstream storm drainage facilities are not inundated with stormwater runoff from the Master Plan area. Additionally, these measures would prevent increased runoff to the 100-year peak flow into the City's flood control channels. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

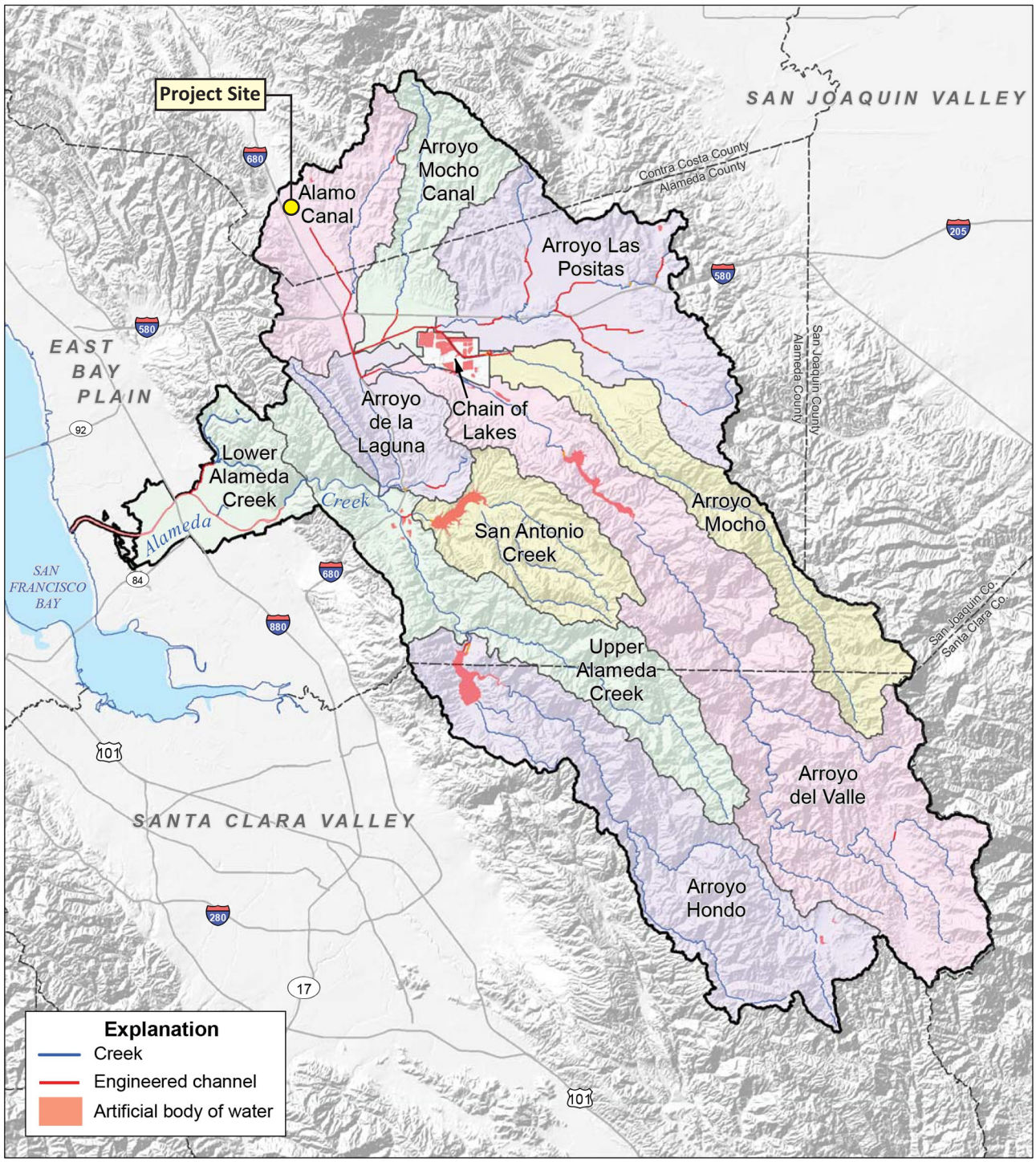
Less than significant impact.

Mitigation Measures

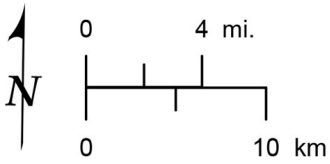
No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.



Map prepared by Fugro, 2017, for the Alameda County Flood Control and Water Conservation District and San Francisco Public Utilities Commission.



Source: https://acfloodcontrol.org/wp-content/uploads/2018/03/Alameda_Creek_Subwatersheds-Overview_Map.jpg

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Exhibit 3.9-1
Alameda Creek Watershed Map

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3.10 - Land Use

3.10.1 - Introduction

This section describes the existing land use and potential effects from implementation of the Master Plan on the site and its surrounding area. Descriptions and analyses in this section are based on the City of San Ramon General Plan 2035 (General Plan), the City of San Ramon Municipal Code, and San Ramon Zoning Ordinance (adopted October 27, 2015, latest revisions effective February 28, 2020).

3.10.2 - Environmental Setting

Land Use

Project Site

As described in Section 2, Project Description, the Master Plan area contemplates new development on parcels known as Bishop Ranch (BR) 1A, BR 3A, and BR 2600 within the Bishop Ranch Business Park. Photographs of the Master Plan area are shown in Exhibit 2-3.

Bishop Ranch 1A

BR 1A encompasses 9.87 acres and consists of undeveloped land with grassland and ornamental landscaping. Mature ornamental trees are planted along the entire perimeter of BR 1A. Sidewalks are present along the frontage with Bollinger Canyon Road and along the eastern frontage.

Bishop Ranch 3A

BR 3A encompasses 10.43 acres and consists of undeveloped land with grassland and ornamental landscaping. An existing construction staging area is located on BR 3A, which can be accessed from an unpaved road that connects to Bollinger Canyon Road. A 'Bishop Ranch' monument sign faces the intersection of Bollinger Canyon Road/Camino Ramon. Mature ornamental trees are planted along the BR 3A frontage with Camino Ramon. Sidewalks are present along the Bollinger Canyon Road and Camino Ramon frontages.

Bishop Ranch 2600

BR 2600 occupies 100.10 acres and is developed with a 1.75-million-square-foot multi-story office building, a parking structure, surface parking, two water features (Annabel Lake and Lake Cecilia), and a combination paved and unpaved perimeter pedestrian pathway. Camino Ramon, Bishop Drive, and Executive Parkway provide access to BR 2600.

Surrounding Area

A summary of surrounding uses for the project site is provided in Table 3.10-1. Surrounding land uses referenced in the table are discussed in greater detail below.

Table 3.10-1: Surrounding Land Use Summary

Site	Direction	Surrounding Land Uses
Bishop Ranch 1A	North	Bollinger Canyon Road and BR 3A
	East	BR 1 access road, Iron Horse Regional Trail, and The Marketplace
	South	BR 1 surface parking and office buildings
	West	BR 1 access road and surface parking
Bishop Ranch 3A	North	BR 3 parking structure and office buildings
	East	Iron Horse Trail, Central Park, and San Ramon City Hall
	South	Bollinger Canyon Road and BR 1A
	West	Camino Ramon and City Center Bishop Ranch
Bishop Ranch 2600	North	Executive Parkway, BR 6, and BR 8
	East	Camino Ramon and BR 3
	South	Bishop Drive, City Center Bishop Ranch, and The Shops at Bishop Ranch
	West	Bishop Drive, San Ramon Marriott, and Interstate 680
Source: FCS 2020.		

The Shops at Bishop Ranch

The Shops at Bishop Ranch is a retail center containing a Target, Whole Foods Market, Home Goods, and several restaurants.

City Center Bishop Ranch

City Center Bishop Ranch opened in November 2018. It contains an approximately 300,000-square-foot lifestyle retail/entertainment center on the former BR 2 site.

Chevron Park

Chevron Park is the 92-acre corporate headquarters of Chevron Corporation, a multi-national integrated energy producer. Chevron Park opened in 1984 and is characterized as a modern corporate campus. Buildings within Chevron Park are clustered in the center of the campus, and surface parking areas are located around the perimeter. A 125-foot communications tower is in the center of the campus. Public access to the campus is restricted.

Iron Horse Regional Trail

The Iron Horse Trail is a Class I, 24.47-mile trail stretching from Pleasanton to Concord along the former Southern Pacific Railroad San Ramon Branch Line right-of-way. Within the Master Plan area vicinity, the concrete and asphalt trail run along the eastern boundary of BR 3, and the proposed BR 1A and BR 3A. The trail currently crosses Bollinger Canyon Road at grade; however, the City of San Ramon, in concert with Contra Costa Transportation Authority, are planning to construct a bicycle/pedestrian overcrossing for the trail (construction of the bicycle/pedestrian overcrossing is not part of the subject Master Plan). Landscaping and benches are located on the north and south

sides of Bollinger Canyon Road. Pathways link the trail to surrounding land uses, including Central Park, BR 1, and BR 3.

Bishop Ranch 3

BR 3 contains a large parking lot, 4-story parking structure and several office buildings home to companies including Robert Half International, GE Software Center, Accela Inc., and Viasyn, Inc. Ornamental landscaping is provided throughout BR 3, in addition to a central water fountain feature.

Bishop Ranch 8

BR 8 contains a parking lot and three 5-story office buildings, with businesses including CCI Financial and Insurance Solutions, Summer Hill Homes, Law Offices of Mark Ressa, Interform Commercial Interiors, and WANdisco, Inc. The site contains large trees and ornamental landscaping throughout, and a water fountain in the center of the site.

Bishop Ranch 7

BR 7 contains a parking lot and a 3-story parking garage, in addition to an office building containing Bank of the West, Primed Management Consulting, and Hill Physicians Medical Group. Large trees and ornamental landscaping are located throughout the site.

Central Park

Central Park is the largest active park in the City of San Ramon. The park encompasses 35 acres and contains two soccer pitches, four multi-use athletic fields (e.g., soccer, cricket, baseball, and softball), a baseball field, volleyball courts, basketball courts, tennis courts, a skate park, a children's playground, and picnic areas. Central Park includes the 23,000-square-foot San Ramon Community Center, which contains multi-purpose rooms, meeting venues, and offices. The Watson Canyon Drainage channel, a man-made drainage feature, delineates the western boundary of the park from the Iron Horse Trail right-of-way.

The Marketplace

The Market Place is an approximately 182,133-square-foot commercial center containing a Nob Hill Supermarket, Buffalo Wild Wings, CVS, Chase Bank, Bank of America, and a variety of other retail and service-oriented businesses with associated parking areas.

Land Use Designations

Master Plan Area

The General Plan and Zoning Ordinance designations for the Master Plan area are provided in Table 3.10-2 and shown in Exhibit 3.10-1 and Exhibit 3.10-2. The developed uses on BR 2600 are consistent with the General Plan and Zoning Ordinance designations. Because BR 1A and 3A are undeveloped, the existing uses are also consistent with the General Plan and Zoning Ordinance.

Table 3.10-2: Master Plan Area Land Use Designation Summary

Master Plan Area	General Plan Designation	Zoning Ordinance Designation
BR 1A	Mixed Use—City Center	CCMU
BR 3A	Mixed Use—City Center	CCMU
BR 2600	Mixed Use—City Center	CCMU
Note: CCMU = City Center Mixed Use Source: FCS 2020.		

Surrounding Land Uses

The General Plan and Zoning Ordinance designations for the land uses immediately surrounding the Master Plan area are provided in Table 3.10-3. The existing uses of these properties are consistent with the General Plan and Zoning Ordinance designations.

Table 3.10-3: Surrounding Land Use Designation Summary

Land Use	General Plan Designation	Zoning Ordinance Designation
BR 1	Office	Administrative Office, Height Overlay (OA-H)
Iron Horse Trail	Parks	Parks (P)
Market Place	Mixed Use	Mixed Use (MU)
Reflections Condominiums	Multiple Family—High Density	Medium-High Density Residential (RMH)
Single Family Residential Uses	Single Family—Low-Medium Density	Single Family Residential (RS-10)
Chevron Park	Office	Administrative Office, Height Overlay (OA-H)
Shops at Bishop Ranch	Mixed Use	Mixed Use (MU)
Source: FCS 2020.		

3.10.3 - Regulatory Framework

Federal

No federal plans, policies, regulations, or laws related to land use and planning are applicable to the proposed Master Plan.

State

California Senate Bill 1818

California Senate Bill (SB) 1818, Chapter 928, provides developers with a density bonus and other incentives for constructing lower income housing units within a development provided the developer meets certain requirements, as enumerated in Section 65915(b) of the Government Code:

Government Code 65915 (b): A city, county, or city and county shall grant a density bonus and incentives or concessions described in subdivision (d) when the applicant for the housing development seeks and agrees to construct at least any one of the following:

(1) Ten percent of the total units of a housing development for lower income households, as defined in Section 50079.5 of the Health and Safety Code.

(2) Five percent of the total units of a housing development for very low income households, as defined in Section 50105 of the Health and Safety Code.

(3) A senior citizen housing development as defined in Sections 51.3 and 51.12 of the Civil Code.

(4) Ten percent of the total dwelling units in a condominium project as defined in subdivision (f) of, or in a planned development as defined in subdivision (k) of, Section 1351 of the Civil Code, for persons and families of moderate income, as defined in Section 50093 of the Health and Safety Code.

With respect to parking requirements, Section 65915.p(1) states:

> Upon the request of the developer no city, county, or city and county shall require a vehicular ratio, inclusive of handicapped and guest parking, of a development meeting the criteria of subdivision (b) that exceeds the following ratios:
> (A) Zero to one bedrooms: one on-site parking space
> (B) Two to three bedrooms: two on-site parking spaces

Regional

Plan Bay Area

Plan Bay Area, published by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), is a long-range integrated transportation and land use/housing strategy through 2040 for the Bay Area. Plan Bay Area functions as the sustainable communities' strategy mandated by SB 375. As a regional land use plan, Plan Bay Area aims to reduce per-capita greenhouse gas emissions through the promotion of more compact, mixed-use residential and commercial neighborhoods located near transit. Plan Bay Area is built on Priority Development Areas (PDAs) (such as the City Center Bishop Ranch PDA in which the project is located) selected and approved by city and county governments with planning grants, technical assistance, and prioritization for regional and State transportation and affordable housing funds. Plan Bay Area is a limited and focused update that builds upon a growth pattern and strategies developed in the original Plan Bay Area (adopted by the MTC in 2013) but with updated planning assumptions that incorporate key economic, demographic, and financial trends from the last 4 years.

Regional Housing Needs Plan

In December 2013, the ABAG projected regional housing needs in its Regional Housing Needs Plan for the San Francisco Bay Area: 2015–2023. According to this Plan, the City of San Ramon's projected housing need from 2015 to 2023 is 1,417 residential units, consisting of:

- 516 units within the very-low-income level (0–50 percent of area median income);
- 279 units within the low-income level (51–80 percent of area median income);
- 282 units within the moderate-income level (81–120 percent of area median income); and
- 340 units within the above-moderate-income level (more than 120 percent of area median income).

Local

City of San Ramon General Plan 2035

The General Plan was adopted by the City of San Ramon City Council on April 28, 2015. The General Plan articulates a long-term vision for the City and serves as a blueprint for development and land use activities within the city limits. The General Plan contains the following elements:

- Economic Development
- Growth Management
- Land Use
- Traffic and Circulation
- Parks and Recreation
- Public Facilities and Utilities
- Open Space and Conservation
- Safety
- Noise
- Housing
- Air Quality and Greenhouse Gas

Each General Plan element contains goals and policies to guide existing and future land use and development activities.

The General Plan contains a land use map that designates properties throughout the City Planning Area. The City organizes land uses into planning subareas, which includes the Bishop Ranch subarea, and further breaks down individual land uses into the categories of Rural Conservation, Hillside Residential, Single Family-Low Density, Single-Family-Low Medium Density, Single-Family-Medium Density, Multiple Family-High Density, Multiple Family-Very High Density, Office, Retail Shopping, Thoroughfare Commercial, Mixed Use-City Center, Mixed Use-Commercial, Mixed Use, Commercial Recreation, Golf Course, Public and Semi Public, Parks, and Open Space.

San Ramon Municipal Code

The San Ramon Municipal Code sets forth regulations to ensure that development and land use activities protect and promote the health, safety, comfort, convenience, prosperity, and general welfare of residents and businesses in the City. The San Ramon Municipal Code consists of all

ordinances adopted by the San Ramon City Council. The Municipal Code is divided into four titles, including General and Administration; Regulations; Construction, Development and Land Use; and Zoning. The San Ramon Zoning Ordinance was last adopted in October 2015, with the latest revisions effective on February 28, 2020.

San Ramon Zoning Ordinance

The Master Plan area is zoned City Center Mixed Use (CCMU). The provisions of CCMU are discussed below.

City Center Mixed Use

The CCMU zone is applied to City Center Bishop Ranch properties in compliance with the General Plan to guide the develop of City Center Bishop Ranch into a cultural, recreational, and compatible retail center that provides for a cohesive mix of civic, retail, office, and open space uses. A density range of 22 to 50 dwelling unit units per acer at intensities of up to 0.70 floor area ratio (FAR) are permitted. Additional FAR, up to a maximum of 1.35, may be allowed for projects that include such elements as affordable housing and significant public benefits and/or amenities such as public art and plazas, public facilities, and/or a transit facility nearby or in close proximity to the CCMU zone. The Zoning Ordinance states that development in the CCMU zone should reflect high-quality design, with integrated open space and recreational or cultural amenities, as well as opportunities for workforce housing. The CCMU zoning provisions do not have any height limits.

The following are some of the allowable uses in the CCMU zoning district. Uses that require a Use Permit or a Minor Use Permit are noted with an asterisk (*):

- Accessory retail and services
- Bank, financial services
- Business support service
- Child day care center*
- Commercial recreation facility - indoor*, conference/convention facility*
- Eating and drinking establishments (With wine and beer, drive-through service*, full alcoholic beverage service*, brew pub, live entertainment*, up to 12 outdoor seats, 13+ outdoor seats*)
- Farmer’s market—Ongoing*
- Fitness/health facility*
- General retail
- Library, museum, art gallery (non-retail gallery)
- Live/work unit*
- Mixed use project residential component
- Medical services—Doctor office
- Office (accessory, business/service, government, processing*, professional/administrative)
- Outdoor retail sales and activities*
- Parking facility, public or commercial*
- Personal services
- Pharmacy, medical supplies
- Specialty food store
- Sports and entertainment assembly facility*
- Studio—Art, dance, martial arts, music, etc.

- Theater, movies or performing arts*
- Transit station

3.10.4 - Methodology

FirstCarbon Solutions (FCS) evaluated the potential for land use impacts through site reconnaissance and review of applicable land use policy documents. FCS personnel performed site reconnaissance on multiple occasions of the Master Plan area and surrounding land uses, taking photographs of the Master Plan area and surrounding land uses to document existing conditions, as shown in Exhibit 2-3. FCS reviewed the General Plan, the San Ramon City Code, which includes the Zoning Ordinance, and identified applicable policies and provisions that pertain to the proposed Master Plan.

3.10.5 - Thresholds of Significance

According to the California Environmental Quality Act (CEQA) Guidelines' Appendix G Environmental Checklist, to determine whether land use and planning impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Physically divide an established community?

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

3.10.6 - Project Impacts Mitigation Measures

This section discusses potential impacts associated with the proposed Master Plan and provides mitigation measures where necessary.

Divide an Established Community

Impact LUP-1: The proposed Master Plan would not physically divide an established community.

Impact Analysis

The proposed Master Plan would develop up to 4,500 multi-family residential units, a 169-key hotel, 166,000 square feet of retail/office space, and associated residential, office, retail, and visitor parking within City Center Bishop Ranch. In addition, the proposed Master Plan would include approximately 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities.

The proposed Master Plan is located within the Bishop Ranch Business Park in the City of San Ramon. BR 2600 is currently developed, and while BR 1A and BR 3A are undeveloped they are surrounded by existing development. No established residential communities exist within the Master Plan area and the Master Plan does not propose the type of large linear construction that would impact mobility within an existing community and the surrounding area. The proposed Master Plan is consistent with the existing land use designations for the Master Plan area and would be

consistent with the surrounding residential and retail land uses. As such, impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Conflict with Applicable Plans, Policies, or Regulations

Impact LUP-2:	**The proposed Master Plan would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.**

Impact Analysis

The Master Plan area is designated as Mixed Use-City Center by the General Plan and is zoned CCMU by the San Ramon Zoning Ordinance.

Residential

At full buildout, up to 4,500 multi-family dwelling units would be developed within BR 1A (up to 652 dwelling units), BR 3A (up to 791 dwelling units), and BR 2600 (up to 3,057 dwelling units). BR 1A, BR 3A, and BR 2600 are all designated as Mixed Use-City Center by the City of San Ramon General Plan and zoned as CCMU by the San Ramon Zoning Ordinance. The surrounding area is designated as Mixed Use-Commercial, Mixed Use-City Center, Thoroughfare Commercial, and Office by the City of San Ramon General Plan. Further to the west beyond I-680 are Single Family-Low Medium Density and Single Family-Low Density uses. The residential component of the Master Plan would be consistent with the surrounding land uses.

Hotel

The 169-key hotel entitled by the 2007 City Center Project is being carried forward into the proposed Master Plan. The hotel would be a multi-story structure located within BR 3A. Parking for the hotel would be provided in the nearby existing BR 3 South parking structure as part of a shared parking arrangement.

Retail/Office

Up to 166,000 square feet of retail/office uses would be developed within BR 3A and BR 2600. Retail and office uses are permitted within the CCMU designation.

General Plan Policy Consistency

The proposed Master Plan's consistency with the applicable goals and policies of the City of San Ramon General Plan is provided in Table 3.10-4. Note that goals and policies of the General Plan that were not applicable to the proposed Master Plan were excluded from the analysis in the table.

Table 3.10-4: General Plan Consistency Analysis

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
Economic Development	2.3-I.6	Encourage housing on infill sites in the City's two PDAs (City Center and North Camino Ramon), where flat terrain and proximity to employment, shops and services favors walking, bicycling and travel by other modes than single occupant vehicle.	**Consistent:** The proposed Master Plan would facilitate the development of up to 4,500 dwelling units within the City Center Bishop Ranch PDA. The proposed Master Plan would include mobility improvements that would increase the accessibility of non-single occupant vehicle travel.
	2.3-I-12	Promote and encourage public transit, carpool and vanpool opportunities into San Ramon's business areas including Bishop Ranch, Crow Canyon business area, and the San Ramon Valley Boulevard business area.	**Consistent:** The proposed Master Plan envisions three new transit hubs, which would serve public transit, private buses, ride hailing services, and other forms of motorized transportation.
	2.3-I-14	Implement the approved City Center project into a cultural, recreational, and vibrant mixed-use lifestyle center.	**Consistent:** The proposed Master Plan is intended to complete the buildout of the City Center Bishop Ranch by developing residential, hotel, and office/retail uses and recreational amenities.
	2.3-I-18	Evaluate the ability of new development to pay for its infrastructure, its share of public and community facilities, and the incremental operating costs it imposes.	**Consistent:** The project applicant would be required to pay all applicable fees related to infrastructure as well as fees to mitigate impacts of the proposed Master Plan on public and community facilities and related operating costs.
	2.3-I-20	Encourage diverse and complementary economic growth within the City, particularly in the retail sector.	**Consistent:** The proposed Master Plan would facilitate economic growth through new private capital investment, expansion of the tax base, the creation of employment and housing opportunities, and the attraction of new business to San Ramon (including retail).
	2.3-G-5	Strengthen the retail sector in San Ramon in order to expand retail and restaurant options for residents and employees and to increase the tax base.	**Consistent:** The proposed Master Plan would include up to 166,000 square feet of retail uses and would include housing to further support retail uses in the City core area.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
Growth Management	3.1-G-1c	Manage the City's growth in a way that balances existing and planned transportation facilities, protection of open space and ridgelines, provision of diverse housing options, and the preservation of high quality community facilities and services.	**Consistent:** The proposed Master Plan area is served by two arterial roadways (Bollinger Canyon Road and Camino Ramon), is within 0.3 mile of the I-680/Bollinger Canyon Road interchange, is located in an area served by public transit, and is adjacent to the Iron Horse Trail. The Master Plan area is within an urban part of San Ramon and is served by existing transportation infrastructure and community facilities and services. The proposed Master Plan would not affect open space or ridgelines due to its urban location. The proposed Master Plan would contribute to the provision of diverse housing options, by providing 4,500 dwelling units (including affordable units).
	3.1-I-1	Allow urban development only if traffic from that development can be accommodated within acceptable traffic levels of service.	**Consistent:** Buildout of the proposed Master Plan would contribute new trips to transportation facilities. Where needed, this EIR identifies feasible mitigation measures to restore Level of Service (LOS) operations on local roadways to acceptable levels. Refer to Section 3.14, Transportation.
	3.1-I-3c	Provide a variety of diverse housing options to accommodate the local employment base, including public service employees.	**Consistent:** The proposed Master Plan would provide up to 4,500 new dwelling units within the Bishop Ranch Business Park. It would be expected that a significant percent of Master Plant residents would work in San Ramon due to the proximity of dwelling units to workplaces.
	3.1-I-7	Allow urban development only within the City's Urban Growth Boundary (see Implementing Policies 4.6-I-1 through 4.6-I-5) and only in accord with a plan for full urban services (police, fire, parks, water, sanitation, streets and storm drainage) to which all providers are committed.	**Consistent:** The proposed Master Plan is located within the Urban Growth Boundary. This Draft EIR identifies the feasibility of and commitment to providing urban services to the Master Plan area. Refer to Section 3.13, Public Services and Recreation, and Section 3.15, Utilities.
	3.2-I-3	Require new development to fund public facilities and infrastructure that is deemed necessary to mitigate the impact of that new development.	**Consistent:** The project applicant would pay all applicable development impact fees to offset the impacts of development on existing public facilities as needed. Additionally, the Master Plan includes publicly accessible, privately owned and maintained, parks, open space, and other public facilities. Refer to Section 3.13, Public Services and Recreation, and Section 3.15, Utilities.
	3.2-I-4	Levy local, sub-regional, and regional mitigation fees for public facilities and infrastructure improvements in proportion to a new development's impact.	**Consistent:** The project applicant would pay all applicable mitigation fees to mitigate the effects of the Master Plan on public facilities and infrastructure. Refer to Section 3.14, Transportation.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	3.3-I-1	Strive to maintain traffic LOS C or better as the standard at all intersections with a maximum LOS D during a.m. and p.m. peak periods.	**Consistent:** The proposed Master Plan would contribute new trips to transportation facilities that would operate below acceptable LOS. This Draft EIR identifies feasible mitigation measures to restore operations to acceptable levels. Refer to Section 3.14, Transportation.
	3.3-I-2	Accept LOS D during a.m. and p.m. peak periods with the possibility of intersections at or closely approaching the limits of LOS D (Volume/Capacity < 0.90), only on arterial routes bordered by non-residential development where improvements to meet the City's standard would be prohibitively costly or disruptive.	**Consistent:** The proposed Master Plan would contribute new trips to transportation facilities that would operate below acceptable LOS. This Draft EIR identifies feasible mitigation measures to restore operations to acceptable levels. Refer to Section 3.14, Transportation.
	3.3-I-3	Require traffic impact studies for all proposed new development projected to generate 50 or more net new peak hour vehicle trips or as requested by the City Traffic Engineer.	**Consistent:** A traffic impact study (TIS) was prepared for the proposed Master Plan. Refer to Section 3.14, Transportation.
	3.3-I-4	Proposed development expected to generate 50 or more peak-hour vehicle trips will not be approved unless it can be shown that its impact can be mitigated and the City's traffic and circulation standards can be maintained. The City also will not approve any proposed development expected to generate over 100 peak hour vehicle trips, unless "Findings of Consistency" can be made.	**Consistent:** The proposed Master Plan would contribute new trips to transportation facilities that would operate below acceptable LOS. This Draft EIR identifies feasible mitigation measures to restore operations to acceptable levels. If necessary, Findings of Consistency will be made. Refer to Section 3.14, Transportation.
	3.3-I-5	Identify and implement circulation improvements on the basis of detailed traffic studies.	**Consistent:** A TIS was prepared for the proposed Master Plan, which identifies feasible circulation improvements to achieve acceptable LOS. Refer to Section 3.14, Transportation.
	3.3-I-6	Support regional and local neighborhood transit options to reduce the use of the automobile and maintain acceptable traffic levels of service.	**Consistent:** The proposed Master Plan envisions three new transit hubs, which would serve public transit, private buses, ride hailing services, and other forms of transportation, consistent with the objective of supporting regional and local neighborhood transit options.
	3.4-G-1	Utilize Transportation Demand Management (TDM) strategies as an integral component of the City's transportation program to reduce total vehicle trips on San Ramon roadways and	**Consistent:** The proposed Master Plan envisions three new transit hubs, which would serve public transit, private buses, ride hailing services, and other forms of transportation, consistent with the objective of using TDM strategies to reduce traffic congestion and vehicular emissions.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		reduce the corresponding vehicle emissions that promote regional air quality improvements.	
	3.4-I-1	Continue to implement the City's TDM Program to reduce trip generation.	**Consistent:** The proposed Master Plan envisions three new transit hubs, which would serve public transit, private buses, ride hailing services, and other forms of transportation, consistent with the City's TDM Program. Existing employers within the Master Plan area would continue to participate in the City's TDM Program.
	3.4-I-5	Preserve options for future transit use when designing improvements for roadways.	**Consistent:** The proposed Master Plan envisions centralized transit hubs within each planning area in lieu of typical bus stops.
	3.4-I-7	Improve and expand the bicycle routing system in San Ramon.	**Consistent:** The proposed Master Plan would include connections to the Iron Horse Trail that would represent an expansion of the bicycle network.
	3.6-I-4	As part of the development review process, support the accommodation of public transit, bicycle, and pedestrian access for new development.	**Consistent:** The proposed Master Plan envisions transit hubs, connections to the Iron Horse Trail, connections to San Ramon Transit Center, and internal pedestrian facilities.
Land Use	4.6-G-1	Foster a pattern of development that enhances the existing character of the City, and encourages land use concepts that contribute to the design of the community.	**Consistent:** The proposed Master Plan is located within the Bishop Ranch Business Park and represents the continued buildout of City Center project. The Master Plan includes circulation improvements and design standards intended to contribute to the design of the community.
	4.6-I-9	Require residential development to employ creative site design and architectural quality that blends with the characteristics of each specific location and its surroundings, while incorporating 360-degree design principles.	**Consistent:** The proposed Master Plan includes design standards intended to complement both City Center project and Bishop Ranch Business Park.
	4.6-I-10	Provide a wide range of housing opportunities for current and future residents.	**Consistent:** The proposed Master Plan would include up to 4,500 multi-family residential units within the Bishop Ranch Business Park. Up to 15 percent of these units would be deed-restricted affordable units. This is consistent with the objective of providing a wide range of housing for current and future residents.

Element	Goal/Objective/Policy		Consistency Determination
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	4.6-I-11	Provide high quality public facilities, services, and other amenities within close proximity to residents.	**Consistent:** The proposed Master Plan's 4,500 dwelling units would be located within an urbanized part of San Ramon where adequate levels of public services and facilities are provided including Central Park, Iron Horse Trail, and San Ramon City Hall.
	4.6-I-12	Except as precluded by the California Density Bonus Law or other applicable laws and regulations, ensure that all residential development provide adequate parking without the use of on-street parking to meet residential parking requirements.	**Consistent:** The proposed Master Plan's residential uses would be served by off-street multi-level parking garages and shared parking with adjacent office uses. Parking is proposed on the east side of Bishop Ranch Drive. No on-street parking is proposed on Camino Ramon, Bollinger Canyon Road, or Executive Parkway.
	4.6-I-13	Consider shared parking or other alternative parking proposals for residential development based on project-specific parking studies that analyze project need in light of the Zoning Ordinance alternative parking provisions.	**Consistent:** The proposed Master Plan's residential uses would utilize parking garages for residents and visitors and shared parking with adjacent hotel uses.
	4.6-I-16	Strengthen the role of central Bollinger Canyon Road as the City's premier retail corridor.	**Consistent:** The proposed Master Plan would locate new retail development on BR 3A consistent with the retail corridor.
	4.6-I-17	Foster vibrant neighborhood and community shopping centers of sizes and at locations that provide daily convenience for San Ramon residents and employees, minimize the need for longer/multiple automobile trips, and sustain a strong retail base for the City.	**Consistent:** The proposed Master Plan would include residential and retail development adjacent to City Center Bishop Ranch, proximate to existing residential and retail development.
	4.6-I-19	Ensure that neighborhood retail centers and commercial service buildings are compatible with the surrounding neighborhood while incorporating 360-degree design principles.	**Consistent:** The proposed Master Plan would include residential, retail, and commercial uses consistent with the existing uses in the surrounding area. Each phase of development would be subject to the City's Design Guidelines which would ensure compatible uses with surrounding areas.
	4.6-I-21	Encourage the provision of amenities and events that promote San Ramon's neighborhood and community shopping centers as community gathering places.	**Consistent:** The proposed Master Plan includes amenities throughout the Master Plan area, such as outdoor gathering spaces, parkland, and new event amenities near Annabel Lake and Lake Cecilia, that would promote a walkable and connected area.

Element	Goal/Objective/Policy		Consistency Determination
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	4.6-I-23	Promote redevelopment with a mix of residential, retail and other compatible nonretail uses in existing retail shopping centers identified as Mixed Use on the General Plan Land Use Diagram.	**Consistent:** The proposed Master Plan is located within an area designated as CCMU by the General Plan, and would include a combination of residential, retail, and hotel development.
	4.6-I-24	Continue to refine design standards for mixed use development that will result in a high-quality pedestrian-scaled environment, with one-to-four story buildings, integrated parking, street front windows, and entries, and public and private open space or as provided under a separate Specific Plan process.	**Consistent:** All architectural design themes and landscaping for the proposed Master Plan would be developed in accordance with the document titled CityWalk Design Guidelines, which was reviewed and recommended for approval by the Architectural Review Board with comments on December 12, 2019 (Appendix B). The proposed Master Plan design promotes compatible building designs and a circulation system that emphasizes the pedestrian environment. In addition, the proposed Master Plan design is consistent with City Design Guidelines and Standard contained in the Zoning Ordinance.
	4.6-I-27	Require a peak parking demand study to substantiate a request for reduced parking requirement in new mixed use development.	**Consistent:** A parking study (Appendix J) was prepared for the proposed Master Plan that shows that adequate parking would be provided.
	4.6-I-28	Allow for the revitalization and intensification of infill sites within the Bishop Ranch Business Park, consistent with FAR limitations.	**Consistent:** The proposed Master Plan would develop residential, commercial, and recreational uses within infill sites within the Bishop Ranch Business Park. For consistency with FAR limitations, see discussion regarding San Ramon Zoning Ordinance Consistency below.
	4.6-I-29	Permit a diverse mix of complementary uses within Bishop Ranch to better meet the daily needs of workers and to reduce the need to travel by automobile. Complementary uses shall be consistent with site zoning, compatible with the primary use and shall not adversely affect the traffic-carrying capacity of adjacent streets.	**Consistent:** The proposed Master Plan includes a complementary mix of residential, retail/office, and hotel uses, would design internal streets with bicycle and pedestrian mobility in mind, and include transit hubs to encourage the use of transit.
	4.7-I-5	Continue to pursue the development and implementation of the City Center Project as a cohesive mix of civic, office compatible retail, and public space with an arts, entertainment, and lifestyle focus.	**Consistent:** The proposed Master Plan represents the continued buildout of City Center project and would include a mix of residential, retail, and hotel space, in addition to parkland and new amenities near Annabel Lake and Lake Cecilia.

Element	Goal/Objective/Policy		Consistency Determination
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	4.7-I-6	Implement the City Center project to comply with the CCMU zoning designation and the intent of the City Center Settlement Agreement. The project and any future revisions will continue to be required to meet the sun access plane requirements adjacent to City parks.	**Consistent:** The proposed Master Plan would remain consistent with the CCMU zoning designation of the Master Plan parcels and would not require rezoning. The proposed Master Plan is not located directly adjacent to Central Park and therefore would not impact sun access therein. Per General Plan Policy 4.8-I-17 explanation text, the Iron Horse Trail corridor is not subject to sun access plane standards.
	4.8-I-2	Ensure that the design, location, and size of new development blends with the environment and a site's natural features.	**Consistent:** The proposed Master Plan would be consistent with the surrounding uses in City Center project and existing retail, office, parking, and residential uses.
	4.8-I-3	Continue to refine citywide lighting standards to ensure appropriate illumination levels for residential, commercial, and industrial land uses, and that lighting is of a consistent character and quality while reducing light pollution.	**Consistent:** Development within the Master Plan area would be required to comply with citywide lighting standards, thereby ensuring proper levels of illumination while also preventing spillover lighting.
	4.8-I-4	Ensure that parking facilities adequately address the community image, aesthetics and functional needs of the City.	**Consistent:** The proposed Master Plan anticipates replacing large, underutilized parking areas within BR 2600 with multi-story residential buildings and parking garages. Overall, this would be expected to improve aesthetics and functional needs of the City. Parking at BR 1A and BR 3A would be located within the center of the properties and surrounded by onsite buildings to screen parking from surrounding roadways.
	4.8-I-5	Encourage the linkage and integration of new development with existing neighborhoods by means of Complete Streets networks, open space areas, parks, and pathways as a means of enhancing pedestrian and bicycle connections.	**Consistent:** The proposed Master Plan would develop private, internal streets and pathways to encourage pedestrian, bicycle, and transit mobility.
	4.8-I-7	Require new commercial and office development to provide plazas, courtyards, seating areas, and other similar outdoor passive recreation areas.	**Consistent:** The proposed Master Plan would include hotel, office, retail, and residential development intermixed with publicly accessible, privately owned and maintained, parks, open space, and other public facilities.
	4.8-I-11	Require new office and commercial development to provide outdoor art that is clearly visible to the public or contribute to	**Consistent:** The proposed Master Plan would include outdoor art, where appropriate, within commercial areas.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		a citywide public art program though the development of an in-lieu fee program.	
	4.8-I-13	Require appropriate landscape treatment for public rights-of-way in all new residential, office, and commercial development.	**Consistent:** The proposed Master Plan requires landscaping along public streets, around buildings, and in public areas.
Traffic and Circulation	5.1-G-1	Maintain acceptable LOS and ensure that future development and the circulation system are in balance.	**Consistent:** The proposed Master Plan would contribute new trips to transportation facilities and identifies feasible mitigation measures to ensure Level of Service operations meet acceptable levels. Refer to Section 3.14, Transportation.
	5.1-I-1	Strive to maintain traffic LOS C or better as the standard at all intersections with a maximum LOS D during a.m. and p.m. peak periods.	**Consistent:** The proposed Master Plan would contribute new trips to transportation facilities that would operate below acceptable LOS. This Draft EIR identifies feasible mitigation measures to restore operations to acceptable levels. Refer to Section 3.14, Transportation.
	5.1-I-2	Require traffic impact studies for all proposed new development projected to generate 50 or more net new peak hour vehicle trips or as requested by the City Traffic Engineer.	**Consistent:** A TIS was prepared for the proposed Master Plan. Refer to Section 3.14, Transportation.
	5.1-I-3	Identify and implement circulation improvements based on required traffic studies.	**Consistent:** A TIS was prepared for the proposed Master Plan which identifies feasible circulation improvements to achieve acceptable LOS. Improvements have been incorporated into the proposed Master Plan as mitigation that require implementation as part of the Master Plan approval. Refer to Section 3.14, Transportation.
	5.4-I-1	Ensure that adequate north-south and east-west arterial capacity is provided to accommodate future travel demand and, where appropriate, implement Complete Streets concepts pursuant to Policy 5.3-G-1.	**Consistent:** A TIS was prepared for the proposed Master Plan that evaluates arterial capacity and identifies feasible circulation improvements to achieve acceptable LOS. Refer to Section 3.14, Transportation.
	5.4-I-3	Construct capacity and roadway improvements necessary to serve growth generated by development under the General Plan.	**Consistent:** A TIS was prepared for the proposed Master Plan which identifies feasible circulation improvements to achieve acceptable LOS. Refer to Section 3.14, Transportation.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	5.4-I-5	Require traffic impact mitigation fees on new residential and commercial development to ensure that transportation improvements are constructed before the increased traffic causes conditions to deteriorate.	**Consistent:** The project applicant would pay traffic impact fees at the time building permits are sought or install traffic improvements prior to occupancy. Refer to Section 3.14, Transportation.
	5.6-G-1	Utilize Transportation Demand Management (TDM) strategies as an integral component of the City's transportation program to reduce total vehicle trips on San Ramon roadways and reduce the corresponding vehicle emissions that promote regional air quality improvements.	**Consistent:** The proposed Master Plan envisions several transit hubs, which would serve public transit, private buses, ride hailing services, and other forms of transportation, consistent with the City's TDM Program. Additionally, residents within the proposed Master Plan would have access to subsidized transit passes.
	5.6-I-7	Encourage new development to include a mix of uses and Complete Streets concepts that will allow people to walk and bike between destinations and reduce the amount of automobile vehicle miles-traveled.	**Consistent:** The proposed Master Plan foresees a mix of uses and improvements to street frontages to provide pedestrian and bicycle facilities and landscaping.
	5.6-I-14	Consider strategies such as shared parking, parking management plans (including valet parking), and/or the construction of public parking facilities in the City Center, North Camino Ramon Specific Plan, or other commercial areas to serve projected parking demand, while carefully balancing the need for adequate parking against the desire to minimize traffic growth and create a pedestrian/bicycle friendly environment using Complete Streets design concepts.	**Consistent:** The proposed hotel would utilize a shared parking arrangement with the existing BR 3 South parking garage. Other Master Plan uses may employ shared parking arrangements as appropriate and consistent with the parking study prepared for the Master Plan.
	5.6-I-18	Shared parking facilities and parking reductions for compatible land uses to minimize excessive parking to reduce inefficient use of land, unnecessary pavement and stormwater runoff, and encourage alternative transportation and reductions in vehicle-miles-traveled.	**Consistent:** The proposed hotel would utilize a shared parking arrangement with the existing BR 3 South parking garage. Other Master Plan uses may employ shared parking arrangements consistent with the parking study prepared for the Master Plan. Additionally, the BR 2600 development would occur on existing surface parking areas
	5.7-G-1	Encourage bicycling and walking as alternatives to driving, consistent with Complete Streets concepts.	**Consistent:** The proposed Master Plan would include bicycle and pedestrian facilities and envisions including connections to the Iron Horse Trail and the City's bicycle network.
	5.7-I-1	Establish a network of on- and off-street bicycle routes to encourage their use for commute, recreational, and other	**Consistent:** The proposed Master Plan would include bicycle facilities and envisions including connections to the Iron Horse Trail.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		trips. Improve and expand bicycle routes for commuters in San Ramon.	
	5.7-I-2	Develop bicycle routes that provide access to regional employment centers, shopping centers, public facilities, transit centers, schools, and parks.	**Consistent:** The proposed Master Plan would include bicycle facilities and envisions including connections to the Iron Horse Trail.
	5.7-I-3	Continue to emphasize the Iron Horse Trail as a major north-south route for nonmotorized modes of transportation including walking, biking, rollerblading and scooters by improving connectivity and enhancing amenities for these modes.	**Consistent:** The proposed Master Plan envisions bicycle and pedestrian connections to the Iron Horse Trail.
	5.7-I-4	Encourage future development along the trail corridor to provide connection points and amenities as appropriate.	**Consistent:** The proposed Master Plan envisions bicycle and pedestrian connections to the Iron Horse Trail.
	5.7-I-5	Require bicycle parking, storage and other support facilities as part of any new office and retail developments and public facilities.	**Consistent:** The proposed Master Plan would include bicycle parking and storage facilities.
	5.7-I-6	Continue to promote and implement through the development review process, continuous circulation facilities within Bishop Ranch Business Park, commercial districts, and residential neighborhoods to enhance connectivity and promote pedestrian and bicycle modes of transportation consistent with Complete Streets concepts.	**Consistent:** The proposed Master Plan envisions improvements to the existing pedestrian path around the perimeter of BR 2600, bicycle/pedestrian connections to the Iron Horse Trail, and internal bicycle/pedestrian connections. These improvements would promote the objective of continuous circulation facilities within Bishop Ranch Business Park.
Parks and Recreation	6.5-G-1	Create and maintain a high-quality public park system for San Ramon.	**Consistent:** The proposed Master Plan would include 40.7 acres of parks, open space, and other public amenities. Additionally, the proposed project envisions pedestrian and bicycle connections to the Iron Horse Trail and Central Park.
	6.5-I-1	Maintain a standard of 6.5 acres of public parks per 1,000 residents at General Plan buildout.	**Consistent:** The proposed Master Plan would include approximately 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities. The applicant may also provide in lieu of fees to the City of San Ramon for the development of parks elsewhere. Refer to Section 3.13 Public Services and Recreation.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	6.5-I-2	Provide varied community park and recreational opportunities accessible to all City residents.	**Consistent:** The proposed Master Plan envisions 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities, including two water features, a boat dock, outdoor amphitheater, and community center.
	6.5-I-4	Provide passive and active recreational amenities within the City's parks to meet the needs of citizens of all ages and interests.	**Consistent:** The proposed Master Plan envisions 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities, including two water features, a boat dock, outdoor amphitheater, and community center. These facilities include both active and passive recreational amenities.
	6.5-I-5	Require residential developers to make dedications to the City's park system.	**Consistent:** Park dedications are only required for subdivision projects and not multi-family residential projects, such as the proposed Master Plan. However, the proposed Master Plan envisions 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities, including two water features, a boat dock, outdoor amphitheater, and community center. The recreational facilities would be privately owned and maintained but available to the public. Refer to Section 3.13, Public Services and Recreation.
	6.5-I-6	Encourage contributions to the City's park system by non-residential developers.	**Consistent:** The proposed Master Plan envisions 40.7 acres of parks, open space, and other public amenities including two water features, a boat dock, outdoor amphitheater, and community center. The recreational facilities would be privately owned and maintained but available to the public. Refer to Section 3.13, Public Services and Recreation.
	6.5-I-8	Encourage the development of landscaped and dedicated public spaces, parkways, trail systems, and special community service facilities in new developments.	**Consistent:** The proposed Master Plan envisions improvements to the existing perimeter pathway around BR 2600, connections to the Iron Horse Trail, internal pathways, two water features, a boat dock, outdoor amphitheater, and community center.
	6.5-I-16	Maintain a standard, at General Plan buildout, that public parks are to be within one-half mile of all homes.	**Consistent:** The proposed Master Plan envisions 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities, including two water features, a boat dock, outdoor amphitheater, and community center. All proposed residential

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
			uses would be within 0.25 mile of these recreational facilities. In addition, the proposed Master Plan is within 0.25 mile of Central Park.
	6.5-I-17	Maintain a standard, at General Plan buildout, that Community Parks are to be within three miles of all homes.	**Consistent:** The proposed Master Plan's residential uses are within 0.25 mile of Central Park.
	6.5-I-18	Increase the accessibility and connectivity to the Iron Horse Trail and the regional/city trail network, including the possibility of bicycle/pedestrian overcrossing(s) described in the San Ramon Valley Iron Horse Trail Corridor Concept Plan.	**Consistent:** The proposed Master Plan envisions bicycle and pedestrian connections to the Iron Horse Trail.
Public Facilities and Utilities	7.3-I-1	Encourage developers of residential and nonresidential projects to assist in funding public or private facilities and services.	**Consistent:** The proposed Master Plan's publicly accessible recreational facilities would be privately owned and maintained, relieving the City of San Ramon of this burden. The project applicant would pay applicable development fees to assist in funding other public facilities and services.
	7.4-G-1	Ensure the provision of adequate communication and utility systems for existing and future residents and the business community.	**Consistent:** The existing infrastructure within the Bishop Ranch Business Park is adequately sized to serve the proposed Master Plan uses. Refer to Section 3.15, Utilities.
	7.4-I-1	Coordinate with Pacific Gas and Electric Company (PG&E) in their efforts to monitor future utility expansion to ensure that facilities are designed and planned with minimal impact on existing and future residents.	**Consistent:** PG&E provided a will-serve letter confirming it could serve the Master Plan uses. Refer to Section 3.15, Utilities.
	7.4-I-3	Require new development to underground all utility lines needed to serve the future buildings and their occupants, and continue to coordinate with PG&E to underground utilities in existing residential neighborhoods, making the Southern San Ramon area a priority.	**Consistent:** The proposed Master Plan requires underground utilities.
	7.5-G-1	Manage solid waste so that State goals are exceeded and the best possible service is provided to the citizens and businesses of San Ramon.	**Consistent:** The proposed Master Plan's construction debris would be recycled. The proposed Master Plan would include recycling and green waste collection facilities to divert these items from the waste stream. This is consistent with the objective of meeting State goals for solid waste diversion. Refer to Section 3.15, Utilities.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	7.5-I-5	Comply with State requirements for proper handling and storage of solid waste, recyclables, and hazardous materials, diversion of solid waste from landfills, and provision of programs to make these activities feasible.	**Consistent:** The proposed Master Plan's construction debris would be recycled. The proposed Master Plan would include recycling and green waste collection facilities to divert these items from the waste stream. This is consistent with the objective of diverting solid waste from landfills. Refer to Section 3.15, Utilities.
	7.5-I-9	Require new development projects to comply with the Municipal Code's construction and demolition debris diversion requirements.	**Consistent:** The proposed Master Plan's construction debris would be recycled. Refer to Section 3.15, Utilities.
	7.6-G-1	Collaborate with the San Ramon Valley Fire Protection District to deliver a high level of public protection services that protect life, property, and the environment.	**Consistent:** The City consulted with the San Ramon Valley Fire Protection District during the preparation of the Draft EIR.
	7-6-I-1	Continue to coordinate with the San Ramon Valley Fire Protection District to provide adequate fire protection facilities and services to meet the needs of the community.	**Consistent:** The City consulted with the San Ramon Valley Fire Protection District during the preparation of the Draft EIR.
	7-6-I-2	Seek input from the San Ramon Valley Fire Protection District to ensure that fire protection measures are identified during the development review process.	**Consistent:** The City consulted with the San Ramon Valley Fire Protection District during the preparation of the Draft EIR.
	7.7-G-1	Maintain a high level of public safety for all people who live or work in San Ramon.	**Consistent:** The proposed Master Plan would comply with all applicable Fire and Building Code requirements and incorporate security measures (e.g., on-site security personnel, video surveillance, exterior lighting, etc.) to prevent and deter crime.
Open Space and Conservation	8.1-I-1	Continue to require new land use and development activities to comply with applicable laws and regulations concerning special status species.	**Consistent:** This Draft EIR evaluates impacts on biological resources and sets forth mitigation measures to reduce impacts to special-status species. Refer to Section 3.3 Biological Resources.
	8.6-I-1	Require new development projects to implement indoor water conservation and demand management measures.	**Consistent:** The proposed Master Plan would include the use of non-potable water for landscape irrigation. All indoor plumbing would be subject to the water conservation requirements of the latest adopted edition of the California Plumbing Code.
	8.6-I-2	Require new development projects to implement outdoor water conservation and demand management measures.	**Consistent:** The proposed Master Plan would include the use of non-potable water for landscape irrigation.

Element	Goal/Objective/Policy		Consistency Determination
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	8.7-I-1	Require that new development evaluate potential impacts to historic, archaeological, and paleontological resources and, if necessary, implement appropriate mitigation measures to protect the resources.	**Consistent:** This Draft EIR evaluates potential impacts to historic, archaeological, and paleontological resources and requires mitigation as appropriate. Refer to Section 3.4, Cultural Resources and Tribal Cultural Resources.
	8.7-I-4	As a standard condition of approval, require all development projects involving grading and excavation to implement appropriate measures in the event that burial sites or human remains are encountered during earthwork activities.	**Consistent:** This Draft EIR requires mitigation for inadvertent discovery of human remains and burial sites in accordance with State law. Refer to Section 3.4, Cultural Resources and Tribal Cultural Resources.
Safety	9.2-G-1	Minimize risks of personal injury and property damage posed by geologic and seismic hazards.	**Consistent:** Geotechnical Investigations prepared for the proposed Master Plan provided recommendations for standard soil engineering and construction practices that would abate potential geologic and seismic hazards. Refer to Section 3.6, Geology, Soils, and Seismicity.
	9.2-I-1	Review proposed development sites during the planning process to identify and mitigate any potential geologic or seismic hazards.	**Consistent:** Geotechnical Investigations prepared for the proposed Master Plan provided recommendations for standard soil engineering and construction practices that would abate potential geologic and seismic hazards. Refer to Section 3.6, Geology, Soils, and Seismicity.
	9.2-I-3	Where appropriate, require an independent registered engineering geologist or geotechnical engineer to review geotechnical reports submitted by applicants on sites in seismically hazardous areas.	**Consistent:** The project applicant commissioned Geotechnical Investigations were prepared by a registered engineering geologist or geotechnical engineer. Refer to Section 3.6, Geology, Soils, and Seismicity.
	9.2-I-4	Require comprehensive geologic and engineering studies of critical structures regardless of location.	**Consistent:** The project applicant commissioned Geotechnical Investigations were prepared by a registered engineering geologist or geotechnical engineer. Refer to Section 3.6, Geology, Soils, and Seismicity.
	9.2-I-6	Require preparation of a soils report as part of the development review and/or building permit process.	**Consistent:** The project applicant commissioned Geotechnical Investigations included evaluation of soil conditions. Refer to Section 3.6, Geology, Soils, and Seismicity.
	9.2-I-10	Control erosion of graded areas with revegetation or other acceptable methods.	**Consistent:** This Draft EIR evaluates the potential for erosion and requires mitigation to reduce risks to acceptable levels. Refer to Section

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
			3.6, Geology, Soils, and Seismicity and Section 3.9, Hydrology and Water Quality.
	9.3-G-1	Minimize the risk of property damage and personal injury resulting from the production, use, storage, disposal, or transportation of hazardous materials.	**Consistent:** This Draft EIR evaluates the potential for exposure to hazardous materials. Refer to Section 3.8, Hazards and Hazardous Materials.
	9.3-I-3	Require the clean-up of sites contaminated with hazardous substances.	**Consistent:** This Draft EIR evaluates the past uses of the Master Plan area and requires mitigation for the presence of petroleum substances at the BR 3A site. Refer to Section 3.8, Hazards and Hazardous Materials.
	9.4-I-2	Require new development to prepare hydrologic studies to assess storm runoff impacts on the local and subregional storm drainage systems and/or creek corridors. New development shall implement all applicable and feasible recommendations from the studies.	**Consistent:** This Draft EIR evaluates the proposed Master Plan's potential impacts on hydrology and water quality. Refer to Section 3.9, Hydrology and Water Quality.
	9.4-I-3	Require new development to provide a funding mechanism for ongoing maintenance of drainage facilities and other stormwater control measures. Maintenance may be by the City under contract, or by a private entity.	**Consistent:** The project applicant will own and maintain all storm drainage facilities within private property in the Master Plan boundaries.
	9.4-I-7	All new developments shall not increase runoff to the 100-year peak flow in the City's flood control channels or to local creeks and shall be substantially equal to pre-development conditions. All new storm water systems shall be in compliance with the requirements of the City's Stormwater Municipal Regional Permit issued by the San Francisco Regional Water Quality Control Board.	**Consistent:** The proposed Master Plan's storm drainage facilities will be designed in accordance with applicable regulations and to retain stormwater runoff and release it at a rate no greater than the pre-development condition to prevent downstream flooding. Refer to Section 3.9, Hydrology and Water Quality.
	9.5-G-1	Minimize the risks to lives, property, and natural environment due to fire hazards.	**Consistent:** The proposed Master Plan uses would be subject to the latest adopted edition of the California Fire Code, including those pertaining to fire detection and suppression systems and emergency access.
	9.5-I-5	Require sprinklers in all mixed-use development to protect residential uses from non-residential uses, which typically pose a higher fire risk.	**Consistent:** The proposed Master Plan uses would be subject to the latest adopted edition of the California Fire Code, including those pertaining to fire suppression systems.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
Noise	10.1-G-1	Achieve an acceptable noise environment for the present and future residents of San Ramon.	**Consistent:** This Draft EIR evaluates the Master Plan's consistency with the applicable aspects of the City's noise control standards and found that it would achieve an acceptable noise environment. Refer to Section 3.11, Noise.
	10.1-I-2	All projects that are exposed to noise greater than "normally acceptable" levels indicated in Figure 10-2 shall be required to submit a noise analysis. Applicable noise attenuation measures shall be implemented with the DNL reduced to 45 dB in all habitable rooms.	**Consistent:** A noise analysis was prepared as part of this Draft EIR. Refer to Section 3.11, Noise.
	10.1-I-3	Acoustical and vibration studies shall be prepared by qualified professionals in accordance with industry-accepted methodology. All applicable and feasible vibration reduction measures shall be incorporated into project plans.	**Consistent:** A noise analysis, including an evaluation of vibration impacts, was prepared as part of this Draft EIR and in accordance with industry-accepted methodology. Refer to Section 3.11, Noise.
	10.1-I-4	Alternatives to sound walls such as building orientation and landscaped buffers shall be considered during the design process. If deemed appropriate, sound walls shall be well-designed and appropriately sited.	**Consistent:** The proposed Master Plan would be designed to reduce noise exposure through the orientation of buildings and placement of outdoor areas. No sound walls are proposed. Refer to Section 3.11, Noise.
	10.1-I-5	New development shall minimize their noise impacts on adjacent properties through appropriate means, including, but not limited to, the following actions: • Screen and control noise sources, such as parking and loading facilities, outdoor activities and mechanical equipment, • Increase setbacks for noise sources from adjacent dwellings, • Retain or install fences, walls, and landscaping that serve as noise buffers, • Use soundproofing materials and other building practices or materials, • Encourage the use of commute alternatives, • Control hours of operation, including deliveries and trash pickup, to minimize noise impacts, and	**Consistent:** The Draft EIR evaluates the Master Plan's potential noise impacts on adjacent properties. Refer to Section 3.11, Noise.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
		• Buffer noise along highways and arterial roadways through natural noise buffers and if necessary, install sound walls when compatible with neighborhood aesthetics and character.	
	10.1-I-6	Protect especially sensitive receptors such as schools, hospitals, and senior care uses, from excessive noise.	**Consistent:** Iron Horse Middle School, the closest sensitive noise receptor to the Master Plan area, is 1,000 feet away. Due to this distance and the presence of the BR 3 office complex, which shields the school from noise, the proposed Master Plan would not expose the school to excessive noise.
	10.1-I-7	Implement the City's noise control standards to ensure appropriate regulation of common residential, commercial, and industrial noise sources.	**Consistent:** This Draft EIR evaluates the proposed Master Plan's consistency with the applicable aspects of the City's noise control standards. Refer to Section 3.11, Noise.
	10.1-I-9	Continue to enforce the City's Noise Ordinance to reduce noise impacts.	**Consistent:** This Draft EIR evaluates the proposed Master Plan's consistency with the applicable aspects of the City's noise ordinance, including as it applies to construction noise. Refer to Section 3.11, Noise.
	10.1-I-11	Encourage new developments to provide facilities which support the use of alternative transportation modes such as walking, bicycling, carpooling and, where applicable, transit to reduce peak-hour traffic and vehicular noise.	**Consistent:** The proposed Master Plan envisions transit hubs and bicycle and pedestrian facilities including connections to the Iron Horse Trail that would allow residents, employees, and visitors the option of traveling by non-single occupant vehicle mode of transportation.
	10.1-I-14	Construction activities are exempt from the standards set forth in Figure 10-2, but must implement all practical noise attenuation measures and practices to limit adverse impacts on nearby land uses.	**Consistent:** This Draft EIR sets forth construction noise mitigation measures including limits on the hours of construction and the use of noise barriers (as appropriate). Refer to Section 3.11, Noise.
Housing	11.5-G-1	Provide a diversity of housing types and affordability levels within San Ramon to meet the needs of community residents.	**Consistent:** The proposed Master Plan would provide up to 4,500 multi-family residential dwelling units within the Bishop Ranch Business Park and would represent the first residential use within this area of San Ramon.
	11.1-I-1	Identify sites appropriate for the development of a variety of housing types and price ranges to meet the needs of all socioeconomic segments of the community (including extremely low, very low, low, moderate, and above moderate income households).	**Consistent:** Up to 15 percent of the dwelling units envisioned by the Master Plan would be deed-restricted, affordable to low, and very low income households.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	11.1-I-3	Facilitate the development of affordable housing throughout the community through use of financial and/or regulatory incentives, where feasible.	**Consistent:** Up to 15 percent of the dwelling units envisioned by the Master Plan would be deed-restricted, affordable to low, and very low income households.
	11.1-I-4	Negotiate with developers to ensure a portion of future residential development is affordable to extremely low, very low, low, and moderate income households.	**Consistent:** Up to 15 percent of the dwelling units envisioned by the Master Plan would be deed-restricted, affordable to low, and very low income households.
	11.1-I-5	Maintain a variety of housing types that complements the employment opportunities within the community and encourages a jobs/housing balance.	**Consistent:** The proposed Master Plan's dwelling units would be the first residential uses within the Bishop Ranch Business Park. As such, it would be expected that a significant percentage of future residents would be employed in San Ramon and, thus, it would promote jobs/housing balance.
	11.1-I-6	Encourage diversity of unit size and number of bedrooms within multi-family housing developments (exempting senior projects) and strive to provide three and four-bedroom units for large families.	**Consistent:** The proposed Master Plan would include multi-family residential units ranging from studios up to 1-to-3 bedrooms. Additionally, the proposed Master Plan's dwelling units would be the first residential uses within the Bishop Ranch Business Park.
	11.1-I-12	Disperse below-market rate (BMR) housing throughout residential neighborhoods, and ensure that affordable units are essentially indistinguishable from surrounding market-rate units.	**Consistent:** Up to 15 percent of the dwelling units included by the proposed Master Plan would be deed-restricted, affordable to low, and very low income households. Affordable housing units would be distributed throughout the Master Plan area (as opposed to concentrating them in one place).
	11.5-G-2	Create safe and aesthetically-pleasing neighborhoods, and provide adequate housing to meet the needs of all household types and income groups.	**Consistent:** The proposed Master Plan would develop multi-family residential units inside multi-story structures. These structures would have security measures and cohesive, modern design. Furthermore, affordable housing units would be distributed throughout the Master Plan area (as opposed to concentrating them in one place).
	11.2-I-7	Ensure that the design, scale, and buffering of housing retains the character of the surrounding neighborhood.	**Consistent:** The proposed Master Plan's residential uses would be the first residential use within the Bishop Ranch Business Park. All architectural design themes would be developed in accordance with the document titled CityWalk Design Guidelines, which was reviewed and recommended for approval by the Architectural Review Board with comments on December 12, 2019 and included in Appendix B.

Element	Goal/Objective/Policy		Consistency Determination
	No.	Text	
	11.4-I-2	Promote a combination of residential, retail, and office uses in areas designated for mixed use.	**Consistent:** The proposed Master Plan includes residential, hotel, retail, and recreational uses.
Source: San Ramon General Plan 2035.			

Summary of Master Plan Consistency with the General Plan

Development of the proposed Master Plan area is envisioned by the General Plan. As indicated by several policies, as well as related supporting language, the General Plan envisions the City Center Bishop Ranch concept as a vibrant, integrated, and cohesive mix of civic, retail, office, residential, and open space uses that promotes a walkable environment in the Master Plan area. The proposed Master Plan would be consistent with policies outlined in the General Plan, as shown in Table 3.10-4. Therefore, the proposed Master Plan would be consistent with the General Plan and impacts would be less than significant.

San Ramon Zoning Ordinance Consistency

The three properties that make up the Master Plan area (BR 1A, BR 3A, and BR 2600) are zoned as CCMU by the San Ramon Zoning Ordinance. The proposed residential, hotel, office/retail, and public facilities uses would be consistent with allowable uses within the CCMU zoning designation and would further facilitate the development of the City Center into a "cultural, recreational, and compatible retail center that provides for a cohesive mix of civic, retail, office, and open space uses" as defined by the Zoning Ordinance. The proposed structures within BR 2600 will be subject to a maximum height of 85 feet, per Division D3-6 of the San Ramon Zoning Ordinance. The proposed structures within BR 1A and BR 3A are not subject to any height restrictions, per the CCMU Zoning Designation. In addition, the proposed Master Plan would be subject to the City's architectural approval process to ensure consistency with the Zoning Code. Furthermore, the proposed Master Plan's design, integrated open space, amenities, housing, and structured parking would be consistent with the CCMU zoning ordinance.

The CCMU provisions allow a 0.70 FAR, which can be increased to 1.35 FAR if affordable housing and significant public benefits or amenities such as public art and plazas, public facilities, or a transit facility is nearby. The Master Plan's FAR is estimated to be between 1.20 and 1.35, allowed due to approximately 40.7 proposed acres of publicly accessible parks, open space, and other public facilities, and use of transit hubs.

The Zoning Ordinance establishes requirements for the CCMU zone related to parking, landscaping, signs, hours of operation, design, and impacts related to noise, odors, glare, traffic and lighting. Lot size and setbacks are determined through the project review and approval process. As individual projects are developed within the Master Plan area, compliance with established requirements of the zoning ordinance would be reviewed to ensure implementation.

Development within the Master Plan Area would be required to obtain use permits and demonstrate consistency with applicable development standards. Any material deviations from such standards would be subject to further public review under CEQA. Further, development within the Master Plan would be subject to Architectural Review, which would ensure that site planning and project design is compatible with adjacent and surrounding uses. Compliance with these subsequent review processes will reduce any potentially significant land use impacts to less than significant.

Table 3.10-5 and Table 3.10-6 outline the CCMU development standards and the proposed Master Plan's general consistency with those standards.

Table 3.10-5: CCMU Development Standards Consistency Analysis

Development Feature	CCMU Standard	Consistency Determination
Minimum lot size	Determined through subdivision process	**Consistent:** Where subdivisions are proposed within the Master Plan area, lot sizes would be identified prior to approval.
Residential density	22-50 dwelling unit per acre (du/acre) (as determined by General Plan)	**Consistent:** The Master Plan proposes an overall 33.3 du/acre residential density for the entire project area.
Setbacks	Determined through project review and approval (Except that a 25-foot-wide side and/or rear yard shall be required abutting a residential zone, and where a lot abuts the I-680 right-of-way; and structures shall not intercept the daylight plane required by Section D2-15.)	**Consistent:** The Master Plan area is not adjacent to a residential zone or the I-680 right-of-way. Setbacks would be determined prior to the issuance of building permits.
FAR	Max FAR 0.70. Additional, up to 1.35 FAR, may be permitted if project incorporates workforce housing and significant public benefits/amenities	**Consistent:** The Master Plan's overall FAR is estimated at 1.20–1.35. The proposed Master Plan includes affordable housing units and public benefits/amenities and, therefore, qualifies for additional FAR.
Maximum height	None, except as limited by Daylight Plane Requirements (D2-15.A) and Section D3-6 (Height Limits and Exceptions)	**Consistent:** Daylight Plane Requirements apply to buildings adjacent to residential zones and I-680. There are no residential zones adjacent to the Master Plan area. The western edge of BR 2600 is near I-680, separated by Bishop Drive. Structures proposed at this location would be reviewed for consistency with Daylight Plane Requirements prior to building permit issuance.
Landscaping	Minimum 15 percent per lot	**Consistent:** The Master Plan consists of 37 percent landscaped open space.
Source: City of San Ramon Zoning Ordinance D2-14. February 28,2020.		

Table 3.10-6: Mixed Use Zone Additional Development Standards Consistency Analysis

Development Feature	City Standard (CCMU)	Consistency Determination
Daylight Plane Requirement	A proposed structure shall not intercept a 30-degree daylight plane inclined inward at a	**Consistent:** There are no residential zones adjacent to the Master Plan

Development Feature	City Standard (CCMU)	Consistency Determination
	residential zone property line and/or I-680 freeway property line.	area. The western edge of BR 2600 is near I-680, separated by Bishop Drive. Residential structures proposed at this location would be reviewed for consistency with Daylight Plane Requirements prior to building permit issuance.
Mixed Use Project Development Standards	A mixed use project combines a mix of nonresidential and residential uses on the same site. The residential units of mixed use projects are typically located above the nonresidential uses (vertical mixed use) but horizontal mixed use may be allowed which provides residential at ground level behind street fronting nonresidential uses.	**Consistent:** The proposed Master Plan allows for both vertical and horizontal mixed uses.
Design Considerations	The design shall provide for internal compatibility between the residential and nonresidential uses on the site.	**Consistent:** The proposed Master Plan has been designed to appropriately incorporate both residential, retail, and hotel uses.
	Potential glare, noise, odors, traffic, and other potentially significant impacts on residents shall be minimized to allow a compatible mix of residential and nonresidential uses on the same site.	**Consistent:** This Draft EIR evaluates the Master Plan's potential glare, noise, odors, traffic and other potentially significant impacts on residents. Where significant impacts have been identified, mitigation is incorporated that would reduce potential impacts and ensure mixed land uses are compatible.
	The design shall take into consideration potential impacts on adjacent properties and shall include specific design features to minimize potential impacts.	**Consistent:** This Draft EIR evaluates the Master Plan's potential glare, noise, odors, traffic and other potentially significant impacts on residents. Where significant impacts have been identified, mitigation is incorporated that would reduce potential impacts and ensure mixed land uses are compatible. In addition, development within the Master Plan area would be reviewed prior to building permit issuance to ensure compliance with the CCMU zone thereby minimizing potential impacts on adjacent properties.
	The design shall ensure that the residential units are of a residential character, and that appropriate privacy between residential units and other uses on the site is provided.	**Consistent:** Residential development within the Master Plan area would undergo Architectural Review prior to construction, which would ensure appropriate residential character. All residential buildings would be

Development Feature	City Standard (CCMU)	Consistency Determination
		oriented and/or setback from roadways and adjacent uses in order to include landscaping and screening such that appropriate residential privacy would be provided.
	Site planning and building design shall provide for convenient and attractive pedestrian access from the public street into the nonresidential portions of the project, through such means as courtyards, plazas, walkways, and street furniture.	**Consistent:** The proposed Master Plan includes internal roadways, improved pedestrian paths, and bicycle lanes that would connect residential uses, parking, and park uses to existing principal roadways and proposed nonresidential areas.
	Site planning and building design shall be compatible with and enhance the adjacent and surrounding land uses in terms of building design, color, exterior materials, landscaping, lighting, roof styles, scale and signage.	**Consistent:** Development within the Master Plan area would undergo Architectural Review prior to construction, which would ensure site planning and building design are compatible with and enhance the adjacent and surrounding areas.
Mix of Uses	A mixed use project may combine residential uses with any other use allowed in the MU or CCMU zone; provided that where a mixed use project is proposed with a use that is required to have Use Permit approval, the entire mixed use project shall be subject to that permit requirement.	**Consistent:** The entire Master Plan area is zoned as CCMU by the City of San Ramon Zoning Ordinance. The Master Plan's residential, retail, and hotel uses comply with the permitted and conditionally permitted uses allowed in this zone.
Site Layout and Project Design Standards	Each mixed use project shall comply with the property development standards of the applicable zone, and in the CCMU and MU zones, the following requirements.	**Consistent:** The entire Master Plan area is zoned as CCMU by the City of San Ramon Zoning Ordinance. The Master Plan's residential, retail, and hotel uses comply with the permitted and conditionally permitted uses allowed in this zone. Development within the Master Plan area would be required to obtain use permits and be consistent with development standards as applicable and required by the CCMU and General Plan.
Location of Residential Units	The location of residential units shall comply with the standards prescribed in this Section.	**Consistent:** Residential units are allowed within the CCMU designation and would be consistent with standards contained in the San Ramon Ordinance Code.
Parking	To encourage the development of both residential and nonresidential uses in mixed use zones, the use of shared parking provisions shall be incorporated into mixed use projects.	**Consistent:** The Master Plan proposes shared parking arrangements in certain cases.

Development Feature	City Standard (CCMU)	Consistency Determination
Loading Areas	Nonresidential loading areas shall be located away from residential units and shall be screened from view from the residential portion of the project to the maximum extent feasible.	**Consistent:** The hotel and other nonresidential uses would include loading areas within internal roadways with appropriate screening. The City's architectural review process would ensure property location and screening.
Refuse and Recycling Areas	Areas for the collection and storage of refuse and recyclable materials shall be located on the site in locations that are convenient for both the residential and nonresidential uses	**Consistent:** Development with the Master Plan area would include the collection of and storage of refuse in compliance with State and local regulations.
Lighting	Lighting for nonresidential uses shall be appropriately shielded to limit impacts on the residential units.	**Consistent:** Prior to issuance of building permits, development within the Master Plan area would be required to submit a site lighting plan to the City of San Ramon demonstrating compliance with applicable lighting standards.
Noise	Each residential unit shall be designed and constructed to minimize adverse impacts from nonresidential project noise, in compliance with the City's Noise Ordinance.	**Consistent:** All residential units would be located in areas suitable for residential use and would include design features, such as windows and forced air cooling systems, which would ensure noise would attenuate to below the City's compatible use thresholds. Refer to Section 3.11 Noise.
Hours of Operation	A mixed use project proposing a nonresidential component located below or in front of a residential component that will operate outside of the hours from 7:00 a.m. to 7:00 p.m., shall require Use Permit approval to ensure that the commercial uses will not negatively impact the residential uses within the project, or any adjacent residential uses.	**Consistent:** Development within the Master Plan area would be reviewed for CCMU consistency and the need for a use permit. During this process, a use permit for operating hours would be obtained if necessary due to proximity to residential uses. The existing nonresidential uses on BR 2600 do not have extended hours.
Source: City of San Ramon Zoning Ordinance D2-15. February 28,2020.		

Summary of Master Plan Consistency with the Zoning Ordinance

As shown in Table 3.10-5 and Table 3.10-6, the proposed Master Plan is consistent with applicable regulations of the CCMU zone and future development would be further guided by additional CCMU zoning regulations that are typically implemented at the building design level. Therefore, the proposed Master Plan would be consistent with CCMU zoning regulations and impacts would be less than significant in this regard.

Level of Significance Before Mitigation

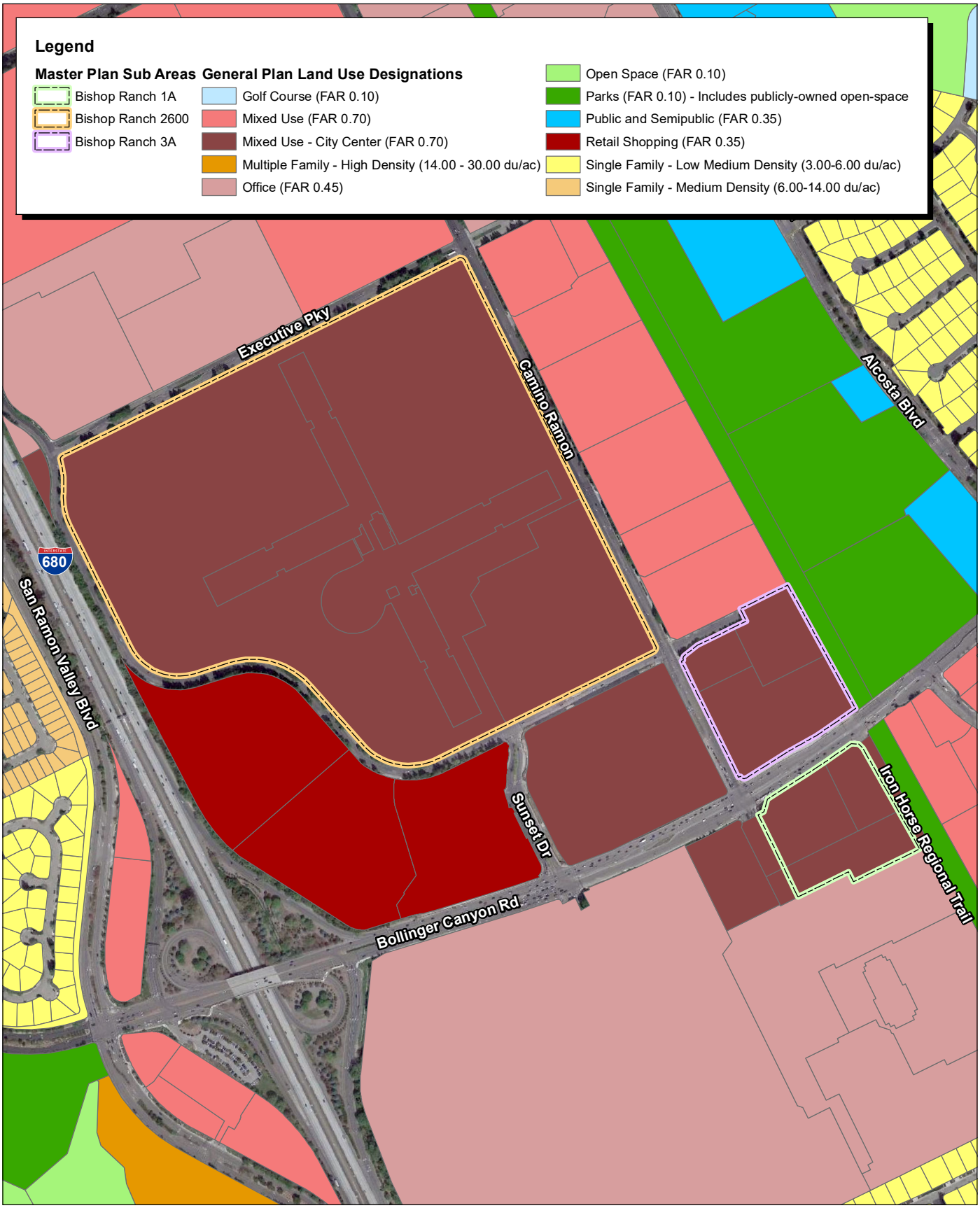
Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.



Source: Google Earth Pro Aerial Imagery. City of San Ramon General Plan Land Use Map.

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Exhibit 3.10-1
Existing General Plan Land Use Designations

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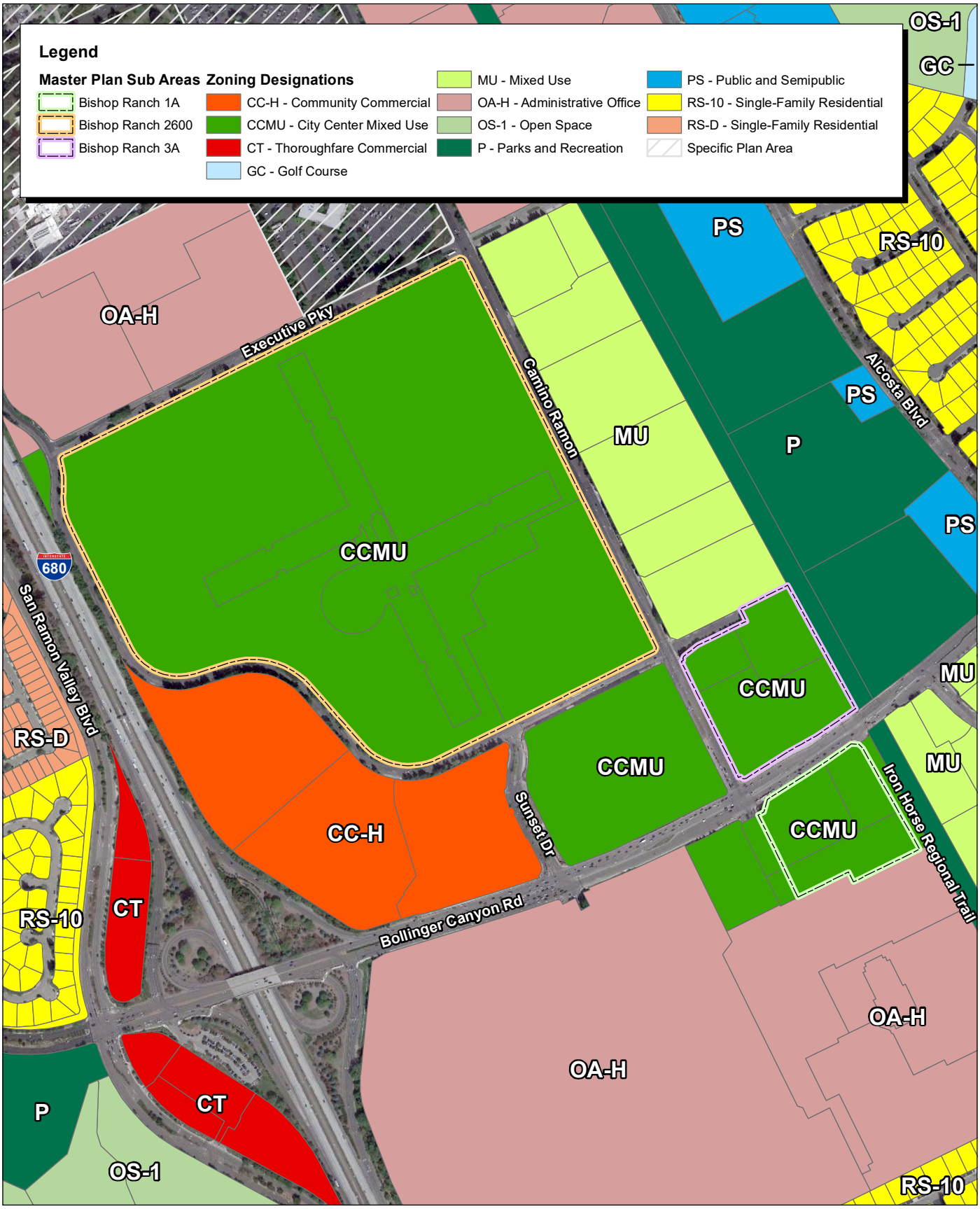

Source: Google Earth Pro Aerial Imagery. City of San Ramon General Plan Land Use Map.

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Exhibit 3.10-2
Existing Zoning

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3.11 - Noise

3.11.1 - Introduction

This section describes the existing noise setting and potential effects from implementation of the proposed Master Plan on the Master Plan area and the surrounding vicinity. Descriptions and analyses in this section are based on noise modeling performed by FirstCarbon Solutions (FCS). The noise modeling output is included in this Draft Environmental Impact Report (EIR) as Appendix I.

3.11.2 - Environmental Setting

Characteristics of Noise

Noise is generally defined as unwanted or objectionable sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in the extreme, hearing impairment. Noise effects can be caused by pitch or loudness. *Pitch* is the number of complete vibrations or cycles per second of a wave that result in the range of tone from high to low; higher-pitched sounds are louder to humans than lower-pitched sounds. *Loudness* is the intensity or amplitude of sound.

Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit, which expresses the ratio of the sound pressure level being measured to a standard reference level. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Only audible changes in existing ambient or background noise levels are considered potentially significant.

The human ear is not equally sensitive to all frequencies within the audible sound spectrum, so sound pressure level measurements can be weighted to better represent frequency-based sensitivity of average healthy human hearing. One such specific “filtering” of sound is called “A-weighting.” A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear. Because decibels are logarithmic units, they cannot be added or subtracted by ordinary arithmetic means. For example, if one noise source produces a noise level of 70 dB, the addition of another noise source with the same noise level would not produce 140 dB; rather, they would combine to produce a noise level of 73 dB.

Noise Descriptors

There are many ways to rate noise for various intervals, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and community noise

equivalent level (CNEL) or the day-night average level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within one dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source, as well as ground absorption, atmospheric conditions (wind, temperature gradients, and humidity) and refraction, and shielding by natural and manmade features. Sound from point sources, such as an air conditioning condenser, a piece of construction equipment, or an idling truck, radiates uniformly outward as it travels away from the source in a spherical pattern.

The attenuation or sound drop-off rate is dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in noise models: soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA per each doubling of the distance (dBA/DD) is typically observed over soft ground with landscaping, as compared with a 6 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources, such as traffic noise on a roadway, a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3 dBA/DD drop-off rate for hard-site conditions. Table 3.11-1 briefly defines these measurement descriptors and other sound terminology used in this section.

Table 3.11-1: Sound Terminology

Term	Definition
Sound	A vibratory disturbance created by a vibrating object which, when transmitted by pressure waves through a medium such as air, can be detected by a receiving mechanism such as the human ear or a microphone.
Noise	Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

Term	Definition
Ambient Noise	The composite of noise from all sources near and far in a given environment.
Decibel (dB)	A unitless measure of sound on a logarithmic scale, which represents the squared ratio of sound-pressure amplitude to a reference sound pressure. The reference pressure is 20 micropascals, representing the threshold of human hearing (0 dB).
A-Weighted Decibel (dBA)	An overall frequency-weighted sound level that approximates the frequency response of the human ear.
Equivalent Noise Level (L_{eq})	The average sound energy occurring over a specified time period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period.
Maximum and Minimum Noise Levels (L_{max} and L_{min})	The maximum or minimum instantaneous sound level measured during a measurement period.
Day-Night Level (DNL or L_{dn})	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m. (nighttime).
Community Noise Equivalent Level (CNEL)	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m.
Source: Data compiled by FCS, 2019	

Traffic Noise

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the Federal Highway Administration (FHWA) community noise assessment criteria, this change is "barely perceptible." For reference, a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

Stationary Noise

A stationary noise producer is any entity in a fixed location that emits noise. Examples of stationary noise sources include machinery, engines, energy production, and other mechanical or powered equipment and activities such as loading and unloading or public assembly that may occur at commercial, industrial, manufacturing, or institutional facilities. Furthermore, while noise generated by the use of motor vehicles over public roads is preempted from local regulation, although the use of these vehicles is considered a stationary noise source when operated on private property such as at a construction site, a truck terminal, or warehousing facility. The emitted noise from the producer can be mitigated to acceptable levels either at the source or on the adjacent property through the use of proper planning, setbacks, block walls, acoustic-rated windows, dense landscaping, or by changing the location of the noise producer.

The effects of stationary noise depend on factors such as characteristics of the equipment and operations, distance and pathway between the generator and receptor, and weather. Stationary noise sources may be regulated at the point of manufacture (e.g., equipment or engines), with limitations on the hours of operation, or with provision of intervening structures, barriers or topography.

Construction activities are a common source of stationary noise. Construction-period noise levels are higher than background ambient noise levels but eventually cease once construction is complete. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on each construction site and, therefore, would change the noise levels as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table 3.11-2 shows typical noise levels of construction equipment as measured at a distance of 50 feet from the operating equipment.

Table 3.11-2: Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Impact Pile Driver	95
Auger Drill Rig	85
Vibratory Pile Driver	95
Jackhammers	85
Pneumatic Tools	85
Pumps	77
Scrapers	85
Cranes	85
Portable Generators	82
Rollers	85
Dozers	85
Tractors	84

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Front-End Loaders	80
Backhoe	80
Excavators	85
Graders	85
Air Compressors	80
Dump Truck	84
Concrete Mixer Truck	85
Pickup Truck	55
Source: FHWA 2006. Highway Construction Noise Handbook, August.	

Noise from Multiple Sources

Because sound pressure levels in decibels are based on a logarithmic scale, they cannot be added or subtracted in the usual arithmetical way. Therefore, sound pressure levels in decibels are logarithmically added on an energy summation basis. In other words, adding a new noise source to an existing noise source, both producing noise at the same level, will not double the noise level. Instead, if the difference between two noise sources is 10 dBA or more, the louder noise source will dominate and the resultant noise level will be equal to the noise level of the louder source. In general, if the difference between two noise sources is 0–1 dBA, the resultant noise level will be 3 dBA higher than the louder noise source, or both sources if they are equal. If the difference between two noise sources is 2–3 dBA, the resultant noise level will be 2 dBA above the louder noise source. If the difference between two noise sources is 4–10 dBA, the resultant noise level will be 1 dBA higher than the louder noise source.

Characteristics of Vibration

Groundborne vibration consists of rapidly fluctuating motion through a solid medium, specifically the ground, that has an average motion of zero and in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The effects of groundborne vibration typically only causes a nuisance to people, but in extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room, and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (RMS) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels—denoted as LV—and is

based on the reference quantity of 1 micro inch per second. To distinguish these vibration levels referenced in decibels from noise levels referenced in decibels, the unit is written as "VdB."

Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. When assessing annoyance from groundborne vibration, vibration is typically expressed as root mean square (rms) velocity in units of decibels of 1 micro-inch per second, with the unit written in VdB. Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. Human perception to vibration starts at levels as low as 67 VdB. Annoyance due to vibration in residential settings starts at approximately 70 VdB.

Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration. Construction activities, such as blasting, pile driving and operating heavy earthmoving equipment, are common sources of groundborne vibration. Construction vibration impacts on building structures are generally assessed in terms of PPV. Typical vibration source levels from construction equipment are shown in Table 3.11-3 (FHWA 2006).

Table 3.11-3: Vibration Levels of Construction Equipment

Construction Equipment	PPV at 25 Feet (inches/second)	RMS Velocity in Decibels (VdB) at 25 Feet
Water Trucks	0.001	57
Scraper	0.002	58
Bulldozer—small	0.003	58
Jackhammer	0.035	79
Concrete Mixer	0.046	81
Concrete Pump	0.046	81
Paver	0.046	81
Pickup Truck	0.046	81
Auger Drill Rig	0.051	82
Backhoe	0.051	82
Crane (Mobile)	0.051	82
Excavator	0.051	82
Grader	0.051	82
Loader	0.051	82
Loaded Trucks	0.076	86
Bulldozer—Large	0.089	87
Caisson drilling	0.089	87
Vibratory Roller (small)	0.101	88
Compactor	0.138	90

Construction Equipment	PPV at 25 Feet (inches/second)	RMS Velocity in Decibels (VdB) at 25 Feet
Clam shovel drop	0.202	94
Vibratory Roller (large)	0.210	94
Pile Driver (impact-typical)	0.644	104
Pile Driver (impact-upper range)	1.518	112
Source: Compilation of scientific and academic literature, generated by FTA and FHWA.		

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth, which may contain significant geological differences. Factors that influence groundborne vibration include:

- **Vibration source:** Type of activity or equipment, such as impact or mobile, and depth of vibration source;
- **Vibration path:** Soil type, rock layers, soil layering, depth to water table, and frost depth; and
- **Vibration receiver:** Foundation type, building construction, and acoustical absorption.

Among these factors that influence groundborne vibration, there are significant differences in the vibration characteristics when the source is underground compared to at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface, and can result in groundborne vibration problems at large distance from the source. Factors such as layering of the soil and depth to the water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil type, but it has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may

need to be studied through actual field tests. The vibration level (calculated below as "PPV") at a distance from a point source can generally be calculated using the vibration reference equation:

$$PPV = PPV_{ref} * (25/D)^n \text{ (in/sec)}$$

Where:

PPV_{ref} = reference measurement at 25 feet from vibration source
D = distance from equipment to the receptor
n = vibration attenuation rate through ground

According to Chapter 12 of the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment manual, an "n" value of 1.5 is recommended to calculate vibration propagation through typical soil conditions (FTA 2018).

Existing Noise Levels

Ambient Noise

The existing noise environment in the vicinity of the Master Plan area was documented through a noise monitoring effort performed at the Master Plan area. Noise monitoring locations are shown in Exhibit 3.11-1, and the noise measurement data sheets are contained in Appendix I. A total of three short-term noise measurements (15 minutes each) were taken on Friday, January 31, 2020. In addition, two long term (24 hours each) noise measurements were taken between January 29, 2020 to January 31, 2020. These measurements provide a baseline of existing noise conditions.

Short-term Noise Measurements

Three short term noise measurements were conducted at the Master Plan area to measure ambient noise levels. Two short-term noise measurements (ST-1 and ST-2) were conducted on the eastern boundary of BR 2600 adjacent to Camino Ramon and one short term measurement (ST-3) was taken at the northwest corner of BR 3A. These noise measurements specifically documented noise levels from stationary noise sources associated with adjacent commercial and office land uses and the noise levels from traffic on adjacent roadways, as measured at the points nearest these noise sources.

The short-term noise measurement results are summarized in Table 3.11-4. The noise measurements were taken stating at 12:13 p.m. and ending at 1:22 p.m., during the midday peak noise hour. The noise measurements determined that daytime ambient noise levels range from 62.2 dBA to 70.5 dBA L_{eq} in the vicinity of the Master Plan area. The noise measurements indicate that noise within the vicinity of the Master Plan area is generally characterized by vehicle traffic on Camino Ramon (runs along the Master Plan area's eastern border) and Bollinger Canyon Road (runs along the Master Plan area's southern border).

The noise measurement locations were taken in compliance with the methodology and site selection guidance of the California Department of Transportation (Caltrans) Technical Noise Supplement. The short-term measurements were taken at the nearest appropriate point to the highest volume roadway in the Master Plan vicinity.

Long-term Noise Measurement

Two long-term noise measurements were taken at a secure location, a minimum of 10-feet from reflective surfaces and at a location where future sensitive receptors would be located. The first long-term noise measurement (LT-1) was conducted on the northwest portion of the Master Plan area. Specifically, in the western portion of BR 2600 on the top of a bank on the north side of the larger man-made lake, approximately 100 feet east of Bishop Drive and 245 feet east of I-680. The resulting measurement determined that the 24-hour average ambient noise levels at this location averaged 77.8 dBA L_{dn}, with daytime average noise levels of 74.9 dBA L_{eq}, and nighttime average noise levels of 70.3 dBA L_{eq}. As was observed by the technician at the time of the noise measurement, the dominant noise source in the Master Plan vicinity is vehicle traffic on I-680 and Bishop Drive. This noise measurement specifically documented noise levels from traffic on I-680, as measured at this point nearest this noise source.

The second long-term noise measurement (LT-2) was conducted on the eastern portion of the Master Plan area. Specifically, the northwest corner of the intersection of Camino Ramon and the entrance to BR 2600 approximately 50 feet to the center of Camino Ramon attached to a tree as part of existing landscaping. The resulting measurement determined that the 24-hour average ambient noise levels at this location averaged 60.8 dBA L_{eq}, with daytime average noise levels of 59.4 dBA L_{eq}, and nighttime average noise levels of 52.5 dBA L_{eq}. As was observed by the technician at the time of the noise measurement, the dominant noise source in the Master Plan vicinity is vehicle traffic on Camino Ramon.

Table 3.11-4: Existing Ambient Noise Levels in the Vicinity of the Master Plan Area

Site Location	Location Description	dBA	Primary Noise Sources
ST-1	Southwest corner of Camino Ramon and Executive Parkway intersection, adjacent to BR 2600 sign	70.5 L_{eq}	Automobile traffic on adjacent roadways
ST-2	Northwest corner of Bishop Drive and Camino Ramon intersection, approximately 70 feet to center of intersection	65.9 L_{eq}	Automobile traffic on adjacent roadways, pedestrians.
ST-3	Southeast corner of intersection of Bollinger Canyon Road and Camino Ramon behind development sign, approximately 150 feet to center of intersection	62.2 L_{eq}	Automobile traffic on Bollinger Canyon Road
LT-1	75 feet east from the center of Bishop Drive; top of hill adjacent to Annabel Lake (western man-made lake)	77.8 L_{dn}	Automobile Traffic on Bishop Drive and I-680

Site Location	Location Description	dBA	Primary Noise Sources
LT-2	Northwest Corner of Camino Ramon intersection and entrance to BR 2600, approximately 200 feet northeast of Lake Cecilia (eastern man-made lake)	60.8 L_{dn}	Automobile traffic on Camino Ramon
Source: FCS 2020.			

Traffic Noise

In addition to the ambient noise measurements, existing traffic noise on local roadways in the Master Plan area was calculated to quantify existing traffic noise levels, based on the existing traffic volumes included in Appendix I. Existing traffic noise levels along selected roadway segments in the Master Plan area were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). Site-specific information is entered, such as roadway traffic volumes, roadway active width, source-to-receiver distances, travel speed, noise source and receiver heights, and the percentages of automobiles, medium trucks, and heavy trucks that the traffic is made up of throughout the day, among other variables. The modeled average daily traffic (ADT) volumes were obtained by multiplying the PM peak-hour intersection traffic volumes from the traffic study prepared for the proposed Master Plan (prepared by Gibson Transportation Consultants, Inc.) by a factor of 10. The model inputs and outputs, including the 60 dBA, 65 dBA, and 70 dBA L_{dn} traffic noise contour distances, are provided in Appendix I. A summary of the modeling results is shown in Table 3.11-5.

Table 3.11-5: Existing Traffic Noise Levels in the Vicinity of the Master Plan Area

Roadway Segment	ADT	Centerline to 70 L_{dn} (feet)	Centerline to 65 L_{dn} (feet)	Centerline to 60 L_{dn} (feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane
Bishop Drive—south of Executive Parkway	4,200	< 50	< 50	< 50	58.4
Executive Parkway—Bishop Drive to Camino Ramon	2,500	< 50	< 50	< 50	55.6
Camino Ramon—Norris Canyon Road to Executive Parkway	13,300	< 50	73	150	64.9
Camino Ramon—Executive Parkway to Bishop Drive	14,300	< 50	76	157	65.2
Camino Ramon—Bishop Drive to Bollinger Canyon Road	17,700	< 50	87	181	66.1
Bishop Drive—Sunset Drive to Camino Ramon	5,300	< 50	< 50	52	58.8
Sunset Drive—Bishop Drive to The Shops at Bishop Ranch/Bishop Ranch 2	7,100	< 50	< 50	66	59.2

Roadway Segment	ADT	Centerline to 70 L_{dn} (feet)	Centerline to 65 L_{dn} (feet)	Centerline to 60 L_{dn} (feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane
Sunset Drive—The Shops at Bishop Ranch/Bishop Ranch 2 to Bollinger Canyon Road	14,200	< 50	< 50	101	62.2
Bollinger Canyon Road—Sunset Drive to Camino Ramon	38,500	81	147	304	68.2
Bollinger Canyon Road—Camino Ramon to Bishop Ranch 1 East	37,800	80	146	301	68.1

Note:
ADT = Average Daily Traffic
Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather it assumes a worst case of having a direct line of site on flat terrain.
Bold values indicated roadway segments that are adjacent to the Master Plan area.
Source: FCS 2020.

Noise-Sensitive Land Uses

Noise-sensitive land uses generally consist of those uses where exposure to noise would result in adverse effects, as well as uses for which quiet is an essential element of their intended purpose. Residential dwellings are of primary concern, because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other typical noise-sensitive land uses include hospitals, convalescent facilities, hotels, religious institutions, libraries, and other uses where low noise levels are essential.

The closest noise-sensitive land uses to the Master Plan area are the San Ramon Marriott Hotel located 500 feet southwest of BR 2600, Iron Horse Middle School located 1000 feet to the east, single-family residences located approximately 500 feet to the west of BR 2600 across I-680, and single-family residences located 1,200 feet to the east of BR 1A. There are no existing noise-sensitive land uses within the Master Plan area boundaries.

For purposes of this acoustical analysis, the study area includes all noise sources in the Master Plan vicinity that are audible on the Master Plan area, and all land uses in the Master Plan vicinity that could be affected by Master Plan-related noise sources.

3.11.3 - Regulatory Framework

Federal

Noise Control Act

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts

- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees.

Among the agencies now regulating noise are the Occupational Safety and Health Administration (OSHA), which limits noise exposure of workers to 90 dB L_{eq} or less for 8 continuous hours or 105 dB L_{eq} or less for 1 continuous hour; the United States Department of Transportation (USDOT), which assumed a significant role in noise control through its various operating agencies; and the Federal Aviation Administration (FAA), which regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the FTA. Transit noise is regulated by the federal Urban Mass Transit Administration, while freeways that are part of the interstate highway system are regulated by the FHWA. Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway, or alternatively, that developments are planned and constructed in such a manner that minimize potential noise impacts.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, local jurisdictions are limited to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

Federal Transit Administration Standards and Guidelines

FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment document (FTA 2006). The FTA guidelines include thresholds for construction vibration impacts for various structural categories as shown in Table 3.11-6.

Table 3.11-6: Federal Transit Administration Construction Vibration Impact Criteria

Building Category	PPV (in/sec)	Approximate VdB
I. Reinforced-Concrete, Steel or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non-engineer Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90
Source: FTA 2018. Transit Noise and Vibration Impact Assessment Manual. September.		

State

California General Plan Guidelines

Established in 1973, the California Department of Health Services Office of Noise Control was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to delineate compatibility of sensitive uses with various incremental levels of noise (CDHS 1976).

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise/land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable. The proposed Master Plan is also subject to review under the State of California Environmental Quality Act (CEQA). Appendix G of the CEQA Guidelines provides impact thresholds for potential noise and vibration impacts.

California Building Standards Code

The State of California has established noise insulation standards for new hotels, motels, apartment houses, and dwellings (other than single-family detached housing). These requirements are provided in the 2016 California Building Standards Code (CBC) (California Code of Regulations [CCR] Title 24) (CBSC 2017). As provided in the CBC, the noise insulation standards set forth an interior standard of 45 dBA L_{dn} as measured from within the structure's interior. When such structures are located within a 65-dBA L_{dn} (or greater) exterior noise contour associated with a traffic noise along a roadway, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA L_{dn} threshold. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Local

The Master Plan area is located in the City of San Ramon. The City of San Ramon addresses noise in the Noise Element of the San Ramon General Plan 2035 and the City's Code of Ordinances (San Ramon 2019f).

City of San Ramon General Plan

Chapter 10 of the San Ramon General Plan 2035 contains the Noise Element which identifies land use compatibility guidelines.

Noise Element

- **Policy 10.1-I-2:** All projects that are exposed to noise greater than "normally acceptable" levels indicated in Figure 10-2 shall be required to submit a noise analysis. Applicable noise attenuation measures shall be implemented with the DNL reduced to 45 dB in all habitable rooms.
- **Policy 10.1-I-3:** Acoustical and vibration studies shall be prepared by qualified professionals in accordance with industry-accepted methodology. All applicable and feasible vibration reduction measures shall be incorporated into project plans.
- **Policy 10.1-I-4:** Alternatives to sound walls such as building orientation and landscaped buffers shall be considered during the design process. If deemed appropriate, sound walls shall be well-designed and appropriately sited.
- **Policy 10.1-I-5:** New development shall minimize their noise impacts on adjacent properties through appropriate means, including, but not limited to, the following actions:
  - Screen and control noise sources, such as parking and loading facilities, outdoor activities and mechanical equipment, Increase setbacks for noise sources from adjacent dwellings,
  - Retain or install fences, walls, and landscaping that serve as noise buffers,
  - Use soundproofing materials and other building practices or materials,
  - Encourage the use of commute alternatives,

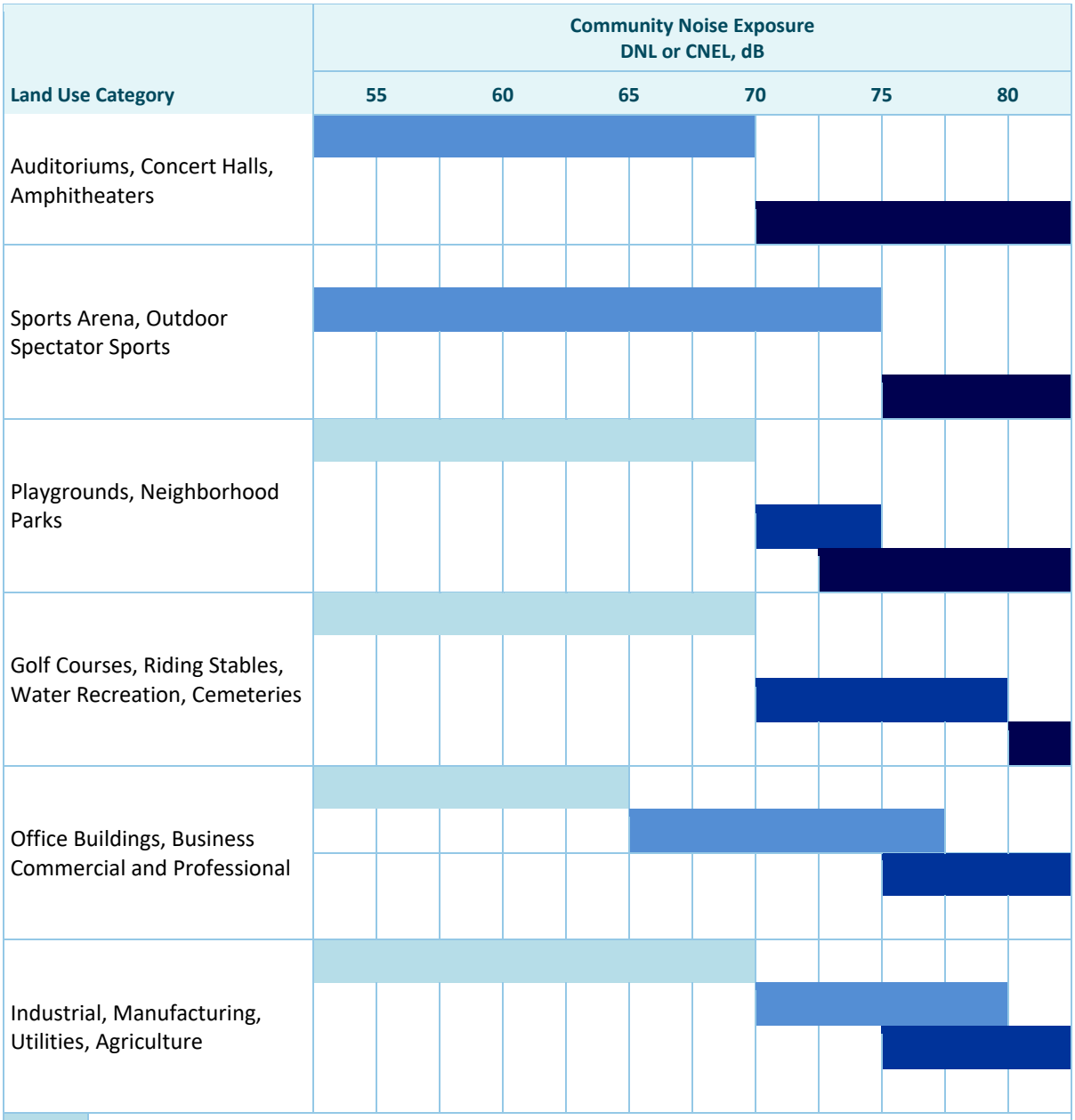
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts, and
- Buffer noise along highways and arterial roadways through natural noise buffers and if necessary, install sound walls when compatible with neighborhood aesthetics and character.

- **Policy 10.1-I-6:** Protect especially sensitive receptors such as schools, hospitals, and senior care uses, from excessive noise.
- **Policy 10.1-I-13:** Encourage mixed-use and commercial developments to locate noise generating components such as loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noisier components away from residential development.
- **Policy 10.1-I-14:** Construction activities are exempt from the standards set forth in Figure 10-2, but must implement all practical noise attenuation measures and practices to limit adverse impacts on nearby land uses.
- **Policy 10.1-I-17:** For purposes of city analyses of noise impacts, and for determining appropriate noise mitigation, a significant increase in ambient noise levels is assumed if the project causes ambient noise levels to exceed the following:
  - The ambient noise level is less than 60 dB L_{dn} and the project increases noise levels by 5 dB or more.
  - The ambient noise level is 60-65 dB L_{dn} and the project increases noise levels by 3 dB or more.
  - The ambient noise level is greater than 65 dB L_{dn} and the project increases noise levels by 1.5 dB or more.

Table 3.11-7 summarizes the General Plan Noise Land Use Compatibility Table.

Table 3.11-7: Land Use Compatibility

Land Use Category	Community Noise Exposure DNL or CNEL, dB					
	55	60	65	70	75	80
Residential						
Transient Lodging—Motels, Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						



Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable: New construction or development clearly should not be undertaken.

Source: City of San Ramon. 2015. City of San Ramon General Plan 2035 Chapter 10. Noise.

City of San Ramon Code of Ordinances

The City of San Ramon also addresses noise in the Municipal Code.

B6-97: Machinery or Air Conditioning Equipment

It is unlawful for a person to operate machinery, equipment, pump, fan, air conditioning apparatus or similar mechanical device used for commercial purposes in the manner which creates noise, unless the noise is muffled and the device is equipped with a muffler sufficient to deaden the noise.

B6-100: Construction projects

It is unlawful for a person within a residential land use district to operate or perform construction or repair work on a building, structure or project, or to operate a pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other construction-type device on holidays celebrated by the federal government, and on Monday through Friday, prior to 7:30 a.m. and after 7:00 p.m. on each day and on Saturdays and Sundays, prior to 9:00 a.m. and after 6:00 p.m.

B6-101: Business and residential relationships

A. Store deliveries by any vehicle in the area between the business and residences is prohibited between 10:00 p.m. and 6:30 a.m. weekdays and between 10:00 p.m. and 8:00 a.m. on weekends and federal holidays. Delivery vehicles will have their engines turned off during deliveries.

B6-131: Public Nuisances

G. Any act or omission which continually interferes with the interest of the community by disturbing or preventing the comfortable enjoyment of property and impacting the general public's health, comfort and convenience. Acts or omissions covered under this subsection specifically include, but are not limited to, the following:

2. Excessive Noise
4. Vibration causing a noticeable tremor measurable without instruments at the lot line.

3.11.4 - Thresholds of Significance

According to California Environmental Quality Act (CEQA) Guidelines updated Appendix G (2019), to determine whether impacts related to noise and vibration are significant environmental effects, the following questions are analyzed and evaluated.

Would the proposed Master Plan:

a) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

b) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

c) Generate excessive groundborne vibration or groundborne noise levels?

d) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use

airport, would the project expose people residing or working in the project area to excessive noise levels?

It should be noted that the significance criteria question a), above, is from the Land Use and Planning section of the CEQA Guidelines Appendix G checklist questions. However, this question addresses impacts related to conflicts with land use plans, which would include Master Plan-related conflicts to the noise land use compatibility standards of the Noise Element of the General Plan. Therefore, these impacts are addressed here.

Approach to Analysis

Noise Measurement Methodology

Noise monitoring efforts were conducted on January 29 and 31, 2020 to document the existing noise environment and capture the noise levels associated with traffic and existing activities in the Master Plan area. The field survey noted that noise within the Master Plan area is generally characterized by vehicle traffic on Camino Ramon, Bollinger Canyon Road, and I-680.

The noise measurements were taken using Larson-Davis Model LxT2 Type 2 precision sound level meters programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 150. The accuracy of the calibrator is maintained through a program established through the manufacturer and is traceable to the National Bureau of Standards. All noise level measurement equipment meets American National Standards Institute specifications for sound level meters. The ambient noise measurements were taken in compliance with the methodology and site selection guidance of the Caltrans Technical Noise Supplement (Caltrans 2013).

Traffic Noise Modeling Methodology

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the FHWA community noise assessment criteria, this change is "barely perceptible." For reference a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions in the Master Plan vicinity. Traffic data used in the model were obtained from the Traffic Impact Analysis (TIA) prepared for the proposed Master Plan by Fehr & Peers. The resultant noise levels were weighed and summed over a 24-hour period in order to determine the CNEL values. The FHWA-RD-77-108 Model arrived at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level.

Adjustments were then made to this level to account for the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway); the total ADT; the percentage of ADT that flows during the day, evening, and night; the travel speed; the vehicle mix on the roadway; a percentage of the volume of automobiles, medium trucks, and heavy trucks; the roadway grade; the angle of view of the observer exposed to the roadway; and the site conditions ("hard" or "soft") as they relate to the absorption of the ground, pavement, or landscaping.

The model analyzed the noise impacts from the nearby roadways on the Master Plan vicinity, which consists of the area that has the potential to be impacted by the on-site noise sources, as well as Master Plan-generated traffic on the nearby roadways. Analyses of the roadways were based on a single-lane-equivalent noise source combining both directions of travel. A single-lane-equivalent noise source occurs when the vehicular traffic from all lanes is combined into a theoretical single-lane that has a width equal to the distance between the two outside lanes of a roadway, which provides almost identical results to analyzing each lane separately where elevation changes are minimal.

For purposes of this analysis, a significant increase in ambient noise levels is assumed if the proposed Master Plan causes ambient noise levels to exceed the following:

- The ambient noise level is less than 60 dB L_{dn} and the project increases noise levels by 5 dB or more.
- The ambient noise level is 60-65 dB L_{dn} and the project increases noise levels by 3 dB or more.
- The ambient noise level is greater than 65 dB L_{dn} and the project increases noise levels by 1.5 dB or more.

3.11.5 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed Master Plan and provides mitigation measures where appropriate.

Noise Levels That Would Conflict with Any Land Use Plan, Policy, or Regulation

Impact NOI-1:	**The proposed Master Plan would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.**

Impact Analysis

Traffic Noise Impacts

Less than significant with mitigation. A significant impact would occur if implementation of the proposed Master Plan would expose the proposed noise sensitive receptors to noise levels in excess of the City's exterior noise level standards for new land use development. For example, the City considers environments with ambient noise levels of up to 60 dBA L_{dn} to be "normally acceptable" for new residential land use development, and environments with noise levels above 60 dBA and up to 70 dBA L_{dn} are considered "conditionally acceptable" for new residential land use development. In

addition, the City considers environments with ambient noise levels above 70 dBA L_{dn} and up to 75 dBA L_{dn} as "normally unacceptable" for new residential land use development.

Based on the ambient noise monitoring effort described above, existing ambient noise levels taken on the western most portion of the Master Plan area (LT-1) average 77.8 dBA L_{dn}, over a 24-hour period. At this western boundary of the proposed Master Plan nearest to I-680, existing ambient noise levels are within the City's "clearly unacceptable" range for new residential development. Existing ambient noise levels at the eastern portion of the Master Plan area (LT-2) average 60.8 dBA L_{dn}, over a 24-hour period. These documented noise levels are within the City's "conditionally acceptable" range for new residential development. However, it should be noted that residential development within the Master Plan area would be set back a minimum of 60 feet from the edge of roadways in accordance with the CityWalk Design Guidelines (Appendix B). Therefore, these measured traffic noise levels would be reduced at the proposed façades as discussed below.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was also used to evaluate traffic-related noise conditions in the vicinity of the Master Plan area. Traffic data used in the model was obtained from the traffic impact analysis prepared by Gibson Transportation Consulting, Inc. for the proposed Master Plan. The resultant noise levels were weighed and summed over a 24-hour period in order to determine the L_{dn} values. The traffic noise modeling input and output files are included in Appendix I. Consistent with the assumptions of the Traffic Impact Study (TIS) prepared for the proposed Master Plan the traffic noise modeling results for existing and future year conditions, without and with the proposed Master Plan, are summarized in Table 3.11-8.

Table 3.11-8: Existing and Future Modeled Traffic Noise Levels

Roadway Segment	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane			
	Existing Without Project Conditions L_{dn} (Year 2019)	Existing With Project Conditions L_{dn} (Year 2019)	Cumulative Without Project Conditions L_{dn} (Year 2040)	Cumulative With Project Conditions L_{dn} (Year 2040)
Bishop Drive—south of Executive Parkway	58.4	58.8	59.5	59.8
Executive Parkway—Bishop Drive to Camino Ramon	55.6	57.9	55.9	58.1
Camino Ramon—Norris Canyon Road to Executive Parkway	64.9	65.7	66.3	66.9
Camino Ramon—Executive Parkway to Bishop Drive	65.2	66.2	66.9	67.6
Camino Ramon—Bishop Drive to Bollinger Canyon Road	66.1	67.2	67.3	68.1

Bishop Drive—Sunset Drive to Camino Ramon	58.8	59.6	61.1	61.5
Sunset Drive—Bishop Drive to The Shops at Bishop Ranch/Bishop Ranch 2	59.2	60.9	59.4	61.1
Sunset Drive—The Shops at Bishop Ranch/Bishop Ranch 2 to Bollinger Canyon Road	62.2	63.0	62.3	63.1
Bollinger Canyon Road—Sunset Drive to Camino Ramon	68.2	69.0	68.2	69.0
Bollinger Canyon Road—Camino Ramon to Bishop Ranch 1 East	68.1	68.5	68.5	68.8
Interstate 680—North of Bollinger Canyon Road	80.0	80.0	80.9	80.9
Source: FirstCarbon Solutions, 2020.				

As is shown in Table 3.11-8, traffic noise levels in the Master Plan area would range from 55.6 dBA to 69.0 dBA L_{dn} along modeled roadway segments in the Master Plan area as measured at 50 feet from the centerline of the outermost lane. In addition, traffic noise levels along Interstate 680 north of Bollinger Canyon Road would range up to 80.9 dBA L_{dn} in the Master Plan area as measured at 50 feet from the centerline of the outermost lane. It should be noted that these projected traffic noise levels along these modeled roadway segments do not take into account any existing sound walls or terrain features that could reduce traffic noise levels at receiving land uses, but rather conservatively assume a direct line-of-sight over a soft surface to the modeled traffic noise sources.

The proposed future residential land use developments would be setback a minimum of 60 feet from all adjacent roadways, according to the CityWalk Design Guidelines. The roadway segments with the highest projected traffic noise levels in the Master Plan area are shown in Table 3.11-9 in comparison to the City's normally acceptable exterior noise level standard of 60 dBA L_{dn} for residential types of land use development. All but two roadway segments would exceed the normally acceptable exterior noise level standard as measured at the nearest residential façades. However, only traffic noise levels from I-680 would exceed the City's conditionally acceptable noise level standard of 70 dBA L_{dn} for residential types of land use development as measured at the nearest façades of proposed development within the Master Plan area. These impacts would be considered significant and mitigation would be required. Each of the impacted areas are analyzed separately in the following discussion.

Table 3.11-9: Comparison of Traffic Noise Levels to the Normally and Conditionally Acceptable Exterior Noise Level Standards

Roadway Segment	Cumulative With Project Conditions L_{dn} (Year 2040)			
	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane	L_{dn} (dBA) at minimum required setback distance (60 feet from edge of adjacent roadway)	Exceed the Normally Acceptable Land Use Compatibility Standard of 60 dBA L_{dn}? (Y/N)	Exceed the Conditionally Acceptable Land Use Compatibility Standard of 70 dBA L_{dn}? (Y/N)
Camino Ramon—From Norris Canyon Road to Executive Parkway	66.9	65.3	Y	N
Camino Ramon—From Executive Parkway to Bishop Drive	67.6	66.1	Y	N
Camino Ramon—From Bishop Drive to Bollinger Canyon Road	68.1	66.5	Y	N
Bishop Drive—From Sunset Drive to Camino Ramon	61.5	59.9	N	N
Sunset Drive—From Bishop Drive to The Shops at Bishop Ranch/Bishop Ranch	61.1	59.5	N	N
Sunset Drive—From The Shops at Bishop Ranch/Bishop Ranch 2 to Bollinger Canyon Road	63.1	61.5	Y	N
Bollinger Canyon Road—From Sunset Drive to Camino Ramon	69.0	67.4	Y	N
Bollinger Canyon Road—From Camino Ramon to Bishop Ranch 1 East	68.8	67.2	Y	N
Interstate 680—North of Bollinger Canyon Road	80.9	74.2[1]	Y	Y

Note: [1] This calculation is based on a total setback distance of 235 feet from the center of I-680 (i.e., 60-feet from the edge of Bishop Drive which is between the project site and I-680).
Source: FirstCarbon Solutions, 2020.

For areas with noise levels in excess of normally acceptable exterior land use compatibility standards, the City requires that a detailed analysis of the noise reduction requirements be made and needed noise insulation features be included in the design to ensure that acceptable interior noise levels are maintained. Based on the U.S. EPA's Protective Noise Levels (EPA 1978), with a combination of walls, doors, and windows, standard construction in accordance with Title-24 Uniform Building Code (UBC) requirements for multi-family residential developments would provide a minimum of 25 dBA in exterior-to-interior noise reduction with windows closed and 15 dBA or more with windows open.

Camino Ramon—From Norris Canyon Road to Executive Parkway

As shown in Table 3.11-9, noise levels at proposed nearest façades to Camino Ramon from Norris Canyon Road to Executive Parkway would experience noise levels up to 65.3 dBA L_{dn}, as measured at the minimum 60-foot setback from adjacent roadways for all proposed residential buildings. As a result, with windows open, the interior noise levels of the proposed units nearest to and facing Camino Ramon would not meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development (i.e., 65.3 dBA–15 dBA = 50.3 dBA).

However, inclusion of alternate ventilation systems such as mechanical air conditioning would allow windows to remain closed for prolonged periods of time, sufficiently reducing traffic noise levels to meet the interior noise level standard of 45 dBA L_{dn} (i.e., 65.3 dBA–25 dBA = 40.3 dBA). A forced air circulation system, such as air conditioning, which satisfies the requirements of the UBC, would give an occupant the option of controlling noise by keeping the windows shut. Therefore, with windows closed, the interior noise levels would meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development. Therefore, implementation of MM NOI-1a would ensure the proposed residential uses adjacent to Camino Ramon as part of the proposed Master Plan would not result in a conflict with the City's adopted land use-noise compatibility guidelines and traffic noise impacts would be mitigated to less than significant levels.

Camino Ramon—From Executive Parkway to Bishop Drive

As shown in Table 3.11-9, noise levels adjacent to Camino Ramon from Executive Parkway to Bishop Drive would experience noise levels up to 66.1 dBA L_{dn}, as measured at the minimum 60-foot setback from adjacent roadways for all proposed residential buildings within the Master Plan area. As a result, with windows open, the interior noise levels of the proposed units nearest to and facing Camino Ramon would not meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development (i.e., 66.1 dBA–15 dBA = 51.1 dBA).

However, inclusion of alternate ventilation systems such as mechanical air conditioning, which satisfies the requirements of the UBC, would allow windows to remain closed for prolonged periods of time, sufficiently reducing traffic noise levels to meet the interior noise level standard of 45 dBA L_{dn} (i.e., 66.1 dBA–25 dBA = 41.1 dBA). Therefore, with windows closed, the interior noise levels would meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development. Therefore, implementation of MM NOI-1a would ensure the proposed residential uses adjacent to Camino Ramon as part of the proposed Master Plan would not result in a conflict with the City's adopted land use-noise compatibility guidelines and traffic noise impacts would be mitigated to less than significant levels.

Camino Ramon—From Bishop Drive to Bollinger Canyon Road

As shown in Table 3.11-9, noise levels adjacent to Camino Ramon from Bishop Drive to Bollinger Canyon Road would experience noise levels up to 66.5 dBA L_{dn}, as measured at the minimum 60-foot setback from adjacent roadways for all proposed residential buildings within the Master Plan area. As a result, with windows open, the interior noise levels of the proposed units nearest to and facing Camino Ramon would not meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development (i.e., 66.5 dBA–15 dBA = 51.5 dBA).

However, inclusion of alternate ventilation systems such as mechanical air conditioning, which satisfies the requirements of the UBC, would allow windows to remain closed for prolonged periods of time, sufficiently reducing traffic noise levels to meet the interior noise level standard of 45 dBA L_{dn} (i.e., 66.5 dBA–25 dBA = 41.5 dBA). Therefore, with windows closed, the interior noise levels would meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development. Therefore, implementation of MM NOI-1a would ensure the residential uses adjacent to Camino Ramon as part of the proposed Master Plan would not result in a conflict with the City's adopted land use-noise compatibility guidelines and traffic noise impacts would be mitigated to less than significant levels.

Bishop Drive—From Sunset Drive to Camino Ramon

As shown in Table 3.11-9, projected noise levels adjacent to Bishop Drive would range up to 61.5 dBA L_{dn} at 50 feet from the outermost travel lane. However, as measured at the 60-foot setback for residential uses, the noise levels would attenuate to 59.9 dBA, which is below the normally acceptable threshold set by the City of San Ramon General Plan. In addition, with windows open, the interior noise levels of the proposed units nearest to and facing Bishop Drive would meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development (i.e., 59.9 dBA–15 dBA = 44.9 dBA). Therefore, traffic noise impacts to proposed residential development in this portion the Master Plan area would be less than significant.

Sunset Drive—From Bishop Drive to The Shops at Bishop Ranch/Bishop Ranch

As shown in Table 3.11-9, projected noise levels adjacent to Sunset Drive from Bishop Drive to The Shops at Bishop Ranch/Bishop Ranch would range up to 61.1 dBA L_{dn} in excess of the normally acceptable standard. However, as measured at the 60-foot setback for residential uses, the noise levels would attenuate to 59.5 dBA, which is below the normally acceptable threshold set by the City of San Ramon General Plan. As a result, noise levels along Sunset Drive from Bishop Drive to The Shops at Bishop Ranch/Bishop Ranch would be below the normally acceptable threshold set by the City of San Ramon General Plan. Additionally, with windows open, the interior noise levels of the proposed units nearest to and facing Sunset Drive would meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development (i.e., 59.9 dBA–15 dBA = 44.4 dBA). Therefore, traffic noise impacts to proposed residential development in this portion of the Master Plan area would be less than significant.

Sunset Drive—From The Shops at Bishop Ranch/Bishop Ranch 2 to Bollinger Canyon Road

As shown in Table 3.11-9, noise levels adjacent to Sunset Drive from The Shops at Bishop Ranch/Bishop Ranch 2 to Bollinger Canyon Road would experience noise levels up to 61.5 dBA L_{dn}

even with the 60-foot setback, which would be not be within the normally acceptable range. As a result, with windows open, the interior noise levels of the proposed units nearest to and facing Sunset Drive would not meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development (i.e., 61.5 dBA–15 dBA = 46.5 dBA).

However, inclusion of alternate ventilation systems such as mechanical air conditioning, which satisfies the requirements of the UBC, would allow windows to remain closed for prolonged periods of time, sufficiently reducing traffic noise levels to meet the interior noise level standard of 45 dBA L_{dn} (i.e., 66.5 dBA–25 dBA = 41.5 dBA). Therefore, with windows closed, the interior noise levels would meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development. Therefore, implementation of MM NOI-1a would ensure the residential uses adjacent to Sunset Drive as part of the proposed Master Plan would not result in a conflict with the City's adopted land use-noise compatibility guidelines and traffic noise impacts would be mitigated to less than significant levels.

Bollinger Canyon Road—From Camino Ramon to Bishop Ranch 1 East

As shown in Table 3.11-9, noise levels adjacent to Bollinger Canyon Road from Camino Ramon to Bishop Ranch 1 East would experience noise levels up to 67.2 dBA L_{dn} even with the 60-foot setback, which would be not be within the normally acceptable range. As a result, with windows open, the interior noise levels of the proposed units nearest to and facing Bollinger Canyon Road would not meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development (i.e., 67.2 dBA–15 dBA = 52.2 dBA).

However, inclusion of alternate ventilation systems such as mechanical air conditioning, which satisfies the requirements of the UBC, would allow windows to remain closed for prolonged periods of time, sufficiently reducing traffic noise levels to meet the interior noise level standard of 45 dBA L_{dn} (i.e., 67.2 dBA–25 dBA = 42.6 dBA). Therefore, with windows closed, the interior noise levels would meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development. Therefore, implementation of MM NOI-1a would ensure the residential uses adjacent to Bollinger Canyon Road as part of the proposed Master Plan would not result in a conflict with the City's adopted land use-noise compatibility guidelines and traffic noise impacts would be mitigated to less than significant.

Interstate 680 North of Bollinger Canyon Road

As shown in Table 3.11-9, projected traffic noise levels at the façades of residential uses proposed near the BR 2600 portion of the proposed Master Plan fronting I-680 could range up to 74.2 dBA L_{dn}. Even with implementation of an alternative form of ventilation, as required by MM NOI-1a, that would allow windows to remain closed, interior noise levels of the proposed residential units nearest to I-680 would not meet the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development (74.2 dBA–25 dBA = 49.2 dBA). Therefore, upgraded wall and window assemblies would be required for all residential units that have a line of sight to I-680 and that are within 390-feet[1] of the centerline of I-680. The combined wall and window assembly should be upgraded from

[1] At a distance of 390 feet from the centerline of I-680, traffic noise levels would attenuate to below 70 dBA L_{dn}, and therefore with inclusion of the alternate ventilation required by MM NOI-1a would meet the interior noise level requirement of 45 dBA L_{dn}.

standard UBC requirements to have a minimum Standard Transmission Class (STC) rating of 32-STC. This will provide sufficient noise reduction, with an adequate margin of safety, to ensure the 45 dBA L_{dn} interior noise level standard is maintained (74 dBA–32 dBA = 42 dBA). Prior to issuance of building permits, the applicant shall have a professional acoustic consultant review the final design plans to provide assurance to City staff that the design would provide the required STC rating. MM NOI-1b specifies this enhanced STC ratings for wall and window assemblies to ensure compliance with the State's interior noise standard of 45 dBA L_{dn} for multi-family residential development. Therefore, with implementation of MM NOI-1a and NOI-1b traffic noise impacts would be mitigated to less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM NOI-1a Install Mechanical Ventilation System

To reduce potential traffic noise impacts, prior to issuance of building permits, the applicant shall submit evidence to the satisfaction of the Planning Division to demonstrate that the proposed Master Plan includes a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods for all proposed residential units fronting the following roadway segments.

- Camino Ramon—From Norris Canyon Road to Executive Parkway
- Camino Ramon—From Executive Parkway to Bishop Drive
- Camino Ramon—From Bishop Drive to Bollinger Canyon Road
- Sunset Drive—From The Shops at Bishop Ranch/Bishop Ranch 2 to Bollinger Canyon Road
- Bollinger Canyon Road—From Camino Ramon to Bishop Ranch 1 East
- Interstate 680 North of Bollinger Canyon Road

MM NOI-1b Upgraded Wall and Window Assemblies

The project shall provide upgraded wall and window assemblies for all residential units that would have a line of sight to I-680 (and would be located within 390 feet of I-680). The combined wall and window assembly shall have a minimum Standard Transmission Class (STC) rating of 32-STC or provide design level analysis to the City for review and approval that shows that the residential interior noise level standard of 45 dBA CNEL will be achieved. Prior to issuance of building permits, the applicant shall have a professional acoustic consultant review the final design plans to provide assurance to City staff that the design would provide the required STC rating.

Level of Significance After Mitigation

Less than significant impact.

Substantial Noise Increase in Excess of Standards

Impact NOI-2:	**The proposed Master Plan could generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Master Plan area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**

Impact Analysis

Short Term Construction Impacts

Less than significant impact with mitigation incorporated. A significant impact would occur if Master Plan-related, noise producing construction activities would result in generation of a substantial temporary increase in ambient noise levels in excess of the City's construction noise standards. The noise ordinance prohibits a person within a residential land use district to operate or perform construction or repair work on a building, structure or project, or to operate a pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other construction-type device on holidays celebrated by the federal government, and on Monday through Friday, prior to 7:30 a.m. and after 7:00 p.m. on each day and on Saturdays and Sundays, prior to 9:00 a.m. and after 6:00 p.m.

Construction-related Traffic Noise

Noise impacts from construction activities associated with buildout of the Master Plan would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. One type of short-term noise impacts that could occur during new development construction would result from the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the construction site.

The transport of workers and construction equipment and materials to a construction site would incrementally increase noise levels on access roads leading to the site. Because workers and construction equipment would use existing routes, noise from passing trucks would be similar to existing vehicle-generated noise on these local roadways. Typically, a doubling of the average daily trip (ADT) hourly volumes on a roadway segment is required in order to result in an increase of 3 dBA in traffic noise levels; which, as discussed in the characteristics of noise discussion above, is the lowest change that can be perceptible to the human ear in outdoor environments. Construction trips associated with implementation of the Master Plan would not be expected to double the hourly traffic volumes along any roadway segment in the Master Plan area. For these reasons, short-term intermittent noise from trucks would be minor when averaged over a longer time-period. Therefore, short-term construction-related noise impacts associated with worker commute and equipment transport to a construction site within the Master Plan area would not result in a substantial temporary or permanent increase in ambient noise levels in the Master Plan area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and the resulting traffic noise impact would be less than significant.

Construction Equipment Operational Noise

The second type of short-term noise impact is related to noise generated during construction of a project. Construction noise levels are rarely steady in nature and, often, fluctuate depending on the

type and number of equipment being used at any given time. In addition, there could be times where large equipment is not operating and noise would be at or near normal ambient levels. Construction is completed in discrete steps, each of which has its own mix of equipment and its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase.

The site preparation phase of construction, which includes excavation and grading activities, tend to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery and compacting equipment, such as bulldozers, draglines, backhoes, front loaders, roller compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

Construction associated with buildout of the Master Plan is expected to require the use of front-end loaders, excavators, haul trucks, water trucks, concrete mixer trucks, and pickup trucks. The maximum noise level generated by each concrete mixing truck is assumed to be 85 dBA L_{max} at 50 feet from this equipment (FHWA 2006). Each front-end loader would also generate 85 dBA L_{max} at 50 feet. The maximum noise level generated by excavators is approximately 85 dBA L_{max} at 50 feet. Each doubling of sound sources with equal strength increases the noise level by 3 dBA.

A conservative but reasonable assumption is that this equipment would operate simultaneously and continuously over at least a 1-hour period in the vicinity of nearby sensitive receptors, but would move linearly over the Master Plan area as they perform their earth moving operations, spending a relatively short amount of time adjacent to any one receptor. Assuming that each piece of construction equipment operates at some distance from the other equipment, a reasonable worst-case combined noise level during this phase of construction would be 90 dBA L_{max} at a distance of 50 feet from the acoustic center of a construction area. The acoustical center reference is used because construction equipment must operate at some distance from one another on a project site, and the combined noise level as measured at a point equidistant from the sources (acoustic center) would be the worst-case maximum noise level. These operations would be expected to result in a reasonable worst-case hourly average of 86 dBA L_{eq} at a distance of 50 feet from the acoustic center of a construction area.

As described in Section 3.6 Geology, Soils, and Seismicity, due to the compressible nature of the soils on BR 1A, 14-inch concrete piles would be required as part of the building foundations to avoid expansive soil impacts. As a result, construction of the structures on BR 1A would require a pile driver to be used. The closest sensitive-receptor to where pile driving could occur is the Residence Inn by Marriott San Ramon located approximately 230 feet east of BR 1A. At this distance, the pile driver activity would result instantaneous maximum noise levels of up to 82 dBA L_{max} at this closet sensitive receptor.

Existing maximum noise levels in the project vicinity are documented to range from 78 dBA to 93 dBA L_{max}; with average daytime hourly noise levels in the project vicinity ranging from 58 dBA to 73 dBA L_{eq}.

As noted in the significance criteria, a significant impact would occur if noise producing construction activities would result in generation of a substantial temporary increase in excess of the City's construction noise standards. The City of San Ramon has not established thresholds for what constitutes a substantial temporary increase in noise levels due to construction activity, but rather limits construction noise by restricting construction activities to the hours between Monday through Friday, between 7:30 a.m. and 7:00 p.m. and on Saturdays and Sundays, between to 9:00 a.m. and 6:00 p.m. In addition, construction activity is prohibited on federally recognized holidays. Limiting construction activities to daytime hours would reduce the effects of noise levels produced by these activities on longer-term (hourly or daily) ambient noise levels, and would reduce potential impacts that could result in annoyance or sleep disturbances at nearby sensitive receptors. Compliance with the City's permissible hours of construction, as well as implementing the best management noise reduction techniques and practices outlined in Mitigation Measure (MM) NOI-2, would ensure that construction noise would not result in a substantial temporary increase in ambient noise levels in excess of City standards. Therefore, with implementation of MM NOI-2, temporary construction noise impacts would be reduced to less than significant.

Operational/Stationary Source Noise Impacts

Less than significant impact. A significant impact would occur if operational noise levels generated by stationary noise sources within the Master Plan area would result in a substantial permanent increase in ambient noise levels in excess of the City's noise performance thresholds. Policy 10.1-I-17 of the City's General Plan identifies that a significant increase in ambient noise levels is assumed if the project causes ambient noise levels to exceed the following:

- The ambient noise level is less than 60 dB L_{dn} and the project increases noise levels by 5 dB or more.
- The ambient noise level is 60-65 dB L_{dn} and the project increases noise levels by 3 dB or more.
- The ambient noise level is greater than 65 dB L_{dn} and the project increases noise levels by 1.5 dB or more.

The proposed Master Plan would generate noise from parking lot activities and from new exterior mechanical equipment sources, such as mechanical ventilation systems. Impacts associated with these stationary noise sources are discussed below.

Parking Lot Activities

Parking lot activities include vehicles cruising at slow speeds, doors shutting, or cars starting, would generate noise levels of approximately 60 dBA to 70 dBA L_{max} at 50 feet.[2] A conversation between

[2] This is a conservative range of maximum noise levels from these various activities based on the history of noise measurements FCS has performed in the past.

two persons at a distance of 3 to 5 feet apart would generate a noise level of 60 dBA L_{eq} at 5 feet, or approximately 40 dBA L_{eq} as measured at 50 feet.

The closest noise-sensitive receptor to the proposed parking areas in the Master Plan area is the San Ramon Marriott Hotel located southwest of BR 2600. This hotel is located approximately 1,100 feet from the acoustic center of the nearest proposed parking area in the Master Plan area. At this distance, parking lot activity would result in intermittent noise levels ranging up to 43.2 dBA L_{max} at the nearest hotel façade. The existing measured ambient noise level at LT-1, which was located 750 feet north of the San Ramon Marriott, documented an average noise level of 77.8 dBA L_{dn} with a maximum of 90.6 dBA L_{max}. Even if these maximum noise levels were continuously sustained over a 24-hour period, they would result in noise levels of less than 50 dBA L_{dn}, as measured at this nearest receptor (more than 25 dBA below the existing ambient noise levels). Therefore, parking lot activity noise levels would not exceed existing background ambient noise level as measured at this nearest receptor and would not result in a substantial permanent increase in ambient noise levels in the vicinity of this portion of the Master Plan area. BR 1A and BR 3A would not include parking lots or uses and as such would not result in additional parking lot noise impacts compared to existing conditions.

Therefore, the proposed Master Plan would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Master Plan area in excess of standards established in the local general plan or noise ordinance. As such, the impact of noise produced by parking lot activities within the Master Plan area to off-site sensitive receptors would be less than significant.

Mechanical Equipment Operations

At the time of preparation of this analysis, details were not available pertaining to proposed mechanical ventilation systems for the Master Plan area; therefore, a reference noise level for typical mechanical ventilation systems was used. Average noise levels from typical mechanical ventilation equipment for high-rise residential or commercial buildings range up to approximately 60 dBA L_{eq} at a distance of 25 feet (The Air Conditioning Company 2020).

Bishop Ranch 2600

At BR 2600, proposed mechanical ventilation systems could be located as close as 510 feet from the nearest noise sensitive receptor, which are the single-family residences located to the west across I-680. At this distance, noise generated by mechanical ventilation equipment would be reduced to below 34 dBA L_{eq} at the nearest sensitive receptor. These noise levels would not exceed the City's established noise performance thresholds for receiving residential land uses.

In addition, the existing measured ambient noise level at LT-1, which was located 750 feet north of the San Ramon Marriott, recorded an average noise level of 77.8 dBA L_{dn} with a maximum of 90.6 dBA. As a result, noise levels from proposed mechanical ventilation equipment operations at BR 2600 would not exceed existing ambient noise levels as measured at the nearest sensitive receptor, and would not result in a substantial permanent increase in ambient noise levels in the vicinity of the Master Plan area.

Bishop Ranch 1A

At BR 1A, proposed mechanical ventilation systems could be located as close as 230 feet from the nearest off-site noise-sensitive receptor, which is the Residence Inn by Marriott located to the east of the BR 1A boundary line. At this distance, noise generated by mechanical ventilation equipment would be reduced to below 41 dBA L_{eq} at the nearest sensitive receptor. These noise levels would not exceed the City's established noise performance thresholds for receiving residential land uses.

In addition, the existing measured ambient noise level at ST-3, which was located 780 feet west of the Residence Inn by Marriott, recorded an average noise level of 62.2 dBA L_{dn} with a maximum of 77.6 dBA. As a result, noise levels from proposed mechanical ventilation equipment operations at BR 1A would not exceed existing ambient noise levels as measured at the nearest sensitive receptor, and would not result in a substantial permanent increase in ambient noise levels in the vicinity of the Master Plan area.

Bishop Ranch 3A

At BR 3A, proposed mechanical ventilation systems could be located as close as 230 feet from the nearest off-site noise-sensitive receptor, which is the Residence Inn by Marriott located to the southeast of the BR 3A boundary line. At this distance, noise generated by mechanical ventilation equipment would be reduced to below 41 dBA L_{eq} at the nearest sensitive receptor. These noise levels would not exceed the City's established noise performance thresholds for receiving residential land uses.

In addition, the existing measured ambient noise level at ST-3, which was located 780 feet west of the Residence Inn by Marriott, recorded an average noise level of 62.2 dBA L_{dn} with a maximum of 77.6 dBA. As a result, noise levels from proposed mechanical ventilation equipment operations at BR 3A would not exceed existing ambient noise levels as measured at the nearest sensitive receptor, and would not result in a substantial permanent increase in ambient noise levels in the vicinity of the Master Plan area.

Therefore, the proposed Master Plan would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Master Plan area in excess of standards established in the local general plan or noise ordinance; and the impact of noise produced by proposed mechanical ventilation equipment operations to off-site sensitive receptors would be less than significant.

Operational/Mobile Source Noise Impacts

Less than significant impact. A significant impact would occur if implementation of the proposed Master Plan would result in a substantial increase in traffic noise levels compared with traffic noise levels existing without the Master Plan. Policy 10.1-I-17 of the City's General Plan identifies that a significant increase in ambient noise levels is assumed if the Master Plan causes ambient noise levels to exceed the following:

- The ambient noise level is less than 60 dB L_{dn} and the project increases noise levels by 5 dB or more.
- The ambient noise level is 60-65 dB L_{dn} and the project increases noise levels by 3 dB or more.

- The ambient noise level is greater than 65 dB L_{dn} and the project increases noise levels by 1.5 dB or more.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate existing and cumulative traffic noise conditions in the vicinity of the Master Plan area. The daily traffic volumes were obtained from the traffic analysis prepared for the Master Plan by Gibson Transportation Consulting, Inc. (Appendix J). The resultant noise levels were weighed and summed over a 24-hour period in order to determine the CNEL values. The traffic noise modeling input and output files are included in Appendix I of this document. Table 3.11-10 shows a summary of the traffic noise levels for existing, existing plus project, cumulative no project, cumulative plus project conditions, and the increase from baseline conditions as measured at 50 feet from the centerline of the outermost travel lane.

Table 3.11-10: Traffic Noise Increase Summary

Roadway Segment	dBA L_{dn} 50 feet from Centerline of Outermost Lane					
	Existing Without Project Conditions (Year 2019)	Existing with Project Conditions (Year 2019)	Increase from Baseline Conditions	Cumulative Without Project Conditions (Year 2040)	Cumulative with Project Conditions (Year 2040)	Increase from Baseline Conditions
Bishop Drive—south of Executive Parkway	58.4	58.8	0.4	59.5	59.8	0.3
Executive Parkway—Bishop Drive to Camino Ramon	55.6	57.9	2.3	55.9	58.1	2.2
Camino Ramon—Norris Canyon Road to Executive Parkway	64.9	65.7	0.8	66.3	66.9	0.6
Camino Ramon—Executive Parkway to Bishop Drive	65.2	66.2	1.0	66.9	67.6	0.7
Camino Ramon—Bishop Drive to Bollinger Canyon Road	66.1	67.2	1.1	67.3	68.1	0.8
Bishop Drive—Sunset Drive to Camino Ramon	58.8	59.6	0.8	61.1	61.5	0.4
Sunset Drive—Bishop Drive to The Shops at Bishop Ranch/Bishop Ranch 2	59.2	60.9	1.7	59.4	61.1	1.7
Sunset Drive—The Shops at Bishop Ranch/Bishop Ranch 2	62.2	63.0	0.8	62.3	63.1	0.8

Roadway Segment	dBA L_{dn} 50 feet from Centerline of Outermost Lane					
	Existing Without Project Conditions (Year 2019)	Existing with Project Conditions (Year 2019)	Increase from Baseline Conditions	Cumulative Without Project Conditions (Year 2040)	Cumulative with Project Conditions (Year 2040)	Increase from Baseline Conditions
to Bollinger Canyon Road						
Bollinger Canyon Road—Sunset Drive to Camino Ramon	68.2	69.0	0.8	68.2	69.0	0.8
Bollinger Canyon Road—Camino Ramon to Bishop Ranch 1 East	68.1	68.5	0.4	68.5	68.8	0.3
Source: Gibson Transportation Consulting, Inc; Modeling: FirstCarbon Solutions, 2020.						

The highest traffic noise level increase with implementation of the Master Plan would occur along Executive Parkway from Bishop Drive to Camino Ramon under existing plus project conditions. Along this roadway segment, the proposed Master Plan would result in an increase of 2.3 dBA. This increase is below a 5 dBA increase that would be considered a substantial permanent increase in traffic noise levels compared with traffic noise levels that would exist without the proposed Master Plan. Therefore, Master Plan-related traffic noise impacts on existing traffic noise levels in the Master Plan area would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM NOI-2 Implement Noise-reduction Measures During Construction

To reduce potential construction noise impacts, the following noise-reduction measure shall be implemented during construction:

- The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment.
- The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.
- The construction contractor shall utilize “quiet” models of air compressors and other stationary noise sources where technology exists.
- At all times during grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from the nearest residential land uses.

- The construction contractor shall designate a noise disturbance coordinator who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaints (starting too early, bad muffler, etc.) and establishment reasonable measures necessary to correct the problem. The construction contractor shall visibly post a telephone number for the disturbance coordinator at the construction site.
- The construction contractor shall ensure that construction hours are limited to between 7:30 a.m. and 7:00 p.m. Monday through Friday and limited to between 9:00 a.m. and 6:00 p.m. on Saturdays and Sundays.

Level of Significance After Mitigation

Less than significant impact.

Groundborne Vibration/Noise Levels

Impact NOI-3:	**The proposed Master Plan would not result in generation of excessive groundborne vibration or groundborne noise levels.**

Impact Analysis

This section analyzes both construction and operational groundborne vibration impacts. A significant impact would occur if implementation of the Master Plan would cause a noticeable tremor without instruments at the lot line consistent with Municipal Code Chapter B6-131 G4. While construction activities are exempt from this standard, for purposes of this analysis in compliance with CEQA, a significant impact would also occur if construction activities associated with buildout resulting from implementation of the Master Plan would result in vibration levels that could produce visual or structural damage to existing structures. The FTA has established industry accepted standards for construction vibration impact criteria and assessment. These guidelines are summarized in Table 3.11-7. Therefore, for purposes of this analysis, the FTA's vibration impact criteria are utilized.

Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room, and may also consist of the rattling of windows or dishes on shelves. In general, if groundborne vibration levels do not exceed levels considered to be perceptible, then groundborne noise levels would not be perceptible in most interior environments. Therefore, this analysis focuses on determining exceedances of groundborne vibration levels.

Short-term Construction Vibration Impacts to Off-site Receptors

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of a construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels, to slight damage at the highest levels. As shown in the Setting section above, Table 3.11-3 provides approximate vibration levels associated with the operation of particular pieces of construction equipment. Construction activities associated with buildout of the Master Plan would require the

use of heavy construction equipment. As described in Chapter 3.6 Geology, Soils, and Seismicity, due to the compressible nature of the soils on BR 1A, 14-inch concrete piles would be required as part of the building foundations to avoid expansive soil impacts. As a result, construction of the structures on BR 1A would require a pile driver to be used. Based on the vibration levels provided in Table 3.11-3, groundborne vibration generated by a pile driver would be between 0.644 and 1.518 inches per second PPV at 25 feet. The closest sensitive-receptor to where pile driving could occur is the Residence Inn by Marriott San Ramon located approximately 230 feet east of BR 1A. At this distance, the pile driver activity would result in a worst-case scenario of 0.0246 PPV and up to 0.0581 inches per second PPV at the closet-sensitive receptor. As a result, predicted vibration levels at the nearest off-site structures would not exceed even the conservative threshold of 0.2 inch per second PPV for buildings of non-engineered timber and masonry construction.

As noted in the characteristics of vibration discussion, the level of annoyance due to vibration in residential settings starts at approximately 70 VdB. These groundborne vibration levels from pile driving activities would attenuate to below 70 VdB as measured inside this nearest receptor (the Residence Inn). In addition, these activities would be restricted to daytime hours in accordance with the Municipal Code requirements. Therefore, short-term pile driving construction activities would not result in generation of groundborne vibration levels in excess of typical vibration annoyance levels.

Furthermore, the mandatory buffers set forth by the City of San Ramon Development Code (e.g., setbacks, easements, rights-of-way) would ensure that in most cases on-site and off-site structures would be separated by at least 25 feet, and thus construction activities would be buffered by at least 25 feet from existing off-site structures. Development projects where a 25-foot buffer is not feasible would be subject to case-by-case review by the City of San Ramon through the permitting process and required compliance with the City's vibration ordinance requirements, as applicable, to ensure that sensitive receptors are not adversely impacted by vibration impacts. In addition, as noted in Impact NOI-2 discussion, construction activity would be conducted only during the City of San Ramon permissible hours for construction, consistent with B6-100—Construction projects. Compliance with these permissible hours of construction activities would further reduce construction-related groundborne vibration impacts at nearby sensitive receptors. Therefore, short-term construction activities would not result in generation of excessive groundborne vibration or groundborne noise levels as measured at nearby receptors and impacts would be less than significant.

Operational Vibration Impacts to Off-site Receptors

Implementation of the Master Plan would not result in any permanent sources of vibration in the Master Plan area that could be perceptible without instruments at existing or future proposed sensitive land uses in Master Plan area. Therefore, the operational groundborne vibration level impacts associated with implementation of the proposed Master Plan would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Excessive Noise Levels from Airport Activity

Impact NOI-4:	**The proposed Master Plan would not expose people residing or working in the Master Plan area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.**

Impact Analysis

No impact. The nearest airport to the Master Plan area is the Livermore Municipal Airport, located approximately 8.5 miles southeast of the Master Plan area. Because of the distance from and orientation of the airport runways, the proposed Master Plan is located outside of the 65-dBA CNEL noise contours of this airport. The Master Plan area is not located within the vicinity of a private airstrip. While aircraft noise is occasionally audible in the Master Plan area from aircraft flyovers, aircraft noise associated with nearby airport activity would not expose people residing or working in the Master Plan area to excessive noise levels. Therefore, impacts associated with public and private airport noise would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

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Source: Google Earth Pro Aerial Imagery.

FIRSTCARBON SOLUTIONS™

700 350 0 700 Feet

Exhibit 3.11-1
Noise Monitoring Location Map

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3.12 - Population and Housing

This section describes the existing population and housing setting and potential effects from implementation of the proposed Master Plan on population and housing within the Master Plan area and in the surrounding areas. Descriptions and analysis in this section are based on information provided by the California Department of Finance, the Association of Bay Area Governments (ABAG), the California Employment Development Department (EDD), and the City of San Ramon.

3.12.1 - Existing Conditions

Population, Housing, and Employment Estimates

The California Department of Finance estimates that the City of San Ramon has a population of 83,118 as of January 1, 2020. Population and housing characteristics are summarized in Table 3.12-1.

Table 3.12-1: San Ramon Population and Housing Characteristics

Population	Dwelling Units	Average Household Size (Persons Per Household)
83,118	29,267	2.97
Source: California Department of Finance. 2020.		

The EDD estimated the labor force in San Ramon to be 39,500 as of February 2020. The City's employment characteristics are summarized in Table 3.12-2.

Table 3.12-2: San Ramon Employment Characteristics

Category	Figure
Labor Force	39,500
Employed Persons	38,500
Unemployed Persons	1,000
Unemployment Rate	2.5 percent
Source: Employment Development Department. 2020.	

Historic Population Growth

The population in San Ramon has grown significantly since incorporation in 1983. The City's population more than doubled during its first two decades of existence. The City's historic population growth between 1985 and 2020 is summarized in Table 3.12-3.

Table 3.12-3: City of San Ramon Historic Population Growth (1985–2020)

Year	Population	Change from Previous (Percent)
1985	24,750	—
1990	35,303	42.6
1995	39,250	11.2
2000	44,722	13.9
2005	50,855	13.7
2010	72,148	41.9
2015	79,197	9.8
2019	83,957	6.0
2020	83,118	-1.0
Source: California Department of Finance. 2020.		

Projected Population Growth

The City of San Ramon and ABAG have published population growth projections for San Ramon. San Ramon's projections are contained in its General Plan, which has a buildout population of 96,179 in 2035. ABAG's forecast is contained in Projections 2040, which is a regional population, employment, and housing forecast for the nine-county San Francisco Bay Area. Table 3.12-4 summarizes the projected population growth from both sources. San Ramon's 2020 population of 83,118 exceeds ABAG's projections through 2035 but is within the General Plan's population figure of 96,179 for 2035.

Table 3.12-4: Projected Population Growth

Year	City of San Ramon General Plan	Association of Bay Area Governments
2020	—	76,485
2025	—	78,430
2030	—	79,520
2035	96,179	81,955
2040	—	84,165
Source: ABAG 2017 and San Ramon General Plan 2035.		

Forecasted Employment Growth

ABAG's employment growth projections for San Ramon are shown in Table 3.12-5.

Table 3.12-5: Forecast Employment Growth

Year	Jobs	
	City of San Ramon General Plan	Association of Bay Area Governments
2020	—	53,850
2025	—	54,340
2030	—	55,330
2035	57,667	62,735
2040	—	71,775
Source: ABAG 2017 and San Ramon General Plan 2035.		

Housing

Existing Housing Supply

The California Department of Finance indicates that there were 29,267 housing units in San Ramon as of January 1, 2020. San Ramon's housing supply has increased by 6.1 percent since 2015, when there were 27,591 units.

3.12.2 - Regulatory Setting

Regional

Plan Bay Area and ABAG Regional Housing Needs Assessment

Plan Bay Area, published by the Metropolitan Transportation Commission (MTC) and ABAG, is a long-range integrated transportation and land use/housing strategy through 2040 for the Bay Area. The Plan Bay Area functions as the sustainable communities' strategy mandated by Senate Bill 375 (SB 375). Acting in coordination with the California Department of Housing and Community Development, ABAG determines the Bay Area's regional housing need based on regional trends, projected job growth, and existing needs.

In December 2013, ABAG projected regional housing needs in its Regional Housing Needs Plan for the San Francisco Bay Area: 2015–2023. According to this Plan, the City of San Ramon's projected housing need from 2015 to 2023 is 1,417 residential units, consisting of:

- 516 units within the very-low-income level (0–50 percent of area median income);
- 279 units within the low-income level (51–80 percent of area median income);
- 282 units within the moderate-income level (81–120 percent of area median income); and
- 340 units within the above-moderate-income level (more than 120 percent of area median income).

The City of San Ramon has constructed 1,676 new housing units from 2015 to 2020. Of the newly constructed units, 1,170 were single family detached units, 58 were single family attached units, and were 448 multi-family units (2+ units per development), such as duplexes and apartment buildings.

The proposed Master Plan includes 4,500 multi-family units (including affordable units), which would assist the City in meeting its Regional Housing Needs Allocation goals.

Local

City of San Ramon

City of San Ramon General Plan 2035

The General Plan sets forth the following policies relevant to population and housing.

- **Policy 2.3-I-6:** Encourage housing on infill sites in the City's two PDAs (City Center and North Camino Ramon), where flat terrain and proximity to employment, shops and services favors walking, bicycling and travel by other modes than single-occupant vehicle.
- **Policy 2.3-G-4:** Work with the private sector to assure an adequate supply of skilled workers and capital improvements needed to attract and maintain business in San Ramon.
- **Policy 2.3-G-5:** Strengthen the retail sector in San Ramon in order to expand retail and restaurant options for residents and employees and to increase the tax base.
- **Policy 3.1-I-3:** Provide a variety of diverse housing options to accommodate the local employment base, including public service employees.
- **Policy 3.1-I-4:** Allocate the number of new housing units according to the City's ability to provide public services and housing needs through the use of adopted performance standards.
- **Policy 3.1-I-5:** Use growth management policies to encourage the construction of workforce housing necessary to meet local housing needs.
- **Policy 3.1-I-7:** Allow urban development only within the City's Urban Growth Boundary (see Implementing Policies 4.6-I-1 through 4.6-I-5) and only in accord with a plan for full urban services (police, fire, parks, water, sanitation, streets and storm drainage) to which all providers are committed.
- **Policy 3.6-G-1:** Promote the opportunity to both work and live in San Ramon through implementation of the Housing Element.
- **Policy 3.6-I-1:** Develop and implement housing programs that emphasize the availability of housing for people who work in local jobs.
- **Policy 11.5-G-1:** Provide a diversity of housing types and affordability levels within San Ramon to meet the needs of community residents.
- **Policy 11.1-I-1:** Identify sites appropriate for the development of a variety of housing types and price ranges to meet the needs of all socioeconomic segments of the community (including extremely low, very low, low, moderate, and above moderate-income households).
- **Policy 11.1-I-2:** Encourage the development of housing for special needs groups, including seniors, large families, persons with disabilities, and the homeless near public transportation services.
- **Policy 11.1-I-3:** Facilitate the development of affordable housing throughout the community through use of financial and/or regulatory incentives, where feasible.
- **Policy 11.1-I-5:** Maintain a variety of housing types that complements the employment opportunities within the community and encourages a jobs/housing balance.

- **Policy 11.1-I-6:** Encourage diversity of unit size and number of bedrooms within multi-family housing developments (exempting senior projects) and strive to provide three and four-bedroom units for large families.
- **Policy 11.1-I-7:** Offer financial and regulatory incentives to promote a combination of residential, retail, and office uses in areas designated for mixed use development.
- **Policy 11.1-I-12:** Disperse below-market rate (BMR) housing throughout residential neighborhoods, and ensure that affordable units are essentially indistinguishable from surrounding market-rate units.

3.12.3 - Thresholds of Significance

According to California Environmental Quality Act (CEQA) Guidelines Appendix G, Environmental Checklist, to determine whether impacts to population and housing are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (Refer to Chapter 7, Effects Found not to be Significant)

3.12.4 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed Master Plan and provides mitigation measures where necessary.

Methodology for Analysis

Impacts related to population, housing, and employment were determined by analyzing existing and projected population, housing, and employment estimates provided by the California Department of Finance, ABAG, and the General Plan. The proposed Master Plan's impacts were then evaluated by determining their consistency with these projections, estimates, and the General Plan.

Unplanned Population Growth

Impact POP-1:	**The proposed Master Plan would not induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).**

Impact Analysis

This impact assesses the proposed Master Plan's potential to induce substantial unplanned population growth. There are two types of population growth: direct and indirect. Direct population growth occurs from the development of new residential units or businesses. Indirect population growth occurs from the creation removal of a barrier to growth (e.g., the extension of urban infrastructure to an undeveloped area).

Direct Population Growth

As described in Section 2, Project Description, the proposed Master Plan would develop up to 4,500 new housing units, including affordable units. Using the City of San Ramon's average household size of 2.97 persons from the Department of Finance, the proposed Master Plan would add an estimated 13,365 persons to the City's population at full project buildout by 2048. Averaged over the 25-year buildout horizon, this represents an increase of 535 persons per year or less than 1 percent of ABAG's projected population growth per year.

The City of San Ramon's 2020 population estimate of 83,118 persons exceeds ABAG's Projections for 2020, 2025, 2020, and 2035, but is within the General Plan's population estimate of 96,179 for 2035. Implementation of the proposed Master Plan would result in an increase in 13,365 persons at full project buildout, for a total of 96,483 persons within the City of San Ramon by 2048. However, the proposed Master Plan would be constructed over 25 years and would thus increase population in San Ramon by approximately 535 persons per year. The San Ramon General Plan 2035 anticipates a population of 96,179 at buildout by 2035, which represents an additional 816 persons per year from 2020 to 2035 [(96,179 – 83,118) / 16 years)]. As such, annual population growth resulting from the proposed Master Plan (535 persons per year) is within the General Plan's annual population growth projections through 2035 (816 persons per year). Although the planning horizon for the proposed Master Plan extends beyond the planning horizon for the General Plan, population growth from the Master Plan would occur in phases, ensuring that the proposed Master Plan would not result in substantial unplanned growth beyond 2035. Thus, because annual population growth through 2035 is within the General Plan's population projections and would not result in substantial unplanned growth beyond 2035, the proposed Master Plan's direct population growth impacts would be less than significant.

The proposed Master Plan would create new employment opportunities associated with the hotel and retail uses. Hotel employment is estimated at 200 and the retail uses are estimated to employ 332 workers. In total, the proposed Master Plan would increase employment by an estimated 532 workers over a 25-year period. This represents a small percentage of employment growth, which within the context of the larger East Bay region, would not be considered unplanned or growth inducing. Impacts would be less than significant.

Indirect Population Growth

The Master Plan area is currently served by urban infrastructure and utilities including roads, potable water, recycled water, sewer, storm drainage, electricity, natural gas, and telecommunications. The Master Plan area is also currently served by urban services, such as fire, police, school, and community services. Furthermore, the provision of utilities and services to the Master Plan area has been previously considered as a part of General Plan buildout. As such, the proposed Master Plan would not result in indirect population growth through providing an extension of infrastructure or services, or through the removal of a barrier to growth. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

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3.13 - Public Services and Recreation

3.13.1 - Introduction

This section describes the existing public services and recreation setting and potential effects from implementation of the Master Plan on public services and recreation. Descriptions and analyses in this section are based on information provided by the City of San Ramon General Plan 2035, the City Services Final Municipal Services Review, and agency/department websites and correspondence. For a discussion of the existing population and housing setting, as well as estimated population and employment growth under the proposed Master Plan, see Section 3.12, Population and Housing.

3.13.2 - Environmental Setting

Fire Protection and Emergency Medical Services

The San Ramon Valley Fire Protection District (Fire District) provides emergency and non-emergency services (EMS) to a 155-square-mile area encompassing the City of San Ramon, the Town of Danville, and the unincorporated communities of Alamo, Blackhawk, Diablo, Southern Morgan Territory, and Tassajara Valley. The Fire District is an autonomous special district governed by an elected Board of Directors. The Fire District is headquartered at its Administration Building, located at 1500 Bollinger Canyon Road, San Ramon, adjacent to Station No. 38. The Fire District staffs 15 companies from 10 fire stations. Four fire stations are located within the City of San Ramon.

The two stations closest to the Master Plan area are summarized in Table 3.13-1. The locations of Fire District facilities in the vicinity of the Master Plan area are shown on Exhibit 3.13-1.

Table 3.13-1: Fire Station Summary

Station No.	Address	Distance from Master Plan Area
34	12599 Alcosta Boulevard	0.45 mile
38	1600 Bollinger Canyon Road	1.77 miles
Source: San Ramon Valley Fire Protection District 2019.		

Station No. 31 and 35 in Danville also respond to calls for service in San Ramon. In addition, the Fire District operates its own Communications Center, located at Station No. 31.

Staffing

The Fire District has 173 regular employees, including 133 assigned to fire suppression, 15 to the communications center, and eight assigned to fire life and safety.

Specialized Units

Rescue Team

The Rescue Team is a proactive organization whose main purposes are to provide immediately available, high-quality technical rescue resources managed by skilled and dedicated personnel, and

to provide Fire District-wide, rescue-related training. The rescue team is comprised of approximately 40 members. Many of these members are also members of the Urban Search and Rescue (US&R) Task Force 4 (CATF-4). CATF-4, based in Oakland. This Task Force is one of several in California and is operated under the Federal Emergency Management Agency (FEMA) and the Department of Homeland Security (DHS). CATF-4 is a federal team that responds to disasters on a national level.

Hazardous Materials (Hazmat Team)

Fire District personnel are certified as Hazardous Materials First Responders and are trained to recognize a hazardous material incident, placing the safety of the public and emergency responders as the foremost priority. In addition to Hazmat First Responder personnel, the Fire District provides a highly trained Hazardous Materials Response Team (Hazmat Team). The mission of the Hazmat Team is to reduce the impact of hazardous materials incidents on life, the environment and property. The Team is made up of 31 California State Certified Hazardous Materials Technician/Specialists and is an all risks Hazmat Team capable of specialized entry, chemical analysis and hazard mitigation. The Hazmat Team is based at Station No. 35 on Silver Oak Lane in Blackhawk, where the specialized Hazardous Materials Response Unit (HM35) is housed.

Response Times and Standards

The Fire District has nine separate Standards of Cover that apply to first unit response, fire response, medical response, call processing time, and turnout time. Within some of these categories, there are different standards depending on location (e.g., urban, suburban, rural, and wilderness).

For urban areas, the Fire District has a 7-minute first unit response standard. In 2019, the Fire District was able to meet this standard for 98 percent of incidents.

Automatic and Mutual Aid

The Fire District exchanges automatic and mutual aid with the four adjacent fire agencies (Alameda County Fire Department, Contra Costa County Fire Protection District [Con Fire], East Contra Costa Fire Protection District, and Moraga-Orinda Fire Protection District) and the California Department of Forestry and Fire Protection (CAL FIRE). In 2019, the Fire District provided aid 240 times to Alameda County fire agencies and 60 times to Contra Costa County fire agencies. In 2019, the Fire District received aid four times from Alameda County fire agencies and two times from Contra Costa County fire agencies.

Performance

The Insurance Services Office (ISO) Public Protection Classification Program currently rates the Fire District a 2 on a scale of 1 to 10, with 1 being the highest possible protection rating and 10 being the lowest. The ISO rating measures individual fire protection agencies against a Fire Suppression Rating Schedule, which includes such criteria as facilities and support for handling and dispatching fire alarms, first-alarm response and initial attack, and adequacy of local water supply for fire-suppression purposes. The ISO ratings are used to establish fire insurance premiums. Only 5 percent of the more than 44,000 fire agencies in the United States receive an ISO 2 rating or higher.

Police Protection

The San Ramon Police Department provides police protection within the San Ramon city limits.

Police Facilities

The San Ramon Police Department is located at 2401 Crow Canyon Road, approximately 1.49 miles northwest of the Master Plan area.

Organization, Staffing, and Resources

The San Ramon Police Department consists of 69 sworn officers, 19 civilian staff members and 54 volunteers. The Police Department is organized into two bureaus; the Operations Bureau which includes the Patrol Division, Traffic Division, and Youth Resources Division; and the Support Services Bureau consisting of the Investigations Division, Community Relations and Crime Prevention Division, Professional Standards and Training Division, and Records Division. The Police Department is summarized in Table 3.13-2.

Table 3.13-2: San Ramon Police Department Organizational Summary

Bureau	Status	Positions (Number)	Total
Support Services	Sworn and Non-Sworn Officers	Sworn Officers: Chief (1); Captain (1); Lieutenant (2); Sergeant (4); Officer (8) Non-Sworn Officers: Program Manager (1); Administrative Analyst (2); Coordinator (5); Specialist (2); Police Services Technician (7);	33
Operations	Sworn and Non-Sworn Officers	Sworn Officers: Captain (1); Lieutenant (3); Sergeant (6); Officer (44) Non-Sworn Officers: Police Services Technician (1)	55
Source: San Ramon Police Department. 2020.			

Policing Programs

The Police Department operates several policing programs intended to prevent or addresses crime within certain segments of the community. The Police Department offers community programs including Neighborhood Watch, Crime Free Multi-housing, and Crime Free Business programs.

Police Activity

The Police Department responded to approximately 80,602 calls for service, made 596 arrests, and issued 6,564 citations in 2019. Table 3.13-3 provides a summary of police activity from 2016 through 2019.

Table 3.13-3: Police Activity

Category	2016	2017	2018	2019
Calls for Service	61,891	68,749	70,317	80,602
Arrests	500	543	534	596

Category	2016	2017	2018	2019
Alarm Responses	3,160	3,260	3,216	3,281
Citations Issued	7,888	6,932	6,613	6,564
Source: San Ramon Police Department. 2020. 2019 Annual Report.				

Response Times

The Police Department's response time objective is to arrive within five minutes of any emergency call. Correspondence with Craig Stevens, Chief of Police, concluded that the San Ramon Police Department currently meets this objective.

Schools

The San Ramon Valley Unified School District (School District) provides K–12 education to the City of San Ramon, the Town of Danville, and the unincorporated communities of Alamo, Blackhawk, Diablo, and Tassajara Valley. Table 3.13-4 provides a profile of the School District for Academic Year 2017-2018; the most recent year information was available.

Table 3.13-4: San Ramon Valley Unified School District Profile (2017–2018)

School Type	Number	Enrollment	Full-Time Equivalent Teachers	Pupil-Teacher Ratio
Elementary	22	13,701	**1,550**	**22.0**
Middle	8	8,005		
High	4	10,480		
Other	2	318		
Total	**—**	**32,504**		
Source: San Ramon Valley Unified School District 2019.				

Local Schools

Table 3.13-5 provides a summary of five schools nearest the Master Plan area for the 2017-2018 academic year, the most recent year information was available. The nearest schools to the Master Plan area include California High School, Iron Horse Middle School, Bollinger Canyon Elementary School, and Montevideo Elementary School, and Twin Creeks Elementary School. Schools near the Master Plan area are shown in Exhibit 3.13-1.

Table 3.13-5: Local School Summary (2017–2018)

School	Grades	Enrollment	Full-Time Equivalent Teachers	Pupil-Teacher Ratio
Bollinger Canyon Elementary	P–5	518	31	19.0

School	Grades	Enrollment	Full-Time Equivalent Teachers	Pupil-Teacher Ratio
Montevideo Elementary	K–5	658	33	22.0
Twin Creeks Elementary	K–5	557	32	21.0
Iron Horse Middle	6–8	1,069	46	24.0
California High	9–12	2,777	122	24.0
Source: San Ramon Valley Unified School District 2019.				

Library Services

Contra Costa County Library, a County agency, operates the San Ramon Library located at 100 Montgomery Street in The Marketplace. The library facility opened in 1989 and is owned by the City of San Ramon.

The San Ramon Library is located in the Marketplace shopping center and includes a teen area, large children's area with a separate story room, free wireless internet access, study rooms, and public access computers. The Library is open Monday – Thursday from 10:00 a.m. to 8:00 p.m., Friday and Saturday from 10:00 a.m. to 5:00 p.m., and Sunday from 1:00 p.m. to 5:00 p.m.

Parks, Recreation, and Community Facilities

The City of San Ramon Parks and Community Services Department and the East Bay Regional Parks District maintain parks, open space, trails, and community facilities for public use in San Ramon. Parks, recreational facilities, and community facilities in the vicinity of the Master Plan area are shown on Exhibit 3.13-1.

Parks

The City of San Ramon Parks and Community Services Department and Public Works Department maintain four community parks, seven specialized recreation areas/facilities, seven Specialty Parks, 29 neighborhood parks, and 17 school parks (which include one performing arts center). Altogether, the City has approximately 369.3 acres of existing parks and recreational facilities, which translates to a ratio of 4.4 acres of parkland per 1,000 residents.[1,2] Parks in the vicinity of the Master Plan area are summarized below.

San Ramon Central Park

Central Park, located east of Bishop Ranch (BR) 3A, is the largest active park in the City of San Ramon. The park encompasses 42.8 acres and contains four multi-use athletic fields (e.g., soccer, cricket, baseball, and softball), a baseball field, sand volleyball courts, half-court basketball play areas, tennis courts, a skate park, a children's playground with a water feature, outdoor

[1] City of San Ramon Parks & Community Services. 2011. Master Plan Update & Strategic Action Plan. July 13.
[2] Based on the City of San Ramon population of 83,118 as of January 1, 2020 (California Department of Finance 2020).

amphitheater, and large group picnic areas.[3] The multi-use athletic fields and basketball courts are lighted; the multi-use athletic fields are lighted until 10:00 p.m.

Iron Horse Middle School Park

The Iron Horse Middle School Park and Gym are co-operated by the City of San Ramon and the San Ramon Valley Unified School District and are immediately adjacent to the north side of Central Park. Park and gym facilities are available for public use during non-school hours. Facilities include outdoor basketball courts and indoor multi-use facilities for activities such as basketball, volleyball, gymnastics, and aerobics.

Open Space

East Bay Regional Parks District owns and maintains open space within and around San Ramon. The Bishop Ranch Regional Preserve is the primary open space area in San Ramon and is described below.

Bishop Ranch Open Space Regional Preserve

Bishop Ranch Open Space Regional Preserve is located approximately 1.07 miles southwest of the Master Plan area in the City of San Ramon. The preserve contains 806 acres of open space for activities such as kite flying, hiking, and picnicking, and offers both paved and unpaved trails for hikers, bikers, and bicyclists.

Trails

The Iron Horse Trail is a multi-use, Class I, 32-mile paved trail stretching from Pleasanton to Concord along the former Southern Pacific Railroad San Ramon Branch Line right-of-way. In Contra Costa County, the County owns the railroad right-of-way and leases a 20-foot-wide corridor within the right-of-way to East Bay Regional Parks District for use as a public trail. As part of that lease agreement, the East Bay Regional Parks District is responsible for the operation and ongoing maintenance the Iron Horse Trail.

Within the Master Plan area, the trail corridor forms the eastern boundary of BR 1A and BR 3A and is located just east of the Bishop Ranch 1 East roadway. The trail crosses Bollinger Canyon Road at grade at the signalized Bishop Ranch 1 East roadway intersection. The City of San Ramon is planning to construct an overpass for the trail (construction of the overpass is not part of the proposed Master Plan). The trail surface is concrete north of Bollinger Canyon Road and asphalt south of the road. Landscaping and benches are located on the north and south sides of Bollinger Canyon Road. Pathways link the trail to surrounding land uses, including Central Park, Bishop Ranch 1, and Bishop Ranch 3.

Community Facilities

The nearest community facility to the proposed Master Plan is San Ramon Community Center, located at 12501 Alcosta Boulevard, approximately 0.23 mile east of BR 3A. San Ramon Community

[3] City of San Ramon Parks & Community Services. 2011. Master Plan Update & Strategic Action Plan. July 13.

Center contains a 2-story art gallery, dance studio, large kitchen , and several meeting rooms for events and classes.

3.13.3 - Regulatory Framework

State

California Health and Safety Code

California Code—Health and Safety Sections 13100–13135 establish the following policies related to fire protection:

- **Section 13100.1:** The functions of the office of the State Fire Marshall, including CAL FIRE, shall be to foster, promote, and develop strategies to protect life and property against fire and panic.
- **Section 13104.6:** The Fire Marshall has the authority to require fire hazards to be removed in accordance with the law relating to removal or public nuisances on tax-deeded property.

California Senate Bill 50

California Senate Bill 50 (SB 50) (funded by Proposition 1A, approved in 1998) limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development, and provides instead for a standardized developer fee. SB 50 generally provides for a 50/50 State and local school facilities funding match. SB 50 also provides for three levels of statutory impact fees. The application level depends on whether State funding is available, whether the school district is eligible for State funding, and whether the school district meets certain additional criteria involving bonding capacity, year-round school, and the percentage of moveable classrooms in use.

California Government Code, Section 65995(b) and Education Code, Section 17620

SB 50 amended Section 65995 of the California Government Code, which contains limitations on Section 17620 of the Education Code, the statute that authorizes school districts to assess development fees within school district boundaries. Section 65995(b)(3) of the Government Code requires the maximum square footage assessment for development to be increased every 2 years, according to inflation adjustments. On January 22, 2014, the State approved increasing the allowable amount of statutory school facilities fees (Level I School Fees) from $3.20 to $3.36 per square foot of assessable space for residential development of 500 square feet or more, and from $0.51 to $0.54 per square foot of chargeable covered and enclosed space for commercial/industrial development. School districts may levy higher fees if they apply to the State and meet certain conditions.

Local

City of San Ramon

City of San Ramon General Plan 2035

The City of San Ramon General Plan 2035 establishes the following performance standards for public services:

- **Fire Protection:** A maximum 5-minute total response time (travel time) can be maintained for 90 percent of emergency calls in urban and suburban areas and/or that there will be a fire station within 1.5 miles of all development.
- **Police Protection:** A minimum ratio of 0.8 officers per 1,000 residents and 3-5 minute response time for emergency calls and a 20-minute response for all other calls can be maintained 95 percent of the time.
- **Schools:** New development must provide necessary funding and/or capital facilities, as determined by the San Ramon Valley Unified School District.
- **Library Services:** A minimum ratio of 0.5 square feet of library space per capita, 3 volumes per capita, and 63 annual service hours per 1,000 residents.
- **Parks:** A minimum ratio of 6.5 acres of public park per 1,000 residents, with a goal to have park and recreation facilities within 0.5 mile of all residences.
- **Community Facilities:** A minimum ratio of 1.2 square feet of community center space per 1,000 residents.
- **Policy 7.2-G-1:** Collaborate with the San Ramon Valley Unified School District in their efforts to ensure that all school age children have equal access to equitable facilities.
- **Policy 7.2-I-1:** Collaborate with the San Ramon Valley Unified School District in their efforts to ensure that all future school sites are developed as "school parks."
- **Policy 7.2-I-2:** Require that residential development pay fees to the School District to provide adequate, permanent classroom space.
- **Policy 7.2-I-3:** Encourage the efforts for the Phase II Expansion of the Diablo Valley College—San Ramon Campus facility (including the library extension) in Dougherty Valley.
- **Policy 7.2-I-4:** Collaborate with the San Ramon Valley Unified School District to assure that all future schools are planned to be open and operational based on student generation rates.
- **Policy 6.5-G-1:** Create and maintain a high-quality public park system for San Ramon.
- **Policy 6.5-I-1:** Maintain a standard of 6.5 acres of public parks per 1,000 residents at General Plan buildout.
- **Policy 6.5-I-2:** Provide varied community park and recreational opportunities accessible to all City residents.
- **Policy 6.5-I-3:** Maintain a minimum size of 2 acres or more for neighborhood parks.
- **Policy 6.5-I-4:** Provide passive and active recreational amenities within the City's parks to meet the needs of citizens of all ages and interests.
- **Policy 6.5-I-5:** Require residential developers to make dedications to the City's park system.
- **Policy 6.5-I-6:** Encourage contributions to the City's park system by non-residential developers.
- **Policy 6.5-I-7:** Complete all parkland dedication requirements for each development prior to occupancy.
- **Policy 6.5-I-8:** Encourage the development of landscaped and dedicated public spaces, parkways, trail systems, and special community service facilities in new developments.
- **Policy 6.5-I-9:** Confer with the San Ramon Valley Unified School District to promote continued joint development and use of school sites located within the City and its Sphere of Influence.
- **Policy 6.5-I-10:** Seek partnership opportunities with the private sector and with other public agencies to enhance park facilities and provide leisure time activities.

- **Policy 6.5-I-11:** Identify and document sites of historic interest and develop opportunities to acquire or preserve sites of historic interest.
- **Policy 6.5-I-12:** Explore preservation of open space, ridge lands, and scenic corridors in and around San Ramon.
- **Policy 6.5-I-13:** Designate Big Canyon within the Westside subarea as a nature preserve and seek to add it to the City's park system as a specialized recreation area with limited access.
- **Policy 6.5-I-14:** Continue to review biennially and update quadrennially the 10-year Parks and Community Services Master Plan.
- **Policy 6.5-I-15:** Maintain service levels and maintenance standards in parks and recreation facilities at optimal levels for public use, safety, and cost effectiveness.
- **Policy 6.5-I-16:** Maintain a standard, at General Plan buildout, that public parks are to be within one-half mile of all homes.
- **Policy 6.5-I-17:** Maintain a standard, at General Plan buildout, that Community Parks are to be within three miles of all homes.
- **Policy 6.5-I-18:** Increase the accessibility and connectivity to the Iron Horse Trail and the regional/city trail network, including the possibility of bicycle/pedestrian overcrossing(s) described in the San Ramon Valley Iron Horse Trail Corridor Concept Plan.

3.13.4 - Methodology

Inquiries were made with the San Ramon Valley Fire Protection District, the San Ramon Police Department, the San Ramon Valley Unified School District, the San Ramon Library, and the City of San Ramon Parks and Community Services Department regarding existing facilities, staffing levels, and service delivery, and potential impacts from implementation of the proposed Master Plan. Additional information was obtained from the City of San Ramon General Plan 2035 and agency websites.

3.13.5 - Thresholds of Significance

According to California Environmental Quality Act (CEQA) Guidelines Appendix G, Environmental Checklist, public services and utilities impacts resulting from the implementation of the proposed Master Plan would be considered significant if the proposed Master Plan would:

> . . . result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
>
> a) Fire protection?
>
> b) Police protection?
>
> c) Schools?
>
> d) Parks?
>
> e) Other public facilities?

f) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

g) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

3.13.6 - Project Impacts and Mitigation Measures

Fire Protection/Emergency Medical Services

Impact PSR-1: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire facilities.

Impact Analysis

The Master Plan area is currently served with fire protection and emergency medical services by the Fire District. Buildout of the Master Plan would increase the City of San Ramon's population and, thus, increase demand for fire protection and emergency medical services.

The Master Plan area is within 0.5 mile of Fire Station No. 34. This is station is staffed 24 hours a day, 7 days a week. This distance is sufficient to meet the Fire District's 7-minute first unit response standard. In addition, based on correspondence with Roy Wendel at the San Ramon Valley Fire Protection District, the Fire District would require a new station with full equipment, crews, and an additional ladder truck by 2023 to serve the Master Plan area. At 50 percent buildout of the proposed Master Plan, the Fire District would require an additional ambulance with a staff of two persons per shift for a total of 3 shifts. Sunset Development would provide development fees to the Fire District for capital improvements to fire facilities. This would allow the Fire District to develop additional facilities as the proposed Master Plan builds out.

The project applicant, Sunset Development, would continue to provide private security 24 hours a day, 7 days a week within the Master Plan area. Security personnel would be able to act a 'first line of defense' in terms of assessing the situation and notifying the appropriate public safety incidents, as well as responding to non-serious incidents that do not necessarily warrant a fire response. This would serve to reduce the burden on the Fire District's resources. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Police Protection

Impact PSR-2: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities.

Impact Analysis

The Master Plan area is currently patrolled by the San Ramon Police Department. Based on correspondence with Craig Stevens, Chief of Police, the San Ramon Police Department is currently meeting the General Plan goal of a minimum ratio of 0.8 officers per 1,000 residents, 3-5 minute response time for emergency calls, and a 20-minute response for all other calls can be maintained 95 percent of the time.

Additionally, Sunset Development currently provides private security 24 hours a day, 7 days a week within the Master Plan area. Buildout of the Master Plan would increase the City of San Ramon's population and, thus, increase demand for police protection. Based on correspondence with Craig Stevens at the San Ramon Police Department, the Police Department anticipates that in 20-25 years a new Beat[4] and/or substation would be needed in the vicinity of the Master Plan area to serve the future uses. However, Mr. Stevens stated that there is no immediate need for additional equipment, staffing, etc., to serve the proposed Master Plan because the proposed Master Plan would be phased over 25 years.

Sunset Development would continue to provide private security 24 hours a day, 7 days a week within the Master Plan area. Security personnel would be able to act a 'first line of defense' in terms of assessing the situation and notifying the appropriate public safety incidents, as well as responding to non-serious incidents that do not necessarily warrant a police response. This would serve to reduce the burden on the Police Department's resources and avoid the need for new or expanded police facilities.

Lastly, Sunset Development would provide development fees that would contribute toward capital improvements to police facilities for the San Ramon Police Department. This would allow the Police Department to develop additional facilities, as appropriate, as the proposed Master Plan builds out. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Schools

[4] The City is divided into five areas, known as "beats," and police officers are assigned a beat every workday.

Impact PSR-3: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities.

Impact Analysis

Buildout of the proposed Master Plan would add 4,500 multi-family dwelling units to the School District over a period of 25 years, thereby increasing K-12 enrollment. Using student generations for multi-family residential units provided by the School District, the proposed Master Plan would add an estimated 1,575 students to local schools over a 25-year period, which translates to an annual average of 63 student/year. Table 3.13-6 provides a summary of the proposed Master Plan student generation by school type.

Table 3.13-6: Master Plan Student Generation

School Type	Student Generation Factor (Student/Unit)	Students Generated
Elementary School (K–5th grade)	0.17 students/unit	765
Middle School (6th–8th grade)	0.09 students/unit	405
High School (9th–12th grade)	0.09 students/unit	405
Total		**1,575**
Average Annual Enrollment Increase (Total/25 years)		**63**
Source: San Ramon Valley Unified School District 2020.		

The School District provided letters to the City of San Ramon in September 2019 and October 2019 indicating that it had accounted for student generation from the 487 dwelling units associated with the 2007 City Center Project. The School District also noted that the proposed Master Plan would require the payment of development impact fees to reduce impacts to existing school facilities. Pursuant to Government Code Section 65995, payment of development fees is "full and complete" mitigation for school impacts. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Parks

Impact PSR-4: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities.

Impact Analysis

The Master Plan area (i.e., BR 2600) is currently served by parks and recreational facilities provided by the City of San Ramon and the East Bay Regional Parks District including Central Park and the Iron Horse Trail. Buildout of the Master Plan would increase the City of San Ramon's population and, thus, increase demand for park and recreational facilities.

The City of San Ramon's established parkland standard, as described in the General Plan, is a city-wide standard of 6.5 acres of public parks per 1,000 residents at General Plan buildout (2035). The parkland standard is a standard the City of San Ramon aims to achieve over the entire General Plan area at buildout by 2035. The proposed Master Plan would include approximately 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities. This includes new park spaces and improvements to existing BR 2600 facilities. (See Section 2, Project Description, for further details.) The proposed 40.7 acres of park and recreational facilities along with applicable development impact fees would assist the City in meeting the parkland standard at General Plan buildout. In addition, the City of San Ramon Parks and Community Services Master Plan Update determined that the construction of all planned parks would meet the City's established goal of 6.5 acres of parkland per 1,000 residents by 2035. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Other Public facilities

Impact PSR-5: The proposed Master Plan would not result in substantial adverse physical impacts associated with the provision of new or physically altered other public facilities, such as libraries.

Impact Analysis

The Master Plan area (i.e., BR 2600) is currently served by the Contra Costa County Library, which includes 26 facilities, 194 full-time employees, 1,166 volunteers, 1.2 million items and an expanding technology system. There are 150,000 and growing active library cardholders who checked out 5.9 million items in the 2017–2018 fiscal year. Members of the community attended 18,177 programs and visited the library 3.2 million times in the 2017–2018 fiscal year.

Buildout of the Master Plan would increase the City of San Ramon's population and, thus, increase demand for other public facilities such as libraries. The nearest library to the Master Plan area is the San Ramon Library, located 0.1 mile away from BR 1A in the Marketplace shopping center. As such, future residents would be within walking distance of a library. According to the City of San Ramon Capital Improvement Program for 2019/2020 to 2023/2024, the San Ramon Library is included in planned improvements to City facilities, which include upgrades to HVAC systems, flooring, roofing, and exterior maintenance. The Capital Improvement Program receives funding from required development fees; the project applicant would be required to pay applicable development fees to contribute to City capital improvements, which could include library facilities, helping to ensure that the library can serve the projected increase in population from Master Plan implementation. As such, impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Source: Google Earth Pro Aerial Imagery.

FIRSTCARBON SOLUTIONS™

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Exhibit 3.13-1
Existing Public Facilities in Project Vicinity

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3.14 - Transportation

3.14.1 - Introduction

This section evaluates the transportation impacts of the proposed Master Plan. This section is based on the Transportation Impact Study prepared by Gibson Transportation Consulting, Inc. and the Vehicle Miles Traveled (VMT) Analysis prepared by CHS Consulting Group (CHS), included as Appendix I to the Transportation Impact Study. The Transportation Impact Study (TIS) is provided in Appendix J.

As described in Section 2, Project Description, the proposed Master Plan would be developed in phases over a 25-year planning horizon. The long-range travel projections used in the Transportation Impact Study are based on the latest CCTA Travel Demand Forecast Model (CCTA Model) which assumes travel and land use conditions for Year 2040. Thus, consistent with the longest future forecasts available, the conditions in this analysis assume that the full buildout of the proposed Master Plan would take place by Year 2040, and represents a conservative, worst-case scenario.

Study Area

The Study Area, shown in Exhibit 3.14-1, is generally bounded by Crow Canyon Road to the north, Dougherty Road to the east, Montevideo Drive and Old Ranch Road to the south, and Bollinger Road and Interstate 680 (I-680) to the west. The Study Area was established to encompass those intersections with a reasonable potential to experience significant transportation impacts due to Project traffic. A total of 31 intersections, including 28 signalized and three unsignalized intersections, were identified in the Scoping Form for detailed analysis of the above conditions. Table 3.14-1 summarizes the Study Intersections.

Table 3.14-1: Study Intersection List

No	North/South Street	East/West Street	Jurisdiction
1.	Bollinger Canyon Road	Crow Canyon Road	City of San Ramon
2.	San Ramon Valley Boulevard	Crow Canyon Road	City of San Ramon
3.	I-680 Southbound Ramps	Crow Canyon Road	Caltrans
4.	I-680 Northbound Ramps	Crow Canyon Road	Caltrans
5.	Crow Canyon Place	Crow Canyon Road	City of San Ramon
6.	Camino Ramon	Crow Canyon Road	City of San Ramon
7.	Alcosta Boulevard	Crow Canyon Road	City of San Ramon
8.	Dougherty Road	Crow Canyon Road	City of San Ramon
9.[a]	Bollinger Canyon Road	Norris Canyon Road	City of San Ramon
10.	San Ramon Valley Boulevard	Norris Canyon Road	City of San Ramon
11.	Bishop Drive/Annabel Lane	Norris Canyon Road	City of San Ramon
12.	Camino Ramon	Norris Canyon Road	City of San Ramon

No	North/South Street	East/West Street	Jurisdiction
13.	Alcosta Boulevard	Norris Canyon Road	City of San Ramon
14.[b]	Bishop Drive	Executive Parkway	City of San Ramon
15.	Camino Ramon	Executive Parkway	City of San Ramon
16.	Sunset Drive	Bishop Drive	City of San Ramon
17.	Camino Ramon	Bishop Drive	City of San Ramon
18.	Sunset Drive	Shops at Bishop Ranch/City Center	City of San Ramon
19.	San Ramon Valley Boulevard	Bollinger Canyon Road	City of San Ramon
20.	I-680 Southbound Ramps	Bollinger Canyon Road	Caltrans
21.	I-680 Northbound Ramps	Bollinger Canyon Road	Caltrans
22.	Sunset Drive	Bollinger Canyon Road	City of San Ramon
23.	Camino Ramon/Bishop Ranch 1	Bollinger Canyon Road	City of San Ramon
24.	Bishop Ranch 1 East	Bollinger Canyon Road	City of San Ramon
25.	Market Place	Bollinger Canyon Road	City of San Ramon
26.	Alcosta Boulevard	Bollinger Canyon Road	City of San Ramon
27.	Dougherty Road	Bollinger Canyon Road	City of San Ramon
28.	San Ramon Valley Boulevard	Montevideo Drive	City of San Ramon
29.	Alcosta Boulevard	Montevideo Drive	City of San Ramon
30.[a]	Alcosta Boulevard	Old Ranch Road	City of San Ramon
31.	Dougherty Road	Old Ranch Road	City of San Ramon

Notes:
[a] Intersection operates with All-way Stop Controlled (AWSC) under Existing Conditions. Intersection is signalized under Future Conditions.
[b] Intersection operates with Two-way Stop Controlled (TWSC).
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

3.14.2 - Environmental Setting

The existing street system in the Study Area for the proposed Master Plan consists of a regional roadway system including freeways, arterials, collectors, and local streets that provide regional, sub-regional, or local access and circulation within the Study Area. These transportation facilities generally provide two to eight travel lanes and may allow parking on either side of the street. Typically, the speed limits range between 25 and 50 miles per hour (mph) on the streets and 65 mph on freeways.

Street classifications for roadways within the City of San Ramon are designated in City of San Ramon General Plan 2035 (City of San Ramon 2015) (General Plan). The available facilities in the Study Area are defined by the following in the General Plan:

- Freeways are high-volume, high-speed roadways with limited access provided by interchanges that carry regional traffic through and do not provide local access to adjacent land uses.
- Arterial Streets are major roadways that serve higher traffic volumes and accommodate intercity circulation, as well as provide access to major commercial activity centers. Typically, Arterial Streets provide two to four travel lanes in each direction separated by a center median.
- Collector Streets are generally located in residential neighborhoods and employment areas and provide access to and from arterial streets for local traffic and are not intended for cut-through traffic. Typically, Collector Streets provide one to two travel lanes in each direction with no center median.
- Local Streets are intended to accommodate lower volumes of vehicle traffic and used to travel within neighborhoods. Typically, Local Streets provide one travel lane in each direction with parking on both sides of the street.
- Routes of Regional Significance are major arterials and freeways that serve regional traffic and generally serve as a means of travel across Contra Costa County or between Contra Costa County and adjacent counties.

Primary regional access to the Master Plan area is provided by I-680. The major arterials providing regional and sub-regional access to the Study Area include Crow Canyon Road, Bollinger Canyon Road, and Alcosta Boulevard. The following is a brief description of the major roadways in the transportation analysis Study Area, including their classification under the General Plan:

Roadway Network

Interstate 680

I-680 is a classified Interregional Route of Regional Significance and generally runs in the north-south direction, less than 0.25 mile west of the Master Plan area. In the vicinity of the Study Area, I-680 provides three travel lanes, one High Occupancy Vehicle (HOV) Toll/Express lane, and one auxiliary lane in each direction north of Crow Canyon Road, and three travel lanes and one Express lane in each direction south of Crow Canyon Road. An auxiliary lane is present in the northbound direction between Bollinger Canyon Road and Crow Canyon Road. Access to and from I-680 is available via interchanges at Crow Canyon Road, Bollinger Canyon Road, and Alcosta Boulevard.

Bollinger Canyon Road

Bollinger Canyon Road is a classified Arterial Street east and west of San Ramon Valley Boulevard and an Intraregional Route of Regional Significance east of San Ramon Valley Boulevard. Bollinger Canyon Road generally travels in the north-south direction west of San Ramon Valley Boulevard and in the east-west direction east of San Ramon Valley Boulevard. In the core of the Study Area, Bollinger Canyon Road is generally located south of the Master Plan area (except for Bishop Ranch [BR] 1A). West of San Ramon Valley Boulevard, the roadway provides one to two travel lanes in each direction, with left-turn lanes at some intersections. Class II bicycle lanes are provided to Ascension Drive on both sides of the street. Between San Ramon Valley Boulevard and Alcosta Boulevard, Bollinger

Canyon Road provides three to four travel lanes in each direction, with left-turn lanes at intersections.

Between Alcosta Boulevard and Dougherty Road, Bollinger Canyon Road provides three travel lanes in each direction, with left-turn lanes at intersections, and Class II bicycle lanes on both sides of the street. East of Dougherty Road, Bollinger Canyon Road provides two travel lanes in each direction, with left-turn lanes at intersections, and Class II bicycle lanes on both sides of the street. Between Crow Canyon Road and Ascension Drive, parking is generally available on both sides of the street within the Study Area.

Camino Ramon

Camino Ramon is classified Arterial Street. Camino Ramon travels in the north-south direction and runs between BR 2600 and the BR 3A/BR 1A. Camino Ramon generally provides two travel lanes in each direction, with left-turn lanes at intersections and driveways. Parking is not available on either side of the street within the Study Area.

San Ramon Valley Boulevard

San Ramon Valley Boulevard is an Arterial roadway and a classified Intraregional Route of Regional Significance. San Ramon Valley Boulevard travels in the north-south direction and is located west of the Master Plan area. San Ramon Valley Boulevard generally provides two travel lanes in each direction, with left-turn lanes at intersections and Class II bicycle lanes on both sides of the street. Parking is generally not available on either side of the street within the Study Area.

Crow Canyon Road

Crow Canyon Road is an Arterial roadway and a classified Interregional Route of Regional Significance. Crow Canyon Road travels in the east-west direction and is located north of the Master Plan area. Crow Canyon Road generally provides one lane in each direction west of Bollinger Canyon Road, and three to four travel lanes in each direction, with left-turn lanes at intersections, between Bollinger Canyon Road and Alcosta Boulevard. Crow Canyon Road provides two travel lanes in each direction, with left-turn lanes at intersections and Class II bicycle lanes on both sides of the street east of Alcosta Boulevard. Parking is generally not available on either side of the street within the Study Area.

Alcosta Boulevard

Alcosta Boulevard is a classified Arterial Street and an Intraregional Route of Regional Significance west of Village Parkway. Alcosta Boulevard generally travels in the north-south direction and is located east of the Master Plan area. Alcosta Boulevard generally provides two travel lanes in each direction, with left-turn lanes at intersections. Class II bicycle lanes are provided on both sides of the street north of Veracruz Drive/Terra Alta Drive. Parking is generally only available on the west side of the street along a frontage road south of Veracruz Drive/Terra Alta Drive within the Study Area.

Dougherty Road

Dougherty Road is an Arterial roadway and a classified Intraregional Route of Regional Significance north of Bollinger Canyon Road and an Arterial Street south of Bollinger Canyon Road. Dougherty

Road travels in the north-south direction and is located east of the Master Plan area. Dougherty Road generally provides three travel lanes in each direction, with left turns at intersections and Class II bicycle lanes on both sides of the street. Parking is generally not available on either side of the street within the Study Area.

Norris Canyon Road

Norris Canyon Road is a classified Collector Street west of San Ramon Valley Boulevard and an Arterial street east of San Ramon Valley Boulevard. Norris Canyon Road travels in the east-west direction and is located north of the Master Plan area. Norris Canyon Road generally provides one to two travel lanes in each direction west of San Ramon Valley Boulevard and Class II bicycle lanes west of Bollinger Canyon Road. Norris Canyon Road provides two travel lanes in each direction, with left-turn lanes at most intersections, and Class II bicycle lanes on both sides of the street east of San Ramon Valley Boulevard. Parking is generally available on both sides of the street between Bollinger Canyon Road and San Ramon Valley Boulevard within the Study Area.

Montevideo Drive

Montevideo Drive is a classified Collector Street. Montevideo Drive travels in the east-west direction and is located south of the Master Plan area. Montevideo Drive generally provides one travel lane in each direction. Parking is generally available on both sides of the street within the Study Area.

Old Ranch Road

Old Ranch Road is a classified Arterial Street. Old Ranch Road travels in the east-west direction and is located south of the Master Plan area. Old Ranch Road generally provides two travel lanes in each direction, with left-turn lanes at most intersections. Parking is generally not available on either side of the street within the Study Area.

Bishop Drive

Bishop Drive is a classified Local Street. Bishop Drive travels in the north-south direction west of Sunset Drive and in the east-west direction east of Sunset Drive. Bishop Drive is located along the western and southern boundaries of BR 2600 NW and BR 2600 SE, respectively. Bishop Drive generally provides one travel lane in each direction and Class II bicycle lanes on both sides of the street west of Sunset Drive. Parking is generally not available on either side of the street within the Study Area.

Level of Service

Intersections

In accordance with the City's Traffic Study Guidelines and the current CCTA Technical Procedures, the intersection capacity analysis was conducted using the Synchro 10th Edition software to implement the Highway Capacity Manual (HCM) 6th Edition methodology to determine the overall intersection delay (Transportation Research Board 2016). The HCM methodology calculates the average delay, in seconds, of a vehicle passing through the intersection in any direction. The average delay is used to determine the intersection Level of Service (LOS) according to the LOS definitions provided in Table 3.14-2.

Table 3.14-2: Level of Service Definitions for Intersections

Level of Service	Description	Delay (measured in seconds)	
		Signalized Intersections	Unsignalized Intersections
A	**EXCELLENT.** No vehicle waits longer than one red light and no approach phase is fully used.	≤ 10	0.0–10.0
B	**VERY GOOD.** An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.	> 10 and ≤ 20	10.1–15.0
C	**GOOD.** Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.	> 20 and ≤ 35	15.1–25.0
D	**FAIR.** Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.	> 35 and ≤ 55	25.1–35.0
E	**POOR.** Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.	> 55 and ≤ 80	35.1–50.0
F	**FAILURE.** Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.	> 80	> 50.0
Source: Highway Capacity Manual, 6th Edition (Transportation Research Board 2016).			

Freeway

The analysis presented in this document measures the effects of the Project on Caltrans facilities using both LOS and VMT as the measures of effectiveness. Caltrans is moving away from LOS and delay and towards a measurement of VMT as the means to evaluate new Projects. The Project evaluation included in this analysis includes a measurement of both LOS and VMT as the City of San Ramon works to develop and adopt its own VMT methodologies and thresholds.

The *Local Development Intergovernmental Review Program Interim Guidance* (Interim Guidance)[i1] which is included as Appendix E of the TIS, contains the following guidelines for Caltrans review of development projects:

> "Caltrans comments henceforth should take into consideration whether the project exhibits low or high VMT (by place type e.g., urban, suburban, and rural areas) and should focus recommendations on smart land use, multimodal access, safety for all users, and reducing single occupant vehicle trips. Well planned urban infill projects which are located close to transit, bike and pedestrian facilities… which also have proximity benefits to employment centers, services and goods – will reduce travel demand on the entire transportation system

[1] *Local Development Intergovernmental Review Program Interim Guidance*, California Department of Transportation, September 2, 2016

and will therefore require significantly less review and mitigation than rural fringe projects (Project Type 5), which generate proportionately higher number of trips and vehicle miles traveled.”

The LOS definitions for freeway mainline segments based on HCM methodology are presented in Table 3.14-3

Table 3.14-3: Freeway Segment Level of Service Definitions—Density

Level of Service	Description	Density[a]
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤ 11
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11 and ≤ 18
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18 and ≤ 26
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26 and ≤ 35
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 and ≤ 45
F	Represents a breakdown in flow and oversaturated conditions.	> 45

Note:
[a] Density is defined in vehicles per mile per lane and describes the proximity to other vehicles and is related to the freedom to maneuver within the traffic stream (Highway Capacity Manual, 6th Edition, A Guide for Multimodal Mobility Analysis).
Source: Highway Capacity Manual, 6th Edition, A Guide for Multimodal Mobility Analysis (Transportation Research Board 2016) and Caltrans.

Signal Warrants

To assess the need for signalization of a stop-controlled intersection, the California Manual on Uniform Traffic Control Devices (CAMUTCD) presents nine (9) signal warrants. Satisfying one or more of the signal warrants could justify signalization of an intersection; however, the full set of warrants should be considered as part of an evaluation and an engineering study should be conducted before the decision to install a signal is made. In addition, satisfaction of one or more signal warrants does not in itself require an installation of a traffic signal. The peak hour volume warrant (Warrant 3) analysis for urban conditions was conducted for the unsignalized study intersections that are candidates for signalization.

Existing Traffic Volumes and Levels of Service

This section presents the existing peak-hour turning movement traffic volumes for the intersections analyzed in this study, describes the methodology used to assess the traffic conditions at each intersection, and analyzes the resulting operating conditions at each intersection indicating delay and LOS.

Existing Traffic Volumes

Intersection turning movement counts were conducted at the 31 study intersections during the weekday morning (7:00 a.m. to 10:00 a.m.) and afternoon (4:00 p.m. and 6:00 p.m.) peak periods in March and May 2019 in accordance with the Traffic Study Guidelines. Local schools were in session and the weather conditions were typical when all traffic counts were conducted. The existing intersection peak-hour traffic volumes are illustrated in Exhibit 3.14-2 through 3.14-2d.

Existing Intersection Levels of Service

Table 3.14-4 summarizes the weekday morning (AM) and afternoon (PM) peak-hour LOS results for each of the study intersections under Existing Conditions.

Table 3.14-4: Existing Conditions (Year 2019) Intersection Levels of Service Analysis

No.	Intersection	Peak-hour	Existing Conditions	
			Delay	LOS
1	Bollinger Canyon Road and Crow Canyon Road	AM PM	32.2 33.5	C C
2	San Ramon Valley Boulevard and Crow Canyon Road	AM PM	44.0 49.0	D D
3	I-680 Southbound Ramps and Crow Canyon Road	AM PM	20.3 15.9	C B
4	I-680 Northbound Ramps and Crow Canyon Road	AM PM	16.2 14.2	B B
5	Crow Canyon Place and Crow Canyon Road	AM PM	29.1 38.8	C D
6	Camino Ramon and Crow Canyon Road	AM PM	26.1 33.2	C C
7	Alcosta Boulevard and Crow Canyon Road	AM PM	17.0 16.3	B B
8	Dougherty Road and Crow Canyon Road	AM PM	26.9 33.4	C C
9[a]	Bollinger Canyon Road and Norris Canyon Road	AM PM	19.8 34.5	C D
10	San Ramon Valley Boulevard and Norris Canyon Road	AM PM	42.4 45.9	D D
11	Bishop Drive/Annabel Lane and Norris Canyon Road	AM PM	22.0 29.9	C C

No.	Intersection	Peak-hour	Existing Conditions	
			Delay	LOS
12	Camino Ramon and Norris Canyon Road	AM PM	34.9 43.8	D D
13.	Alcosta Boulevard and Norris Canyon Road	AM PM	36.8 38.2	D D
14[b]	Bishop Drive and Executive Parkway	AM PM	11.6 12.4	B B
15	Camino Ramon and Executive Parkway	AM PM	29.6 23.0	C C
16	Sunset Drive and Bishop Drive	AM PM	36.0 35.0	D C
17	Camino Ramon and Bishop Drive	AM PM	35.6 31.2	D C
18	Sunset Drive and Shops at Bishop Ranch/City Center	AM PM	42.2 51.1	D D
19	San Ramon Valley Boulevard and Bollinger Canyon Road	AM PM	43.5 50.8	D D
20	I-680 Southbound Ramps and Bollinger Canyon Road	AM PM	29.9 23.3	C C
21	I-680 Northbound Ramps and Bollinger Canyon Road	AM PM	17.7 29.5	B C
22	Sunset Drive and Bollinger Canyon Road	AM PM	16.4 45.7	B D
23	Camino Ramon and Bollinger Canyon Road	AM PM	26.8 24.6	C C
24	Bishop Ranch 1 East and Bollinger Canyon Road	AM PM	13.5 3.0	B A
25	Market Place and Bollinger Canyon Road	AM PM	10.4 14.1	B B
26	Alcosta Boulevard and Bollinger Canyon Road	AM PM	48.6 65.7	D E
27	Dougherty Road and Bollinger Canyon Road	AM PM	49.8 46.6	D D
28	San Ramon Valley Boulevard and Montevideo Drive	AM PM	29.4 38.5	C D
29	Alcosta Boulevard and Montevideo Drive	AM PM	14.2 14.8	B B
30[ba]	Alcosta Boulevard and Old Ranch Road	AM PM	14.2 20.9	B C
31	Dougherty Road and Old Ranch Road	AM PM	23.2 15.8	C B

No.	Intersection	Peak-hour	Existing Conditions	
			Delay	LOS

Notes:
Delay is measured in seconds per vehicle
[a] Intersection operates with All-way Stop Controlled (AWSC) under Existing Conditions. Intersection is signalized under Future Conditions.
[b] Intersection operates with Two-way Stop Controlled (TWSC).
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

As shown in Table 3.14-4, 30 of the 31 study intersections currently operate at LOS D or better during both the AM and PM peak-hours. Intersection 26: Alcosta Boulevard and Bollinger Canyon Road currently operates at LOS E during the PM peak-hour.

California Department of Transportation Facilities

The California Department of Transportation (Caltrans) has jurisdiction over all freeways and State highways, including intersections with roadways under local jurisdiction. Table 3.14-5 summarizes the Caltrans facilities within the Study Area.

Table 3.14-5: Analyzed Caltrans Facilities

ID	Location
Freeway Mainline Segments	
FS-1	I-680 north of Crow Canyon Road
FS-2	I-680 between Crow Canyon Road and Bollinger Canyon Road
FS-3	I-680 south of Bollinger Canyon Road
Signalized Intersections	
S-1	I-680 Southbound Ramps and Crow Canyon Road (Intersection No. 3)
S-2	I-680 Northbound Ramps and Crow Canyon Road (Intersection No. 4)
S-3	I-680 Southbound Ramps and Bollinger Canyon Road (Intersection No. 20)
S-4	I-680 Northbound Ramps and Bollinger Canyon Road (Intersection No. 21)
Off-Ramp Queues	
Q-1	I-680 Southbound Ramps and Crow Canyon Road (Intersection No. 3)
Q-2	I-680 Northbound Ramps and Crow Canyon Road (Intersection No. 4)
Q-3	I-680 Southbound Ramps and Bollinger Canyon Road (Intersection No. 20)
Q-4	I-680 Northbound Ramps and Bollinger Canyon Road (Intersection No. 21)

Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Table 3.14-6 summarizes existing freeway mainline segment traffic volumes.

Table 3.14-6: Freeway Mainline Segment Traffic Volumes

ID	Freeway Mainline Segment	Peak-hour	Direction	Vehicles per Hour (VPH) Existing Conditions (Year 2019)[a]
FS-1	I-680 north of Crow Canyon Road	AM	NB	5,672
			SB	7,961
		PM	NB	7,681
			SB	6,732
FS-2	I-680 between Crow Canyon Road and Bollinger Canyon Road	AM	NB	5,520
			SB	7,993
		PM	NB	7,009
			SB	6,640
FS-3	I-680 south of Bollinger Canyon Road	AM	NB	5,638
			SB	7,191
		PM	NB	6,708
			SB	6,175

Note:
[a] 2019 freeway traffic volumes based on 2018 weekday traffic volume data from CCTA Model. These volumes are consistent with Caltrans' Performance Management System (PeMS) volumes for 2017 (the latest published data available).
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Transit Network

The Study Area is served by bus lines operated by Central Contra Costa Transit Authority (CCCTA or County Connection) via Routes 21, 35, 92X, 95X, 96X, and 97X, in addition to weekend Routes 321 and 335. Exhibit 3.14-3 illustrates the existing transit service in the Study Area. Table 3.14-7 summarizes the transit lines operating in the Study Area for each of the service providers in the region, the type of service (peak vs. off-peak, express vs. local), and frequency of service, as described above. The average frequency of transit service during the peak-hour was derived from the number of peak period stops made at the stop nearest the Master Plan area.

Table 3.14-7: Existing Transit Service in Study Area

Provider, Route, and Service Area		Service Type	Hours of Operation	Average Headway (minutes)	
				Peak	Off-peak
Central Contra Costa Transit Authority—Weekdays Only					
21	BART Walnut Creek—San Ramon	Local	5:30 a.m.–10:30 p.m.	30	60
35	BART Dublin/Pleasanton—San Ramon	Local	6:00 a.m.–8:30 p.m.	15–20	30–60
92X	ACE Express	Express	5:30 a.m.–9:00 a.m. 3:30 p.m.–7:30 p.m.	60	—
95X	San Ramon–BART Walnut Creek	Express	6:00 a.m.–9:00 a.m. 3:30 p.m.–7:30 p.m.	20 min peak only	—
96X	BART Walnut Creek—Bishop Ranch	Express	5:30 a.m.–7:15 p.m.	20 min peak only	3 peak trips
97X	BART Dublin/Pleasanton—Bishop Ranch	Express	6:30 a.m.–90:00 a.m. 4:00 p.m.–6:00 p.m.	60 min peak only	—
Central Contra Costa Transit Authority–Weekends Only					
321	BART Walnut Creek—San Ramon	Limited	7:30 a.m.–10:30 p.m.	60	60
335	BART Dublin/Pleasanton—San Ramon	Limited	7:45 a.m.–7:15 p.m.	60	60

Notes:
Transit peak-hours generally occur during 6:00 a.m.–9:00 a.m. and 3:00 p.m.–6:00 p.m.
CCCTA = Central Contra Costa Transit Authority
BART = Bay Area Rapid Transit
ACE = Altamont Corridor Express
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Bicycle Network

Based on City of San Ramon Bicycle Master Plan (City of San Ramon, April 2018) (Bicycle Master Plan), the existing bicycle system in the Study Area consists of a limited coverage of multi-use paths (Class I), bicycle lanes (Class II), and bicycle routes (Class III). Multi-use paths are two-way paved facilities, physically separated from vehicle traffic and can be used by bicyclists, pedestrians and

other non-motorized users. Bicycle lanes are a component of street design with dedicated striping and symbols on the roadway surface, separating vehicular traffic from bicycle traffic. Buffered bicycle lanes provide a striped-painting flush buffer zone between a bicycle lane and adjacent travel lane. Bicycle routes are identified as bicycle-friendly streets where motorists and cyclists share the roadway and there is no dedicated striping of a bicycle lane. Bicycle routes are preferably located on Local, Collector and lower volume Arterial Streets as part of a signed route or bicycle boulevard, which is typically applied on quiet streets such as residential neighborhoods.

The following bicycle facilities are provided along corridors within the Study Area:

- Iron Horse Trail (Class I)
- San Ramon Valley Boulevard (Class II)
- Bishop Drive (Class II)
- Executive Parkway (Class II)
- Alcosta Boulevard (Class II and III)
- Crow Canyon Road—East of Alcosta Boulevard (Class II)
- Norris Canyon Road (Class II and III)
- Bollinger Canyon Road (Class II and III)
- Davona Drive (Class III)
- Broadmoor Drive (Class III)
- Montevideo Drive (Class III)

Exhibit 3.14-4 depicts the existing bicycle network within the Study Area.

Pedestrian Network

The walkability of existing facilities is based on the availability of pedestrian routes necessary to accomplish daily tasks without the use of an automobile. The Master Plan area is comprised of employment and retail land uses and cultural facilities served by transit stops, a bicycle network, and an extensive sidewalk system. There are wide sidewalks lining the streets, crosswalks available at the intersections, and many shops, restaurants, and other services within walking distance of the Master Plan area.

The sidewalks that serve as routes to the Master Plan area provide proper connectivity and adequate widths to pedestrian crossings at intersections for a comfortable and safe pedestrian environment. The following signalized intersections provide pedestrian facilities to limit illegal mid-block crossings to the Master Plan area (all intersections have marked pedestrian crossings):

- Camino Ramon and Executive Parkway (Intersection No. 15)
- Sunset Drive and Bishop Drive (Intersection No. 16)

- Camino Ramon and Bishop Drive (Intersection No. 17)
- Camino Ramon/Bishop Ranch 1 and Bollinger Canyon Road (Intersection No. 23)
- Bishop Ranch 1 East and Bollinger Canyon Road (Intersection No. 24)
- Camino Ramon and Bishop Ranch 3/Bishop Ranch 2700
- Bishop Drive and City Center breezeway (High-intensity Activated crossWalK [HAWK] signal)

Each of the listed signalized intersections provides pedestrian phasing, crosswalk striping, and Americans with Disabilities Act (ADA) wheelchair ramps.

Exhibit 3.14-5 illustrates the existing sidewalk and crosswalk systems along the proposed Master Plan frontages.

Transportation Demand Management

The project applicant currently manages a TDM Program that includes a set of strategies designed to reduce peak-hour vehicular traffic to and from the Bishop Ranch Business Park, which encompasses the Master Plan area. It is a comprehensive program of design features, transportation services, education programs, and incentive programs intended to reduce the impact of traffic from employees and visitors to Bishop Ranch during the most congested time periods of the day. Consistent with the goals outlined in Senate Bill 743 (SB 743), and the City's TDM Ordinance, the Transportation Demand Management (TDM) Program promotes non-auto travel and reduces the use of single-occupant vehicle trips. The incentive programs outlined in the TDM Plan include the following:

- A Bishop Ranch Transportation Center with travel information kiosks and on-site TDM coordinators to provide transportation information educational programs
- Tenant Employee Transportation Coordinator
- Fully subsidized transit passes on County Connection buses
- Partially subsidized transit passes on San Francisco express buses
- Promotion and support of carpools, vanpools and rideshare
- Bicycle amenities such as secure racks and showers
- Incentives for using alternative travel modes, including access to 511 Contra Costa Guaranteed Ride Home Program
- Promotion of TDM Public Outreach Campaigns—511 Contra Costa
- New employee orientation meetings detailing TDM opportunities
- Meetings with City TDM Advisory Committee

The combined effect of the various strategies implemented as part of the TDM Plan results in a reduction in peak-hour trip generation by offering services, actions, specific facilities, etc., aimed at encouraging use of alternative transportation modes (e.g., transit, bus, walking, bicycling, carpool, vanpool, etc.) Trip Generation Handbook, 3rd Edition (Institute of Transportation Engineers [ITE],

2017) provides a summary of research of TDM programs at many different employers. At places that had the most comprehensive programs, including both economic incentives (e.g., transit passes, etc.) and support services, the programs resulted in an average 24 percent reduction in commuter vehicles. Based on a 2018 Employee Survey conducted by 511 Contra Costa and City of San Ramon at Bishop Ranch, it was shown that approximately 29 percent of employees do not drive alone and either travel via carpool, vanpool, or transit, or they work at home (telecommuting). Although the project applicant manages an intensive TDM Program at the Bishop Ranch Business Park, in order to provide an overly conservative traffic analysis, a 10 percent trip reduction for walk-in and transit usage was applied.

3.14.3 - Regulatory Framework

State

Senate Bill 743

SB 743 (CEQA Guidelines § 15064.3) made effective in January 2014, requires the Governor's Office of Planning and Research to change the California Environmental Quality Act (CEQA) Guidelines regarding the analysis of transportation impacts. Under SB 743, the focus of transportation analysis will shift from driver delay to VMT to promote a reduction of greenhouse gas (GHG) emissions and to encourage creation of multimodal networks and promotion of mixed-use developments. Although originally scheduled to be fully implemented in CEQA Guidelines by January 1, 2016, an extension has allowed cities more time to establish an analysis methodology. Under the latest Guidelines, all cities and jurisdictions in California are supposed to adopt new VMT guidelines by July 1, 2020. The City is in the process of updating their transportation impact methodology and the CCTA is in the process of updating their Technical Procedures to include thresholds based on VMT as well. To better align with the State's multimodal transportation and environmental action goals, Caltrans is also pursuing VMT as a metric of the proposed Master Plan impacts, which is outlined in the Caltrans Interim Guidance. The Interim Guidance, which is included in the Appendix J Traffic Impact Study as Appendix E, discusses the shift away from congestion as a measure of environmental impact and toward VMT.

In addition, SB 743 adds Public Resources Code Section 21099, which provides that "aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment." A transit priority area is defined as an area within 0.5 mile of an existing or planned major transit stop. Public Resources Code Section 21064.3 defines a major transit stop as a "site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon commute periods." The Master Plan area is well served by public transit and, thus, the proposed Master Plan qualifies as a transit priority area. As previously described, the San Ramon Transit Center is located less than 0.25 mile from the Master Plan area and serves County Connection C bus lines, which serve the entire area with average headways of 10 to 30 minutes in each direction during the AM and PM peak-hours and connect the proposed Master Plan to the Dublin/Pleasanton, Walnut Creek Bay Area Rapid Transit (BART) stations and the Altamont Commuter Express (ACE) train in Pleasanton.

The proposed Master Plan characteristics (e.g., its location, proximity to transit, access to other nearby destinations, pedestrian connections, bicycle amenities, etc.) would encourage non-auto and non-single occupant auto modes of transportation such as walking, bicycling, carpool, vanpool, transit, etc. Furthermore, the addition of residential and retail land uses to the existing employment and retail-rich Master Plan area is consistent with the goals of SB 743 in that the new infill land uses create a more diverse mixed-use development area. The proposed Master Plan would provide the opportunity for office employees to live in the new residential communities within Bishop Ranch and, thus, directly contribute to potentially significant reductions in VMT. Overall, the proposed Master Plan would also reduce vehicle trips by encouraging walking, public transit ridership and bicycle travel, thus resulting in corresponding reductions in VMT, air quality emissions and transportation-related GHG emissions.

Caltrans

The Caltrans Interim Guidance discusses the importance of transit, alternate modes of travel, and pedestrian considerations as part of project evaluation and suggests the approach with which Caltrans can recommend improvements to enhance pedestrian safety and increase pedestrian accessibility to help meet the goals and targets of Caltrans Strategic Management Plan 2015-2020 (Caltrans, March 2015) and California Transportation Plan 2040 (Caltrans, June 2016). The Interim Guidance states that Caltrans should take into consideration whether the project exhibits low or high VMT and should focus recommendations on smart land use, multimodal access, safety for all users, and reducing single occupant vehicle trips. Urban infill projects which are located close to transit, bike and pedestrian facilities as well as employment centers, services and goods, will reduce travel demand on the entire transportation system.

Senate Bill 743 (2013) mandated that CEQA review of transportation impacts of proposed development be modified by eliminating consideration of delay- and capacity- based metrics such as LOS and instead focusing analysis on another metric of impact." The Governor's Office of Planning and Research (OPR) has proposed that vehicle miles traveled be the primary metric used in identifying transportation impacts.

While the City and the CCTA are finalizing their VMT methodology and thresholds, the analysis of the Caltrans facilities was conducted using the Highway Capacity Manual (HCM) methodology. Given that the City has not yet adopted a transportation impact policy that incorporates a VMT policy and VMT thresholds, per capita VMT results for the Project were also analyzed and calculated in an informational context. *See* Appendix I to the Transportation Impact Study.

Regional

Contra Costa Transportation Authority (CCTA)

The CCTA is the Congestion Management Agency for Contra Costa County. The CCTA oversees implementation of sub-regional Action Plans for Routes of Regional Significance, which sets forth performance objectives for Routes of Regional Significance. In the San Ramon Valley, the Tri-Valley Transportation Council (TVTC) Action Plan includes Routes of Regional Significance. I-680, Crow Canyon Road, Bollinger Canyon Road, San Ramon Valley Boulevard, Alcosta Boulevard, and the Iron Horse Trail are considered Routes of Regional Significance within the Study Area.

Local

City of San Ramon

The City of San Ramon General Plan 2035 sets forth the following guiding and implementing policies relevant to transportation:

- **5.1-G-1:** Maintain acceptable LOS and ensure that future development and the circulation system are in balance.
- **5.1-I-1L:** Strive to maintain traffic LOS C or better as the standard at all intersections with a maximum LOS D during a.m. and p.m. peak periods.
- **5.1-I-2:** Require traffic impact studies for all proposed new development projected to generate 50 or more net new peak hour vehicle trips or as requested by the City Traffic Engineer.
- **5.1-I-3:** Identify and implement circulation improvements based on required traffic studies.
- **5.4-I-1:** Ensure that adequate north-south and east-west arterial capacity is provided to accommodate future travel demand and, where appropriate, implement Complete Streets concepts pursuant to Policy 5.3-G-1.
- **5.4-I-3:** Construct capacity and roadway improvements necessary to serve growth generated by development under the General Plan.
- **5.4-I-5:** Require traffic impact mitigation fees on new residential and commercial development to ensure that transportation improvements are constructed before the increased traffic causes conditions to deteriorate.
- **5.6-G-1:** Utilize Transportation Demand Management (TDM) strategies as an integral component of the City's transportation program to reduce total vehicle trips on San Ramon roadways and reduce the corresponding vehicle emissions that promote regional air quality improvements.
- **5.6-I-7:** Encourage new development to include a mix of uses and Complete Streets concepts that will allow people to walk and bike between destinations and reduce the amount of automobile vehicle miles-traveled.
- **5.6-I-14:** Consider strategies such as shared parking, parking management plans (including valet parking), and/or the construction of public parking facilities in the City Center, North Camino Ramon Specific Plan, or other commercial areas to serve projected parking demand, while carefully balancing the need for adequate parking against the desire to minimize traffic growth and create a pedestrian/bicycle friendly environment using Complete Streets design concepts.
- **5.6-I-18:** Shared parking facilities and parking reductions for compatible land uses to minimize excessive parking to reduce inefficient use of land, unnecessary pavement and stormwater runoff, and encourage alternative transportation and reductions in vehicle-miles-traveled.
- **5.7-G-1:** Encourage bicycling and walking as alternatives to driving, consistent with Complete Streets concepts.
- **5.7-I-1:** Establish a network of on- and off-street bicycle routes to encourage their use for commute, recreational, and other trips. Improve and expand bicycle routes for commuters in San Ramon.
- **5.7-I-2:** Develop bicycle routes that provide access to regional employment centers, shopping centers, public facilities, transit centers, schools, and parks.

- **5.7-I-3:** Continue to emphasize the Iron Horse Trail as a major north-south route for nonmotorized modes of transportation including walking, biking, rollerblading and scooters by improving connectivity and enhancing amenities for these modes.
- **5.7-I-4:** Encourage future development along the trail corridor to provide connection points and amenities as appropriate.
- **5.7-I-5:** Require bicycle parking, storage and other support facilities as part of any new office and retail developments and public facilities.
- **5.7-I-6:** Continue to promote and implement through the development review process, continuous circulation facilities within Bishop Ranch Business Park, commercial districts, and residential neighborhoods to enhance connectivity and promote pedestrian and bicycle modes of transportation consistent with Complete Streets concepts.

3.14.4 - Methodology

Gibson Transportation Consulting, Inc. prepared a TIS for the proposed Master Plan. The complete study is provided in Appendix J. The methodology is described as follows.

Scope of Study

The base assumptions and technical methodologies (i.e., trip generation, study locations, analysis methodology, etc.) were identified as part of the study approach and were outlined in a Scoping Form (Appendix A of the Traffic Impact Study).

This study analyzed the potential Master Plan-generated transportation impacts on the street system in the vicinity of the Master Plan area as compared to existing conditions and projected future conditions at the time the proposed Master Plan is expected to be completed and occupied (Year 2040). Potential intersection impacts were evaluated for typical weekday AM (7:00 a.m. to 9:00 a.m.) and PM (4:00 p.m. to 6:00 p.m.) peak periods. A total of 31 study intersections, including 28 signalized and three unsignalized intersections, in the vicinity of the Master Plan area were selected for detailed traffic analysis.

Consistent with Chapter 12 of the Engineering Design, Grading and Procedures Manual: City of San Ramon (City of San Ramon 2017c) (Traffic Study Guidelines), the following traffic conditions (listed below) were developed and analyzed as part of this study. The analysis of existing traffic conditions provides a basis for the assessment of future traffic conditions. The Existing Conditions analysis includes a description of key area streets and highways, traffic volumes and current operating conditions, and transit service in the Study Area. Intersection turning movement counts were collected at each of the selected study intersections during the weekday AM and PM peak periods in March and May 2019.

- Existing without Project Conditions (Year 2019) – This analysis is based on the existing conditions traffic counts taken in March and May 2019. Existing Conditions roadway cross sections were used to calculate a LOS during the morning and afternoon peak hours.
- Existing with Project Conditions (Year 2019)—This analysis condition projects the potential intersection operating conditions that could be expected if the proposed Master Plan

components were fully occupied and added to existing 2019 traffic levels. This scenario provides the potential impacts of proposed Master Plan.

- Future without Project Conditions (Year 2040)—This analysis condition projects the potential intersection operating conditions that could be expected as a result of regional growth and related project traffic in the Study Area by Year 2040. This analysis provides the conditions by which the proposed Master Plan impacts are evaluated in the future at full buildout. This scenario includes roadway improvements constructed by the City's Capital Improvement Project and by other projects in the Study Area that would be in place prior to the full occupancy of the proposed Master Plan. The Future without Project Conditions (Year 2040) were projected using the CCTA Model.
- Future with Project Conditions (Year 2040)—This analysis condition projects the potential intersection operating conditions that could be expected if the proposed Master Plan components were fully occupied in the projected buildout year. In this scenario, the traffic generated by the proposed Master Plan is added to Future without Project Conditions.
- Future with Project and Mitigation Conditions (Year 2040)—This analysis projects the potential intersection operating conditions that could be expected if the proposed Master Plan were built in the projected buildout year, including the effect of any mitigation. In this analysis condition, the proposed Master Plan-generated traffic with mitigation incorporated is added to the Future without Project Conditions.

Project Transportation Improvements

The vehicular access and circulation plan for the proposed Master Plan is shown in Exhibit 3.14-6

The proposed Master Plan includes the following proposed roadway improvements, which are not included in the Capital Improvement Program nor are they required to reduce the Master Plan's impacts to less than significant levels:

Roadway Segment Improvements

- Executive Parkway between Bishop Drive and Camino Ramon—Executive Parkway would be reconfigured to provide a wider center median while still retaining the existing on-street bike lanes. A new separated multi-use, off-street trail would also be provided along the south side of the street. In addition, the existing landscape median would be reconfigured to provide additional left turn lanes into parcels along both the north and south sides of the street. As proposed, Executive Parkway would provide one through lane in each direction with left-turn lanes protected by the wider raised median.
- Camino Ramon between Norris Canyon Road and Bishop Drive—Camino Ramon would be reconfigured to provide a landscape median with left-turn pockets. A landscaped center median would also be constructed between Bishop Drive and Bollinger Canyon Road that provides left-turn pockets where necessary.
- Bishop Drive between Executive Parkway and Sunset Drive along lake frontage—Bishop Drive is proposed to be reconfigured to allow parking along the east curb frontage along the lake

with the existing bike lane moving to the west side of the parking lane. A new separated, off-street multi-use trail will be provided along the east side of the street.

Intersection Improvements

- Camino Ramon and Executive Parkway (Intersection No. 15)—Executive Parkway would be reconfigured to provide an exclusive left-turn lane in the eastbound direction. The resulting eastbound lane configuration would include one left-turn lane, one through lane, and one right-turn lane.
- Bishop Ranch 1 East and Bollinger Canyon Road (Intersection No. 24)—The intersection is currently designed as a T-intersection and would provide direct access to and from BR 3A as part of the Project design feature. An internal roadway within the BR 3A site would be constructed to provide a connection to Camino Ramon and Bishop Drive (Intersection No. 17) and the south parking garage at BR 3. The north leg would be constructed to provide an exclusive left-turn lane and a shared through/right-turn lane in the southbound direction. As a result of the improved intersection, access to the BR 3A site would be permitted from the three other approaches. This intersection configuration would also be altered by the construction of the Iron Horse Trail overcrossing. The current westbound left-turn lane would be removed in order to construct a support column for the overpassing, as such existing trips have been redistributed accordingly.

Pedestrian and Bicycle Improvements

The proposed Master Plan would enhance bicycle and pedestrian connectivity through separated bicycle paths along the Master Plan area perimeter roads. Currently, a separated bicycle path is provided along Bishop Drive between Sunset Drive and the Iron Horse Trail. The proposed Master Plan would extend this network along the Master Plan area frontages along Camino Ramon, Bishop Drive, and Executive Parkway.

In addition, the proposed Master Plan includes a proposed HAWK signalized/controlled midblock crosswalk along Executive Parkway, immediately west of the new parking structure within BR 2600 NW. This midblock crosswalk would provide pedestrians an accessible pathway between the Bishop Ranch campuses as well as direct access to one of the three new transit hubs the proposed Master Plan would install. The proposed Master Plan also proposes to provide a managed street connecting BR 2600 NE directly to the City Center shopping center. The managed street would be restricted to pedestrians and emergency vehicle access.

Exhibit 3.14-7 and Exhibit 3.14-8 show the proposed pedestrian and bicycle improvements to be provided as part of the proposed Master Plan.

The proposed Master Plan is consistent with the goals and priorities of the City's bike and pedestrian network plans and would not preclude the implementation of any improvements detailed in those plans.

Transit Improvements

As mentioned previously, the proposed Master Plan would integrate three new transit hubs into the Bishop Ranch campus to serve both the residential neighborhoods and office park community. The transit hubs would accommodate multi-modal transportation and serve as a stop location for local buses and shuttles, a transit hub for shared bikes, scooters, and rideshares, and a waiting area with indoor and outdoor shaded seating. The transit hubs would also provide storage lockers and bicycle lockers for public use. The proposed Master Plan would include one transit hub along Executive Parkway, adjacent to the new parking structure within BR2600 NW, and two transit hubs along Camino Ramon, one north of Bishop Drive across BR 2600 SE and one south of Bollinger Canyon Road adjacent to BR 1A.

The primary focus of the transit hubs is to provide a more comfortable and reliable user experience for transit passengers. Each transit hub would provide off-street capacity for two buses simultaneously boarding or alighting. There would be additional space allocated for micro-mobility system operations such as bike/scooter-sharing. The transit hubs would provide additional indoor amenities facilitating comfort and commute coordination, real-time arrival displays and comfortable seating.

Increases to bus headways are not anticipated. The transit hubs would be located along existing routes in locations that would improve headways by reducing the number of total stops.

Providing additional service would further reduce headways. Micro-mobility options and improved pedestrian connections help cover the last-mile needs generated by fewer total stops.

The San Ramon Transit Center would continue to provide six to eight bays and be the central layover location for bus operator breaks and the most opportunities for coordinated transfers.

Exhibit 3.14-9 illustrates the proposed transit improvements to be built as part of the proposed Master Plan.

Additional Project Transportation Demand Management Measures

The project applicant would further expand the TDM Plan by providing fully subsidized transit passes to all residents within the 4,500 multi-family units. These transit passes would provide access to County Connection C bus routes to major stations, such as the BART rail stations in Dublin/Pleasanton, West Dublin and Walnut Creek via existing transit services. Furthermore, the transit passes would complement the three new transit hubs proposed to be constructed. The additional TDM measures align with the multimodal transportation and environmental action goals outlined in SB 743 by encouraging non-auto modes of transportation such as walking, bicycling, carpool, vanpool, transit, etc.

Trip Generation

The number of trips expected to be generated by the proposed Master Plan was estimated using rates published in Trip Generation, 10th Edition (ITE 2017) based on developments located in "General Urban/Suburban" location. These rates are based on surveys of similar land uses at sites

around the country and are provided as both daily rates and AM and PM peak-hour rates. The number of vehicle trips traveling to and from the Master Plan area is related to the size of development and type of land use proposed.

Trip generation adjustments to account for internal capture, mode split, and pass-by trips were based on a combination of engineering judgment, the nationally-accepted mixed-use internal capture spreadsheet tool found in Trip Generation Handbook, 3rd Edition, and experience supported by surveys conducted at similar land use developments.

The proposed Master Plan would develop additional housing and commercial uses to complement existing office and retail uses in the vicinity of the Master Plan area. It is anticipated that patrons from the existing adjacent uses would be drawn to the Master Plan area, and vice versa, and would use either non-auto modes of travel or make trips without using the off-site road system. These trips are considered internally captured within the Bishop Ranch campus. The internal capture adjustments were developed based on the National Cooperative Highway Research Program (NCHRP) 8-51 Internal Trip Capture Estimation Tool (NCHRP 2011) and applied to each land use to account for person trips made between distinct land uses within a mixed-use development (e.g., residents working at the office uses or office employees visiting the commercial uses). The results derived from the NCHRP 8-51 Internal Trip Capture Estimation Tool were compared to actual experience at several large-scale developments across the country similar in size and land use mix to the Project. This experience is demonstrated in a number of technical studies contained in Appendix I of the TIS.

Although the NCHRP 8-51 Internal Trip Capture Estimation Tool estimated a range of 1 percent to 47 percent of trips would be internally captured, a maximum of 25 percent of internal capture adjustment was conservatively assumed for any one land use at the five sub-sites of the Master Plan area. As a result, the aggregate mixed-use internal capture adjustment applied to the proposed Master Plan equated to approximately 4 percent in the AM peak-hour and 17 percent in the PM peak-hour, with a total daily adjustment of 11 percent.

Additionally, a 10 percent mode split adjustment was applied to the residential component of the proposed Master Plan to account for multimodal non-auto usage, including transit, bicycle, and walking arrivals. A 5 percent mode split adjustment was applied to the hotel and commercial components of the Project. A 25 percent pass-by reduction was also applied to the commercial component of the proposed Master Plan to account for trips made as an intermediate stop on the way from an origin to a primary trip destination without route diversion.

After accounting for the adjustments above, the proposed Master Plan is anticipated to generate 24,912 new daily trips, including 1,457 AM peak-hour new trips (442 inbound, 1,015 outbound) and 1,829 PM peak-hour new trips (1,065 inbound, 764 outbound), as summarized in Table 3.14-8.

Table 3.14-8: Project Trip Generation

Land Use	ITE Land Use	Rate	Daily	AM Peak-hour			PM Peak-hour		
				In	Out	Total	In	Out	Total
Trip Generation Rates[a]									
Multi-family Housing (Mid-Rise)	221	per Dwelling Unit	See note[b]	26%	74%	See note[b]	61%	39%	See note[b]
Hotel	310	per room	8.36	59%	41%	0.47	51%	49%	0.60
Shopping Center	820	per ksf	37.75	62%	38%	0.94	48%	52%	3.81
Mixed-use Internal Capture[c]									
BR 2600 NW—Residential	221	1,372 du	3%	0%	2%	2%	4%	4%	4%
BR 2600 NE—Residential	221	1,128 du	7%	2%	3%	3%	11%	8%	10%
BR 2600 SE—Residential	221	558 du	14%	2%	3%	3%	25%[c]	25%[c]	25%
BR 2600 SE—Retail	820	96.6 ksf	20%	25%[c]	8%	19%	19%	23%	21%
BR 3A—Residential	221	791 du	14%	2%	3%	3%	25%[c]	25%[c]	25%
BR 3A—Retail	820	70.0 ksf	15%	7%	7%	8%	16%	25%	21%
BR 3A—Hotel	310	169 rm	16%	0%	25%[c]	10%	25%[c]	16%	21%
BR 1A—Residential	221	651 du	14%	2%	3%	3%	25%[c]	25%[c]	25%
Aggregate Mixed-use Internal Capture Adjustment			11%	4%	4%	4%	16%	18%	17%
Trip Generation Estimates									
BR 2600 NW									
Multi-family Housing (Mid-Rise)	221	1,372 du	7,476	116	330	446	334	213	547
Internal Capture Adjustment[c]			*(224)*	*0*	*(7)*	*(7)*	*(13)*	*(9)*	*(22)*
Mode Split Adjustment—10%[d]			*(725)*	*(12)*	*(32)*	*(44)*	*(32)*	*(21)*	*(53)*
BR 2600 NE									
Multi-family Housing (Mid-Rise)	221	1,128 du	6,146	96	272	368	277	177	454

Land Use	ITE Land Use	Rate	Daily	AM Peak-hour			PM Peak-hour		
				In	Out	Total	In	Out	Total
Internal Capture Adjustment[c]			*(430)*	*(2)*	*(8)*	*(10)*	*(30)*	*(14)*	*(44)*
Mode Split Adjustment—10%[d]			*(572)*	*(9)*	*(27)*	*(36)*	*(25)*	*(16)*	*(41)*
BR 2600 SE									
Multi-family Housing (Mid-Rise)	221	558 du	3,039	48	137	185	141	90	231
Internal Capture Adjustment[c]			*(425)*	*(1)*	*(4)*	*(5)*	*(35)*	*(23)*	*(58)*
Mode Split Adjustment—10%[d]			*(261)*	*(5)*	*(13)*	*(18)*	*(11)*	*(6)*	*(17)*
Retail	820	96.6 ksf	3,647	56	35	91	177	191	368
Internal Capture Adjustment[c]			*(729)*	*(14)*	*(3)*	*(17)*	*(34)*	*(44)*	*(78)*
Mode Split Adjustment—5%[d]			*(146)*	*(2)*	*(2)*	*(4)*	*(7)*	*(8)*	*(15)*
Pass-By Trip Adjustment—25%[e]			*(693)*	*(10)*	*(8)*	*(18)*	*(34)*	*(35)*	*(69)*
BR 3A									
Multi-family Housing (Mid-Rise)	221	791 du	4,309	68	192	260	197	126	323
Internal Capture Adjustment[c]			*(603)*	*(1)*	*(6)*	*(7)*	*(49)*	*(32)*	*(81)*
Mode Split Adjustment—10%[d]			*(371)*	*(7)*	*(18)*	*(25)*	*(15)*	*(9)*	*(24)*
Retail	820	70.0 ksf	2,643	41	25	66	128	139	267
Internal Capture Adjustment[c]			*(396)*	*(3)*	*(2)*	*(5)*	*(20)*	*(35)*	*(55)*
Mode Split Adjustment—5%[d]			*(112)*	*(2)*	*(1)*	*(3)*	*(5)*	*(6)*	*(11)*
Pass-by Trip Adjustment—25%[e]			*(534)*	*(9)*	*(6)*	*(15)*	*(26)*	*(24)*	*(50)*
Hotel	310	169 rms	1,413	47	32	79	52	49	101
Internal Capture Adjustment[c]			*(226)*	*0*	*(8)*	*(8)*	*(13)*	*(8)*	*(21)*
Mode Split Adjustment—5%[d]			*(59)*	*(2)*	*(2)*	*(4)*	*(2)*	*(2)*	*(4)*
BR 1A									
Multi-family Housing (Mid-Rise)	221	651 du	3,546	56	159	215	163	105	268

Land Use	ITE Land Use	Rate	Daily	AM Peak-hour			PM Peak-hour		
				In	Out	Total	In	Out	Total
Internal Capture Adjustment[c]			*(496)*	*(1)*	*(5)*	*(6)*	*(41)*	*(26)*	*(67)*
Mode Split Adjustment—10%[d]			*(305)*	*(6)*	*(15)*	*(21)*	*(12)*	*(8)*	*(20)*
Total—New Project Trips			**24,912**	**442**	**1,015**	**1,457**	**1,065**	**764**	**1,829**

Notes:
ksf: thousand square feet

[a] Trip generation rates are from Trip Generation Manual, 10th Edition (Institute of Transportation Engineers 2017) and are based on developments located in "General Urban/Suburban" location.

[b] Trip generation rate based on the best-fit curve formula listed in the Trip Generation Manual, 10th Edition for the Multi-family Housing (Mid-rise) land use.
Daily - T = 5.45 (X) - 1.75 T = Average Vehicle Trips X = Gross Leasable Area (ksf)
AM Peak-hour - Ln (T) = 0.98 Ln (X) - 0.98
PM Peak-hour - Ln (T) = 0.96 Ln (X) - 0.63

[c] The internal capture adjustments were taken into account for person trips made between distinct land uses within a mixed-use development without using an off-site road system, as well as short vehicle trips made within a quarter-mile walking distance of each of the five proposed Master Plan sites. These trips travel within close proximity of the proposed Master Plan and thus do not affect the external study intersections in the Study Area. The internal capture adjustments are based on the National Cooperative Highway Research Program (NCHRP) 8-51 Internal Trip Capture Estimation Tool of the CHRP Report 684—Enhancing Internal Trip Capture Estimation for Mixed-Use Developments (Transportation Research Board and National Research Council, 2011). Although the NCHRP 8-51 Internal Capture Estimate Tool estimated a range of 1 percent to 47 percent of internally captured trips, a maximum of 25 percent of internal/local trip capture was assumed for any one land use at the five proposed Master Plan sites.

[d] Residential was adjusted by a 10 percent and hotel and retail uses were adjusted by a 5 percent mode split adjustment to account for city transit, bike, and shuttle usage.

[e] Retail use was adjusted by a 25 percent pass-by adjustment to account for proposed Master Plan trips made as an intermediate stop on the way from an origin to a primary trip destination without route diversion per San Ramon City Center Final Environmental Impact Report (FEIR).

Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Project Trip Distribution

The Project trip distribution was developed based on the trip distribution detailed in Traffic Operations Evaluation for San Ramon City Center Project (DMJM Harris and AECOM, July 2007). These trip distribution patterns were compared to the distribution patterns developed in the CCTA Model. The trip distribution patterns were then adjusted to account for characteristics of the street system serving the Master Plan area, the land use pattern changes that have taken place since the 2007 study referenced above, the level of accessibility of the routes to and from the Master Plan area, existing intersection traffic volumes, the Project ingress/egress availability based on the proposed site access and circulation scheme, the location of the proposed driveways, and input from City staff.

Based on these considerations, traffic entering and exiting the Master Plan area was assigned to the surrounding street system. The trip distribution patterns within the Study Area for the residential, hotel, and retail components of the Project are shown in Exhibit 3.14-10, Exhibit 3.14-10b, and Exhibit 3.14-10c, respectively.

It should be noted that the residential trip generation rates include school trips during AM and PM peak-hours. Parents taking their children to local schools are included in the inbound and outbound residential trip generation rates. Special consideration was given to the residential project trip distribution patterns so that the appropriate connections between the proposed residential buildings and the local schools were taken into account.

Project Trip Assignment

The Project trip generation estimates shown in Table 3.14-8 and the trip distribution patterns shown in Exhibit 3.14-10a, Exhibit 3.14-10b, and Exhibit 3.14-10c were used to assign the Project-generated traffic through the study intersections. Exhibit 3.14-11 through 3.14-11d illustrate the total combined Project-only traffic volumes, including external Project-only trips and internal Project-only trips that would travel within the Bishop Ranch campus using the adjacent localized roadway system at the study intersections during typical weekday AM and PM peak-hours.

Redistribution of Existing Traffic

As detailed above, Bishop Ranch 1 East and Bollinger Canyon Road (Intersection No. 24) would be improved to provide a four-leg approach signalized intersection as part of the Project. In addition, an internal roadway within BR 3A would provide a connection to the intersection of Camino Ramon and Bishop Drive (Intersection No. 17) and the south parking garage located at BR 3.

As a result of the new internal roadway system, it is anticipated that some existing traffic would shift to the new adjacent roadway. Existing traffic that would otherwise exit Bishop Drive to Camino Ramon toward eastbound Bollinger Canyon Road has the opportunity to use the new driveway at Bollinger Canyon Road. As discussed previously, the construction of the Iron Horse Trail overcrossing of Bollinger Canyon Road would require the elimination of the westbound left-turn lane at the intersection of Bollinger Canyon Road and Bishop Ranch 1 East. Exhibit 3.14-12 illustrates the redistribution of existing traffic circulation due to the new internal roadway system and driveway.

3.14.5 - Thresholds of Significance

According to CEQA Guidelines Appendix G, Environmental Checklist, to determine whether transportation and traffic impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Conflict with a program plan, ordinance or policy of the circulation system, including transit, roadway, bicycle and pedestrian facilities?

b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

d) Result in inadequate emergency access?

In context of Checklist Item (a), the following criteria is used:

The Traffic Study Guidelines indicate that a project is considered to have a significant transportation impact when the project causes any of the thresholds shown in Table 3.14-9 to be exceeded under any scenario.

Table 3.14-9: Impact Criteria and Significance Thresholds

Intersection Control Type	Significant Impact Threshold
Signalized	If the proposed Master Plan: • . . . causes an acceptable LOS (LOS D or better) to decline to an unacceptable LOS (LOS E or F), or • . . . increases the average delay by more than 5 seconds per vehicle at an intersection having an unacceptable LOS without project traffic
All-way Stop	If the proposed Master Plan: • . . . causes an acceptable LOS to decline to an unacceptable LOS, or • . . .increases the average delay by more than 5 seconds per vehicle at an intersection that has an unacceptable LOS without the proposed Master Plan and the intersection also meets the peak-hour volume signal warrant.
Two-way Stop	• The proposed Master Plan causes a turning movement's acceptable LOS to decline to an unacceptable LOS and the peak-hour volume signal warrant is met.
Note: Source: Engineering Design, Grading and Procedures Manual: City of San Ramon (Public Works Department Engineering Services Division, April 2010)	

3.14.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed Master Plan and provides mitigation measures where necessary.

Existing Plus Project Traffic

Impact TRANS-1: The proposed Master Plan would contribute traffic to facilities that would operate below acceptable levels of service under Existing Plus Project Conditions as set forth in a program, plan, ordinance or policy of the circulation system.

Impact Analysis

Existing Plus Project Traffic conditions represents trips generated from buildout of the Master Plan added to existing traffic conditions. This represents a conservative, worst-case scenario for traffic conditions because the Master Plan will be constructed over the course of 20-25 years.

Existing With Project Traffic Volumes

The Project-only AM and PM peak-hour traffic volumes shown in Exhibits 3.14-11a through 3.14-11d were added to the Existing AM and PM peak-hour traffic volumes shown in Exhibits 3.14-2a through 3.14-2d. The resulting volumes are illustrated in Exhibit 3.14-13 through 3.14-13d and represent Existing with Project Conditions under the assumption that the full development of the proposed Master Plan would occur in one development phase and would be completed immediately.

Existing With Project Intersection Levels of Service

Table 3.14-10 summarizes the results of the Existing with Project Conditions during the weekday AM and PM peak-hours for the 31 study intersections. As shown in
Table 3.14-10, 28 of the 31 study intersections are anticipated to operate at LOS D or better during both the AM and PM peak-hours under Existing with Project Conditions.

Table 3.14-10: Existing With Project Conditions (Year 2019) Significant Impact Analysis

No.	Intersection	Peak-hour	Existing Conditions		Existing with Project Conditions			
			Delay	LOS	Delay	LOS	Change in Delay[d]	Significant Impact[e]
1	Bollinger Canyon Road and Crow Canyon Road	AM PM	32.2 33.5	C C	33.6 35.1	C D	1.4 1.6	NO NO
2	San Ramon Valley Boulevard and Crow Canyon Road	AM PM	44.0 49.0	D D	46.8 51.3	D D	2.8 2.3	NO NO
3	I-680 Southbound Ramps and Crow Canyon Road	AM PM	20.3 15.9	C B	20.2 16.2	C B	-0.1 0.3	NO NO
4	I-680 Northbound Ramps and Crow Canyon Road	AM PM	16.2 14.2	B B	16.0 13.9	B B	-0.2 -0.3	NO NO
5	Crow Canyon Place and Crow Canyon Road	AM PM	29.1 38.8	C D	28.2 37.9	C D	-0.9 -0.9	NO NO
6	Camino Ramon and Crow Canyon Road	AM PM	26.1 33.2	C C	26.5 35.1	C D	0.4 1.9	NO NO

No.	Intersection	Peak-hour	Existing Conditions		Existing with Project Conditions			
			Delay	LOS	Delay	LOS	Change in Delay[d]	Significant Impact[e]
7	Alcosta Boulevard and Crow Canyon Road	AM PM	17.0 16.3	B B	16.9 16.3	B B	-0.1 0.0	NO NO
8	Dougherty Road and Crow Canyon Road	AM PM	26.9 33.4	C C	27.0 33.6	C C	0.1 0.2	NO NO
9[a]	Bollinger Canyon Road and Norris Canyon Road	AM PM	19.8 34.5	C D	21.5 40.5	C E	1.7 6.0	NO **YES**
10	San Ramon Valley Boulevard and Norris Canyon Road	AM PM	42.4 45.9	D D	46.6 54.3	D D	4.2 8.4	NO NO
11	Bishop Drive/Annabel Lane and Norris Canyon Road	AM PM	22.0 29.9	C C	22.8 33.8	C C	0.8 3.9	NO NO
12	Camino Ramon and Norris Canyon Road	AM PM	34.9 43.8	C D	37.0 50.2	D D	2.1 6.4	NO NO
13	Alcosta Boulevard and Norris Canyon Road	AM PM	36.8 38.2	D D	36.9 38.4	D D	0.1 0.2	NO NO
14[b]	Bishop Drive and Executive Parkway	AM PM	11.6 12.4	B B	11.6 18.3	B C	0.0 5.9	NO NO
15[c]	Camino Ramon and Executive Parkway	AM PM	29.6 23.0	C C	30.8 27.3	C C	1.2 4.3	NO NO
16	Sunset Drive and Bishop Drive	AM PM	36.0 35.0	D C	37.9 37.6	D D	1.9 2.6	NO NO
17	Camino Ramon and Bishop Drive	AM PM	35.6 31.2	D C	40.8 46.1	D D	5.2 14.9	NO NO
18	Sunset Drive and Shops at Bishop Ranch / City Center	AM PM	42.2 51.1	D D	42.9 52.2	D D	0.7 1.1	NO NO
19	San Ramon Valley Boulevard and Bollinger Canyon Road	AM PM	43.5 50.8	D D	43.7 52.9	D D	0.2 2.1	NO NO
20	I-680 Southbound Ramps and Bollinger Canyon Road	AM PM	29.9 23.3	C C	29.2 28.3	C C	-0.7 5.0	NO NO
21	I-680 Northbound Ramps and Bollinger Canyon Road	AM PM	17.7 29.5	B C	19.6 53.6	B D	1.9 24.1	NO NO
22	Sunset Drive and Bollinger Canyon Road	AM PM	16.4 45.7	B D	15.0 72.8	B E	-1.4 27.1	NO **YES**
23	Camino Ramon and Bollinger Canyon Road	AM PM	26.8 24.6	C C	30.8 31.2	C C	4.0 6.6	NO NO
24[c]	Bishop Ranch 1 East and Bollinger Canyon Road	AM PM	13.5 3.0	B A	12.6 14.9	B B	-0.9 11.9	NO NO

No.	Intersection	Peak-hour	Existing Conditions		Existing with Project Conditions			
			Delay	LOS	Delay	LOS	Change in Delay[d]	Significant Impact[e]
25	Market Place and Bollinger Canyon Road	AM PM	10.4 14.1	B B	9.7 10.0	A A	-0.7 -4.1	NO NO
26	Alcosta Boulevard and Bollinger Canyon Road	AM PM	48.6 65.7	D E	50.2 73.3	D E	1.6 7.6	NO **YES**
27	Dougherty Road and Bollinger Canyon Road	AM PM	49.8 46.6	D D	50.5 47.4	D D	0.7 0.8	NO NO
28	San Ramon Valley Boulevard and Montevideo Drive	AM PM	29.4 38.5	C D	29.5 42.4	C D	0.1 3.9	NO NO
29	Alcosta Boulevard and Montevideo Drive	AM PM	14.2 14.8	B B	14.5 14.7	B B	0.3 -0.1	NO NO
30[a]	Alcosta Boulevard and Old Ranch Road	AM PM	14.2 20.9	B C	15.2 25.0	C C	1.0 4.1	NO NO
31	Dougherty Road and Old Ranch Road	AM PM	23.2 15.8	C B	24.9 16.2	C B	1.7 0.4	NO NO

Notes:
Delay is measured in seconds per vehicle
[a] Intersection operates with AWSC under Existing Conditions. Intersection is signalized under Future Conditions per CIP.
[b] Intersection operates with TWSC.
[c] Intersection includes intersection improvements under "with Project" Conditions per Project Design Feature.
d Average delay at an intersection may decrease with the addition of traffic when additional traffic is added to a movement or direction with less congestion than the overall intersection. Therefore, the average delay per vehicle at the intersection actually decreases.
[e] Significant impacts based on thresholds outlined in Table 3.14- 9and detailed below.

Signalized Intersection	The Project worsens intersection operations from LOS D or better to LOS E or F, or the change in average delay is more than 5 seconds per vehicle at an intersection operating at LOS E or F without project traffic.
All-way Stop Controlled (AWSC)	The Project worsens intersection operations from LOS D or better to LOS E or F, or the change in average delay is more than 5 seconds per vehicle at an intersection operating at LOS E or F without project traffic and the intersection also meets the peak-hour volume signal warrant.
Two-way Stop Controlled (TWSC)	The Project causes a turning movement's acceptable LOS to decline to an unacceptable LOS and the peak-hour volume signal warrant is met.

Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

The following three study intersections are anticipated to operate at LOS E during the afternoon peak-hour under Existing with Project Conditions:

- Intersection 9: Bollinger Canyon Road and Norris Canyon Road
- Intersection 22: Sunset Drive and Bollinger Canyon Road
- Intersection 26: Alcosta Boulevard and Bollinger Canyon Road

Impacts and Mitigation

The impact of adding proposed Master Plan traffic volumes during the peak-hours to the Existing Conditions was evaluated based on analysis of operating conditions at the Study Area intersections without and with the proposed Master Plan. The previously discussed significance criteria and thresholds were then used to determine the significance of a transportation impact caused by the Project on each study intersection, prior to any Project mitigation or trip reduction measures.

The Existing with Project Conditions during the weekday AM and PM peak-hours are shown in Table 3.14-10. As shown, the Project is expected to result in significant impacts at three of the 31 study intersections under Existing with Project conditions prior to Project mitigation. Twenty-eight of the intersections would operate at LOS A-D under Existing plus Project conditions and therefore would not have any significant impacts.

The three impacted intersections and potential mitigation measures are described below. The post-mitigated LOS values are shown in Table 3.14-11.

Bollinger Canyon Road and Norris Canyon Road

The Project impact could be mitigated through the installation of a traffic signal at this all-way stop controlled intersection, when warranted. This intersection would operate at unacceptable LOS conditions and meet peak-hour signal warrants under Future without Project Conditions, and, therefore, it is assumed to be signalized under Future without Project Conditions. Thus, this would be a temporary Project impact that would be mitigated by a CIP improvement (Project No. 5335). Mitigation Measure (MM) TRANS-1a requires that the project applicant either install the signal when warranted or provide equitable share fees to the City of San Ramon for the installation of the signal when a full warrant analysis shows the signal warrants are met.

Sunset Drive and Bollinger Canyon Road

The Project impact would be mitigated by the interchange improvement at Bollinger Canyon Road and I-680 Northbound On-Ramp. As discussed in the TIS, the interchange will be improved with a continuous green operation that provides westbound vehicles on Bollinger Canyon Road with a permanent green phase that will allow them to bypass the signal at the intersection of Bollinger Canyon Road and I-680 Northbound Off-ramp, which is anticipated to reduce congestion and queue lengths for westbound Bollinger Canyon Road to less than significant levels by providing more westbound through capacity at the Sunset Drive intersection. This improvement will be completed and in operation by mid-2020.

Alcosta Boulevard and Bollinger Canyon Road

Full buildout of the Project under Existing Conditions would worsen the LOS E conditions currently in effect during the afternoon peak hour. The addition of Project traffic would result in an increase in delay of 7.6 seconds in the afternoon peak hour which exceeds the City's threshold of significance. The CIP includes an improvement at this location consisting of the addition of a northbound right turn lane. While the proposed CIP improvement would not lessen the intersection operations to less than a LOS E, the incremental impact of the Project traffic on this improved intersection would still not fall below the significance threshold and thus the Project would have a significant impact at this location. The impact could be mitigated by the addition of a signal modification that provides a

northbound right-turn overlap phase with the westbound protected left-turn phase. If the full Project were built under Existing Conditions, there would be a temporary impact until the CIP improvement and the overlap signal phase were implemented.

Conclusion

The proposed Master Plan would contribute new trips to facilities that would operate at deficient levels. The proposed Master Plan would be required to implement MM TRANS-1a and TRANS-1b, which requires the project applicant to install roadway improvements or provide equitable share fees to the City of San Ramon for the installation of such improvements, when warranted. Therefore, impacts would be mitigated to a level of less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM TRANS-1a The intersection of Bollinger Canyon Road/Norris Canyon shall be signalized when warranted based on a full warrant analysis. The project applicant shall either install the signal (subject to reimbursement for costs outside its fair share) or provide equitable share fees to the City of San Ramon for installation of the improvement.

MM TRANS-1b The existing intersection at Alcosta Boulevard and Bollinger Canyon Road shall be widened to provide a northbound right turn lane and the signal operation at San Ramon Valley Boulevard/Norris Canyon Road shall be modified to provide a westbound right-turn overlap with the southbound left-turn phase, if warranted based on actual operating conditions. The project applicant shall provide equitable share fees to the City of San Ramon to pay for installation of the improvement.

Level of Significance After Mitigation

Less than significant impact.

Table 3.14-11: Existing With Project with Future Improvements Conditions (Year 2019) Significant Impact Analysis

No.	Intersection	Peak-hour	Existing Conditions		Existing with Project Conditions				Existing with Project with Future Improvements			
			Delay	LOS	Delay	LOS	Change in Delay	Significant Impact[a]	Delay	LOS	Change in Delay	Significant Impact[a]
9[b]	Bollinger Canyon Road and Norris Canyon Road	AM	19.8	C	21.5	C	1.7	NO	35.4	D	15.6	NO
		PM	34.5	D	40.5	E	6.0	**YES**	36.5	D	2.0	NO
22[c]	Sunset Drive and Bollinger Canyon Road	AM	16.4	B	15.0	B	-1.4	NO	15.0	B	-1.4	NO
		PM	45.7	D	72.8	E	27.1	**YES**	54.7	D	9.0	NO
26[d]	Alcosta Boulevard and Bollinger Canyon Road	AM	48.6	D	50.2	D	1.6	NO	46.8	D	-1.8	NO
		PM	65.7	E	73.3	E	7.6	**YES**	63.0	E	-2.7	NO

Notes:

[a] Significant impacts based on thresholds outlined in Table 3.14-9 and detailed below.

Signalized Intersection — The Project worsens intersection operations from LOS D or better to LOS E or F, or the change in average delay is more than 5 seconds per vehicle at an intersection operating at LOS E or F without project traffic.

All-way Stop — The Project worsens intersection operations from LOS D or better to LOS E or F, or the change in average delay is more than 5 seconds per vehicle at an intersection operating at LOS E or F without project traffic and the intersection also meets the peak-hour volume signal warrant.

Two-way Stop — The Project causes a turning movement's acceptable LOS to decline to an unacceptable LOS and the peak-hour volume signal warrant is met.

[b] This Intersection operates with AWSC under Existing Conditions and is warranted for signalization under Future Conditions per CIP. Thus, the Project impact is temporary until the traffic signal is warranted and installed. The impact would be mitigated by a CIP improvement (Project #5335).

[c] This intersection would be improved through the installation of the Bollinger Canyon Road westbound continuous green at I-680 interchanges. Thus, the Project impact is temporary and would be mitigated once this improvement is in place, which is expected to be prior to the commencement of any Project construction.

[d] This intersection is warranted for widening improvements to provide an exclusive right-turn lane in the northbound approach under Existing Conditions per CIP. Additionally, Project mitigation includes modification to the signal phasing to provide a northbound right-turn overlap phase with the westbound protected left-turn phase. The impact would be mitigated through a combination of a CIP improvement (Project #905325) and Project mitigation. Until that time, the Project impact is temporary.

Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Future Plus Project Traffic

Impact TRANS-2: The proposed Master Plan would contribute traffic to facilities that would operate below acceptable levels of service under Cumulative Plus Project Conditions as set forth in a program, plan, ordinance or policy of the circulation system.

Impact Analysis

Estimates of future traffic conditions both with and without the Project, representing Year 2040 conditions, were developed to evaluate the potential impacts of the proposed Master Plan on the local street system.

Forecast Methodology

This analysis includes traffic growth both from future projects and from regional growth projections based on the CCTA Model. The CCTA Model provides a method to analyze and project traffic relative to the policies and development as well as the effects of regional growth within the Study Area. Therefore, the CCTA Model traffic projections are inclusive of local and regional development when applied to the freeways and arterial/surface streets.

The development of the future travel forecasts was accomplished through the use of the CCTA Model.[2] The CCTA Model was used to distribute the Project trips on the network based on a dynamic trip distribution[3] methodology from each Project traffic analysis zone (TAZ). This same methodology was used to develop the background traffic growth. The following describes the use of the CCTA Model to develop the future weekday traffic volumes incorporating the Project's proposed development:

1. It is anticipated that several cumulative development projects within the Study Area would be constructed by the Project Buildout Year. Assumptions related to the cumulative development in the unaffected non-Project TAZs and the development of background traffic conditions were not changed from the model's approved future land use assumptions.
2. The model runs were performed by adding the Project development in the Project TAZ to distribute the additional Project trip origin and destinations to other origins and destinations using the CCTA Model distribution and subsequently assigning the resulting trip tables to the model network.
3. The results of each model run were provided as intersection approach/departure link volumes at each analyzed location during AM and PM peak-hours. The peak-hour intersection approach/departure link volumes were further developed into specific intersection level turning movement volumes via the Furness process, which allows the preparation of the intersection LOS analysis.
4. The CCTA Model outputs for the Future 2040 and base year were compared to determine the incremental difference in traffic volumes at each study intersection. If volumes showed

[2] The version of the CCTA Model obtained consists of the Metropolitan Transportation Commission Plan Bay Area 2040 and 2017 Regional Transportation Plan Update (documented in April 2019).

[3] Dynamic trip distribution takes into account the congested locations projected to occur on the model network as a result of assigning background traffic and the trips generated by specific zones. During a model run, the model will distribute trips to the least congested routes in an iterative process until equilibrium is reached. Trips are distributed to locations within the street network and not based on a fixed/predetermined route. Trip patterns between model scenarios may vary, even though identical parameters are used.

a decrease in the incremental difference, the volume was conservatively overridden so that the intersection turning movement estimates would show a minimum of existing traffic levels for each movement.

5. The adjusted incremental difference between Future 2040 and base year was applied to actual existing 2019 count volumes to reflect Future with Project Conditions.
6. The Project traffic volumes were isolated and subtracted from Future with Project Conditions to develop the Future without Project Conditions.

This methodology is the standard state of the practice approach to long-range travel demand forecasting when empirical data is available to compare to base year model run information. A more detailed description of the methodology and the use of the model data is provided in Appendix G of the TIS.

Future Improvements

The TIS for the proposed Master Plan conducted a future conditions analysis, which considered roadway and intersection improvements via capital projects that are reasonably expected to be implemented prior to the buildout of the proposed Master Plan (Year 2040) based on the City's Capital Improvement Program 2019/2020–2023/24 Final Report (CIP), which the City of San Ramon adopted on June 11, 2019. These include the following improvements:

- Project No. 5327: Crow Canyon Road Widening Four to Six Lanes (West Branch to Dougherty)—Crow Canyon Road would be widened to provide a total of six travel lanes between West Branch/Reedland Circle and Dougherty Road.
- Project No. 905328: Crow Canyon Road Widening Four to Six Lanes (Alcosta to West Branch)—Crow Canyon Road would be widened to provide a total of six travel lanes between Alcosta Boulevard and West Branch/Reedland Circle. Project construction will begin in FY 2020/21.
- Project No. 905325: Bollinger Canyon Road Widening Alcosta to Canyon Lakes (Intersection No. 26)— The widening improvement along Bollinger Canyon Road between Alcosta Boulevard and Canyon Lakes Drive has been completed, which widened the roadway to provide six travel lanes, three lanes in each direction. Improvements began in 2008 with an additional traffic operational study performed in 2012. In addition to the corridor widening improvement, Alcosta Boulevard would be widened to provide an exclusive right-turn lane in the northbound direction. The resulting northbound lane configuration would include two left-turn lanes, two through lanes, and one right-turn lane. LOS analysis was conducted at this location under future operating conditions prior to any improvements. The intersection would operate at unacceptable LOS operations (LOS F during the afternoon peak-hour) and would, therefore, warrant the widening improvement at Alcosta Boulevard under Future without Project Conditions.
- Project No. 5335: Bollinger Canyon Road and Norris Canyon Road (Intersection No. 9)—The intersection would be improved via signalization, when warranted. LOS analysis was conducted at this location under future operating conditions prior to any improvements. The intersection would operate at unacceptable LOS operations (LOS E during the AM peak-hour

and LOS F during the PM peak-hour) and was, therefore, subject to a signal warrant analysis to determine whether the projected volumes warrant the installation of a traffic signal. The intersection was analyzed accordingly to Warrant 3 (peak-hour) of California Manual on Uniform Traffic Control Devices (California MUTCD) (Caltrans 2014). The intersection meets the minimum peak-hour traffic volume threshold of Warrant 3 under Future without Project Conditions and, therefore, would warrant the signalization improvement based on Warrant 3. A full warrant analysis shall be completed prior to installation of a signal.

- Project No. 5340: Alcosta Boulevard and Old Ranch Road (Intersection No. 30)—The intersection would be improved via signalization, when warranted. LOS analysis was conducted at this location under future operating conditions prior to any improvements. The intersection would operate at unacceptable LOS operations (LOS F during the PM peak-hour) and was, therefore, subject to a signal warrant analysis to determine whether the projected volumes warrant the installation of a traffic signal. The intersection was analyzed accordingly to Warrant 3 (peak-hour) of the California MUTCD. The intersection meets the minimum peak-hour traffic volume threshold of Warrant 3 under Future without Project Conditions and, therefore, would warrant the signalization based on Warrant 3. A full warrant analysis shall be completed prior to installation of a signal.
- Project No. 905530: Bollinger Canyon Road/Iron Horse Trail Bicycle Pedestrian Overcrossing—Provide a grade-separated bicycle/pedestrian overcrossing connecting the Iron Horse Trail across Bollinger Canyon Road. The City has highlighted the project as a priority project.
- Project No. 975606 Bollinger Canyon and Crow Canyon Roads Traffic Signals Automated Traffic Signal Performance Measures (ATSPM): ATSPM systems provide real-time metrics for signal system functionality that allow City traffic engineers to adjust the traffic signal timing to ensure the system is operating at peak capacity with reduced congestion. The City is currently in the process of installing ATSPM equipment along major corridors that would allow the City to monitor and improve the performance of the traffic signal system. ATSPM would be implemented along Crow Canyon Road from Bollinger Canyon Road to Dougherty Road and along Bollinger Canyon Road from Talavera Drive to Dougherty Road. The project is scheduled to be completed in 2020.

Prior to construction, planned improvements that are not currently funded will be programmed for funding from various sources including bond proceeds, development impact fees, grants, taxes, etc. A number of the improvements are also mitigation measures for larger projects that have already undergone CEQA review. Therefore, substantial evidence supports the conclusion that these capital projects will be completed when warranted prior to any phase of the proposed Master Plan that could cause a significant impact.

The future conditions also considered a future interchange improvement at Bollinger Canyon Road and I-680 Northbound On-Ramp, which was not directly included in the CIP. The interchange will be improved with a continuous green operation that provides westbound vehicles on Bollinger Canyon Road with a permanent green phase that would allow vehicles to bypass the signal at the intersection of Bollinger Canyon Road and I-680 Northbound Off-ramp, which will potentially reduce

congestion and queue lengths for westbound Bollinger Canyon Road. This improvement will be completed and in operation by mid-2020.

Future Without Project Intersection Levels of Service

Table 3.14-12 summarizes the weekday AM and PM peak-hour LOS results for each of the signalized study intersections under Future without Project Conditions. As shown in Table 3.14-2, 27 of the 31 study intersections are anticipated to continue to operate at LOS D or better during both the weekday AM and PM peak-hours. The following four study intersections are anticipated to operate at LOS E or F during at least one of the analyzed peak-hours:

- Intersection 12: Camino Ramon and Norris Canyon Road (LOS F during the PM peak-hour)
- Intersection 19: San Ramon Valley Boulevard and Bollinger Canyon Road (LOS E during the PM peak-hour)
- Intersection 26: Alcosta Boulevard and Bollinger Canyon Road (LOS F during the PM peak-hour)
- Intersection 27: Dougherty Road and Bollinger Canyon Road (LOS F during the AM and PM peak-hours)

Future With Project Traffic Volumes

The Project-only AM and PM peak-hour traffic volumes shown in Exhibits 3.14-11a through 3.14-11d were added to the Future without Project AM and PM peak-hour traffic volumes shown in Exhibit 3.14-14 through 3.14-14d. The resulting volumes are illustrated in Exhibits 3.14-15a through 3.14-15d and represent Future with Project Conditions after the full buildout of the Master Plan by Year 2040.

Future With Project Intersection Levels of Service

Table 3.14-12 summarizes the results of the Future with Project Conditions during the weekday AM and PM peak-hours for the 31 study intersections. As shown in Table 3.14-2, 26 of the 31 study intersections are anticipated to operate at LOS D or better during both the AM and PM peak-hours under Future with Project Conditions.

Table 3.14-12: Future With Project Conditions (Year 2040) Significant Impact Analysis

No.	Intersection	Peak-hour	Future without Project Conditions		Future with Project Conditions			
			Delay	LOS	Delay	LOS	Change in Delay[e]	Significant Impact[f]
1	Bollinger Canyon Road and Crow Canyon Road	AM PM	33.1 33.5	C C	34.3 34.9	C C	1.2 1.4	NO NO
2	San Ramon Valley Boulevard and Crow Canyon Road	AM PM	50.8 49.6	D D	52.6 52.9	D D	1.8 3.3	NO NO
3	I-680 Southbound Ramps and Crow Canyon Road	AM PM	21.1 15.8	C B	21.3 15.8	C B	0.2 0.0	NO NO

No.	Intersection	Peak-hour	Future without Project Conditions		Future with Project Conditions			
			Delay	LOS	Delay	LOS	Change in Delay[e]	Significant Impact[f]
4	I-680 Northbound Ramps and Crow Canyon Road	AM PM	16.4 14.9	B B	16.3 14.8	B B	-0.1 -0.1	NO NO
5	Crow Canyon Place and Crow Canyon Road	AM PM	28.8 40.8	C D	23.5 40.1	C D	-5.3 -0.7	NO NO
6	Camino Ramon and Crow Canyon Road	AM PM	24.3 41.1	C D	25.9 43.7	C D	1.6 2.6	NO NO
7	Alcosta Boulevard and Crow Canyon Road	AM PM	18.3 19.6	B B	18.3 19.6	B B	0.0 0.0	NO NO
8	Dougherty Road and Crow Canyon Road	AM PM	28.4 49.10	C D	28.6 50.3	C D	0.2 1.2	NO NO
9[a]	Bollinger Canyon Road and Norris Canyon Road	AM PM	38.3 42.9	D D	39.8 43.7	D D	1.5 0.8	NO NO
10	San Ramon Valley Boulevard and Norris Canyon Road	AM PM	46.7 43.7	D D	50.3 54.7	D D	3.6 11.0	NO NO
11	Bishop Drive/Annabel Lane and Norris Canyon Road	AM PM	27.4 53.2	C D	28.5 57.2	C E	1.1 4.0	NO **YES**
12	Camino Ramon and Norris Canyon Road	AM PM	44.3 88.2	D F	50.1 97.4	D F	5.8 9.2	NO **YES**
13	Alcosta Boulevard and Norris Canyon Road	AM PM	42.4 53.0	D D	42.4 53.3	D D	0.0 0.3	NO NO
14[b]	Bishop Drive and Executive Parkway	AM PM	12.6 14.4	B B	12.7 25.8	B D	0.1 11.4	NO NO
15[c]	Camino Ramon and Executive Parkway	AM PM	27.8 22.3	C C	33.8 32.2	C C	6.0 9.9	NO NO
16	Sunset Drive and Bishop Drive	AM PM	40.1 34.7	D C	41.2 36.7	D D	1.1 2.0	NO NO
17	Camino Ramon and Bishop Drive	AM PM	39.3 47.9	D D	40.4 53.5	D D	1.1 5.6	NO NO
18	Sunset Drive and Shops at Bishop Ranch/City Center	AM PM	42.6 51.3	D D	43.4 54.7	D D	0.8 3.4	NO NO
19	San Ramon Valley Boulevard and Bollinger Canyon Road	AM PM	51.7 65.0	D E	53.5 66.9	D E	1.8 1.9	NO NO
20	I-680 Southbound Ramps and Bollinger Canyon Road	AM PM	24.2 29.0	C C	25.0 52.3	C D	0.8 23.3	NO NO
21	I-680 Northbound Ramps and Bollinger Canyon Road	AM PM	32.1 29.1	C C	34.0 26.9	C C	1.9 -2.2	NO NO
22	Sunset Drive and Bollinger Canyon Road	AM PM	36.3 40.8	D D	46.2 54.3	D D	9.9 13.5	NO NO

No.	Intersection	Peak-hour	Future without Project Conditions		Future with Project Conditions			
			Delay	LOS	Delay	LOS	Change in Delay[e]	Significant Impact[f]
23	Camino Ramon and Bollinger Canyon Road	AM PM	24.7 34.7	C C	35.0 35.9	C D	10.3 1.2	NO NO
24[c]	Bishop Ranch 1 East and Bollinger Canyon Road	AM PM	1.7 3.2	A A	8.7 18.1	A B	7.0 14.9	NO NO
25	Market Place and Bollinger Canyon Road	AM PM	12.3 17.6	B B	9.8 12.8	A B	-2.5 -4.8	NO NO
26[d]	Alcosta Boulevard and Bollinger Canyon Road	AM PM	41.3 95.7	D F	45.3 100.9	D F	4.0 5.2	NO **YES**
27	Dougherty Road and Bollinger Canyon Road	AM PM	91.1 81.1	F F	92.5 84.5	F F	1.4 3.4	NO NO
28	San Ramon Valley Boulevard and Montevideo Drive	AM PM	42.5 42.7	D D	43.1 44.3	D D	0.6 1.6	NO NO
29	Alcosta Boulevard and Montevideo Drive	AM PM	13.2 13.6	B B	13.4 13.7	B B	0.2 0.1	NO NO
30[a]	Alcosta Boulevard and Old Ranch Road	AM PM	21.3 23.6	C C	22.6 24.1	C C	1.3 0.5	NO NO
31	Dougherty Road and Old Ranch Road	AM PM	28.2 20.7	C C	30.3 22.4	C C	2.1 1.7	NO NO

Notes:
Delay is measured in seconds per vehicle
[a] Intersection operates with AWSC under Existing Conditions. Intersection is signalized under Future Conditions per CIP.
[b] Intersection operates with TWSC.
[c] Intersection includes intersection improvements under "with Project" Conditions per Project Design Feature.
[d] Intersection includes intersection improvements under Future Conditions per CIP as warranted.
[e] Average delay at an intersection may decrease with the addition of traffic when additional traffic is added to a movement or direction with less congestion than the overall intersection. Therefore, the average delay per vehicle at an intersection actually decreases.
[f] Significant impacts based on thresholds outlined in Table 3.14-9 and detailed below.

Signalized Intersection	The Project worsens intersection operations from LOS D or better to LOS E or F, or the change in average delay is more than 5 seconds per vehicle at an intersection operating at LOS E or F without project traffic.
All-way Stop Controlled (AWSC)	The Project worsens intersection operations from LOS D or better to LOS E or F, or the change in average delay is more than 5 seconds per vehicle at an intersection operating at LOS E or F without project traffic and the intersection also meets the peak-hour volume signal warrant.
Two-way Stop Controlled (TWSC)	The Project causes a turning movement's acceptable LOS to decline to an unacceptable LOS and the peak-hour volume signal warrant is met.

Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

The following study intersections are anticipated to operate at LOS E or F during one or both peak-hours under Future with Project Conditions:

- Intersection 11: Bishop Drive/Annabel Lane and Norris Canyon Road (LOS E in the PM peak-hour)
- Intersection 12: Camino Ramon and Norris Canyon Road (LOS F during the PM peak-hour)
- Intersection 19: San Ramon Valley Boulevard and Bollinger Canyon Road (LOS E during the PM peak-hour)
- Intersection 26: Alcosta Boulevard and Bollinger Canyon Road (LOS F during the PM peak-hour)
- Intersection 27: Dougherty Road and Bollinger Canyon Road (LOS F during the AM and PM peak-hour)

Impacts and Mitigation

The relative impact of the added proposed Master Plan traffic volumes during peak-hours was evaluated based on analysis of future operating conditions at the study intersections without and with the Project. The previously discussed significance criteria and thresholds were then used to determine the significance of a transportation impact caused by the proposed Master Plan on each study intersection, prior to any mitigation or trip reduction measures.

The Future with Project Conditions during the weekday AM and PM peak-hours are shown in Table 3.14-12. As shown in Table 3.14-12, the Project is expected to result in significant impacts at three of the 31 study intersections in Year 2040 prior to Project mitigation. A total of 26 of the 31 study intersections are projected to operate at LOS A-D under Future with Project conditions and therefore are not subject to any significant impacts. The incremental increases in delay at the remaining two study intersections would be less than significant by Project traffic under Future with Project Conditions.

The three impacted intersections and potential mitigation measures are described below. The post-mitigated LOS values are shown in Table 3.14-13.

Bishop Drive/Annabel Lane and Norris Canyon Road

The significant transportation impact at this intersection could be mitigated and reduced to less than significant levels by restriping the northbound approach to provide one exclusive left-turn lane and one shared left-turn/through/right-turn lane. In addition, modifications to the signal phasing and signal equipment (signal poles, mast arms) would be required to provide a split phase for the northbound and southbound approaches. This improvement could be accommodated within the existing right-of-way and would reduce the significant transportation impact caused by the addition of Project traffic to less than significant levels. This improvement is reflected in MM TRANS-2a.

Camino Ramon and Norris Canyon Road

The significant transportation impact at this intersection could be mitigated and reduced to less than significant levels by widening the westbound approach to add an exclusive right-turn lane. This mitigation would require additional right-of-way and would reduce the significant transportation impact to less than significant levels. This improvement is reflected in MM TRANS-2b.

Alcosta Boulevard and Bollinger Canyon Road

The significant transportation impact at this intersection could be mitigated and reduced to less than significant levels by providing a northbound right-turn overlap phase during the protected westbound left-turn phase. Currently, the westbound approach does not permit U-turn movements. Thus, no changes to the westbound approach operations would be required. This improvement could reduce the significant transportation impact caused by the addition of Project traffic to less than significant levels. This improvement is reflected in MM TRANS-2c.

Conclusion

The proposed Master Plan would contribute new trips to facilities that would operate at deficient levels. The proposed Master Plan would be required to implement MM TRANS-2a through TRANS-2c, which requires the project applicant to install roadway improvements or provide equitable share fees to the City of San Ramon for the installation of such improvements. Therefore, impacts would be mitigated to a level of less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM TRANS-2a When monitoring determines that the intersection of Bishop Drive/Annabel Lane and Norris Canyon Road is approaching deficient LOS, the City of San Ramon shall restripe the northbound approach to provide one exclusive left-turn lane and one shared left-turn/through/right-turn lane, and modify the signal phasing to provide a split phase for the northbound and southbound approaches. The project applicant is responsible for the cost of the improvement.

MM TRANS-2b When monitoring determines that the intersection of Camino Ramon and Norris Canyon Road is approaching deficient levels of service, the City of San Ramon shall widen the Norris Canyon Road westbound approach to add an exclusive right-turn lane. The right-turn lane should begin at Camino Ramon and continue easterly to the first driveway. The project applicant is responsible for the cost of the improvement.

MM TRANS-2c When monitoring determines that the intersection of Alcosta Boulevard and Bollinger Canyon Road is approaching deficient levels of service, the City shall modify the existing signal operation to provide northbound right-turn overlap phase during the protected westbound left-turn phase. The project applicant is responsible to provide the cost of the improvement.

Level of Significance After Mitigation

Less than significant impact.

Table 3.14-13: Future With Project With Mitigation Conditions (Year 2040) Significant Impact Analysis

No.	Intersection	Peak-hour	Future without Project Conditions		Future with Project Conditions				Future with Project with Mitigation Conditions			
			Delay	LOS	Delay	LOS	Change in Delay	Significant Impact[a]	Delay	LOS	Change in Delay	Significant Impact[a]
11[b]	Bishop Drive/Annabel Lane and Norris Canyon Road	AM	27.4	C	28.5	C	1.1	NO	47.0	D	19.6	NO
		PM	53.2	D	57.2	E	4.0	**YES**	44.1	D	-9.1	NO
12[c]	Camino Ramon and Norris Canyon Road	AM	44.3	D	50.1	D	5.8	NO	48.2	D	3.9	NO
		PM	88.2	F	97.4	F	9.2	**YES**	82.4	F	-5.8	NO
26[d]	Alcosta Boulevard and Bollinger Canyon Road	AM	41.3	D	45.3	D	4.0	NO	45.5	D	4.2	NO
		PM	95.7	F	100.9	F	5.2	**YES**	86.4	F	-9.3	NO

Notes:

[a] Significant impacts based on thresholds outlined in Table 3.14-9 and detailed below.

Signalized Intersection — The Project worsens intersection operations from LOS D or better to LOS E or F, or the change in average delay is more than 5 seconds per vehicle at an intersection operating at LOS E or F without project traffic.

All-Way Stop — The Project worsens intersection operations from LOS D or better to LOS E or F, or the change in average delay is more than 5 seconds per vehicle at an intersection operating at LOS E or F without project traffic and the intersection also meets the peak-hour volume signal warrant.

Two-Way Stop — The Project causes a turning movement's acceptable LOS to decline to an unacceptable LOS and the peak-hour volume signal warrant is met.

[b] Project mitigation includes roadway restriping along northbound Bishop Drive to provide one exclusive left-turn lane and one shared left/through/right-turn lane. This mitigation would also require modification to the signal phasing to provide a split phase for the northbound and southbound approaches.

[c] Project mitigation includes roadway widening along westbound Norris Canyon Road to provide an exclusive right-turn lane. This cannot be accommodated within the existing right-of-way.

[d] Project mitigation includes modification to the signal phasing to provide a northbound right-turn overlap phase with the westbound protected left-turn phase.

Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Caltrans Facilities

Impact TRANS-3: The proposed Master Plan would not contribute to deficient operations on Caltrans facilities.

Impact Analysis

Gibson Transportation Consulting, Inc. conducted an analysis of Caltrans facilities including freeway mainline segments, signalized ramp intersections, and off-ramp queuing. Freeway mainline segments were analyzed using proprietary spreadsheets implementing the HCM methodology. Intersections and off-ramp queue analyses were assessed using Synchro software. Three freeway mainline segments (or a total of six freeway mainline sections) on I-680 were analyzed using HCM methodology to determine density, speed, and LOS. The LOS definitions for freeway mainline segments based on HCM methodology are presented in Table 3.14-3. Four signalized intersections located at freeway ramps and under partial Caltrans jurisdiction were analyzed using HCM methodology to identify average vehicle delay and LOS. Four freeway off-ramps were analyzed for ramp queue lengths using the Synchro software to estimate queues.

The cumulative analysis of freeway facilities discussed in this section includes projections of Year 2040 conditions without and with Project traffic, which generally coincides with the Project buildout year.

Freeway Mainline Segments

Three freeway mainline segments on I-680 were analyzed using the HCM methodology. Existing freeway volume data was collected from the CCTA Model outputs and are summarized in Table 3.14-14. For the purposes of providing informational analysis, the 2018 freeway traffic volumes from the CCTA Model outputs were assumed to represent Existing Year 2019 Conditions. Traffic volumes were also projected for Year 2040 utilizing the CCTA Model to reflect the Project buildout year and are summarized in Table 3.14-14. The CCTA Model outputs for Future 2040 and base year were compared to determine the incremental difference in traffic volumes. Any decrease in the incremental volume difference was conservatively overridden to assume no negative growth, in the same manner as future traffic volumes were developed for Year 2040.

Table 3.14-14: Freeway Mainline Segment Traffic Volumes

ID	Freeway Mainline Segment	Peak-hour	Direction	Vehicles per Hour (VPH)			
				Existing Conditions (Year 2019)[a]	Existing with Project Conditions (Year 2019)	Future without Project Conditions (Year 2040)	Future with Project Conditions (Year 2040)
FS-1	I-680 north of Crow Canyon Road	AM	NB	5,672	5,966	6,596	6,890
			SB	7,961	8,067	7,955	8,061
		PM	NB	7,681	7,872	8,728	8,919
			SB	6,732	6,988	7,903	8,159

ID	Freeway Mainline Segment	Peak-hour	Direction	Vehicles per Hour (VPH)			
				Existing Conditions (Year 2019)[a]	Existing with Project Conditions (Year 2019)	Future without Project Conditions (Year 2040)	Future with Project Conditions (Year 2040)
FS-2	I-680 between Crow Canyon Road and Bollinger Canyon Road	AM	NB	5,520	5,666	6,405	6,551
			SB	7,993	8,046	7,914	7,967
		PM	NB	7,009	7,105	7,728	7,824
			SB	6,640	6,753	7,762	7,875
FS-3	I-680 south of Bollinger Canyon Road	AM	NB	5,638	5,793	6,306	6,461
			SB	7,191	7,584	7,120	7,513
		PM	NB	6,708	7,087	6,860	7,239
			SB	6,175	6,434	6,853	7,112

Note:
[a] Existing traffic volumes based on 2018 weekday traffic volume data from CCTA Model expanded to reflect 2019 conditions. These results are consistent with the 2017 Caltrans PeMS data (that latest year available). 2040 volumes based on the CCTA Model.
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Freeway Mainline Segments Analysis

Table 3.14-15 summarizes the results of the HCM analysis for Existing Conditions and Existing with Project Conditions. As shown, the Project is not anticipated to change the LOS operations at any of the six freeway mainline sections (three northbound and three southbound) during the AM peak-hour or at five of the six freeway mainline sections during the PM peak-hour under Existing with Project Conditions. Only the I-680 segment south of Bollinger Canyon Road would change LOS in the northbound direction in the PM peak-hour when operating conditions would change from LOS D to LOS E, with a change in density of 2.3 vehicles per mile per lane.

Table 3.14-15: Existing Operating Conditions (Year 2019) Freeway Segment Level of Service Evaluation

ID	Freeway Segment	Peak-hour	Direction	Existing Conditions			Existing with Project Conditions			
				Speed[a,b]	Density[b,c]	LOS	Speed[a,b]	Density[b,c]	LOS	Δ Density
FS-1	I-680 north of Crow Canyon Road	AM	NB	55.0	22.8	C	55.0	24.0	C	1.2
			SB	55.0	32.0	D	55.0	32.5	D	0.5
		PM	NB	55.0	30.9	D	55.0	31.7	D	0.8
			SB	55.0	27.1	D	55.0	28.1	D	1

ID	Freeway Segment	Peak-hour	Direction	Existing Conditions			Existing with Project Conditions			
				Speed[a,b]	Density[b,c]	LOS	Speed[a,b]	Density[b,c]	LOS	Δ Density
FS-2	I-680 between Crow Canyon Road and Bollinger Canyon Road	AM	NB	55.0	22.2	C	55.0	22.8	C	0.6
			SB	55.0	32.2	D	55.0	32.4	D	0.2
		PM	NB	55.0	28.2	D	55.0	28.6	D	0.4
			SB	55.0	26.7	D	55.0	27.2	D	0.5
FS-3	I-680 south of Bollinger Canyon Road	AM	NB	55.0	28.4	D	55.0	29.1	D	0.7
			SB	54.1	36.8	E	52.8	39.8	E	3
		PM	NB	54.9	33.8	D	54.4	36.1	E	2.3
			SB	55.0	31.1	D	55.0	32.4	D	1.3

Notes
[a] Mean speed measured in miles per hour (mph).
[b] Methodology from Highway Capacity Manual, 6th Edition, A Guide for Multimodal Mobility Analysis (Transportation Research Board, 2016).
[c] Measured in vehicles per mile per lane (v/m/l) for freeways with a free-flow speed of 55 mph. Free-flow speed, as defined in HCM 6th Edition, is the theoretical speed when the density and flow rate of the freeway mainline segment are both zero.
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Table 3.14-16 summarizes the results of the HCM analysis for Future without Project Conditions and Future with Project Conditions Year 2040. As shown, the Project is not anticipated to change the LOS operations at five of the six freeway mainline sections during the AM peak-hour and four of the six freeway mainline sections during the PM peak-hour under Future with Project Conditions.

Table 3.14-16: Future Operating Conditions (Year 2040) Freeway Segment Level of Service Evaluation

ID	Freeway Segment	Peak-hour	Direction	Future without Project Conditions			Future with Project Conditions			
				Speed[a,b]	Density[b,c]	LOS	Speed[a,b]	Density[b,c]	LOS	Δ Density
FS-1.	I-680 north of Crow Canyon Road	AM	NB	55.0	26.6	D	55.0	27.7	D	1.1
			SB	55.0	32.0	D	55.0	32.4	D	0.4
		PM	NB	54.6	35.4	E	54.2	36.4	E	1.0
			SB	55.0	31.8	D	55.0	32.8	D	1.0
FS-2.	I-680 between Crow Canyon Road and Bollinger Canyon Road	AM	NB	55.0	25.8	C	55.0	26.4	D	0.6
			SB	55.0	31.9	D	55.0	32.1	D	0.2
		PM	NB	55.0	31.1	D	55.0	31.5	D	0.4
			SB	55.0	31.2	D	55.0	31.7	D	0.5

ID	Freeway Segment	Peak-hour	Direction	Future without Project Conditions			Future with Project Conditions			
				Speed[a,b]	Density[b,c]	LOS	Speed[a,b]	Density[b,c]	LOS	Δ Density
FS-3.	I-680 south of Bollinger Canyon Road	AM	NB	55.0	31.7	D	55.0	32.5	D	0.8
			SB	54.3	36.3	E	53.1	39.2	E	2.9
		PM	NB	54.8	34.6	D	54.0	37.1	E	2.5
			SB	54.8	34.6	D	54.3	36.2	E	1.6

Notes:
[a] Mean speed measured in miles per hour (mph).
[b] Methodology from Highway Capacity Manual, 6th Edition, A Guide for Multimodal Mobility Analysis (Transportation Research Board, 2016).
[c] Measured in vehicles per mile per lane (v/m/l) for freeways with a free-flow speed of 55 mph. Free-flow speed, as defined in HCM 6th Edition, is the theoretical speed when the density and flow rate of the freeway mainline segment are both zero.
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

The Year 2040 LOS changes that are anticipated as a result of Project traffic are as follows:

- I-680 between Crow Canyon Road and Bollinger Canyon Road—Northbound changes from LOS C to LOS D (AM peak-hour), with a change in density of 0.6 vehicles per mile per lane
- I-680 South of Bollinger Canyon Road—Northbound and Southbound changes from LOS D to LOS E (PM peak-hour), with a maximum change in density of 2.5 vehicles per mile per lane

In the cases above, the Future without Project Density levels were very close to the upper threshold of the LOS range and, therefore, it took only a small amount of Project traffic to change the LOS when Project traffic was added to the Future Base conditions.

Freeway Ramp Intersection Operations

This Caltrans analysis focused on the four signalized freeway ramp locations associated with the I-680 interchanges at Crow Canyon Road and Bollinger Canyon Road. The operations of all four intersections are shared between Caltrans and the City of San Ramon.

Caltrans does not have specific criteria to determine the significance of incremental changes in intersection operations. Therefore, the significance of the traffic-related impacts on Caltrans facilities is based on the City of San Ramon's significance thresholds, shown in the Thresholds of Significance section above.

Intersection Analysis

The analysis of Year 2019 conditions was conducted using the traffic volumes for Year 2019 utilized for the Existing Conditions analysis. Table 3.14-17 summarizes the results of the signalized HCM analysis for Existing Conditions and Existing with Project Conditions. As shown, all intersections operate at LOS C or better during both the analyzed peak-hours under Existing Conditions and Existing with Project Conditions.

Table 3.14-17: Existing With Project Conditions (Year 2019) Signalized Intersection Peak-hour Levels of Service

No.	Intersection	Peak-hour	Existing Conditions		Existing with Project Conditions		
			Delay	LOS	Delay	LOS	Δ Delay
S-1	I-680 Southbound Ramps and Crow Canyon Road (Intersection No. 3)	AM PM	20.3 15.9	C B	20.2 16.2	C B	-0.1 0.3
S-2	I-680 Northbound Ramps and Crow Canyon Road (Intersection No. 4)	AM PM	16.2 14.2	B B	16.0 13.9	B B	-0.2 -0.3
S-3	I-680 Southbound Ramps and Bollinger Canyon Road (Intersection No. 20)	AM PM	29.9 23.3	C C	29.2 28.3	C C	-0.7 5.0
S-4	I-680 Northbound Ramps and Bollinger Canyon Road (Intersection No. 21)	AM PM	17.7 29.5	B C	19.6 53.6	B D	1.9 24.1
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.							

The Year 2040 traffic volumes were developed based on the CCTA Model outputs in the same manner as future traffic volumes were developed for Year 2040.

Table 3.14-18 summarizes the results of the signalized HCM analysis for Future without Project Conditions and Future with Project Conditions for Year 2040. As shown, all intersections operate at LOS C or better during both the analyzed peak-hours under Future without and with Project Conditions.

Table 3.14-18: Future With Project Conditions (Year 2040) Signalized Intersection Peak-hour Levels of Service

No.	Intersection	Peak-hour	Future without Project Conditions		Future with Project Conditions		
			Delay	LOS	Delay	LOS	Δ Delay
S-1	I-680 Southbound Ramps and Crow Canyon Road (Intersection No. 3)	AM PM	21.1 15.8	C B	21.3 15.8	C B	0.2 0.0
S-2	I-680 Northbound Ramps and Crow Canyon Road (Intersection No. 4)	AM PM	16.4 14.9	B B	16.3 14.8	B B	-0.1 -0.1
S-3	I-680 Southbound Ramps and Bollinger Canyon Road (Intersection No. 20)	AM PM	24.2 29.0	C C	25.0 52.3	C D	0.8 23.3
S-4	I-680 Northbound Ramps and Bollinger Canyon Road (Intersection No. 21)	AM PM	32.1 29.1	C C	34.0 26.9	C C	1.9 -2.2
Notes: Delay is measured in seconds per vehicle LOS = Level of Service Results per Synchro 10 (HCM 6th Edition methodology). Intersection S-4 assumes that the continuous green improvement is implemented under both scenarios above.							

No.	Intersection	Peak-hour	Future without Project Conditions		Future with Project Conditions		
			Delay	LOS	Delay	LOS	Δ Delay
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.							

Off-Ramp Queue Analysis

The analysis of Year 2019 conditions was conducted using available traffic count data utilized for the Existing Conditions analysis. Table 3.14-19 summarizes the results of the queuing analysis for Existing Conditions and Existing with Project Conditions for Year 2019. The queues at all four off-ramps do not extend beyond the available storage capacity under Existing Conditions, regardless of Project traffic additions.

The Year 2040 traffic volumes were developed based on the CCTA Model outputs in the same manner as future traffic volumes were developed for Year 2040. Table 3.14-20 summarizes the results of the queuing analysis for Future without Project Conditions and Future with Project Conditions for Year 2040. The queues at all four off-ramps do not extend beyond the available storage capacity under Future Conditions, regardless of Project traffic additions. Therefore, impacts would be less than significant.

Table 3.14-19: Freeway Off-Ramp Queue Evaluation Existing Operating Conditions (Year 2019)

ID	Freeway Off-ramp	Ramp and Lane Description	Vehicle Storage Capacity[a]	Existing Conditions		Existing with Project Conditions	
				AM Peak-hour	PM Peak-hour	AM Peak-hour	PM Peak-hour
				Vehicle Queue Length[b]	Vehicle Queue Length[b]	Vehicle Queue Length[b]	Vehicle Queue Length[b]
Q-1	I-680 Southbound Ramps and Crow Canyon Road (Intersection No. 3)	I-680 Southbound Off-Ramp					
		Left (two 740-ft lanes and one 660-ft lane on ramp)	2,140	1,236	716	1,240	740
		Right (two 570-ft lanes and one 830-ft lane on ramp)	1,970	1,060	1,070	1,096	1,166
Q-2	I-680 Northbound Ramps and Crow Canyon Road (Intersection No. 4)	I-680 Northbound Off-Ramp					
		Left (one 565-ft lane and one 760-ft lane on ramp)	1,325	508	510	510	510
		Right (one 590-ft shared left/right lane, one 590-ft exclusive right lane, and one 760-ft lane on ramp)	1,940	1,076	1,060	1,076	1,060
Q-3	I-680 Southbound Ramps and Bollinger Canyon Road (Intersection No. 20)	I-680 Southbound Off-Ramp					
		Left (one 455-ft exclusive left lane, one 470-ft shared left-through lane, and one 855-ft lane on ramp)	1,780	1,296	1,150	1,390	1,370
		Right (two 225-lanes and one 855-ft lane on ramp)	1,305	376	480	370	470
Q-4	I-680 Northbound Ramps and Bollinger Canyon Road (Intersection No. 21)	I-680 Northbound Off-Ramp					
		Left (one 525-ft lane and one 785-ft lane on ramp)	1,310	450	733	433	643
		Right (two 525-ft lanes, one 300-ft lane, and one 785-ft lane on ramp)	2,135	1,965	1,470	2,124	2,010

Notes:
[a] Expressed in feet.
[b] 95th Percentile queue results per Synchro 10 (HCM 6th Edition Methodology). Synchro queue results expressed in number of vehicles and were converted to feet; vehicle length is assumed to be 25 feet.
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Table 3.14-20: Freeway Off-Ramp Queue Evaluation Future Operating Conditions (Year 2040)

ID	Freeway Off-ramp	Ramp and Lane Description	Vehicle Storage Capacity[a]	Future without Project Conditions		Future with Project Conditions	
				AM Peak-hour	PM Peak-hour	AM Peak-hour	PM Peak-hour
				Vehicle Queue Length[b]	Vehicle Queue Length[b]	Vehicle Queue Length[b]	Vehicle Queue Length[b]
Q-1	I-680 Southbound Ramps and Crow Canyon Road (Intersection No. 3)	I-680 Southbound Off-Ramp					
		Left (two 740-ft lanes and one 660-ft lane on ramp)	2,140	1,346	750	1,350	776
		Right (two 570-ft lanes and one 830-ft lane on ramp)	1,970	1,130	1,120	1,166	1,210
Q-2	I-680 Northbound Ramps and Crow Canyon Road (Intersection No. 4)	I-680 Northbound Off-Ramp					
		Left (one 565-ft lane and one 760-ft lane on ramp)	1,325	580	573	580	575
		Right (one 590-ft shared left/right lane, one 590-ft exclusive right lane, and one 760-ft lane on ramp)	1,940	1,236	1,200	1,236	1,210
Q-3	I-680 Southbound Ramps and Bollinger Canyon Road (Intersection No. 20)	I-680 Southbound Off-Ramp					
		Left (one 455-ft exclusive left lane, one 470-ft shared left-through lane, and one 855-ft lane on ramp)	1,780	1,456	1,300	1,516	1,440
		Right (two 225-lanes and one 855-ft lane on ramp)	1,305	416	586	406	560
Q-4	I-680 Northbound Ramps and Bollinger Canyon Road (Intersection No. 21)	I-680 Northbound Off-Ramp					
		Left (one 525-ft lane and one 785-ft lane on ramp)	1,310	460	728	438	655
		Right (two 525-ft lanes, one 300-ft lane, and one 785-ft lane on ramp)	2,135	1,959	1,419	2,094	1,959

Notes:
[a] Expressed in feet.
[b] 95th Percentile queue results per Synchro 10 (HCM 6th Edition Methodology). Synchro queue results expressed in number of vehicles and were converted to feet; vehicle length is assumed to be 25 feet.
Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Vehicle Miles Traveled

Impact TRANS-4: The proposed Master Plan would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) (Vehicle Miles Traveled).

Impact Analysis

CHS prepared an analysis of VMT for the proposed Master Plan (Appendix J of the TIS). Since the City of San Ramon does not have an adopted Traffic Impact Analysis framework that incorporates VMT as a metric, this analysis is provided for information only. In addition, the CEQA Guidelines do not require the City to adopt a Traffic Impact Analysis Framework that incorporates VMT as a metric until July 1, 2020, and draft EIRS are only required to comply with standards in effect at the time they are published. 14 CCR §§ 15064.3(c), 15007(b), (c).

Discussed within this memorandum is the VMT analysis approach and assumptions, followed by the results. The VMT is the total miles of travel by the motorized vehicles that a project is expected to generate on a daily basis, and includes the entire distance of these vehicle trips. The motorized vehicle trips that are included within the VMT are those with one trip 'end' in the Master Plan area.

Approach

The approach CHS used for estimating the effects of the proposed Master Plan on per capita VMT consisted of using travel demand model information that was readily available. CHS obtained 2040 modeled trip tables from the CCTA Model and used these to calculate residential per capita VMT.

For proposed Master Plan VMT, since the proposed Master Plan was not modeled directly (i.e., it was not incorporated into the model land use in order to estimate trip generation, distribution, and mode choice trip tables for the proposed Master Plan), CHS calculated VMT information for a Bishop Ranch zone in which the CCTA Model had included future residential development. (There is no existing residential development in Bishop Ranch City Center; consequently, CHS did not perform a VMT analysis for existing land uses). In addition, CHS looked at a different zone in the San Ramon area that had a similar development profile as the proposed Master Plan for purposes of developing a more accurate VMT estimate.

The CCTA Model results are fairly high level and do not incorporate refined detailed transit-access and zonal access coding for either existing Bishop Ranch or proposed Master Plan uses. Therefore, CHS adjusted the aforementioned per capita proposed Master Plan VMT result that was calculated from the CCTA Model trip tables. Specifically taken into account was the larger number of residential

units for the proposed Master Plan (compared with the Bishop Ranch TAZ that includes future residential development); and the average trip length, which would change if the entire CCTA Model was re-run to include the proposed Master Plan. Adjusting for both of these factors, CHS completed an evaluation showing the estimated Master Plan per capita VMT relative to the average per capita VMT for Contra Costa County.

VMT of Future Baseline Master Plan Land Uses

CHS utilized person trip tables by trip purpose from the CCTA Model for the VMT analysis. The proposed Master Plan is located in three CCTA Model TAZs. The CCTA Model assumed future residential development for the Bishop Ranch TAZ that is south of Executive Parkway and east of Camino Ramon—TAZ 40136.

The CCTA Model did not assume future residential development for the Bishop Ranch TAZs of 40107 and 4010. The proposed Master Plan area resides in large CCTA Model TAZs, and the ability to model the attractiveness of transit service relative to the Master Plan within large TAZs is very limited. The access and proximity to good transit services for TAZ 40136 (a large TAZ) is not as good from the CCTA Model perspective as the actual proposed Master Plan locations. There are several reasons for this, two of which are that the Master Plan would incorporate much higher density that is better served by transit and this higher density is not translated into the CCTA Model data; and the large size of TAZ 40136 makes it difficult to effectively model transit-oriented development. No adjustment or reduction was made to factor in the better transit access associated with the proposed Master Plan.

The scale of vehicle trips that would be generated by the proposed Master Plan would also be very different than the vehicle trips for TAZ 40136, given that TAZ 40136 has 900 future residential units compared to the 4,500 multi-family units associated with the proposed Master Plan and also has a substantial amount of commercial square footage (i.e., employment). To estimate more realistic vehicle trips (home-based) for the proposed Master Plan, a comparison was made to a peer zone in Dougherty Valley, TAZ 40193. The vehicle trips for the proposed Master Plan were scaled up in proportion to the relative difference in residential units.

Another important factor considered for this analysis is the average trip length for the proposed Master Plan. The average trip length associated with TAZ 40136 would likely change with implementation of the proposed Master Plan. This could be calculated by performing detailed modeling of the proposed Master Plan with the complete CCTA Model set, which would have required significant model calibration and validation. However, this was not done because the City does not have an adopted VMT policy and this VMT analysis is being prepared for informational purposes. Therefore, to account for changes in average trip length, CHS conservatively assumed that the average trip length for the proposed Master Plan TAZ could increase by 50 percent. The result of this adjusted average trip length is 31.8 miles, which is slightly higher than that for the Dougherty Valley zone, according to the CCTA Model. However, it is possible that the average trip length for the proposed Master Plan could be lower than that of the Dougherty Valley TAZ, given that it is several miles closer to I-680 and to regional transit. Therefore, the increased average trip length of 31.8 miles is considered conservative.

Based on the above estimates of vehicle trips and average trip length, year 2040 VMT was calculated for the proposed Master Plan and the estimated per capita VMT is 18.0. The countywide VMT per capita of 20.1. This information is presented in Table 3.14-21.

Table 3.14-21: Zonal VMT Compared to Contra Costa Countywide Average (2040)—Post Processed

Geographical Level	VMT (Home-Based)	Population	Residential VMT Per Capita	Residential VMT Per Capita Threshold	Threshold Met?
Countywide	27,803,110	1,381,643	20.1	17.1	N/A
Master Plan/CCTA TAZ 40136	222,290	12,375	18.0	N/A	No

Notes:
The VMT for the Master Plan area reflects (a) proportional scaling of home-based vehicle trips for TAZ 40193 in Dougherty Valley by a factor of 3.1 and (b) a conservative assumption that average trip length would increase by 50 percent. The population for the proposed Master Plan was based on an assumed 2.75 persons per residential unit
Source: CHS Consulting Group, 2020. Included as Appendix I within the Transportation Impact Study (Appendix J).

As previously mentioned, the City of San Ramon does not have an adopted transportation policy that identifies a VMT impact threshold or methodology. Guidance from the California Governor's Office of Planning and Research (OPR) related to SB 743, which establishes VMT as a metric for CEQA Traffic Impact Analysis, has suggested consideration of VMT thresholds at or below a 15 percent reduction in the Countywide per capita VMT (or alternatively, per capita VMT at or below a 15 percent reduction in regional VMT). Using this guidance relative to countywide VMT, an impact threshold of 15 percent below the countywide average per capita VMT of 20.1 would be 17.1. Using this hypothetical scenario, the proposed Master Plan would potentially result in a significant impact because the proposed Master Plan would result in a VMT per capita of 18.0 which exceeds 17.1. This information is also presented in Table 3.14-21. However, there are aspects of the proposed Master Plan that are associated with potential per capita VMT reductions, which are likely to reduce the per capita VMT to within or below 17.1, as follows:

As mentioned, the proposed Master Plan would have measurably better access to transit compared to the large Model TAZ 40136. Beyond this, the proposed Master Plan would have several additional distinctive features:

- The Bishop Ranch development has and will continue to have a comprehensive TDM program, and a planned expansion of the TDM program to provide each resident with a transit pass;
- The existing shuttle service for Bishop Ranch would be extended to serve the proposed Master Plan residences and would have more frequent service; and
- The residential population per unit assumption for the proposed Master Plan was 2.75, which is lower than the population per unit assumption of 3.3 for the Dougherty Valley TAZ. Also, the proportion of multi-family dwelling units for the Dougherty Valley TAZ is only 3 percent and in 100 percent for the proposed Master Plan. Multi-family dwelling units have higher residential

density, are easier to serve with transit, and typically have lower motorized vehicle ownership rates than single-family households, resulting in lower per capita VMT.

The features described above are not considered within the readily-available CCTA Model results. The effect on VMT reduction of higher density for the proposed Master Plan than that reflected in TAZ 40136, may be difficult to estimate without modeling the proposed Master Plan. However, the VMT Estimation Tool used by the City of San José, includes a proportional reduction in per capita VMT in response to transit fare subsidies, where a 100 percent fare subsidy would result in a per capita VMT reduction of 26 percent. This Estimation Tool also conservatively caps the overall reduction in per capita VMT at 20 percent for the use of TDM programs. Based on the strong relationships between subsidized transit passes coupled with free shuttle service, higher residential densities and the resulting reductions in VMT, the per capita VMT for the proposed Master Plan would be expected to go down by 20 percent to approximately 14.4. This would result in per capita VMT for the proposed Master Plan to a level below a 15 percent reduction in per capita VMT relative to the countywide average. This is shown in Table 3.14-22.

Table 3.14-22: Zonal VMT Estimate with Effects of TDM (2040)

Geographical Level	VMT (Home-based)	Population	Residential VMT Per Capita	Residential VMT Per Capita Threshold	Threshold Met?
Countywide	27,803,110	1,381,643	20.1	17.1	N/A
CCTA TAZ 40136	177,832	12,375	14.4	N/A	Yes

Notes:
The VMT (home-based) for CCTA TAZ 40136 assumes a 20 percent reduction due to free transit passes and free shuttle service for residents. Source: Handy, Lovejoy, Boarnet, Spears. 2013. "Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions."
Source: CHS 2020.

Conclusion

The above analysis provides per capita VMT results for the proposed Master Plan in an informational context, given that the City of San Ramon does not have an adopted transportation impact policy that incorporates a VMT metric and VMT thresholds. The VMT analysis shows that per capita VMT estimated from the CCTA Model, and adjusted to reflect feasible TDM measures for the Master Plan, is likely to result in per capita VMT at a level below a 15 percent reduction in countywide average per capita VMT. Using that 15 percent reduction as a potential threshold of significance, this Project impact would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Roadway Safety

Impact TRANS-5:	**Buildout of the proposed Master Plan would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).**

Impact Analysis

This impact evaluates roadway safety including the topics of vehicular access and circulation, and queuing.

Vehicular Access and Circulation

Vehicular access to the Master Plan area would be maintained at some existing driveways as well as provided at new driveways. The driveways would provide access to the existing on-site parking garages and to the new parking structures serving the existing office uses as well as subterranean parking levels serving the residential and retail/commercial uses. The vehicular access and circulation plan for the proposed Master Plan is shown in Exhibit 3.14-6 and summarized below:

- Vehicular access to BR 2600 NW would be provided via one existing driveway along Bishop Drive and three new driveways along Executive Parkway. All driveways to BR 2600 NW would provide full access. In addition, a new driveway for emergency vehicle access only would be provided along the south boundary of the site from Bishop Drive.
- Vehicular access to BR 2600 NE would be provided via two new driveways along Executive Parkway and one new and one existing driveway along Camino Ramon. All driveways to BR2600 NE, with the exception of the new driveway along Camino Ramon, would provide full access. The new driveway along Camino Ramon would provide limited, right-turn in/out access only.
- Vehicular access to BR 2600 SE would be provided via one existing signalized driveway and one new driveway along Camino Ramon and one existing signalized driveway at the intersection of Sunset Drive and Bishop Drive. All driveways to BR 2600 SE, with the exception of the new driveway along Camino Ramon, would provide full access. The new driveway along Camino Ramon would provide limited, right-turn in/out access only.
- Vehicular access to BR 3A would be provided via one existing signalized driveway at the intersection of Camino Ramon and Bishop Drive, one new driveway along Camino Ramon, and one existing signalized driveway at the intersection of BR 1 East and Bollinger Canyon Road. All driveways to BR 3A, with the exception of the new driveway along Camino Ramon, would provide full access. The new driveway along Camino Ramon would provide limited, right-turn in/out access only.
- Vehicular access to BR 1A would be provided via existing signalized driveways at the intersection of Camino Ramon/Bishop Ranch 1 and Bollinger Canyon Road and BR 1 East and Bollinger Canyon Road. All driveways to BR 1A would provide full access with the exception of

BR 1 East, which would not allow westbound inbound left turns after the construction of the Iron Horse Trail overcrossing.

Queuing

Queuing measures storage capacity by movement at intersections. The purpose of a queuing analysis is to identify turning movements that may not provide sufficient storage capacity at peak-hour conditions and if the left turn lane should be lengthened or an additional left turn added. It should be noted that many of the existing left turn lanes have been extended to the maximum allowed per the existing geometry and additional right of way would be required to add a second left turn lane.

Table 3.14-23 provides the results of the left-turn lane queuing analysis at the following driveways and intersections adjacent to the Project:

Intersection11.	Bishop Drive/Annabel Lane and Norris Canyon Road
Intersection12.	Camino Ramon and Norris Canyon Road
Intersection14.	Bishop Drive and Executive Parkway (unsignalized)
Intersection15.	Camino Ramon and Executive Parkway
Intersection16.	Sunset Drive and Bishop Drive
Intersection17.	Camino Ramon and Bishop Drive
Intersection18.	Sunset Drive and Shops at Bishop Ranch/City Center
Intersection22.	Sunset Drive and Bollinger Canyon Road
Intersection23.	Camino Ramon and Bollinger Canyon Road
Intersection24.	Bishop Ranch 1 East and Bollinger Canyon Road

Table 3.14-23 shows the worst-case peak-hour left-turn queuing analysis results for Year 2040 Future without Project and Future with Project conditions. The table shows:

- Total queue length capacity for the current or proposed storage at each left-turn lane (or left-turn/through lane if a separate left-turn lane is not provided) based on existing conditions or proposed improvements.
- The queue length capacity is assumed to be the striped left-turn lane area plus the potential for one car to be shadowed in the taper area of the turn lane (two cars in the taper area for dual left-turn lanes).
- The 95th percentile queue length, which provides the results of a Synchro analysis for the peak-hour conditions that measures the probability that a queue length would reach a certain length.

In this case, the Synchro analysis identifies the maximum queue length for each left-turn lane that would not be exceeded 95 percent of the time. In other words, the queue would exceed the values in Table 3.14-24 only 5 percent of the time.

To explain the concept of the 95th percentile, if the signal cycle length is 120 seconds (typical in the Study Area), that means there would be 30 cycles during the peak-hour. If one observed 100 cycles

and 95 of them had queues equal or less than the 95th percentile length shown in the table, only five cycles in 100 cycles would exceed the queue length shown in the table. With 30 signal cycles per hour, there would be five cycles every 3.3 hours that exceeded the calculated queue—or about one to two cycles during the peak-hour of any given day.

In some cases, the addition of Project traffic resulted in shorter queues than conditions without the Project. This occurred because the Project added internal streets which gave Study Area traffic more choices after the completion of the Project than they had under Future without Project conditions. Intersection No. 17 (Camino Ramon and Bishop Drive), for example, showed a shorter westbound left-turn queue in the PM peak hour because the development parcel BR 3A added an internal street system that allowed the BR 3 office traffic to reach Bollinger Canyon Road without using the westbound left-turn lane at the Camino Ramon and Bishop Drive intersection.

Queuing Assumptions

The Synchro worksheets show the left-turn queues in feet and then convert to the number of vehicles in the queue (to the tenth of a car). These vehicle lengths were converted to storage length requirements in feet by multiplying each vehicle by 25 feet to account for the length of the vehicle plus a distance between vehicles in the queue.

Queuing Results

The queuing analysis shown in Table 3.14-23 indicates that 10 left turn movements would experience queuing overflow of one or more vehicles under Future without Project conditions. Under Future with Project conditions, seven intersections would exceed the storage capacity.

As shown on Table 3.14-23, the Future with Project intersections where the Project adds one vehicle or more to the left turn queue exceedance (when compared to Future without Project Conditions) are projected to operate at LOS D or better during the peak hours. This means that there is flexibility in the signal timing such that additional time added to the left turn phases could alleviate the incremental Project queuing impact. The intersections where the exceedances occur will be monitored by the City of San Ramon and the signal timing adjusted if the left turn queues become an operational problem. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Table 3.14-23: Intersection Queue Analysis

No.	Intersection	Movement	Queue Storage Measured (feet)	Future without Project Conditions (Year 2040)		Future with Project with Mitigation Conditions (Year 2040)			
				AM Peak Hour	PM Peak Hour	AM Peak Hour		PM Peak Hour	
				95th Queue Length (feet)	95th Queue Length (feet)	LOS	95th Queue Length (feet)	LOS	95th Queue Length (feet)
11.[a]	Bishop Drive/Annabel Lane and Norris Canyon Road	SBLT	320	45	50	D	68	D	65
		WBL	110	**233**	**165**		**248**		**143**
		NBLTR[a]	1500	35	1033		165		468
		EBL	200	65	100		108		98
12.	Camino Ramon and Norris Canyon Road	SBL	235	185	**558**	D	200	F	**478**
		WBL	190	155	160		168		163
		NBL	180	175	**520**		**218**		**473**
		EBL	180	150	**360**		163		**315**
14.	Bishop Drive and Executive Parkway	SBLT	1500	18	0	B	23	D	10
		WBLR	2225	10	50		20		113
15.[b]	Camino Ramon and Executive Parkway	SBL	160	140	110	C	155	C	115
		WBLT	380	43	98		48		163
		NBL	200	113	143		158		183
		EBL[b]	150	165	58		68		105
16.	Sunset Drive and Bishop Drive	SBLT	275	8	58	E	15	D	90
		WBL	175	150	**235**		165		178
		NBLT	240	123	33		165		115
		EBL	215	203	25		188		50

No.	Intersection	Movement	Queue Storage Measured (feet)	Future without Project Conditions (Year 2040)		Future with Project with Mitigation Conditions (Year 2040)			
				AM Peak Hour	PM Peak Hour	AM Peak Hour		PM Peak Hour	
				95th Queue Length (feet)	95th Queue Length (feet)	LOS	95th Queue Length (feet)	LOS	95th Queue Length (feet)
17.	Camino Ramon and Bishop Drive	SBL	180	65	5	D	133	D	128
		WBL	200	5	**345**		13		213
		NBL	325	128	**383**		163		313
		EBL	135	100	**215**		128		135
18.	Sunset Drive and Shops at Bishop Ranch/City Center	SBL	105	125	**145**	E	125	D	**138**
		WBL	100	23	28		15		30
		NBL	195	70	200		75		**238**
		EBLT	95	20	38		23		43
22.	Sunset Drive and Bollinger Canyon Road	SBL	195	120	168	D	125	D	213
		SBLT	390	140	168		148		213
		WBL	370	118	3		108		5
		NBL	500	55	388		55		388
		NBLT	500	55	388		55		388
		EBL	770	788	405		**850**		580
23.	Camino Ramon and Bollinger Canyon Road	SBL	535	108	558	C	165	C	**588**
		WBL	230	113	20		118		30
		NBL	450	75	**593**		223		**498**
		EBL	515	465	93		**570**		280
24.[c,d]	Bishop Ranch 1 East and Bollinger Canyon Road	SBL[d]	400	--	--	B	118	B	398
		WBL[c]	165	--	--		--		--
		NBL	320	8	65		123		310

No.	Intersection	Movement	Queue Storage Measured (feet)	Future without Project Conditions (Year 2040)		Future with Project with Mitigation Conditions (Year 2040)			
				AM Peak Hour	PM Peak Hour	AM Peak Hour		PM Peak Hour	
				95th Queue Length (feet)	95th Queue Length (feet)	LOS	95th Queue Length (feet)	LOS	95th Queue Length (feet)
		EBL	220	--	--		**260**		**255**
BOLD text denotes a queue length greater than 25 feet more than available storage				1	10		5		9
Highlighted text denotes an increase of more than 25 feet over Future Without Project Conditions				N/A	N/A		4		3

Notes
[a] This intersection would be restriped to provide an exclusive northbound left-turn lane and a shared left/through/right-turn lane as part of the Project mitigation program.
[b] This intersection would be improved to include an exclusive eastbound left-turn lane as part of the Project.
[c] This intersection would prohibit WBL in the future due to the installation of the pedestrian bridge overpass and the placement of the bridge column support.
[d] This intersection would be improved to include all four approach legs, including BR 3A driveway as the southbound approach.

Source: Gibson Transportation Consulting, Inc., 2020. Appendix J.

Emergency Access

Impact TRANS-6: The proposed Master Plan would not result in inadequate emergency access.

Impact Analysis

The Master Plan area is located in an area currently served with fire protection/emergency medical services provided by the San Ramon Valley Fire Protection District and police protection provided by the San Ramon Police Department. The Master Plan area is served by Bollinger Canyon Road, Camino Ramon, Bishop Drive, and Executive Parkway. All of these roadways are currently accessible to and regularly used by emergency vehicles.

The proposed Master Plan would rely on driveway connections to Camino Ramon, Bishop Drive, Bollinger Canyon Road, and Executive Parkway. All driveways would be required to comply with the applicable provisions of the latest adopted edition of the California Fire Code including providing two points of access. This would ensure that adequate emergency access is provided. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Transit, Bicycles and Pedestrians

Impact TRANS-7: The proposed Master Plan would not conflict with policies or programs associated with transit, bicycles, and pedestrians.

Impact Analysis

This impact assesses impacts on transit, bicycles, and pedestrians from buildout of the Master Plan.

Transit

The Master Plan area is currently served by transit service offered by County Connection. Additionally, Bishop Ranch provides a well-established, comprehensive TDM program.

The proposed Master Plan contemplates transit hubs within BR 1A, BR 3A, and BR 2600 that would be integrated into the existing TDM program. One of the objectives of the transit hubs is to centralize pick-up and drop-off points so as to avoid circuitous and lengthy bus routes within the Bishop Ranch Business Park. This would improve the effectiveness and efficiency of transit. Impacts would be less than significant.

Bicycles

As previously shown in Exhibit 3.14-8, the proposed Master Plan would implement and supplement the City's Bicycle Master Plan so that visitors and employees arriving by bicycle would have a continuous access system similar to that provided to pedestrians and vehicles. In order to encourage and facilitate bicycle use, the proposed Master Plan would provide code-required bicycle parking spaces throughout the Master Plan area.

The proposed Master Plan would enhance the bicycle network with separated bike paths and Class III bike routes. None of the proposed improvements would conflict with or preclude the implementation of the City's Bicycle Master Plan. Impacts would be less than significant.

Pedestrians

As previously shown in Exhibit 3.14-7, pedestrian access to the Master Plan area would be provided via the sidewalks along Camino Ramon, Bishop Drive, and Executive Parkway, as well as a pedestrian-only access along pathways within the Master Plan area. The proposed Master Plan would minimize pedestrian and automobile traffic conflicts by utilizing controlled crosswalks at the signalized intersections. Pedestrian circulation internal to the Master Plan area would be provided via sidewalks and off-street pedestrian pathways. Pedestrian crossings across local streets internal to the site would be focused on intersections where marked crosswalks would be provided subject to City review and approval.

One controlled mid-block crosswalk is proposed as part of the Master Plan. There is an existing controlled mid-block crosswalk connection the City Center retail center to BR2600 SE across Bishop Drive east of Sunset Drive, which is controlled by a HAWK signal. The proposed mid-block crosswalk would cross Executive Parkway east of Bishop Drive. The intent of this HAWK-controlled crosswalk would be to connect the BR2600 office and residential development to the commercial development to the north and to connect the north development to the proposed transit hub on Executive Parkway.

The proposed Master Plan would enhance the existing pedestrian network with new parkways, park paths, and internal sidewalks serving the Master Plan area. None of the proposed improvements would conflict with or preclude the implementation of the City's pedestrian network. Impacts would be less than significant.

Level of Significance Before Mitigation

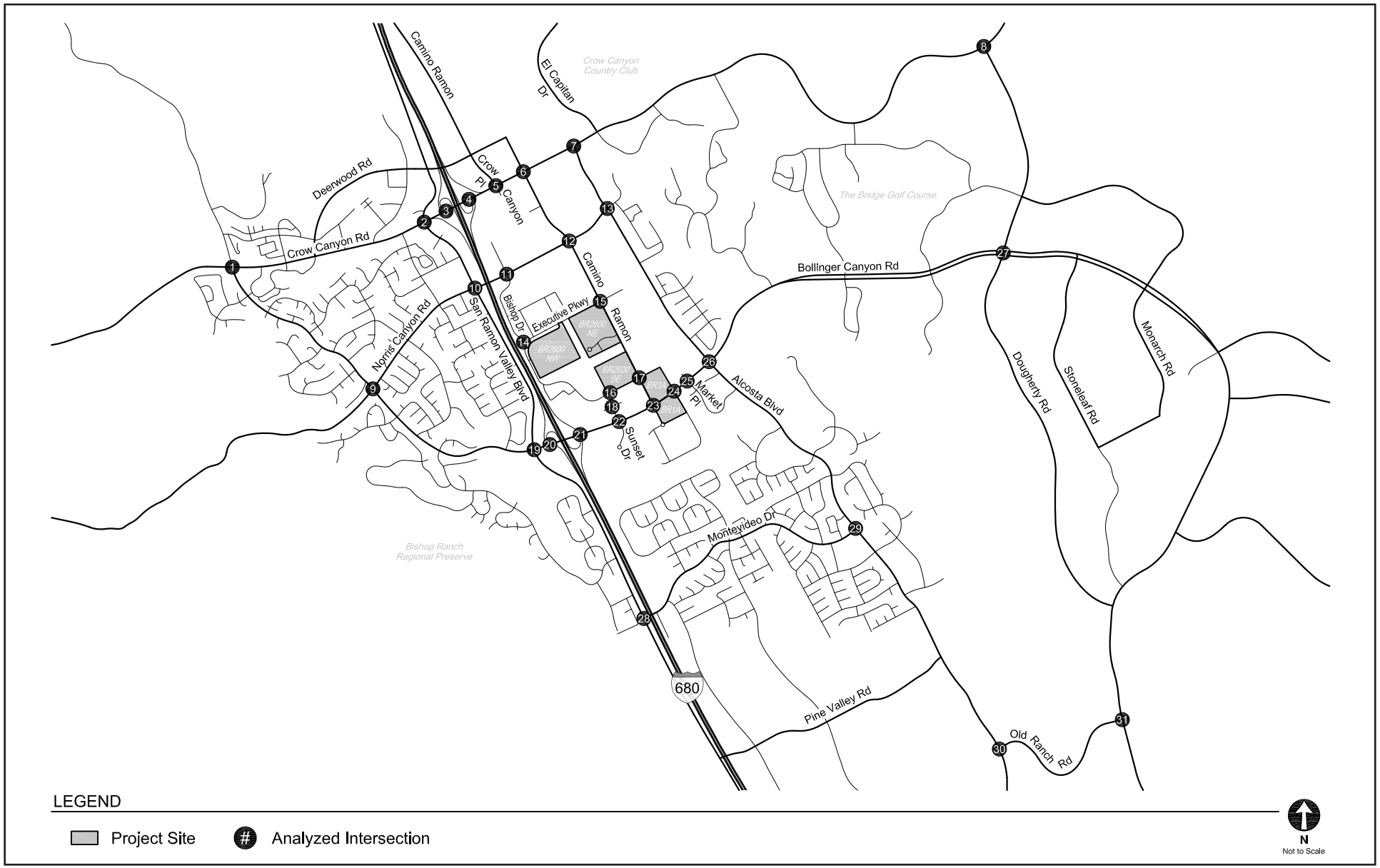
Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.



Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-1
Study Area & Analyzed Intersections

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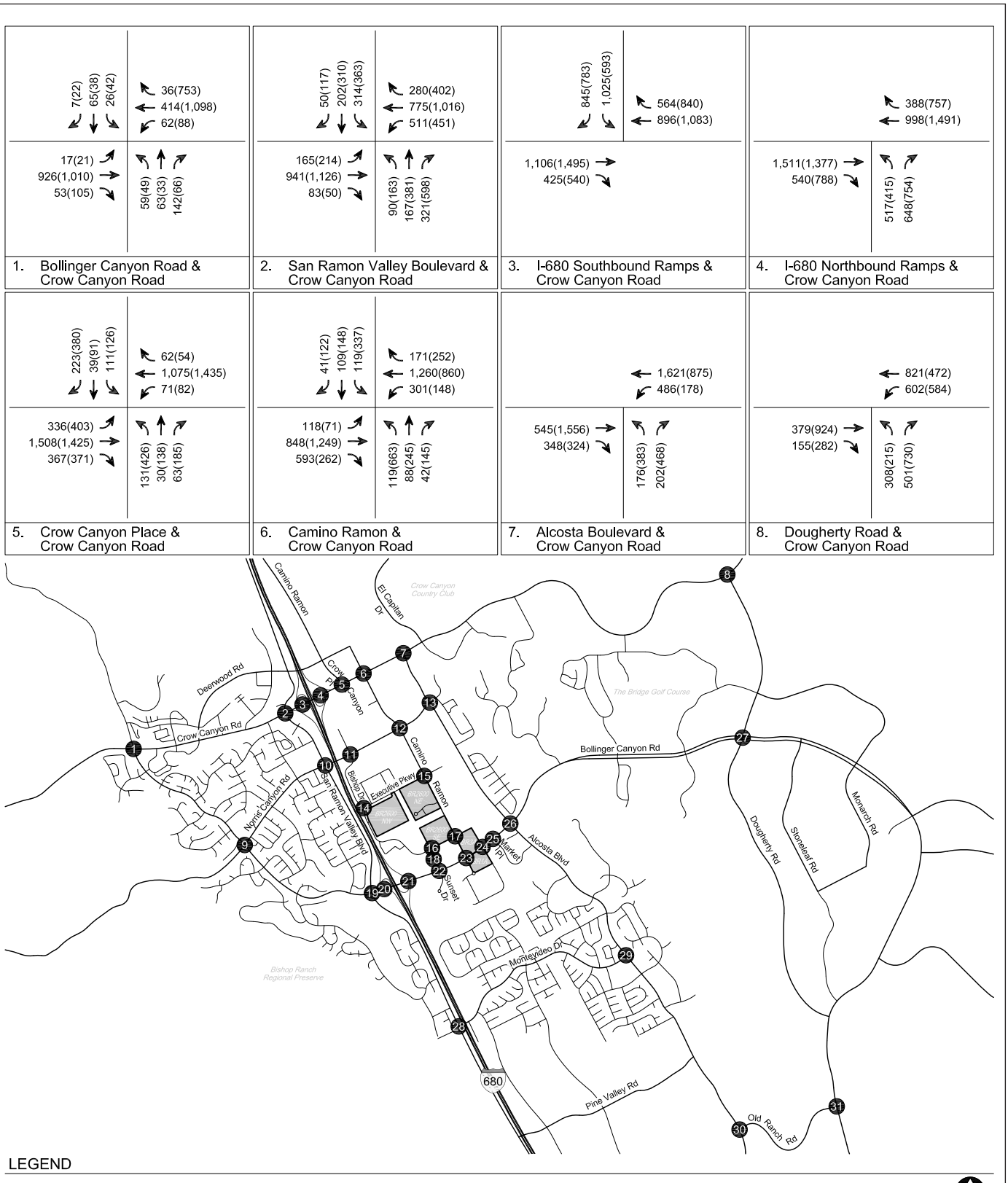

Source: Gibson Transportation Consulting, Inc., March 2020.

Exhibit 3.14-2a
Existing Conditions (Year 2019)
Peak Hour Traffic Volumes

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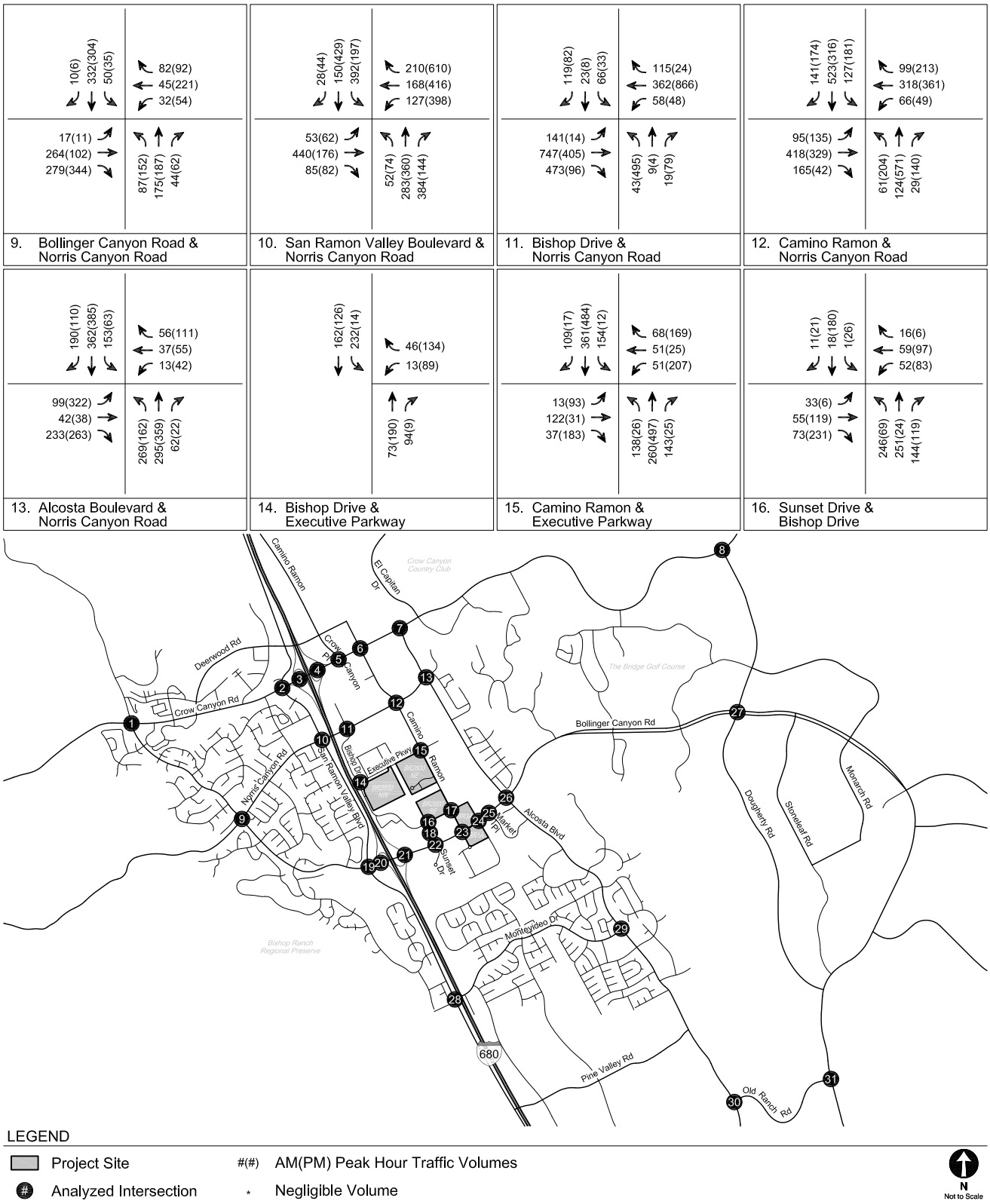

Source: Gibson Transportation Consulting, Inc., March 2020.

Exhibit 3.14-2b
Existing Conditions (Year 2019)
Peak Hour Traffic Volumes

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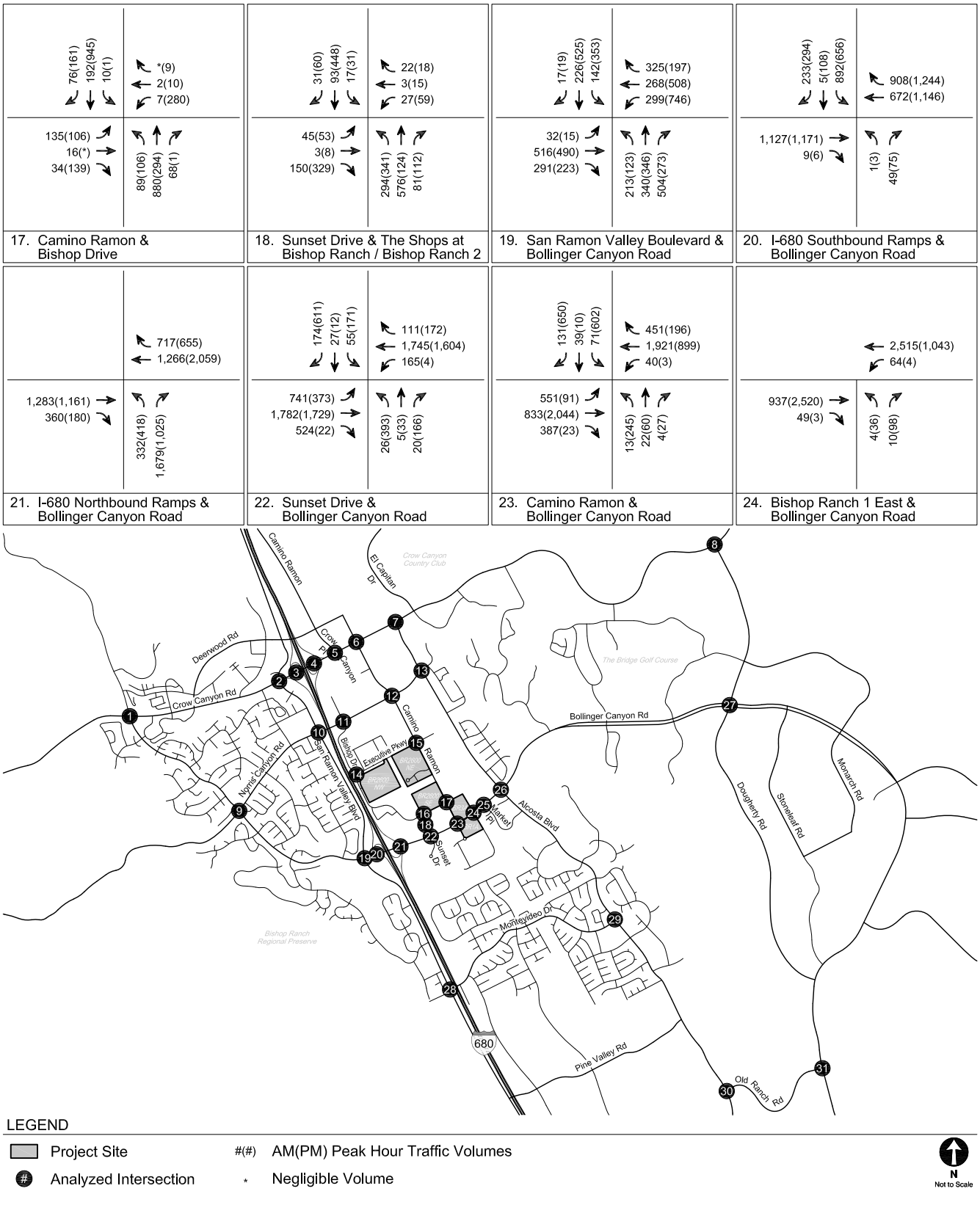

Source: Gibson Transportation Consulting, Inc., March 2020.

Exhibit 3.14-2c
Existing Conditions (Year 2019)
Peak Hour Traffic Volumes

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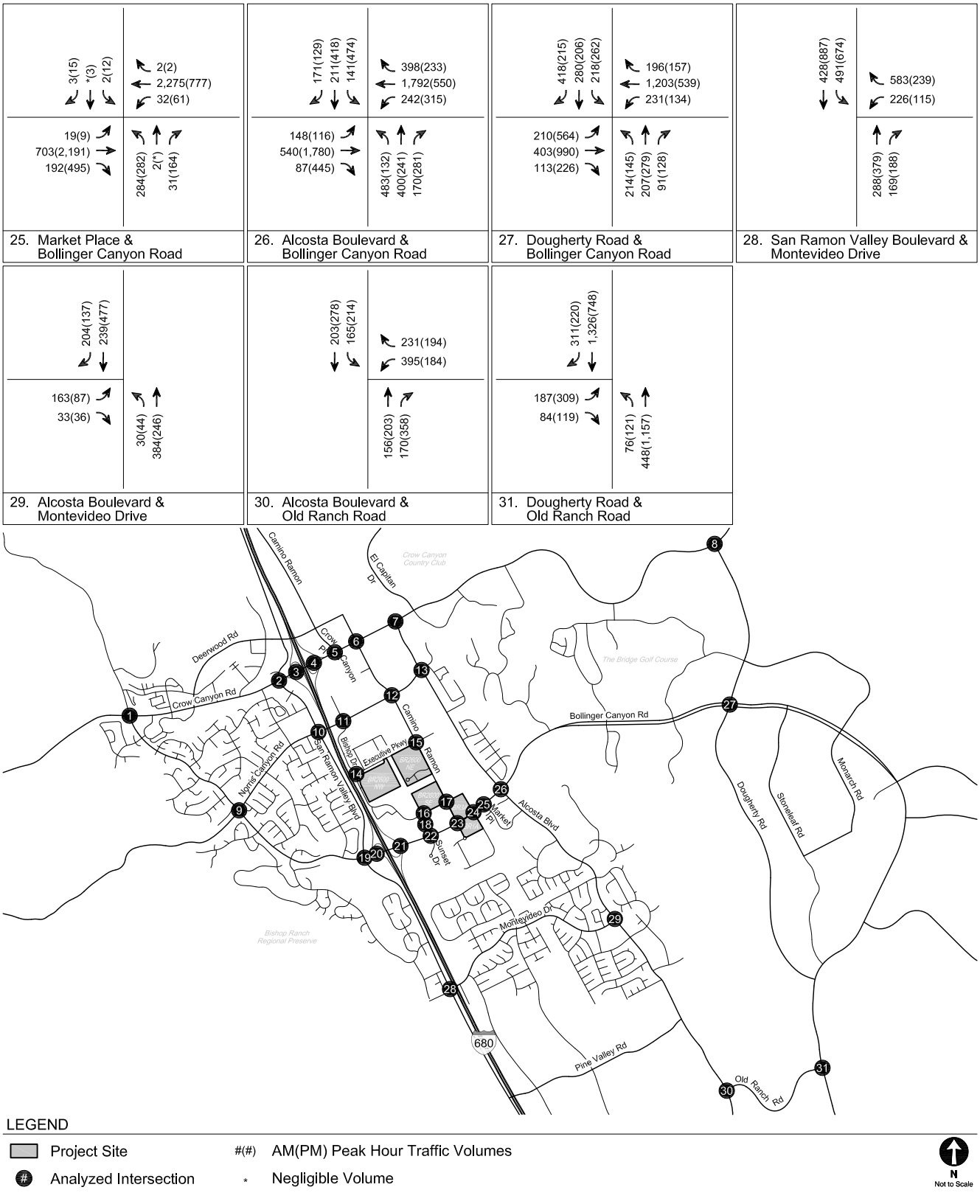

Source: Gibson Transportation Consulting, Inc., March 2020.

Exhibit 3.14-2d
Existing Conditions (Year 2019)
Peak Hour Traffic Volumes

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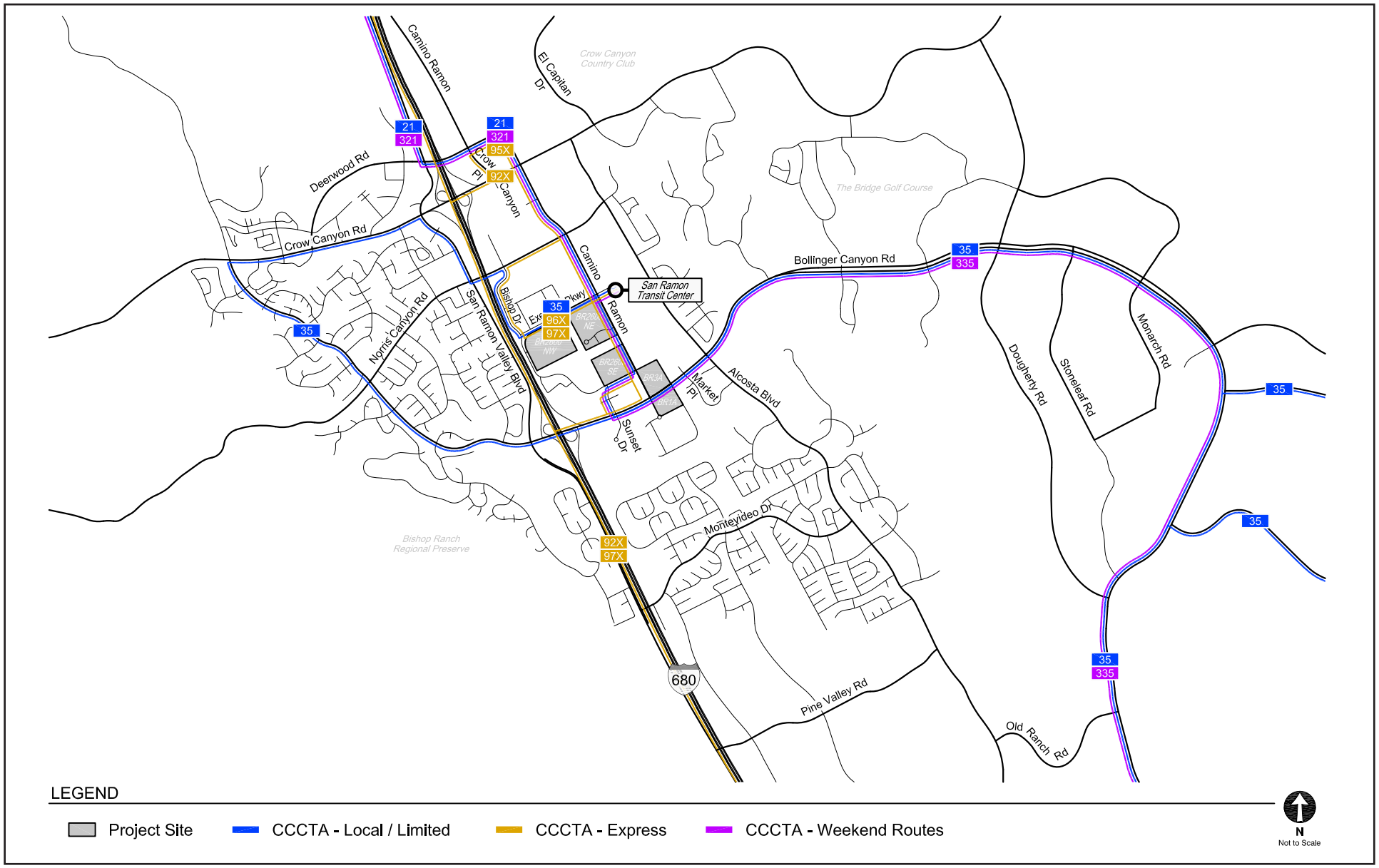

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-3
Existing Transit Service

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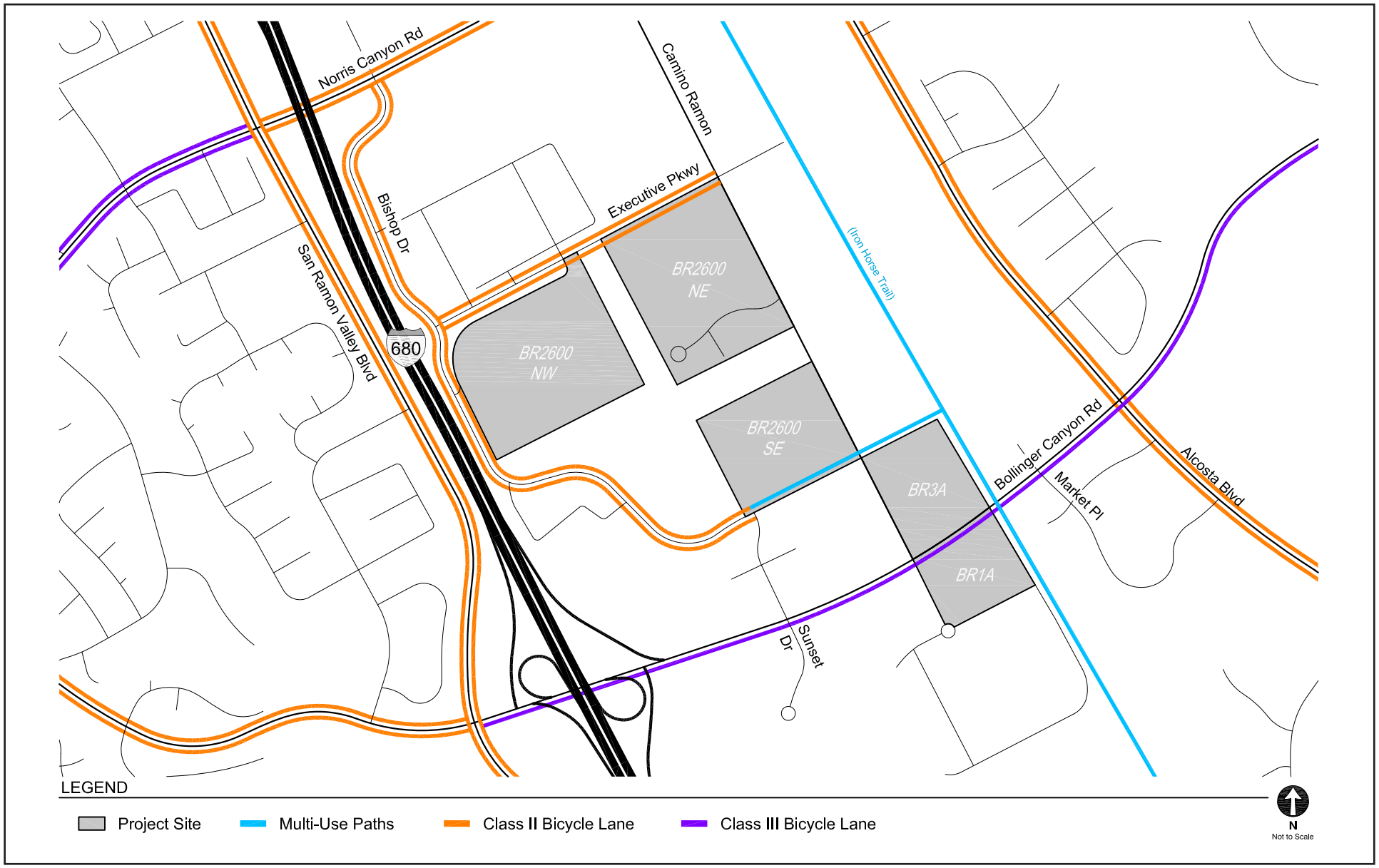

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-4
Existing Bicycle Network

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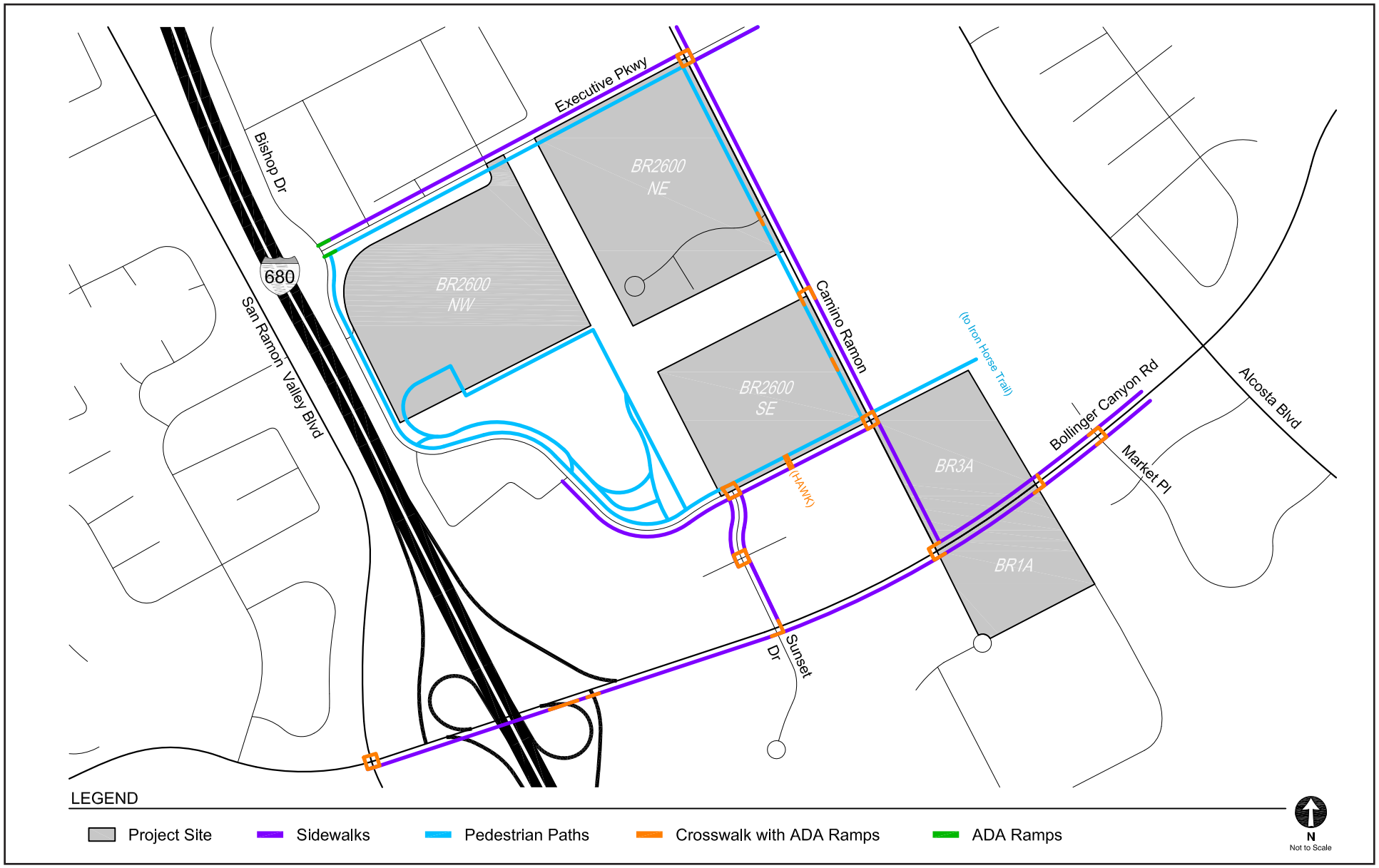

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-5
Existing Pedestrian Network

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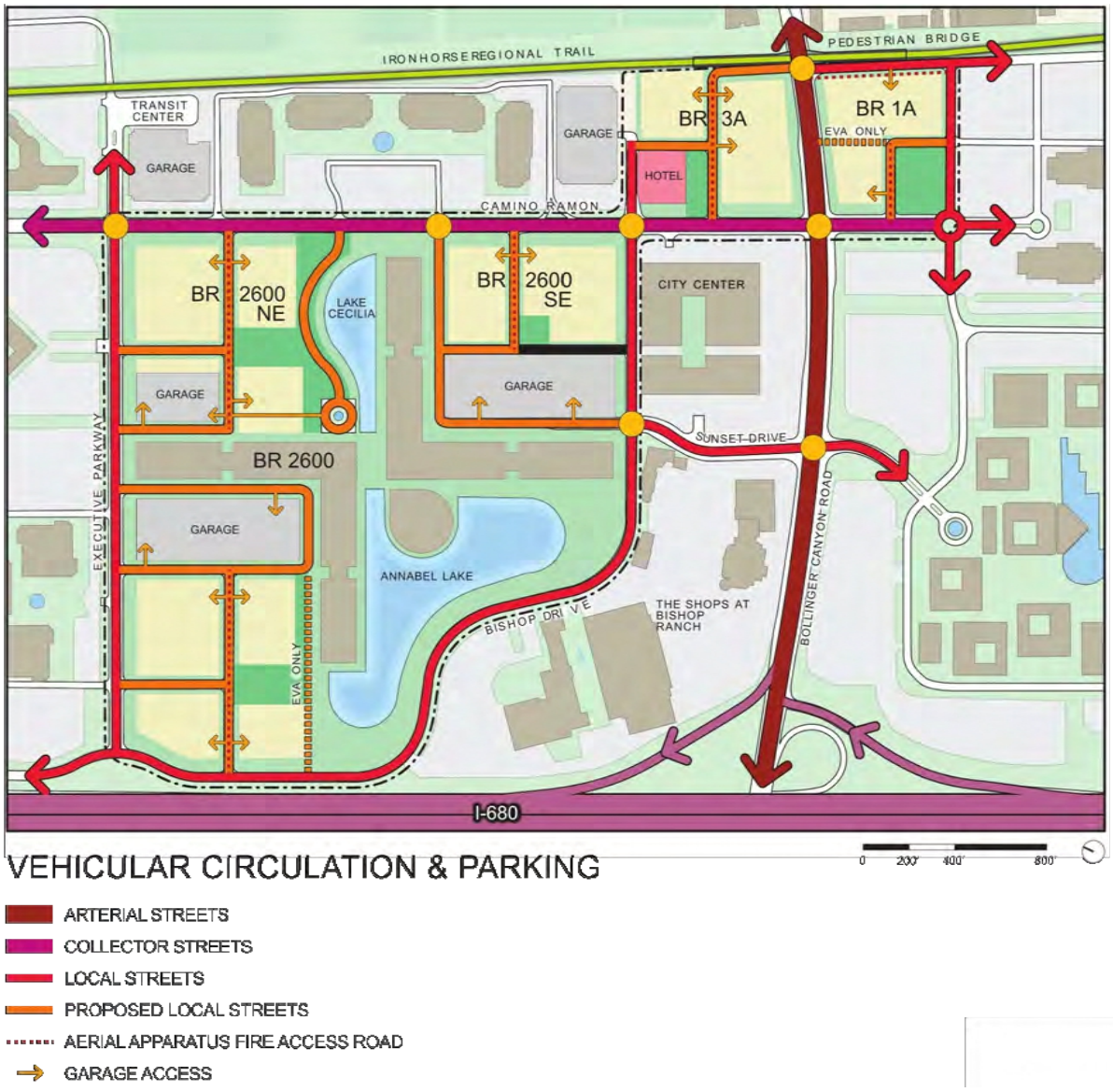

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-6
Vehicular Circulation & Parking

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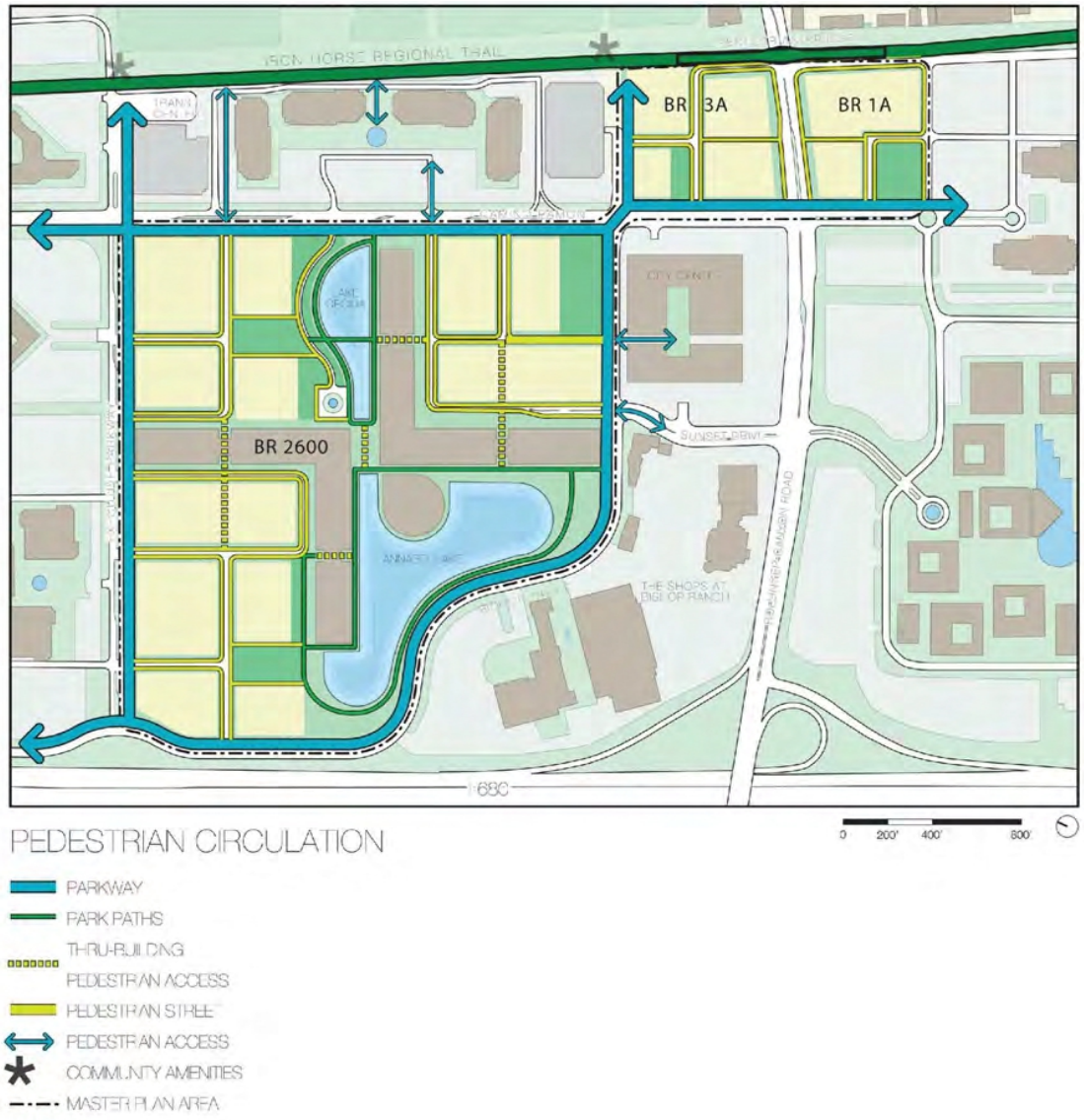

Source: Bishop Ranch. March, 2020.

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-7
Pedestrian Circulation

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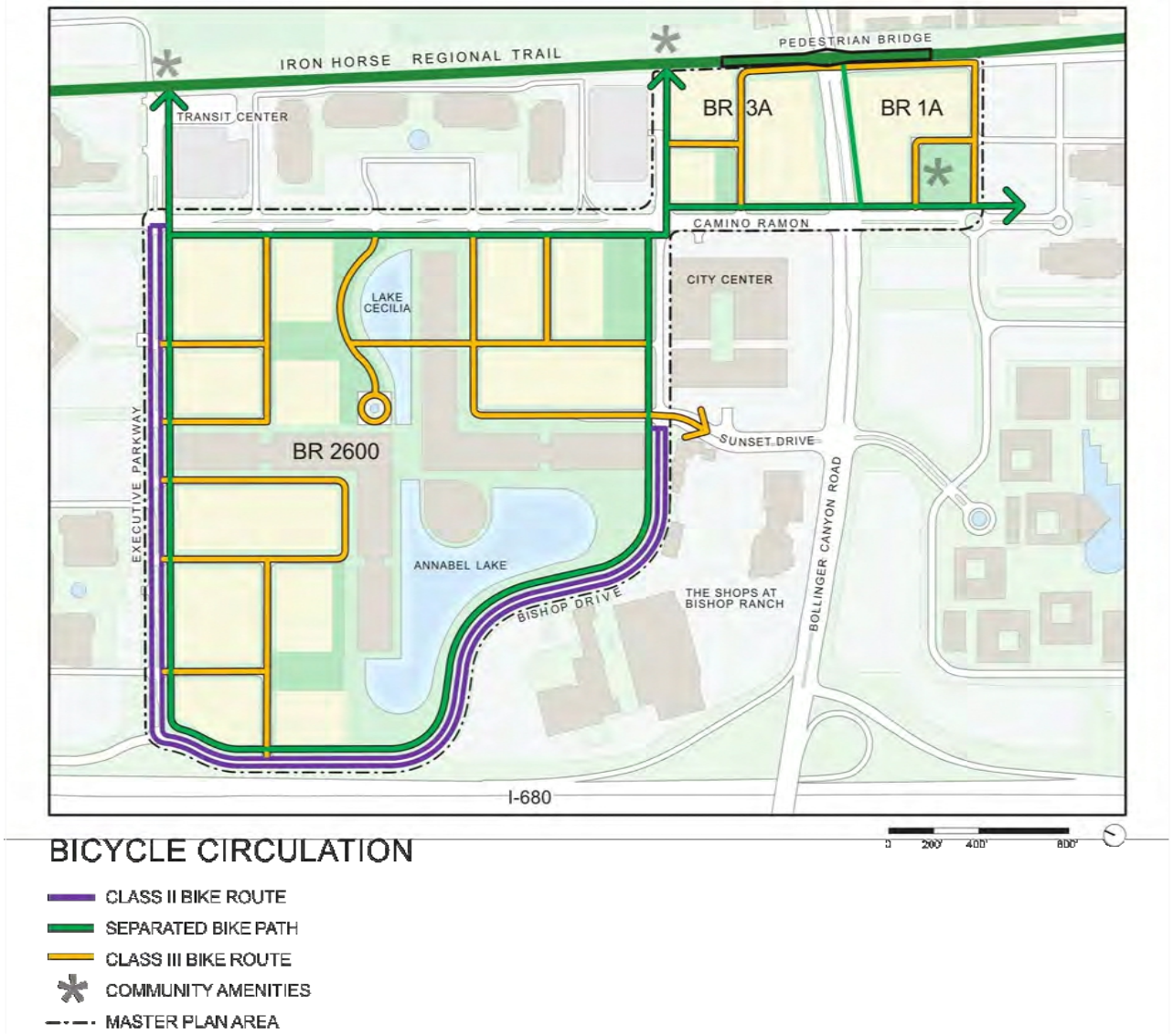

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-8
Bicycle Circulation

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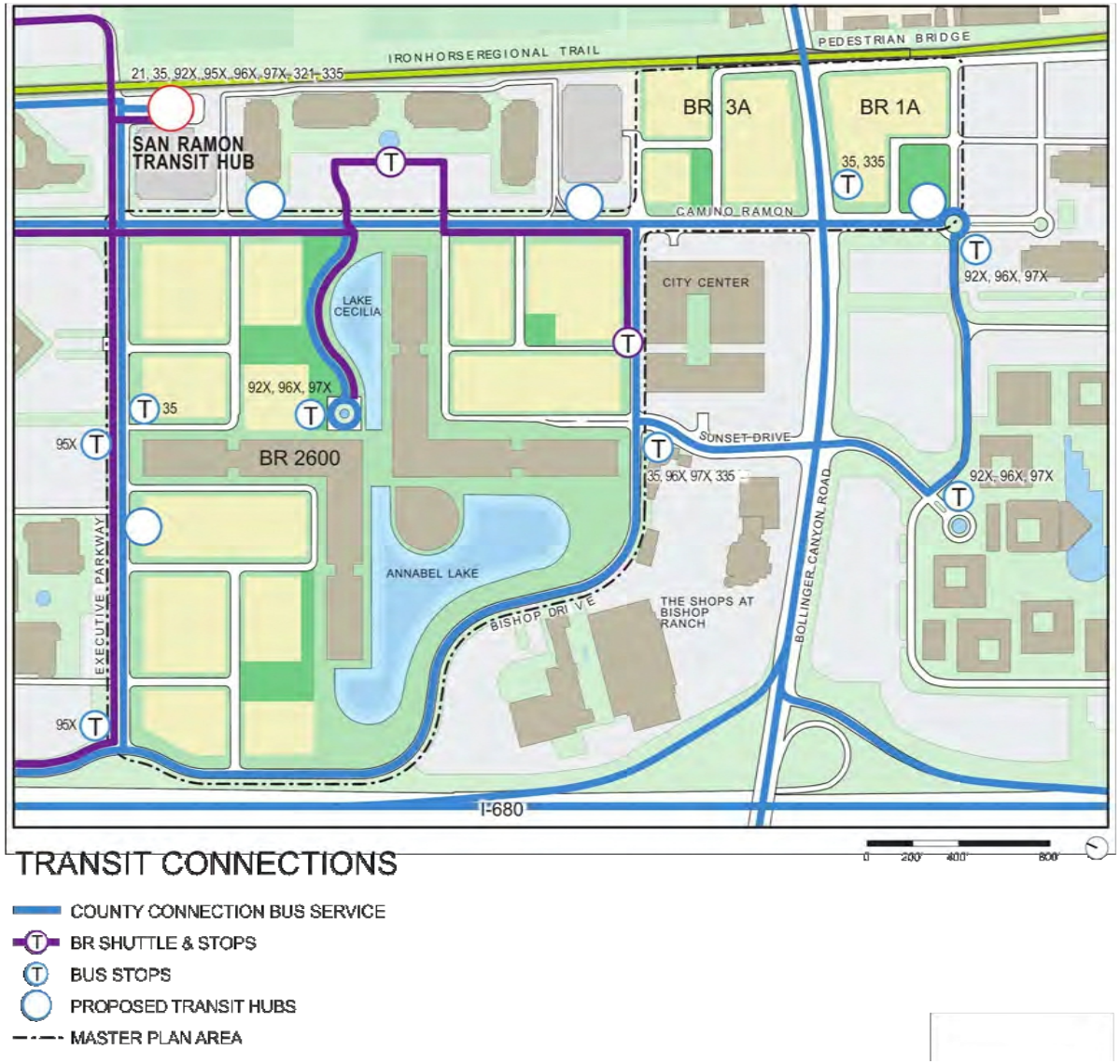

Source: Bishop Ranch. August, 2019.

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-9
Transit Connections

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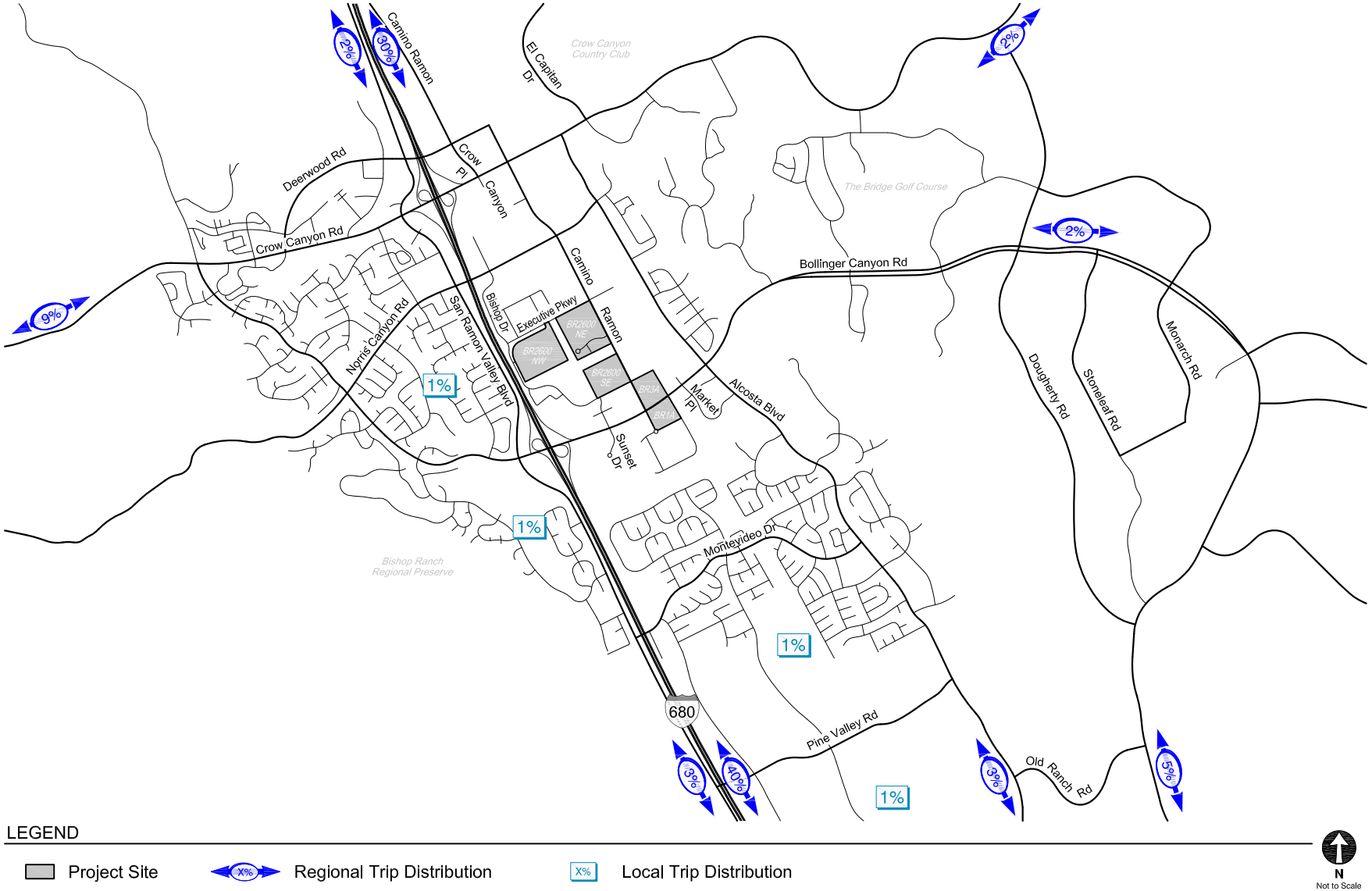

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-10a
Project Trip Distribution Residential

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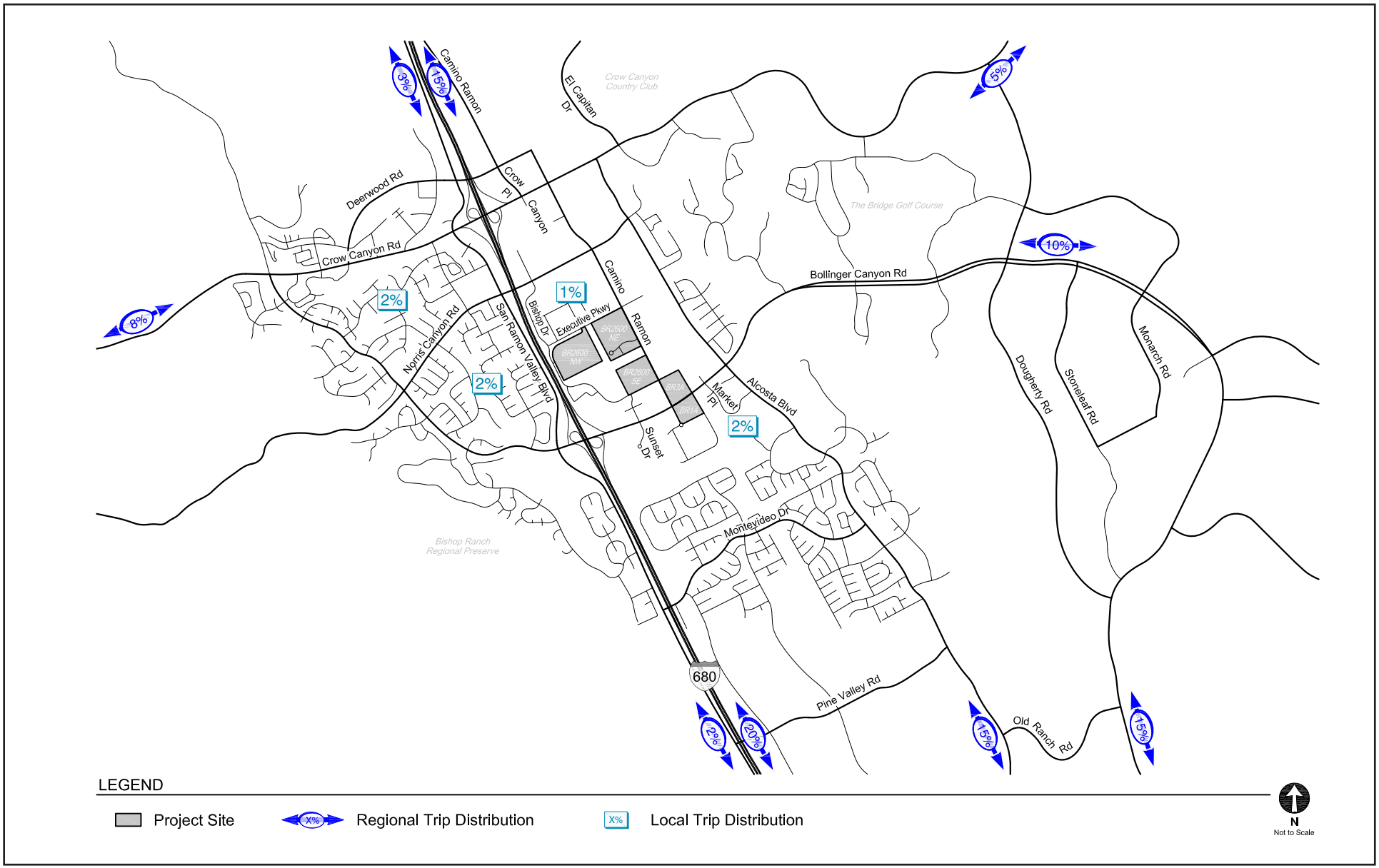

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-10b
Project Trip Distribution Hotel

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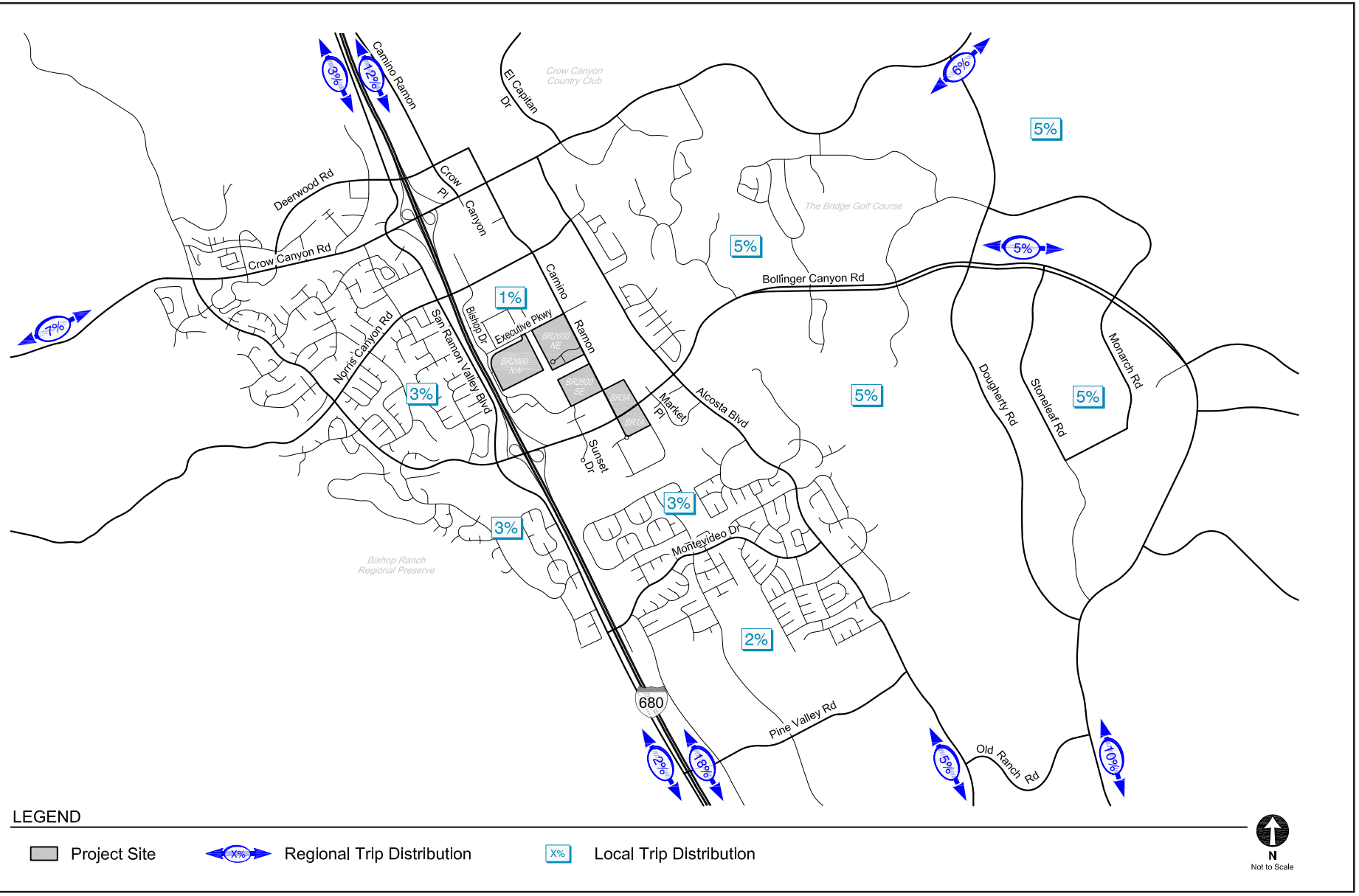

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-10c
Project Trip Distribution Commercial

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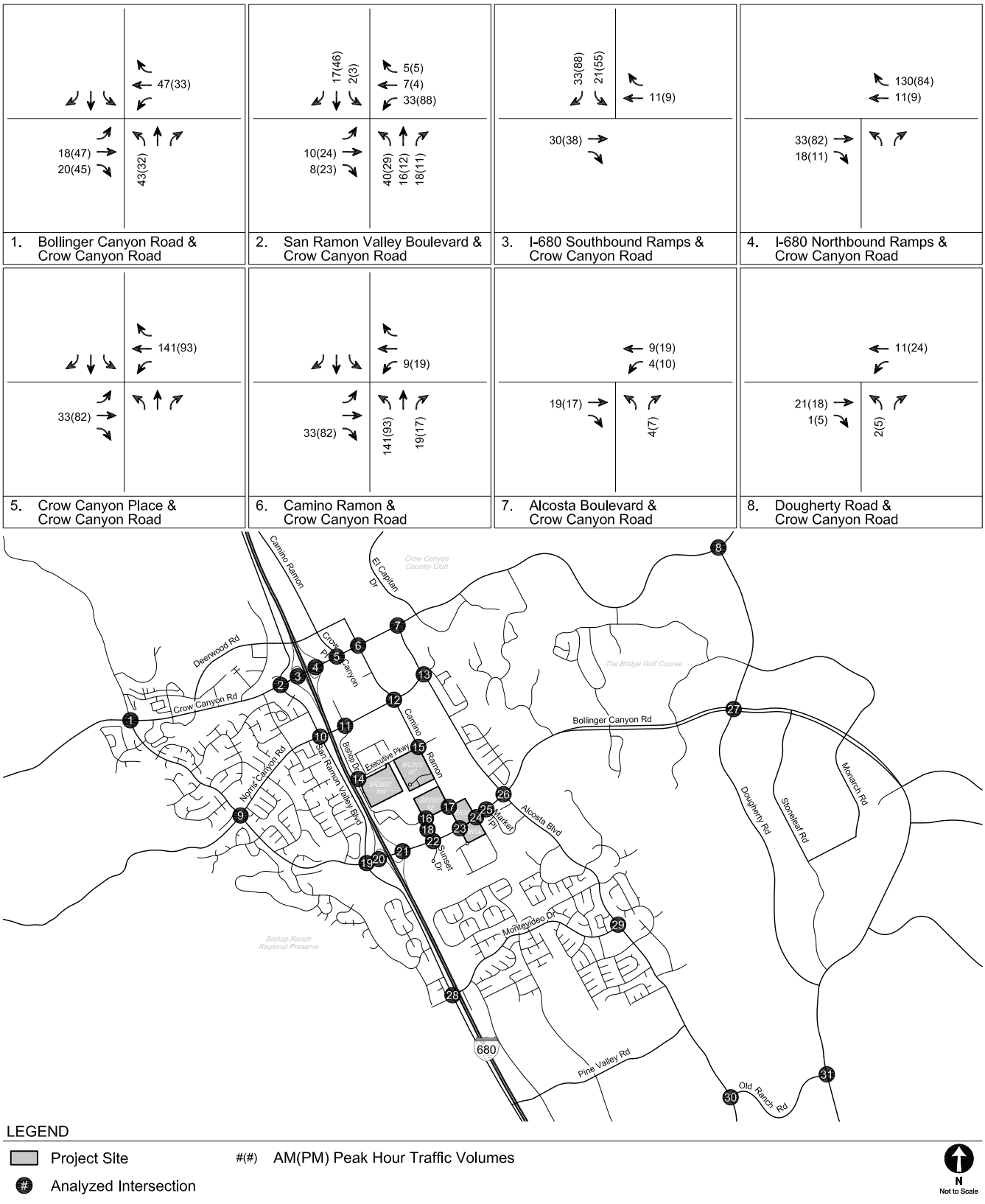

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-11a
Total Project-Only Peak Hour Traffic Volumes

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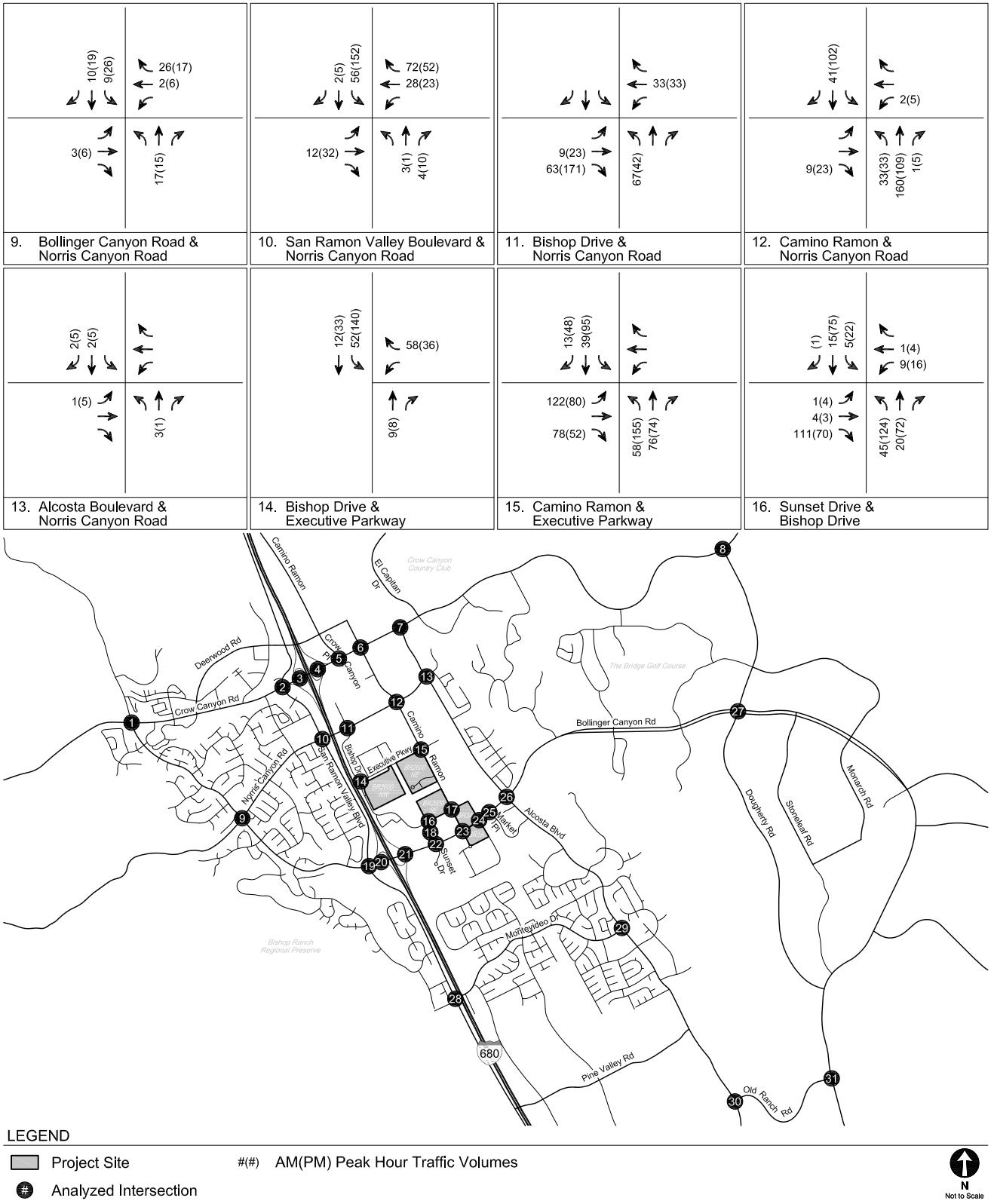

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-11b
Total Project-Only Peak Hour Traffic Volumes

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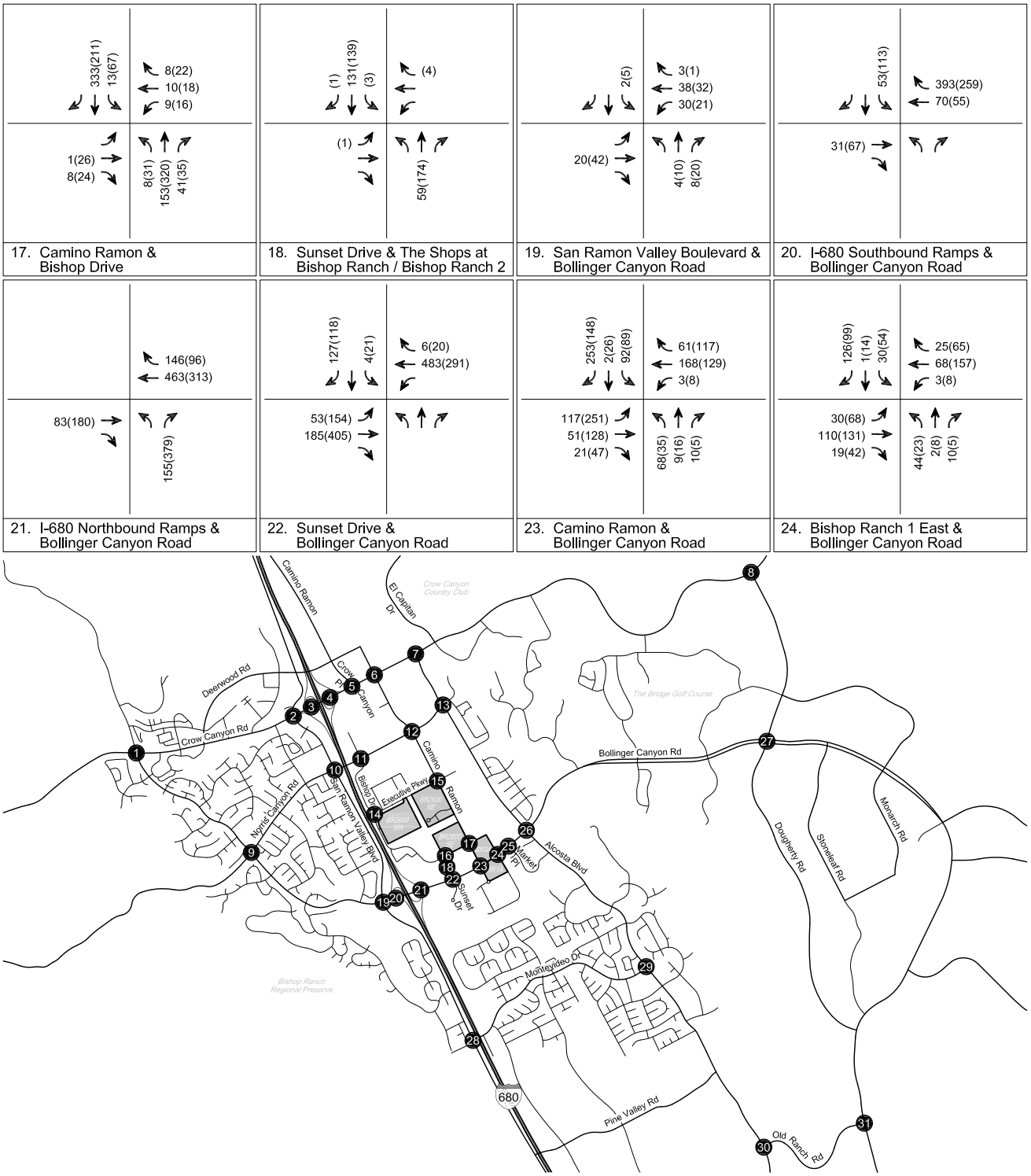

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-11c
Total Project-Only Peak Hour Traffic Volumes

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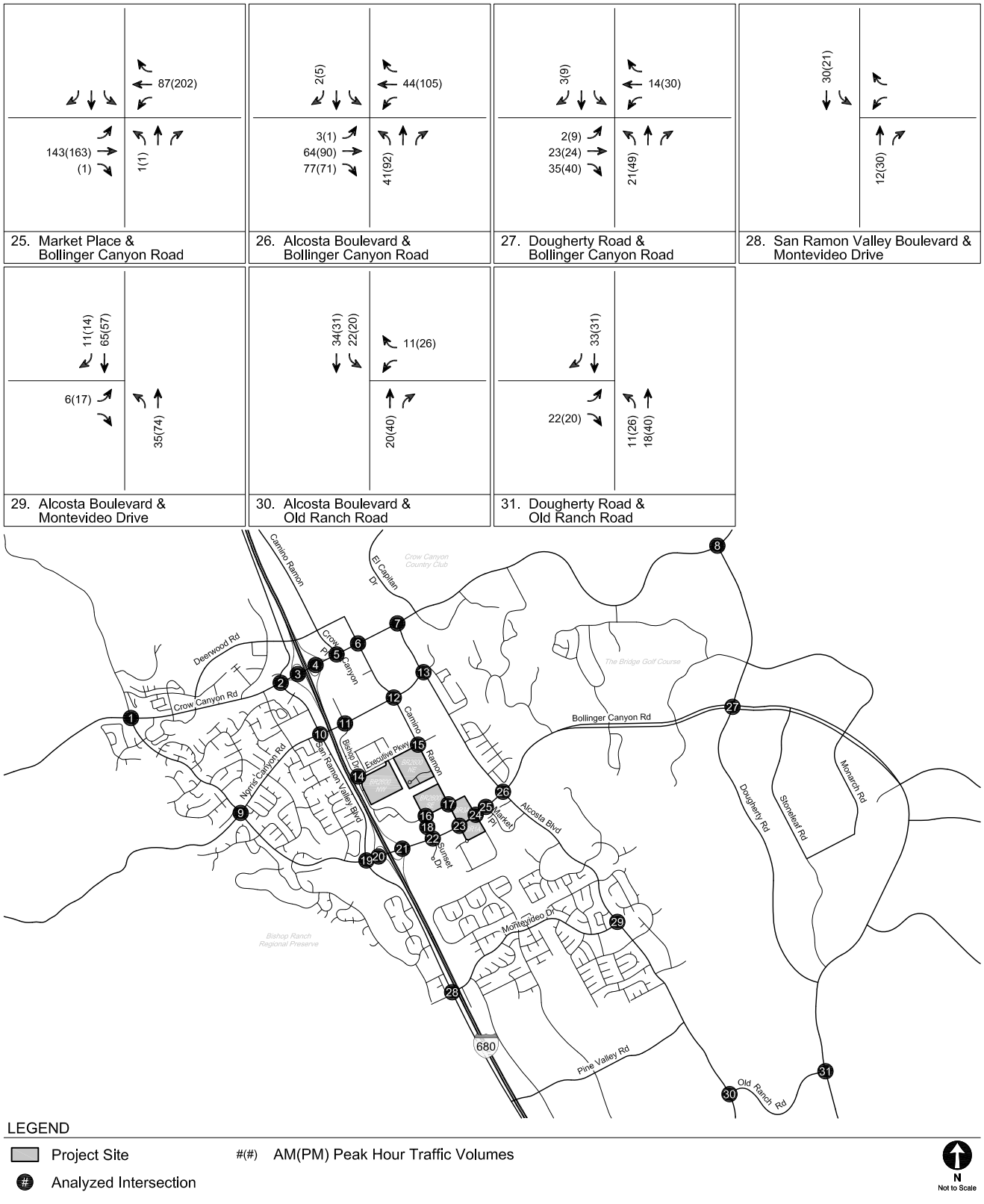

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-11d
Total Project-Only Peak Hour Traffic Volumes

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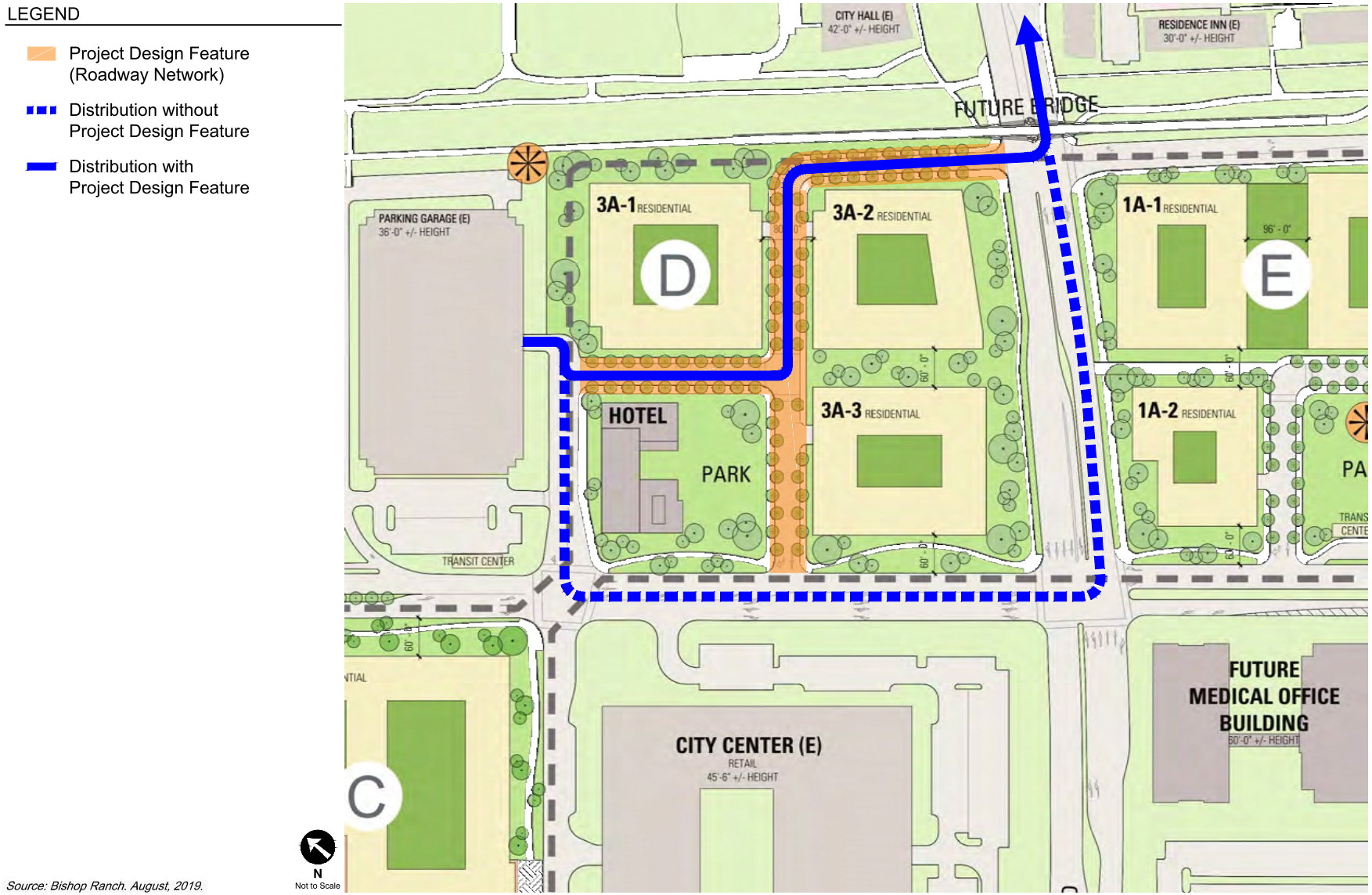

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-12
Redistribution of Existing Traffic

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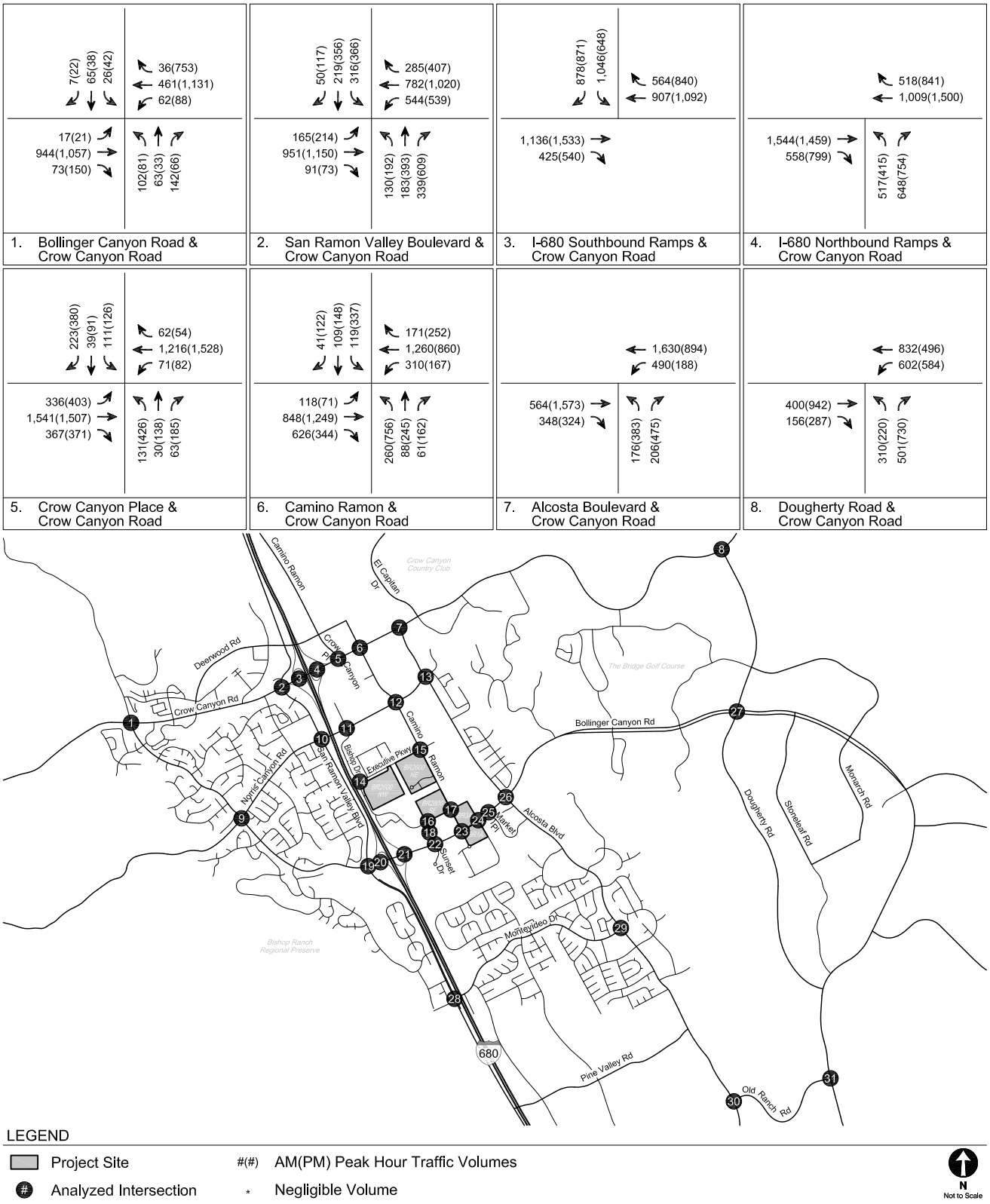

Source: Gibson Transportation Consulting, Inc., March 2020.

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Exhibit 3.14-13a
Existing With Project Conditions (Year 2019) Peak Hour Traffic Volumes

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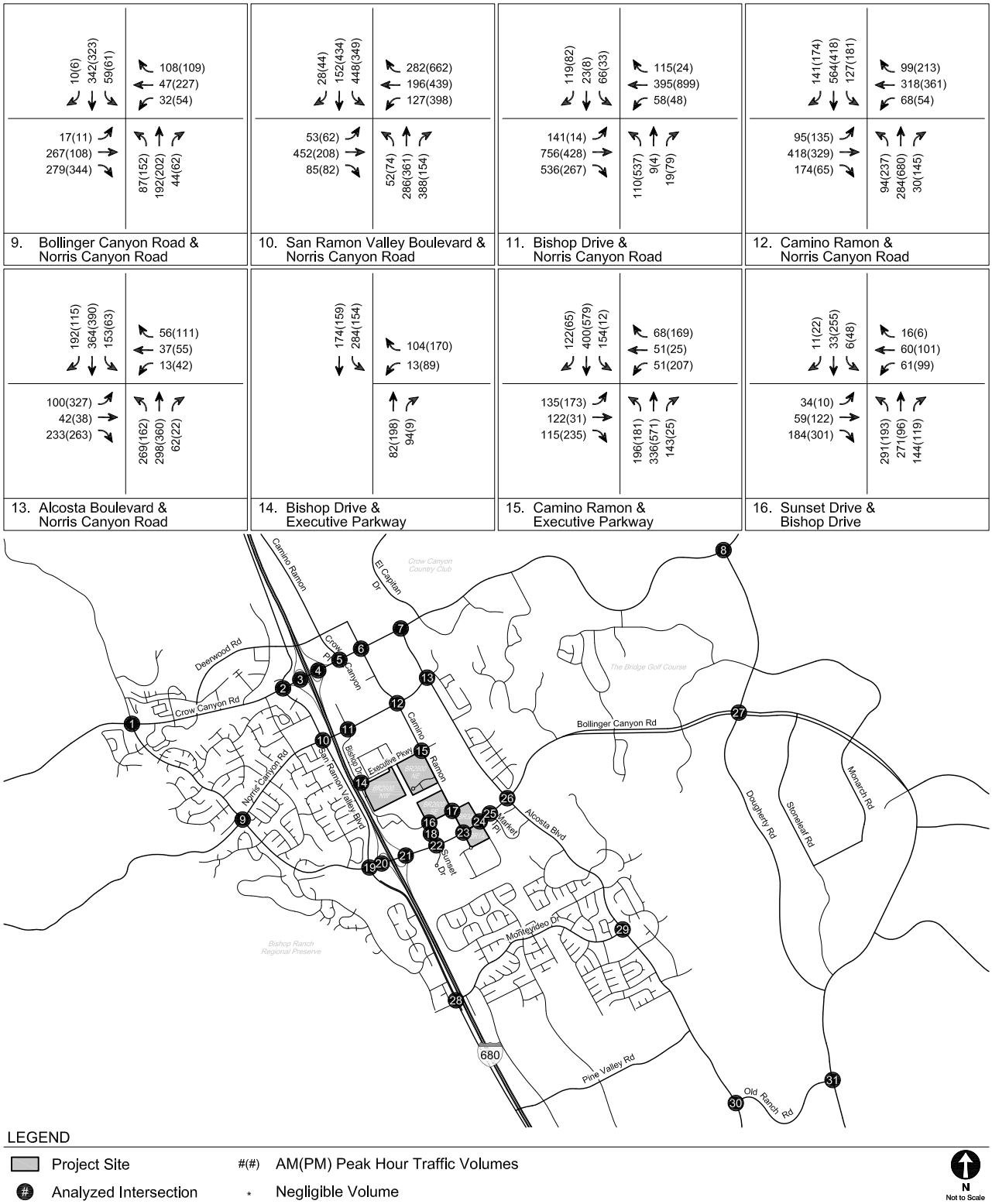

Source: Gibson Transportation Consulting, Inc., March 2020.

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Existing With Project Conditions (Year 2019) Peak Hour Traffic Volumes

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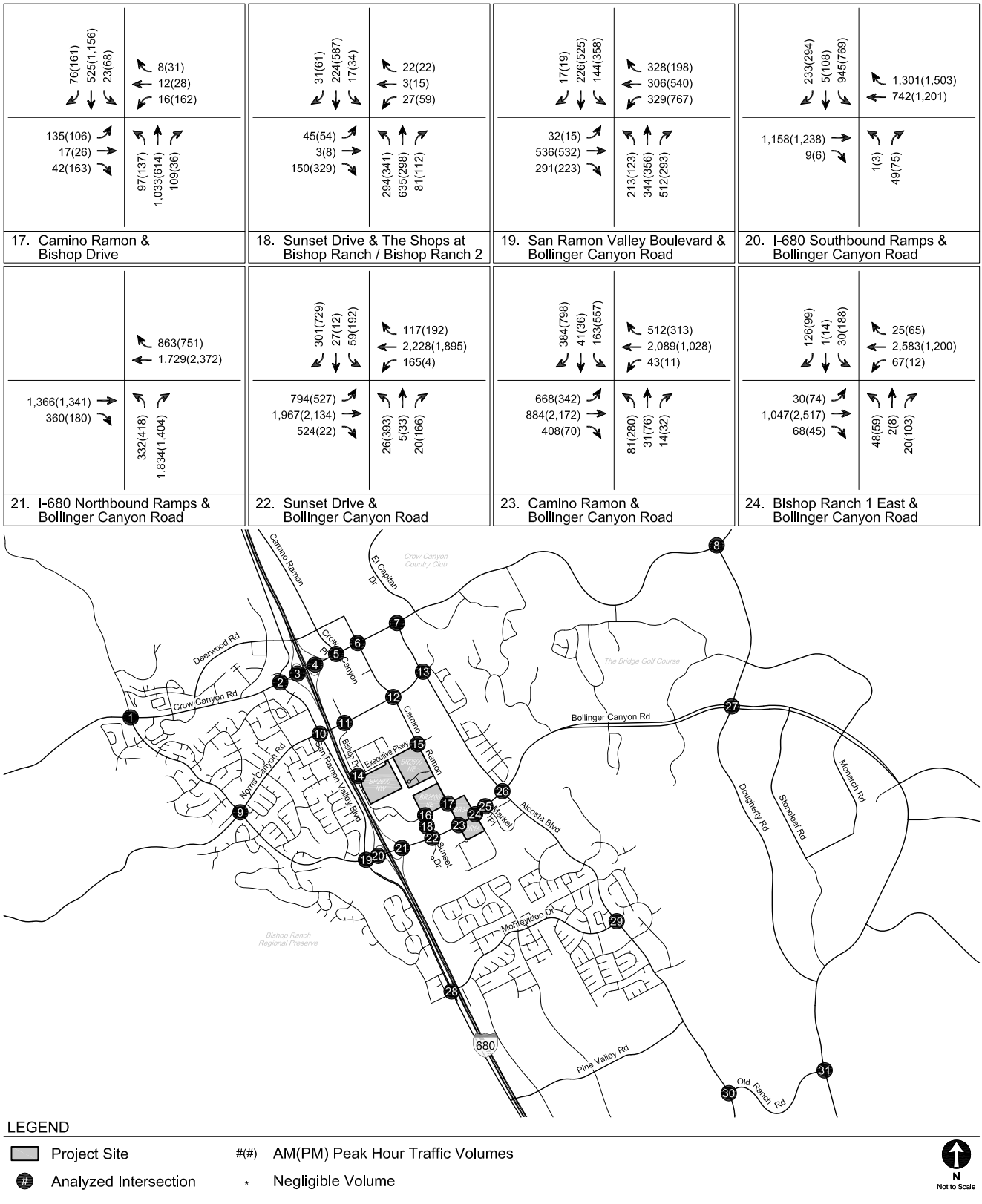

Source: Gibson Transportation Consulting, Inc., March 2020.

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Existing With Project Conditions (Year 2019) Peak Hour Traffic Volumes

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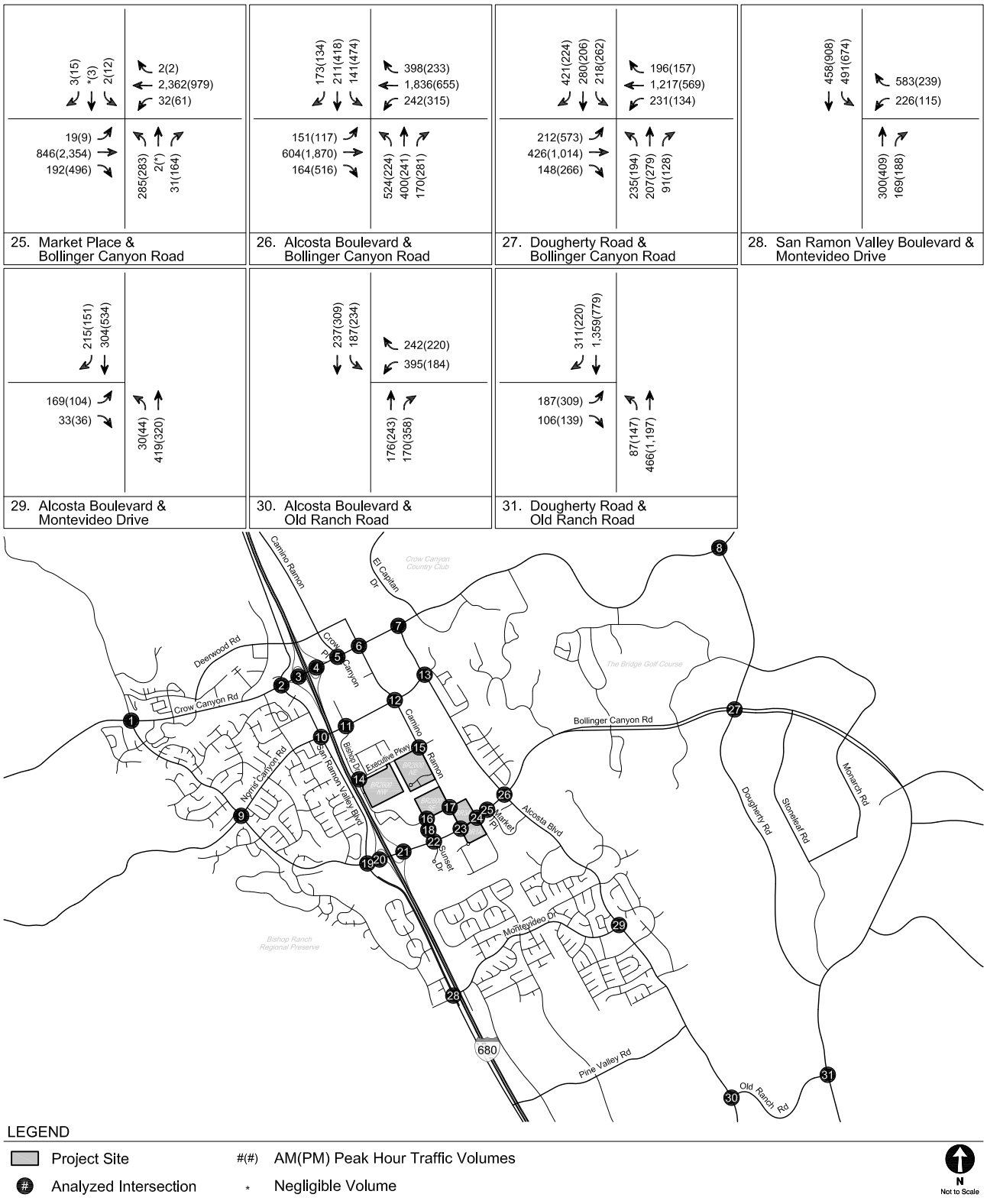

Source: Gibson Transportation Consulting, Inc., March 2020.

Exhibit 3.14-13d
Existing With Project Conditions (Year 2019) Peak Hour Traffic Volumes

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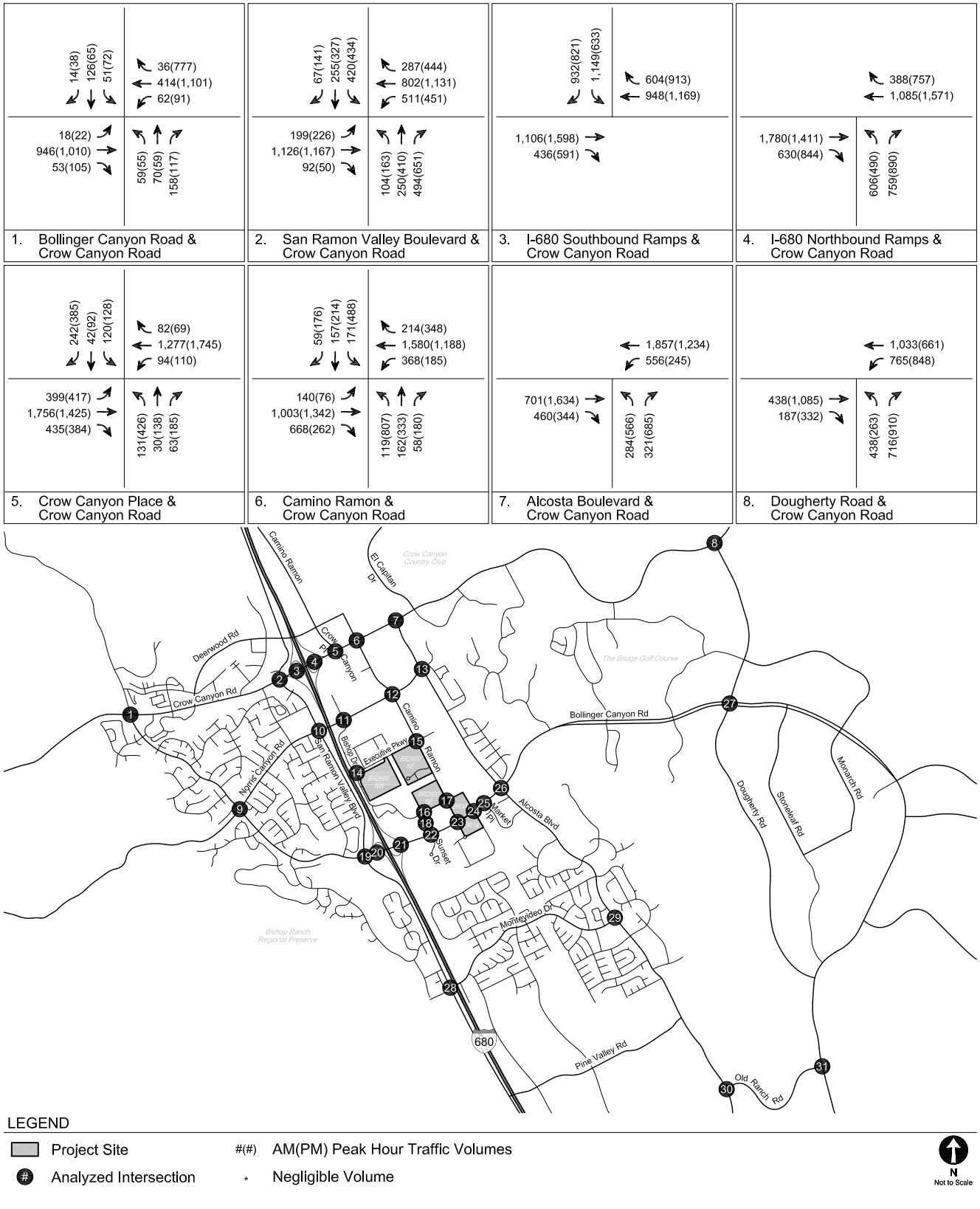

Source: Gibson Transportation Consulting, Inc., March 2020.

Exhibit 3.14-14a
Future Without Project Conditions
(Year 2040) Peak Hour Traffic Volumes

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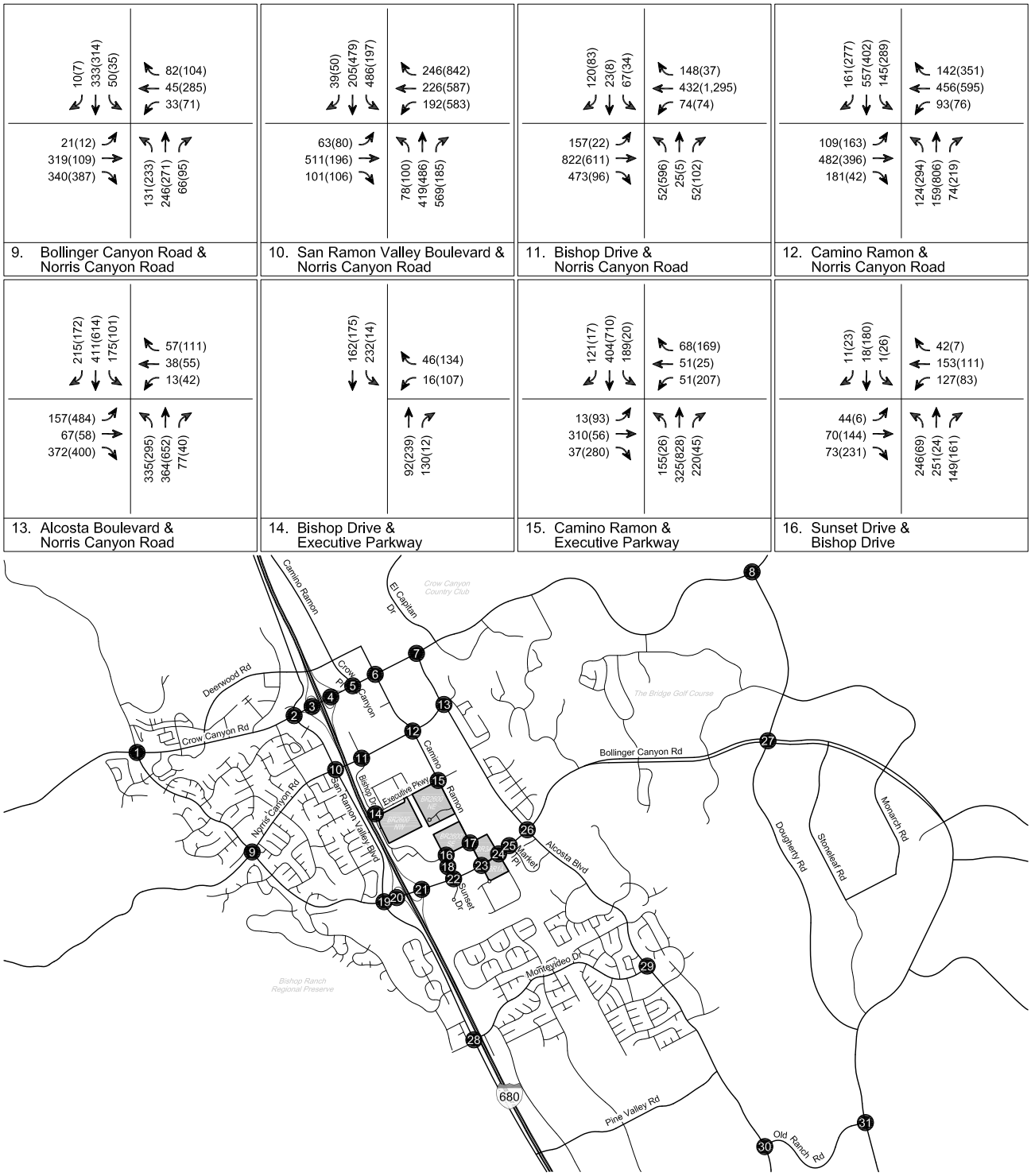

Source: Gibson Transportation Consulting, Inc., March 2020.

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Future Without Project Conditions (Year 2040) Peak Hour Traffic Volumes

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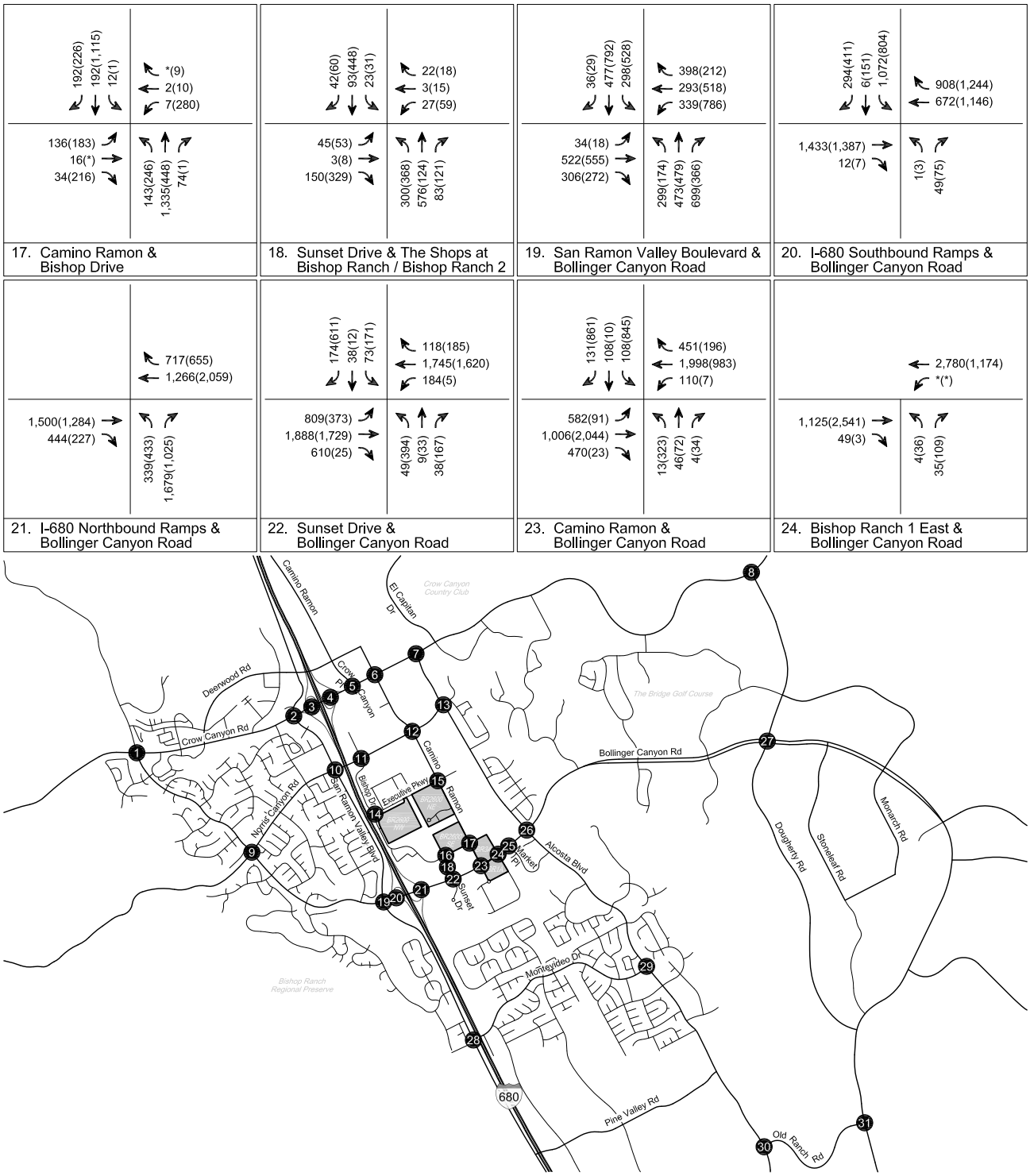

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Future Without Project Conditions (Year 2040) Peak Hour Traffic Volumes

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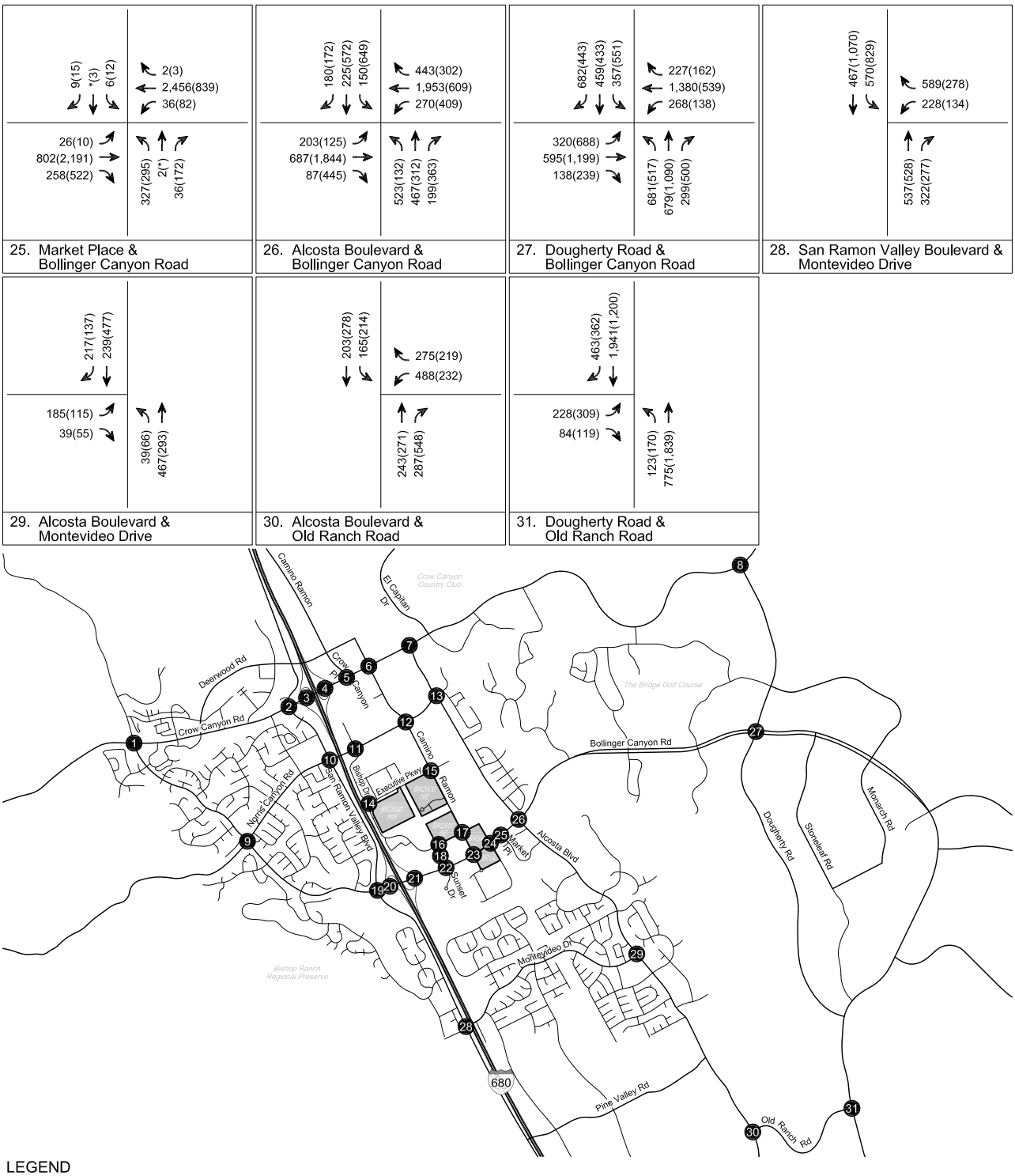

Source: Gibson Transportation Consulting, Inc., March 2020.

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Future Without Project Conditions (Year 2040) Peak Hour Traffic Volumes

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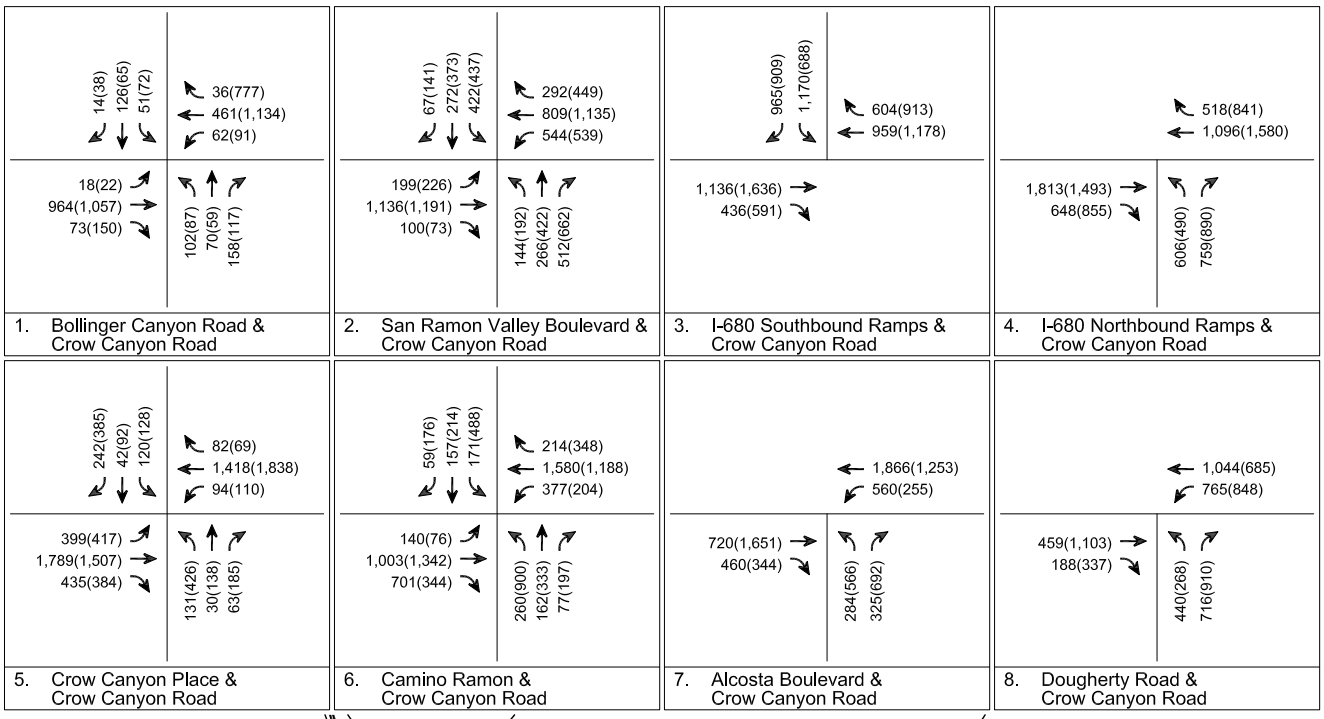

Source: Gibson Transportation Consulting, Inc., March 2020.

Exhibit 3.14-15a
Future With Project Conditions
(Year 2040) Peak Hour Traffic Volumes

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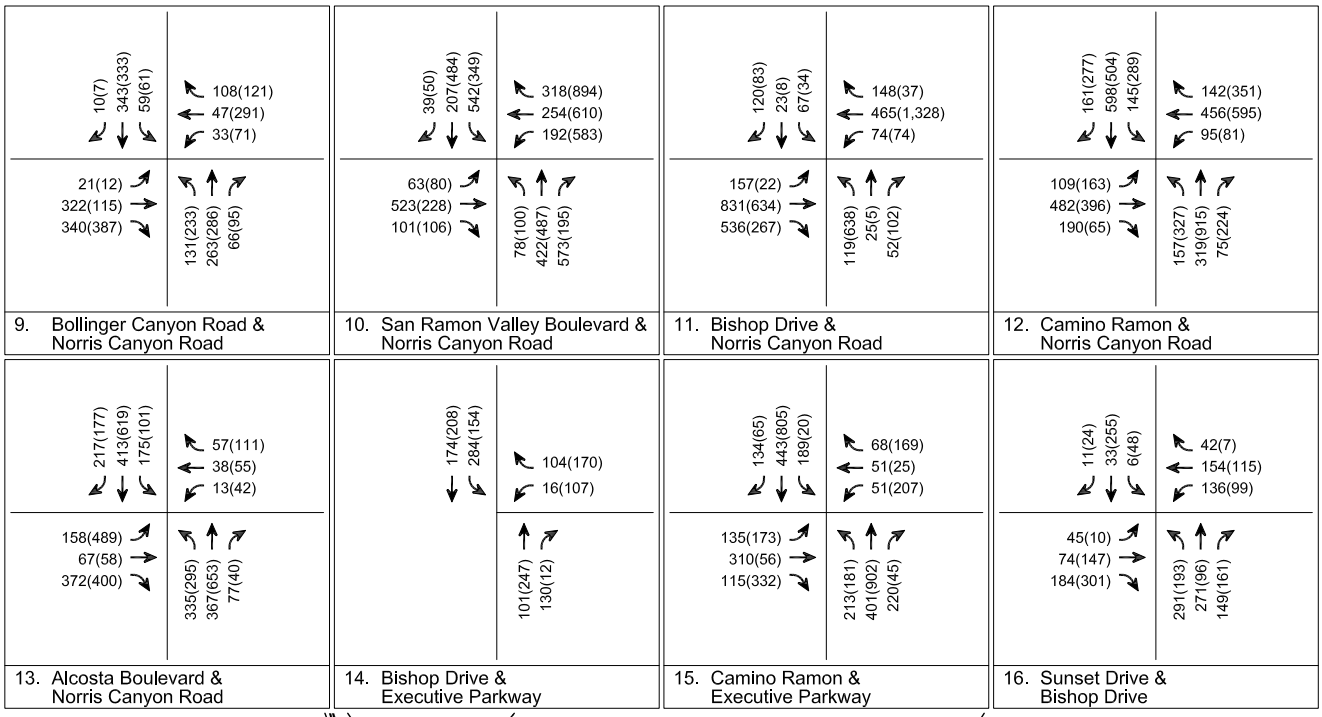

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Exhibit 3.14-15b
Future With Project Conditions (Year 2040) Peak Hour Traffic Volumes

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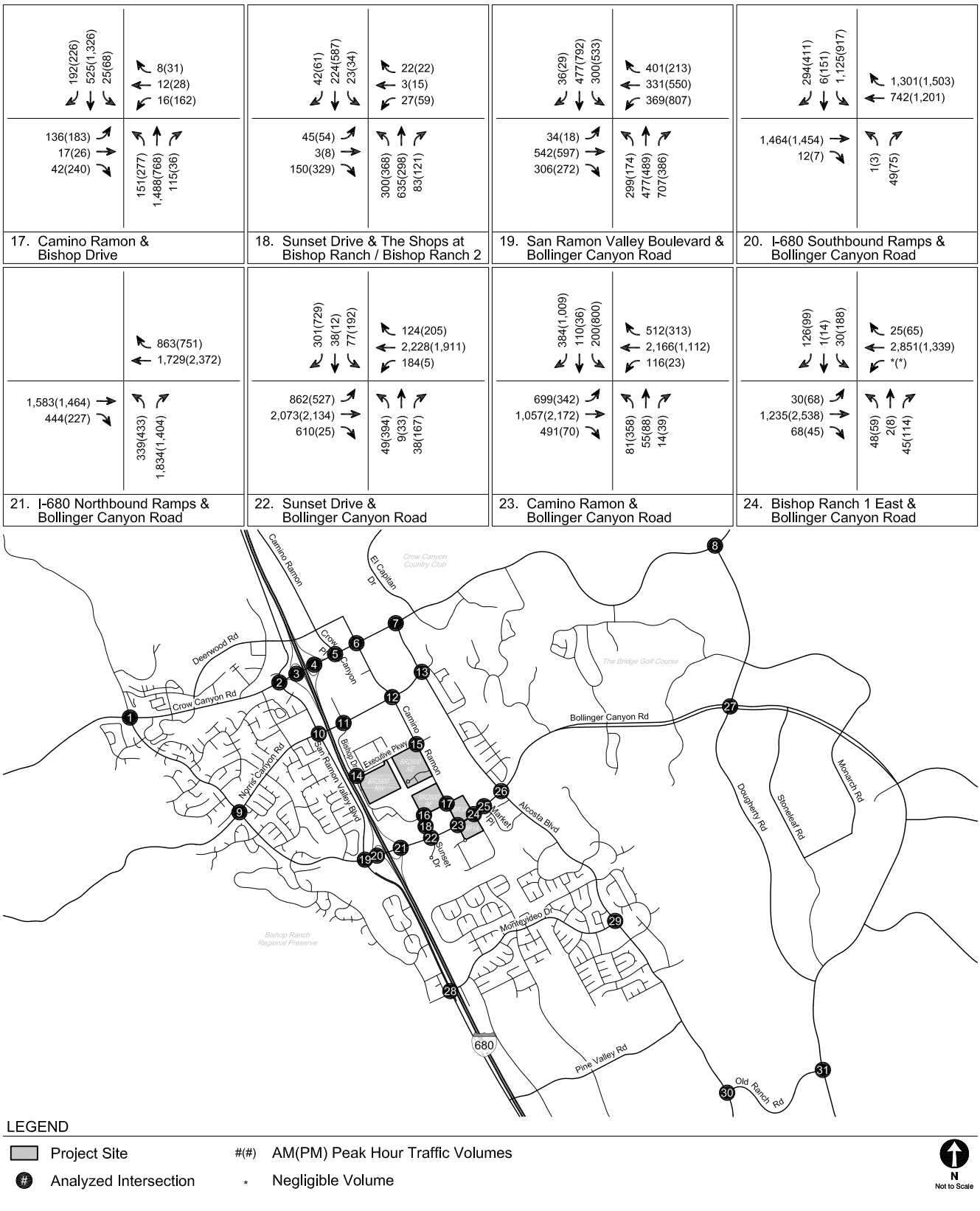

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Future With Project Conditions (Year 2040) Peak Hour Traffic Volumes

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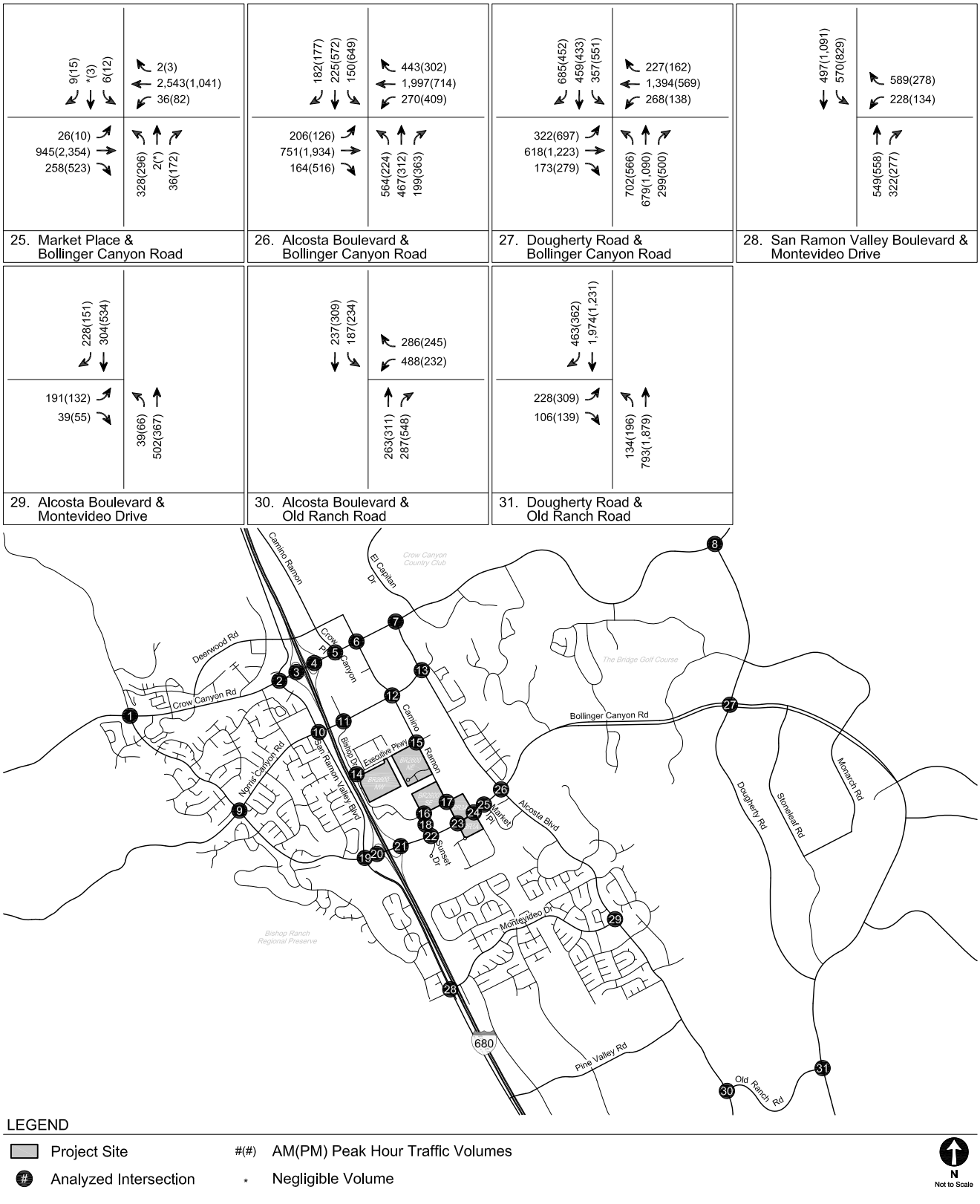

Source: Gibson Transportation Consulting, Inc., March 2020.

Exhibit 3.14-15d
Future With Project Conditions (Year 2040) Peak Hour Traffic Volumes

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3.15 - Utilities and Service Systems

3.15.1 - Introduction

This section describes the existing setting regarding utilities and systems and potential effects from implementation of the Master Plan on utilities and service systems within the Master Plan area and the surrounding areas. This section is based on the Water Supply Assessment (WSA) prepared by East Bay Municipal Utility District (EBMUD) and information provided by Central Contra Costa Sanitary District (Central San), the City of San Ramon, and California Department of Resources Recycling and Recovery (CalRecycle). The WSA is included in Appendix K.

3.15.2 - Environmental Setting

Potable Water

EBMUD provides potable water supply and distribution to a 325-square-mile service area in Alameda and Contra Costa Counties with a population of 1.3 million. The service area includes 20 cities and 15 unincorporated communities, stretching from San Lorenzo in the south, to Crockett in the north, and from Richmond and Alameda in the west to Pleasant Hill and San Ramon in the east. EBMUD is an independent public utility agency governed by an elected seven-member board of directors.

According to the 2015 Urban Water Management Plan (2015 UWMP), EBMUD delivered between 170 and 190 million gallons of water per day (mgd) to customers in the region between 2010 and 2015 (EBMUD 2015). EBMUD has water rights to allow for the delivery of a maximum of approximately 325 million gallons per day (GPD) from the Mokelumne River, subject to senior water rights of other users, obligations to protect public trust resources, such as downstream fishery flow requirements, and conditioned on the variability in precipitation and runoff. Below is a description of EBMUD's distribution and water supply sources.

Distribution System

EBMUD's distribution and storage system consists of approximately 4,200 miles of pipelines and 830 million gallons of storage capacity. EBMUD operates five terminal reservoirs: Briones, Chabot, Lafayette, San Pablo, and Upper San Leandro. These are discussed further below.

Potable water destined for San Ramon is treated at the Walnut Creek Water Treatment Plant and conveyed south down a transmission line within the Iron Horse Trail right-of-way through Alamo and Danville. In 2006, EBMUD completed a $180 million project to improve water quality and reliability along the main transmission line. The project consisted of capacity expansion and seismic upgrades at the Walnut Creek Water Treatment Plant, upgrading a pumping plant in Alamo, and installing four miles of water pipeline in Walnut Creek and Alamo.

EBMUD provides water to San Ramon customers from four pressure zones that correspond to elevation ranges. The Master Plan area is within the Amador Pressure Zone (450 to 650 feet). Bishop Ranch (BR) 2600, BR 1A and BR 3A have existing connections to the EBMUD distribution system through water mains in the existing street right-of-way.

Water Supply

EBMUD obtains approximately 90 percent of its water supply from the Mokelumne River watershed in Alpine, Amador, and Calaveras counties in the Sierra Nevada Mountains. The remaining 10 percent is provided by local runoff collected in its five terminal reservoirs. Each water supply source is discussed below.

Mokelumne River

EBMUD's Mokelumne River supply facilities include Pardee Dam near Jackson in the Sierra Foothills and Comanche Dam, located 10 miles downstream. Water is diverted from the Mokelumne River at Pardee Dam to the three Mokelumne Aqueducts, which bring untreated water 90 miles west to the EBMUD service area. Pardee Dam opened in 1929 and has a maximum capacity of 203,795 acre-feet. Comanche Dam opened in 1964 and has a maximum capacity of 417,120 acre-feet. Note that Comanche Dam does not provide water to the EBMUD service area; rather it functions to regulate the release of water downstream for other beneficial uses such as flood control, irrigation, downstream water rights holders, and environmental protection.

EBMUD has existing entitlements to a maximum of 325 mgd of Mokelumne River water. However, EBMUD's ability to use the full allotment is restricted by a number of factors, including upstream water use by prior rights holders, downstream water use by riparian and senior appropriators and other downstream obligations (e.g., environmental), and variability in rainfall and runoff.

Untreated water from Mokelumne River is of high quality and requires minimal treatment. EBMUD has purchased conservation easements in the Mokelumne River watershed upstream of Pardee Dam to prevent the potential for the introduction of agricultural or urban runoff into the reservoir.

Mokelumne Aqueducts

The Mokelumne Aqueducts are comprised of three steel pipes that were developed over a 34-year period. Aqueduct No. 1 is 5 feet, 5 inches in diameter and went online in 1929; Aqueduct No. 2 is 5 feet, 7 inches in diameter and went online in 1949; Aqueduct No. 3 is 7 feet, 3 inches in diameter and went online in 1963. Collectively, the three aqueducts have a gravity flow capacity of 200 mgd and up to 325 mgd with pumping at the Walnut Creek Treatment Plant.

EBMUD has partnered with five reclamation districts responsible for levees to prevent failure and flooding where elevated sections of the Mokelumne Aqueducts cross the Delta. The $10 million, multiyear program will bring levees to United States Army Corps of Engineers (USACE) agricultural levee standards. EBMUD has contributed $6.6 million to date.

Terminal Reservoirs

EBMUD operates five terminal reservoirs: Briones, Chabot, Lafayette, San Pablo, and Upper San Leandro. Briones, San Pablo, and Upper San Leandro supply water throughout the year, while Chabot and Lafayette serve as emergency sources of supply. These reservoirs also collect local runoff in their respective watersheds. The 2015 UWMP indicates that local runoff provides 15 to 25 mgd of supply. The reservoirs are operated to maintain a 180-day supply of standby storage. Table 3.15-1 provides a summary of each reservoir.

Table 3.15-1: Terminal Reservoir Summary

Terminal Reservoir	Capacity (acre-feet)	Water Sources
Briones	58,961	Mokelumne Aqueducts; Bear Creek
Chabot	10,350	Mokelumne Aqueducts; San Leandro Creek; Upper San Leandro Reservoir; Miller Creek
Lafayette	4,250	Lafayette Creek
San Pablo	38,600	Mokelumne Aqueducts; San Pablo Creek; Bear Creek; Briones Reservoir
Upper San Leandro	38,905	Mokelumne Aqueducts; San Leandro Creek and tributaries
Total	**151,066**	—
Source: East Bay Municipal Utility District, 2015 UWMP.		

Recycled Water

EBMUD and the Dublin San Ramon Services District (DSRSD) jointly provide and distribute recycled municipal water in San Ramon through the San Ramon Valley Recycled Water Program. The program is administered by a joint powers authority, the DSRSD-EBMUD Recycled Water Authority (DERWA). The first phase of the program was completed in 2006 and provides 23 sites, including greenbelts, parks, and schools, with a total use of 700,000 GPD of recycled water.

Treated effluent at the R1 tertiary treatment plant in Pleasanton is filtered and disinfected for appropriate irrigation reuse. Recycled water is conveyed to central San Ramon via a backbone line located within the Iron Horse Trail right-of-way. The backbone line currently extends as far north as Bollinger Canyon Road.

In November 2014, the California Department of Water Resources announced an award of a $4 million grant to expand the San Ramon Valley Recycled Water Program. The expansion will bring recycled water for landscape irrigation to the Santa Rita Jail and Federal Correctional Institution in central Dublin areas west of Interstate 680, and additional parts of Bishop Ranch Business Park, central San Ramon, and Danville.

Water Balance

Table 3.15-2 summarizes the projected demand and supply forecast by the 2015 UWMP between 2015 and 2040, as cited in the WSA. Water supply and demand projections were derived from EBMUD's baseline hydrologic model with the following assumptions:

- Customer demand values are based on the Mid-Cycle Demand Assessment (MCDA), and plan-level demands account projected savings from water recycling and conservation programs.
- EBMUD Drought Planning Sequence assumes water year 1976, 1977, and a modified 1978 hydrology.
- Total system storage is depleted by the end of the third year of the drought.

- EBMUD will implement its Drought Management Program (DMP) when necessary
- The diversions by Amador and Calaveras Counties upstream of Pardee Reservoir will increase over time, eventually reaching the full extent of their senior rights.
- Releases are made to meet the requirements of senior downstream water right holders and fishery releases, as required by the 1998 Joint Settlement Agreement (JSA).
- EMBUD allocation of Central Valley Project (CVP) supply is available the first year of a drought and subsequent drought years, according the United States Bureau of Reclamation 's Municipal and Industrial Shortage Policy.
- The Bayside Groundwater Project Phase 1 is available and brought online in the third year of a drought.
- The supply analysis modeled four scenarios: normal water year, single dry year, multiple dry years (2 years), and multiple dry years (3 years).

Table 3.15-2: Demand and Supply Projections (2015–2040)

Scenario	Category	Year (million gallons per day)					
		2015	2020	2025	2030	2035	2040
Demand	**Planning Level of Demand**	**190**	**217**	**218**	**222**	**229**	**230**
Normal Water Year	Available Supply	>190	>217	>218	>222	>229	>230
Single Dry Year (Year 1)	Available Supply	181	204	205	209	214	215
	Deficiency*	5%	6%	6%	6%	7%	7%
	Demand	180	203	204	208	213	214
	Supplementary Supply Needed	0	0	0	0	0	0
Multiple Dry Years (Year 2)	Available Supply	152	174	174	178	183	184
	Deficiency*	20%	20%	20%	20%	20%	20%
	Demand	152	174	175	178	184	185
	Supplementary Supply Needed	0	0	1	0	1	1
Multiple Dry Years (Year 3)	Available Supply	152	174	173	166	162	145
	Deficiency*	20%	20%	20%	20%	20%	20%
	Demand	152	174	174	178	183	184
	Supplementary Supply Needed	0	0	2	13	24	48
Three Year Drought	Supplementary Supply Needed to Limit Deficiency	0	0	3	13	25	49

Notes:
* Deficiency signifies maximum rationing level.
Source: EBMUD 2015.

As shown in the above table, EBMUD has and will have adequate water supplies to serve existing and projected demand during normal and wet years, but deficits are projected for multi-year droughts. Rationing would be sufficient to provide for adequate water balance for the single dry year and multiple dry year (2 years) scenarios, but a deficit would occur for the multiple dry year (3 years) scenario.

Water Supply Projects

At the time of this writing, EBMUD is currently working on 47 active projects. Furthermore, EBMUD has 23 planned projects to improve the efficiency of the water supply within the district territory. One of the 23 planned projects, one is located in the City of San Ramon. According to the San Ramon Valley Recycled Water Program, the planned project intends to extend the recycled water pipeline in parts of San Ramon, Danville, and Blackhawk.

Wastewater

Central San provides wastewater collection and treatment to the northern portion of the City of San Ramon, the incorporated cities and towns of Danville, Orinda, Lafayette, Moraga, Walnut Creek, Pleasant Hill, and Martinez, and the unincorporated communities of Alamo, Blackhawk, and Pacheco. Central San provides only treatment, not collection, for the cities of Concord and Clayton. The total population served within the Central San service area is approximately 488,900. Central San is an independent public utility agency governed by an elected five-member Board of Directors.

Collection System

Central San's sewer collection infrastructure consists of approximately 1,540 miles of underground pipe and 18 pumping stations. Wastewater flows from San Ramon are conveyed north to Central San's wastewater treatment plant via the San Ramon Interceptor located within the Iron Horse Trail corridor. In 2008, Central San completed a capacity improvement project for the interceptor between Norris Canyon Road in San Ramon and St. James Place in Danville in anticipation of increased wastewater flows from planned growth in San Ramon.

Treatment Plant

Central San treats sewage at its treatment plant in Martinez. The treatment plant has a dry weather effluent discharge limit of 54 mgd, and wet weather flow of 240 mgd. The treatment plant uses ultraviolet disinfection and has secondary treatment capabilities. A portion of the treated effluent receives additional treatment and is used as recycled water; the remaining effluent is released into Suisun Bay via an outfall. The treatment plant is in compliance with all applicable federal and state environmental health and safety standards for treated wastewater. The plant obtains 90 percent of its electricity through a methane cogeneration system with a nearby landfill.

Storm Drainage

The City of San Ramon owns and maintains drainage facilities within the City limits. The Master Plan area and the immediate vicinity are drained by an existing 72-inch-diameter storm drain located under Camino Ramon that transitions to an 84-inch-diameter pipe south of Bollinger Canyon Road and, ultimately, to a 96-inch-diameter pipeline located under the BR 1 surface parking areas. The 96-

inch-diameter pipeline crosses BR 1 to the Iron Horse Trail corridor and ultimately discharges into South San Ramon Creek, approximately 2,000 feet south of BR 1A.

Solid Waste

Solid waste collection and disposal in San Ramon is provided by Alameda County Industries (ACI), which operates under an exclusive franchise agreement with the City of San Ramon (San Ramon 2020c). These services include collection of solid waste from commercial, industrial, and residential customers, collection of residential and commercial recyclables and organics.

Landfills

Solid waste from San Ramon is disposed of at the Vasco Road Landfill and Altamont Landfill, both located in the Altamont Foothills near Livermore. The two landfills are summarized in Table 3.15-3. The two landfills have a combined 72.8 million cubic yards in remaining capacity.

Table 3.15-3: Landfill Summary

Landfill	Location	Maximum Daily Throughput (tons)	Remaining Capacity (cubic yards)
Altamont Landfill	Livermore	11,150	65.4 million
Vasco Road Sanitary Landfill	Livermore	2,518	7.4 million
Source: CalRecycle 2019. Solid Waste Information System (SWIS) Facility Detail.			

Recycling and Green Waste Collection

As stated above, collection of residential and commercial recyclables and organics is provided by ACI under agreement with the City of San Ramon.

3.15.3 - Regulatory Framework

State

California Water Code Sections 10910-10915

California Water Code Sections 10910 through 10915 require that a WSA be prepared for any project with the following characteristics:

- A residential development of more than 500 dwelling units.
- A shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- A commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- A proposed hotel or motel, or both, having more than 500 rooms.

- An industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- A mixed-use project that includes one or more of the projects specified above.
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

The WSA must evaluate the proposed project's demand and determine if the local water supplier has adequate supplies to serve the project.

California Urban Water Management Planning Act

The Urban Water Management Planning Act (California Water Code §§ 10610-10656) requires that all urban water suppliers prepare urban water management plans and update them every 5 years.

California Integrated Waste Management Act

To minimize the amount of solid waste that must be disposed of by transformation and land disposal, the State Legislature passed Assembly Bill 939, the California Integrated Waste Management Act of 1989 (AB 939), effective January 1990. The legislation required each local jurisdiction in the State to set diversion requirements of 25 percent in 1995 and 50 percent in 2000; established a comprehensive statewide system of permitting, inspections, enforcement, and maintenance for solid waste facilities; and authorized local jurisdictions to impose fees based on the types or amounts of solid waste generated.

California's Energy Efficiency Standards for Residential and Nonresidential Buildings

Title 24, Part 6, of the California Code of Regulations establishes California's Energy Efficiency Standards for Residential and Nonresidential Buildings. The standards were updated in 2019 and set a goal of reducing growth in electricity use by 478 gigawatt-hours per year (GWh/y) and growth in natural gas use by 8.8 million therms per year (therms/y).

Local

City of San Ramon General Plan 2035

The City of San Ramon General Plan 2035 establishes the following relevant policies related to utility systems:

- **Policy 2.3-I-18:** Evaluate the ability of new development to pay for its infrastructure, its share of public and community facilities, and the incremental operating costs it imposes.
- **Policy 3.1-I-7:** Allow urban development only within the City's Urban Growth Boundary and only in accord with a plan for full urban services (police, fire, parks, water, sewer, streets and storm drainage) to which all providers are committed.
- **Policy 3.2-G-1:** Ensure the attainment of public facility and service standards through the City's development review process, Capital Improvement Program, and a variety of funding mechanisms to maintain existing facilities and help fund expansion.

- **Policy 3.2-I-3:** Require new development to fund public facilities and infrastructure that is deemed necessary to mitigate the impact of that new development.
- **Policy 3.2-I-4:** Levy local, sub-regional, and regional mitigation fees for public facilities and infrastructure improvements in proportion to a new development's impact.
- **Policy 7.5-G-1:** Manage solid waste so that State diversion goals are exceeded and the best possible service is provided to the citizens and businesses of San Ramon.
- **Policy 7.5-I-2:** Provide and promote opportunities to reduce waste at home and in businesses, and make possible the safe disposal of hazardous materials.
- **Policy 7.5-I-4:** Require builders to incorporate interior and exterior storage areas for recyclables into new commercial and residential remodeled buildings, and encourage remodeled buildings (both residential and commercial) to make recycling activities more convenient for those who use the buildings.
- **Policy 8.6-G-1:** Encourage the implementation of water quality and conservation programs and measures by San Ramon employers, residents, and service providers.
- **Policy 8.6-I-1:** Require new development projects to implement indoor water conservation and demand management measures.
- **Policy 8.6-I-2:** Require new development projects to implement outdoor water conservation and demand management measures.
- **Policy 8.6-I-3:** New development in areas where recycled water service exists or is planned shall be plumbed with "purple pipe" and other measures necessary to accommodate nonpotable water service.
- **Policy 8.6-I-4:** Require new development to meet the State Model Water Efficient Landscape Ordinance (MWELO).
- **Policy 8.6-I-5:** Work with DERWA (Dublin San Ramon Services District and East Bay Municipal Utility District Recycled Water Authorities) to expand the recycled water distribution system in an efficient and timely manner.
- **Policy 9.4-I-2:** Require new development to prepare hydrologic studies to assess storm runoff impacts on the local and subregional storm drainage systems and/or creek corridors.
- **Policy 9.4-I-3:** Require new development to provide for the perpetual funding and ongoing maintenance of detention basins. Maintenance may be by the City under contract, by a private entity, or by another public agency.
- **Policy 9.4-I-4:** Establish landscape and maintenance guidelines for required detention basins to ensure that such facilities achieve a look and quality that is consistent with the landscape of San Ramon and applicable regulatory requirements.

San Ramon City Code

San Ramon City Code Division C4 Chapter VIII (Ordinance No. 218) requires that water conservation features be incorporated into landscaping plans. The ordinance includes provisions requiring the use of drought tolerant landscaping, climate sensitive irrigation systems, use of water efficient sprinkler heads, and other water conservation practices and technologies where feasible.

3.15.4 - Methodology

FirstCarbon Solutions (FCS) evaluated potential impacts on utilities and service systems through a review of the City of San Ramon General Plan 2035, EBMUD 2015 UWMP, EBMUD City Center Mixed

Use Master Plan Project Water Supply Assessment, the CalRecycle website, and a letter from Pacific Gas & Electric (PG&E) dated September 2, 2019, addressing the proposed Master Plan. The proposed Master Plan's demand on utilities and service systems was compared to the availability of utilities and service systems. Impacts related to electric power, natural gas, and telecommunications facilities are addressed below, as well as in Section 3.5, Energy.

3.15.5 - Thresholds of Significance

According to California Environmental Quality Act (CEQA) Guidelines Appendix G, Environmental Checklist, to determine whether impacts to utilities and service systems are significant environmental effects, the following questions are analyzed and evaluated.

Would the proposed Master Plan:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e) Comply with federal, State, and local statutes and regulations related to solid waste?

3.15.6 - Project Impacts and Mitigation Measures

Utility Construction, Expansion, or Relocation

Impact UTIL-1:	**The proposed Master Plan would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.**

Impact Analysis

The proposed Master Plan would not require the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electrical power, natural gas, or telecommunications facilities. The proposed Master Plan includes the development of residential uses, commercial uses, and public facilities within BR 2600, BR 1A, and BR 3A.

Executive Parkway has an existing 8-inch diameter water main, Bishop Drive has an 8-inch diameter water main, Camino Ramon has a 12-inch diameter water main, and Bollinger Canyon Road has a 16-inch diameter water main connecting the water supply to the EBMUD distribution system.

Additionally, approximately 12 public fire hydrants will serve the Master Plan area. Within BR 2600, there are various private fire hydrants for the protection of the present office building. Although existing infrastructure will be preserved to the extent feasible, on-site distribution lines and service laterals within the Master Plan Area will need to be relocated or removed to accommodate development anticipated by the Master Plan. The proposed Master Plan would install new service connections for the proposed development to these existing potable water mains owned and operated by the EBMUD within the public right-of-way.

Based on the DERWA San Ramon Valley Recycled Water Program Current Facilities Location Map from March of 2018, the intersection of Iron Horse Trail and Bollinger Canyon Road is identified as a DERWA Backbone. Based on the design of the proposed Master Plan, infrastructure within the Master Plan area would connect to the infrastructure already in place within the City of San Ramon.

According to the Central San Will Serve Letter, the proposed Master Plan would generate approximately 507,000 gallons of wastewater per day. The existing 30-inch interceptor in the vicinity of the Master Plan area does not have the required capacity to handle the increase in wastewater. However, an additional unused 15-inch interceptor was identified by Central San as a possible contingency, which would provide the necessary remaining capacity needed to handle the wastewater flows from the Master Plan area. The 15-inch interceptor is 1,100 feet in length and is made of reinforced concrete, which was originally installed circa 1964. Wastewater would flow from the Master Plan area to these existing sewer lines located in the public right-of-way.

As discussed in Section 3.5, Energy, the proposed Master Plan would be served with electricity provided by Marin Clean Energy (MCE 2020) and PG&E (PG&E 2020). As the proposed Master Plan is constructed, the new uses will be automatically enrolled in MCE's generation service. PG&E will provide all electric delivery, billing, and power line maintenance. According to a PG&E letter sent on October 23, 2019, gas and electric services are available to the Master Plan area. Extensions to the new facilities would be made in accordance with PG&E rules and regulations. Any relocation of existing facilities would be made at the developer's expense.

In addition, according to a letter dated October 2, 2019, Comcast, the telecommunications provider for the Master Plan area, confirmed that the Master Plan area is within the Comcast service area. As stated within the letter, Comcast expects to be in a position to provide its services to occupants in BR 2600, BR 1A, and BR 3A. Arrangements to install the necessary service facilities are being made in accordance with Comcast's wiring infrastructure specifications and requirements.

Based on the design of the proposed Master Plan and the presence of infrastructure capable of handling the expected water, wastewater, stormwater, electrical, natural gas, and telecommunications needs, the proposed Master Plan is not expected to result in significant environmental impacts. As such, impacts are less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Water Supplies

Impact UTIL-2:	**The proposed Master Plan would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.**

Impact Analysis

A WSA was prepared EBMUD for the proposed Master Plan in October 2019 to assess the water supply availability for the buildout of the Master Plan. Using region-specific water use information, EBMUD estimated a water demand of 952,000 GPD, including approximately 19,600 GPD of recycled water demand. EBMUD determined that this amount is accounted for in EBMUD's water demand projections published in the 2015 UWMP and presented in Table 3.15-2 above. The 2015 UWMP concluded that EBMUD has, and will have, adequate water supplies to serve existing and projected demand within the Ultimate Service Boundary during normal and wet years, but that deficits are projected for multi-year droughts. During multi-year droughts, EBMUD may require significant customer water use reductions and may also need to acquire supplemental supplies to meet customer demand. The WSA states that the proposed Master Plan will be subject to the same drought restrictions that apply to all EBMUD customers.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Wastewater

Impact UTIL-3:	**The proposed Master Plan would not result in a determination by the wastewater treatment provider which serves or may serve the proposed Master Plan that it has adequate capacity to serve the proposed Master Plan's projected demand in addition to the provider's existing commitments.**

Impact Analysis

According to Central San, the proposed Master Plan would generate approximately 507,000 gallons of wastewater per day for an approximate total of approximately 185 million gallons per year. As discussed above, Central San treats sewage at a treatment plant located in Martinez. This treatment plant has an effluent discharge limit of approximately 54 mgd, and a wet weather flow of 240 mgd.

During regular daily operating conditions, approximately 35 million gallons of wastewater flows by gravity to the treatment plant through approximately 1,500 miles of underground utility pipelines. In areas where gravity is not sufficient to transport sewage to the treatment plant, a series of 18 pumping stations lifts the sewage to the main sewer lines to convey the flows to the plant in Martinez.

Based on the estimated daily capacity of the treatment plant in Martinez, the proposed Master Plan would represent the addition of approximately 0.01 percent in flows per day to the wastewater treatment plant. Therefore, the proposed Master Plan would not require the expansion of wastewater facilities and impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Solid Waste

Impact UTIL-4:	**The proposed Master Plan would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.**

Impact Analysis

Construction Solid Waste Generation

Construction waste generation is summarized in Table 3.15-4. As shown in the table, the proposed Master Plan would generate 12,978 cubic yards over the 25-year buildout horizon. The two landfills that serve San Ramon have 72.8 million cubic yards of remaining capacity and, thus, can accommodate the construction solid waste generated by the proposed Master Plan.

Table 3.15-4: Construction Solid Waste Generation

Waste Generation Rate	Square Feet	Solid Waste Generation	
		Tons	Cubic Yards
3.89 pounds/square feet	4,766,000	9,270	12,978

Notes:
1 ton = 2,000 pounds
1 ton = 1.4 cubic yards
Source: FCS and CalRecycle 2020.

As a practical matter, Construction and Demolition Debris Recycling practices would divert most, if not all, construction solid waste from landfills. Waste haulers dumping construction debris at

transfer stations are given the option of construction and demolition debris recycling, which typically costs less than dumping in the municipal solid waste stream. Construction and demolition debris recycling involves diverting recoverable materials for reuse or reprocessing, while non-recoverable materials are ground up into Alternative Daily Cover for use at landfills. Impacts would be less than significant.

Operational Solid Waste Generation

Operational waste generation is summarized in Table 3.15-5. As shown in the table, the proposed Master Plan would generate 16,015 cubic yards of solid waste annually at buildout. The two landfills that serve San Ramon have 72.8 million cubic yards of remaining capacity and, thus, can accommodate the solid waste generated by the proposed Master Plan at operation.

Table 3.15-5: Operational Solid Waste Generation

Waste Generation Rate	Square Feet	Solid Waste Generation	
		Tons	Cubic Yards
4.8 pounds/square feet/year	4,766,000	11,439	16,015

Notes:
1 ton = 2,000 pounds
1 ton = 1.4 cubic yards
Source: FCS 2020.

The Bishop Ranch Business Park has an existing recycling program that would be expected to be expanded to include to the Master Plan area. Aluminum, glass, plastic, paper, carboard, and organic waste are collected and diverted from the waste stream. As such, the values shown in Table 3.15-5 likely overstate the solid waste generation that would be expected to occur from buildout of the Master Plan. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

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SECTION 4: CUMULATIVE EFFECTS

4.1 - Introduction

CEQA Guidelines Section 15130 requires the consideration of cumulative impacts within an EIR when a project's incremental effects are cumulatively considerable. Cumulatively considerable means ". . . the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." In identifying projects that may contribute to cumulative impacts, the CEQA Guidelines allow the use of a list of past, present, and reasonably anticipated future projects, producing related or cumulative impacts, including those which are outside of the control of the lead agency.

In accordance with CEQA Guidelines Section 15130(b), ". . . the discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, the discussion need not provide as great [a level of] detail as is provided for the effects attributable to the project alone." The discussion should be guided by standards of practicality and reasonableness, and it should focus on the cumulative impact to which the identified other projects contribute rather than on the attributes of other projects that do not contribute to the cumulative impact.

The proposed Master Plan's cumulative impacts were considered in conjunction with other proposed and approved projects in San Ramon, Danville, and Dublin. Table 4-1 provides a list of the other projects considered in the cumulative analysis.

Table 4-1: Cumulative Projects

Jurisdiction	Project	Characteristics	Location	Status
City of San Ramon	2007 City Center Project (BR 1B)	Development of a medical office	Bishop Ranch 1B (Bollinger Canyon Road/ Bishop Ranch 1)	Approved; Entitled
	Iron Horse Regional Trail Overcrossings	Grade separated overcrossings at Bollinger Canyon Road and Crow Canyon Road	Iron Horse Trail/Bollinger Canyon Road; and Iron Horse Trail/Crow Canyon Road	Planned
	Capital Improvement Program 2019/20 – 2023/24	Pavement Management and Street Landscape Planting Renovation	Various locations throughout the City	Adopted
	The Promenade at the Preserve	40 single-family dwelling units; 122 multi-family dwelling units; 2-acre House of Worship	Faria Preserve Parkway	Approved
	Dougherty Valley Specific Plan	11,000 dwelling units	Dougherty Road / Bollinger Canyon Road	Approved; Under construction;

Jurisdiction	Project	Characteristics	Location	Status
				Substantially complete
	North Camino Ramon Specific Plan	6.7 million square feet of mixed uses within a 295 gross acre Priority Development Area	Crow Canyon Road / Camino Ramon	Approved; Ongoing
	Crow Canyon Specific Plan	735 dwelling units; 1,260,000 square feet commercial; 142-room hotel	San Ramon Valley Boulevard / Deerwood Road	Approved; Ongoing
	Summit Senior Care Facility	Construction and operation of an 82-bed Senior Care facility	12700 Alcosta Boulevard	Approved; Under construction
	Church of the Nazarene Revised Expansion	Approximately 18,000-square-foot church expansion to replace previous 34,000-square-foot church expansion	12700 Alcosta Boulevard	Approved; Under construction
	Marriott Hotel	2,688-square-foot event space expansion	2600 Bishop Drive	Approved
	Hampton Inn	88-room hotel with a fully enclosed 4-level parking structure, a 1,720-square-foot indoor pool, 680-square-foot fitness room, 650 square foot conference room, and a small breakfast area	2231 Omega Road	Approved; Under construction
	ROEM-San Ramon Valley Boulevard Apartments	169 apartment units with 6,146 square feet of commercial uses	2251 San Ramon Valley Boulevard	Approved
	Chang Residential Subdivision	43 single-family dwelling units, with a minimum of 12,500-square-foot lot size	Crow Canyon Road / Bollinger Canyon Road	Approved
	Aspen Wood Senior Apartments	95 multi-family senior dwelling units	9000 Alcosta Boulevard	Approved
Town of Danville	Abigail Place	17 single-family dwelling units and two single-family residential dwelling units	3743 and 3755 Old Blackhawk Road	Approved
	Magee Preserve	69 single-family dwelling units, seven attached secondary dwelling units, and associated roadways and infrastructure	Adjacent to the south of Diablo Road, east and north of McCauley Road	Approved

Jurisdiction	Project	Characteristics	Location	Status
	375 West El Pintado Road Residential Project	37 townhome dwelling units	375 West El Pintado Road	Approved
	The Collection	18 single-family dwelling units	Camino Tassajara / Sherburne Hills Road	Approved
City of Dublin	Boulevard (Dublin Crossing)	453 residential dwelling units	Dublin Boulevard / Sterling Street	Approved; Under Construction
	Westin Hotel	198-room hotel	Arnold Road / Altamirano Avenue	Approved
	Quarry Lane Preschool	26,000-square-foot school	6085 Scarlett Drive	Approved
	Safari Kids Childcare and Community Center	14,936-square-foot childcare facility	Positano Parkway between West Cantara Drive and Vinton Avenue)	Approved
	Wallis Ranch Neighborhood 6 (Riverton)	125 townhome dwelling units	6996 Stags Leap Lane	Approved; Under Construction
	IKEA Retail Center	410,000 square feet of commercial uses including a 317,000-square-foot IKEA store and a 93,000-square-foot commercial center	5144 Martinelli Way	Approved
	Zeiss Innovation Center	433,090-square-foot Research and Development buildings	Dublin Boulevard (between Arnold Road and Sybase Road)	Approved
	Kaiser Dublin Medical Center and Commercial Uses	1.2-million-square-foot Kaiser medical center; Includes 35,000-square-foot Nissan automobile dealership	Dublin Boulevard/Keegan Street	Approved; Under construction
	Schaefer Ranch Unit 3	18 single-family dwelling units	Dublin Boulevard/Schaefer Heights Drive	Approved
	Jordan Ranch – Onyx (Neighborhood 7)	105 single-family dwelling units	Panorama Drive (north of Central Parkway)	Approved
	Grafton Plaza – Apex Townhomes	115 townhomes, 127-room hotel, and up to 55,000 square feet of retail commercial use	Dublin Boulevard/Grafton Street	Approved
	Ashton at Dublin Station	220 apartment units including a fitness center, pool, roof top lounge, and	DeMarcus Boulevard/Campbell Lane	Approved

Jurisdiction	Project	Characteristics	Location	Status
		331 structured parking spaces		
	Moller Ranch/Tassajara Hills	370 single-family detached residential dwelling units and a private clubhouse	6861 Tassajara Road	Approved
	Wallis Ranch Neighborhood 3 (Ivy Oak)	74 single-family detached dwelling units	7328 Kenwood Road	Approved
	Wallis Ranch Neighborhood 4 (Citron)	147 single-family dwelling units	4207 Trolan Lane	Approved
	Wallis Ranch Neighborhood 8 (Fielding)	139 single-family dwelling units	3995 Windsor Way	Approved
	Valley Christian Center	Lighted athletic field and other buildings and parking lot	7500 Inspiration Drive	Approved
	Avesta Senior Care Facility	69,217-square-foot senior care facility comprised of apartments, assisted living, and memory care units	7601 Amador Valley Boulevard	Approved
	Saint Patrick Way	499 dwelling units	6700 Golden Gate Drive	Approved
Source: City of San Ramon, Town of Danville, and City of Dublin. 2020.				

4.2 - Cumulative Impact Analysis

The cumulative impact analysis below is guided by the requirements of CEQA Guidelines Section 15130. Key principles established by this section include:

- A cumulative impact only occurs from impacts caused by the proposed project and other projects. An EIR should not discuss impacts that do not result from the proposed project.
- When the combined cumulative impact from the increment associated with the proposed project and other projects is not significant, an EIR need only briefly explain why the impact is not significant; detailed explanation is not required.
- An EIR may determine that a project's contribution to a cumulative effect impact would be rendered less than cumulatively considerable if a project is required to implement or fund its fair share of mitigation intended to alleviate the cumulative impact.

The cumulative impact analysis that follows relies on these principles as the basis for determining the significance of the proposed Master Plan's cumulative contribution to various impacts.

4.2.1 - Aesthetics, Light, and Glare

The geographic scope of the cumulative aesthetics, light, and glare analysis is the City of San Ramon, primarily the portions of the City immediately surrounding the Master Plan area and the areas of the City from which the Master Plan area is publicly visible.

The City of San Ramon is characterized as a suburban community located within the San Ramon Valley. The valley bottom is mostly developed with urban uses, while portions of the hillsides and ridgelines have remained undeveloped. Mount Diablo, Wiedemann Hill, and the Dougherty Hills are prominent visual features. I-680 is designated as a State Scenic Highway through San Ramon.

The proposed Master Plan, in conjunction with the projects listed in Table 4-1, would result in changes related to views of scenic vistas, views from I-680, visual character, and light and glare. However, the incremental changes that would occur relative to the existing conditions would not be cumulatively considerable, because of the extent and nature of existing development in the Bishop Ranch Business Park and the City San Ramon.

As detailed in Section 3.1, Aesthetics, Light, and Glare, the proposed Master Plan would not substantially alter views of scenic resources or substantially alter the existing visual character of the Master Plan area. Project components within each phase of the proposed Master Plan would be subject to the City's architectural approval process, including review and approval of all proposed structures within the Master Plan area to ensure compatibility with the surrounding area related to massing, architectural style, and lighting. All new light fixtures associated with the proposed Master Plan would be subject to the CityWalk Design Guidelines (Appendix B) and the San Ramon Zoning Ordinance (D3-7 and D3-33), which require that new lighting must be directed, controlled, screened, or shaded in such a manner that it does not shine directly on surrounding premises. In addition, the proposed Master Plan's structures would be required to meet the standards in Zoning Ordinance D2-15B, which requires mixed-use development to minimize glare. As such, no substantial increase in light and glare levels would occur as a result of the proposed Master Plan.

Other cumulative projects within the City of San Ramon would be required to comply with similar development guidelines and would be reviewed by the City to ensure consistency with architectural standards, viewshed policies, and lighting requirements. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact relating to aesthetics, light, and glare.

4.2.2 - Air Quality

Criteria Pollutants

The geographic scope of the cumulative air quality emissions analysis is the San Francisco Bay Area Air Basin (Air Basin), which encompasses most of the nine-county San Francisco Bay Area region including Contra Costa County. Air quality is impacted by topography, dominant air flows, atmospheric inversions, location, and season; therefore, using the Air Basin represents the area most likely to be impacted by air emissions.

All of the projects listed in Table 4-1 would result in new air emissions during construction and/or during project operations. The Air Basin is currently in non-attainment of the federal and State standards for ozone, the State standards for PM_{10} and the federal and State standards for $PM_{2.5}$. Therefore, there is an existing cumulatively significant air quality impact with respect to these pollutants.

The BAAQMD considers the emission levels for which a project's individual emissions would be cumulatively significant. As such, if a project exceeds the identified thresholds of significance, its emissions would be significant in terms of both project- and cumulative-level impacts, resulting in significant adverse air quality impacts to the region's existing air quality conditions. As stated in the BAAQMD 2017 CEQA Guidelines, additional analysis to assess cumulative impacts is unnecessary. Rather, the determination of cumulative air quality impacts for construction and operational emissions is based on whether the project would result in regional emissions that exceed BAAQMD regional thresholds of significance for construction and operations on a project level. Projects that generate emissions below the BAAQMD significance thresholds would be considered consistent with regional air quality planning efforts would not generate cumulatively significant emissions. Construction and operations are addressed separately below.

As discussed in Section 3.2, Air Quality, the proposed Master Plan would emit construction criteria pollutant emissions at levels that would exceed the BAAQMD thresholds for NO_x (an ozone precursor) during construction. Mitigation is proposed to reduce emissions of NO_X during construction. MM AIR-2b requires the project applicant and/or construction contractor to provide documentation to the City of San Ramon that all off-road diesel-powered construction equipment greater than 50 horsepower meets EPA or ARB Tier IV Final off-road emissions standards. With the incorporation of mitigation, construction emissions would not exceed the BAAQMD's recommended thresholds of significance regarding emissions ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$. Cumulative construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation in terms of criteria air pollutant emissions specific to ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$ would be less than significant after incorporation of MM AIR-2b. Incorporation of MM AIR-2a, requiring the implementation of the BMPs identified in the in the BAAQMD's Air Quality Guidelines, is required to reduce construction impacts associated fugitive dust. Cumulative construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation in terms of criteria air pollutant emissions specific to fugitive dust would be less than significant with mitigation.

As discussed in Section 3.2, Air Quality, the proposed Master Plan would emit operational criteria pollutant emissions at levels that would exceed the BAAQMD thresholds for ROG and NO_x prior to the incorporation of mitigation. (See Impacts AIR-1 and AIR-2 for analysis and discussion of the cumulative air quality management plan consistency and criteria air pollutant emissions impacts.) Overall, that analyses included under Impacts AIR-1 and AIR-2 demonstrate that the cumulative operational criteria air pollutant emissions impacts would be less than significant with mitigation. Specifically, the following mitigation measures would be required to reduce operational criteria pollutant emissions: MM AIR-2c, MM AIR-2d, MM AIR-2e, MM AIR-2f, MM AIR-2g, and MM AIR-2h.

Toxic Air Contaminants

As discussed in Section 3.2, Air Quality, cumulative cancer, non-cancer chronic and acute health impacts, and $PM_{2.5}$ concentrations were evaluated at the most impacted off-site sensitive receptor from all sources of TAC emissions located within 1,000 feet of the proposed Master Plan boundaries. With implementation of MM AIR-2a, which requires the application of BMPs recommended by the BAAQMD, construction of the proposed Master Plan would exceed the applicable BAAQMD thresholds for cancer risk. The health impacts from existing TAC emission sources located within 1,000 feet of the Master Plan area would exceed the BAAQMD's cumulative health significance thresholds for cancer risk and $PM_{2.5}$ concentrations. MM AIR-2b is proposed, which requires the project applicant and/or construction contractor to provide documentation to the City of San Ramon that all off-road diesel-powered construction equipment greater than 50 horsepower meet EPA or ARB Tier IV Final off-road emissions standards. MM AIR-3a is proposed, which requires the installation of MERV 13 filters to address cancer risks and $PM_{2.5}$ concentrations on the proposed Master Plan area during project operations. The project's health impacts from construction emissions would not exceed any applicable significance threshold with implementation of MM AIR-2a, MM AIR-2b, and MM AIR-3a. In addition, cumulative impacts would be below the BAAQMD-recommended thresholds at future residential on-site receptors after the incorporation of mitigation.

Conclusion

Other cumulative projects within the Air Basin would be required to implement the best management practices identified by the BAAQMD during construction and at operation. Additionally, cumulative projects would be required to demonstrate consistency with TAC exposure levels through the preparation of Health Risk Assessments, if needed. Lastly, other cumulative projects that result in significant air quality impacts would be required to implement mitigation measures related to those impacts. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to air quality.

4.2.3 - Biological Resources

The geographic scope of the cumulative biological resources analysis is the region surrounding the Master Plan area, which is mostly built out and is considered an urban environment. As described in Section 3.3, Biological Resources, the habitat types present within the Master Plan area include ruderal/disturbed as well as urban/developed; no sensitive habitats were identified anywhere within the boundaries of the Master Plan area.

Within the Master Plan area, BR 1A and BR 3A contain ruderal vegetation and ground squirrel burrows that may provide suitable habitat and prey for burrowing owl. Given the presence of suitable habitat and previous recorded occurrence of this species, there is potential for burrowing owl to occur on-site. In addition, the ornamental trees located on BR 2600, BR 1A, and BR 3A could be utilized by nesting birds protected by the MBTA and the three artificial lakes might attract local and migratory waterfowl that may utilize these man-made bodies of water. Therefore, development activities associated with the proposed Master Plan could impact burrowing owl or nesting birds protected by the MBTA. MM BIO-1a and MM BIO-1b are proposed, requiring pre-construction

surveys for these species and implementation of protection measures if they are found to be present on-site.

Development activities associated with other cumulative projects in the region, including those projects listed in Table 4-1, are located on sites with similar biological attributes and, therefore, may impact burrowing owl or nesting birds protected by the MBTA, if present. Standard pre-construction surveys and, if necessary, avoidance or relocation procedures would be required for any project with the potential to affect burrowing owl and nesting birds protected by the MBTA. Therefore, the proposed Master Plan, in conjunction with other cumulative projects, would not have cumulatively considerable impacts on biological resources. Because of the urban, built-up nature of the Master Plan area and the surrounding region, there is no potential for any other significant individual or cumulative biological resource impacts.

4.2.4 - Cultural Resources

Cultural resource impacts tend to be localized because the integrity of any given resource depends on what occurs only in the immediate vicinity around that resource, such as disruption of soils. For this reason, the geographic scope of the cumulative cultural resource analysis is the areas within 500 feet of the proposed Master Plan boundaries.

The Master Plan area and areas within 500 feet of its boundaries are mostly built out and considered an urban environment. With the exception of BR 1A and BR 3A, the Master Plan area and vicinity have been previously graded and developed or substantially disturbed. In addition, as described in Section 3.4, Cultural Resources and Tribal Cultural Resources, no cultural resources are known to exist within the Master Plan area or the 0.5-mile search radius, and the closest known resource is approximately 0.6 mile northwest of the Master Plan area boundary.

Nonetheless, construction activities associated with the proposed Master Plan, as well as other cumulative projects in the vicinity, including those projects listed in Table 4-1, would result in ground-disturbing activities that may encounter previously undiscovered cultural resources. Standard construction monitoring and, if necessary, avoidance or recovery procedures would be required for the proposed Master Plan and any cumulative project with the potential to adversely affect cultural resources. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to cultural resources and tribal cultural resources.

4.2.5 - Energy

The geographic scope of the cumulative energy analysis is the PG&E service area. (The Marin Clean Energy service area is wholly contained within the PG&E service area and, therefore, the larger of the two service areas will be used.) PG&E serves 5.3 million electrical customers in 47 counties of California and 4.4 million natural gas customers in 39 counties of California.

The proposed Master Plan would require an estimated 51.41 million kWh of electricity and 57.30 million cubic feet of natural gas on an annual basis. Buildings associated with the proposed Master Plan, as well as buildings associated with the cumulative projects identified in Table 4-1, would be

designed in accordance with Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings. These standards include minimum energy efficiency requirements related to building envelope, mechanical systems (e.g., HVAC and water heating systems), indoor and outdoor lighting, and illuminated signs. The incorporation of the Title 24 standards into the proposed Master Plan and cumulative projects would ensure that implementation of these projects would not result in the inefficient, unnecessary, or wasteful consumption of energy. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to energy consumption.

4.2.6 - Geology, Soils, and Seismicity

The geographic scope of the cumulative geology, soils, and seismicity analysis is the vicinity of the proposed Master Plan. Adverse effects associated with geologic, soil, and seismic hazards tend to be localized, and the area near the proposed Master Plan boundaries would be the area most affected by project activities (generally within a 0.25-mile radius).

The Master Plan area is located within a seismically active region. However, the Geotechnical Investigations provided recommendations for soil engineering and construction practices that would abate potential hazards from strong ground shaking. Examples include over-excavation of native soils and replacement with imported fill, lime treatment of native soils, and use of mat foundations and spread footings. These are standard construction practices that would abate strong ground shaking hazards. Other cumulative projects, such as those listed in Table 4-1, would be exposed to similar seismic hazards and, therefore, would implement site-specific recommendations for soil engineering and construction practices. As such, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact associated with seismic hazards.

Regarding soil erosion, development activities could lead to increased erosion rates within the Master Plan area, which could cause unstable ground surfaces and increased sedimentation in nearby streams and drainage channels. MM HYD-1a, as detailed in Section 3.9, Hydrology and Water Quality, requires implementation of standard stormwater pollution prevention measures to ensure that earthwork activities do not result in substantial erosion off-site. Other cumulative projects would be required to implement standard erosion control measures to ensure that ground-disturbing activities do not create off-site hazards. As such, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact associated with soil erosion.

Finally, the Master Plan area is underlain by clay soils. Standard grading and soil engineering practices would serve to abate any limitations associated with these soils. Other cumulative projects, such as those listed in Table 4-1, would be exposed to expansive soil hazards or unstable geologic units and, therefore, would implement similar grading and soil engineering practices to address those impacts. As such, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact due to expansive soils or unstable soil units.

4.2.7 - Greenhouse Gas Emissions

As described in Section 3.7, Greenhouse Gas Emissions, GHG emissions related to implementation of the proposed Master Plan are not confined to a particular air basin but are dispersed worldwide. Therefore, the analysis under Impacts GHG-1 and GHG-2 also address cumulative impacts.

The proposed Master Plan would not emit construction and operational GHG emissions at levels that would exceed the BAAQMD thresholds. Buildout of the Master Plan would result in 24,435 MT CO_2e per year in the 2030 scenario. When this value is divided by the Master Plan's service population of 13,897 persons,[1] it results in 1.8 MT CO_2e/service population/year for GHG emissions in year 2030, which is less than the BAAQMD threshold of 2.6 MT CO_2e/service population/year. In the 2048 scenario, the proposed Master Plan would result in 15,690 MT CO_2e per year, resulting in 1.1 MT CO_2e/service population/year for GHG emissions in year 2048, which is less than the BAAQMD threshold of 2.6 MT CO_2e/service population/year. With the incorporation of MM AIR-2e, which requires proof of adherence to the existing TDM Program for the Bishop Ranch Business Park, the proposed Master Plan is consistent with the goals, policies, and actions set for in San Ramon's Climate Action Plan and would not impede or interfere with the City's goal to achieve the AB 32 State-recommended reduction targets. Therefore, the proposed Master Plan's contribution of GHG emissions would not be cumulatively significant.

Furthermore, all cumulative projects would be required to comply with City ordinances, City of San Ramon General Plan 2035 policies, and adopted Climate Action Plans to reduce GHG emissions. These plans and policies have been developed to ensure that a project's GHG emission would be less than significant. Cumulative projects will also be required to comply with existing federal, State, and local regulations and policies to reduce communitywide GHG emissions. Lastly, cumulative projects would be required to comply with the requirements of CEQA and obtain all necessary clearances and permits. As such, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to GHG emissions.

4.2.8 - Hazards and Hazardous Materials

The geographic scope of the cumulative hazards and hazardous materials analysis is the vicinity of the proposed Master Plan. Adverse effects associated with hazards and hazardous materials tend to be localized, and the area near the proposed Master Plan boundaries would be the area most affected by project activities (generally within a 0.25-mile radius). Hazards and hazardous materials are extensively regulated at the federal, State, and local levels. There are no land uses in the vicinity of the proposed Master Plan that are known to utilize large quantities of hazardous materials or involve hazardous activities.

As detailed in Section 3.8., Hazards and Hazardous Materials, there are four sites within 0.5 mile of the Master Plan area that are associated with USTs. Of the four sites, three are permitted UST sites with no reported releases. The fourth was a suspecting LUST at the gas station at 1091 Market Place. Groundwater at that location was monitored for petroleum hydrocarbon concentrations and a Case

[1] 13,365 residents + 532 employees = 13,897

Closure letter was issued by the San Francisco Bay RWQCB in 2000. As such, none of the four sites present a risk to human health or the environment from past or current USTs.

The PG&E research tap (electric sub-transmission line) runs adjacent to the east side of the Master Plan area along the Iron Horse Trail, but there is no definitive evidence indicating that exposure to electromagnetic fields constitutes a substantial health hazard.

The proposed Master Plan's residential and non-residential uses would not require the use of large quantities of hazardous materials. The Geotechnical Subsurface Investigation for BR 3A found that small concentrations of diesel and motor oil were detected in upper soil layers (i.e., 3 feet or less). However, standard grading and soil engineering practices, as prescribed in MM HAZ-2, would abate this condition. Other cumulative projects, such as those listed in Table 4-1, would be required to comply with applicable federal, State, and local statutes and regulations related to the transportation, storage, use, and disposal of hazardous materials during construction activities and at operation. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have cumulatively considerable impacts on hazards and hazardous materials.

4.2.9 - Hydrology and Water Quality

The geographic scope of the cumulative hydrology and water quality analysis is the vicinity of the proposed Master Plan, generally areas within 0.5 mile of the proposed Master Plan boundaries. As detailed in Section 3.9, Hydrology and Water Quality, the San Francisco Bay RWQCB is responsible for protecting water quality in the region and administers the NPDES stormwater permitting program for construction activities. Construction activities disturbing 1 acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). The General Construction Permit requires the preparation and implementation of a SWPPP, which must also be completed before construction begins. Implementation of the SWPPP starts with the commencement of construction and continues through the completion of the project.

Development contemplated by the proposed Master Plan would involve short-term construction and long-term operational activities that would have the potential to degrade water quality in downstream water bodies. MM HYD-1a and MM HYD-1b are proposed, requiring implementation of various construction and operational water quality control measures to prevent the release of pollutants into downstream waterways. Other cumulative projects, such as those listed in Table 4-1 are required to implement similar construction and operational water quality control and treatment facilities that would detain runoff and treat it prior to discharge, including obtaining a General Construction Permit. Cumulative projects would also be required to comply with applicable City codes, ordinances, and policies related to preventing pollutants from being conveyed off-site. As such, the proposed Master Plan in conjunction with other planned and approved projects, would not create cumulatively considerable downstream water quality and hydrology impacts. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have cumulatively considerable impacts on hydrology and water quality.

Potable water used in San Ramon is imported from the Mokelumne River reservoirs in Amador County. Additionally, City projects can participate in the San Ramon Valley Water Recycling Program for non-potable landscape irrigation. No groundwater resources would be used by the proposed Master Plan, and it is unlikely that other cumulative projects would have a need to use groundwater resources. Thus, the proposed Master Plan, in conjunction with other planned and approved projects, would not interfere substantially with groundwater supply, recharge, or groundwater management to create cumulatively considerable groundwater impacts.

The proposed Master Plan would utilize existing drainage infrastructure, where possible, and would install LID storm drainage systems throughout the Master Plan area to prevent flooding. Other cumulative projects would be encouraged and/or required to follow suit according to applicable City codes, ordinances, and policies related to drainage to prevent flooding. Thus, the proposed Master Plan, in conjunction with other planned and approved projects, would slow, reduce, and meter the volume of runoff leaving project sites and ensure that downstream storm drainage facilities are not inundated with stormwater runoff that could create cumulatively considerable drainage impacts.

4.2.10 - Land Use

The geographic scope of the cumulative land use analysis is the San Ramon Sphere of Influence, which includes areas within the city limits as well as unincorporated areas that are within the City's "probable future boundary." Land use decisions are made at the city level; therefore, the San Ramon Sphere of Influence is an appropriate geographic scope. Development within San Ramon is governed by the City of San Ramon General Plan 2035 and Municipal Code, which ensure logical and orderly development and require discretionary review to ensure that projects do not result in land use impacts caused by inconsistency with the General Plan and other regulations.

As detailed in Section 3.10, Land Use, the proposed Master Plan was reviewed for consistency with the City of San Ramon General Plan 2035 and the San Ramon Zoning Ordinance. As indicated by several policies, as well as related supporting language, the General Plan envisions the City Center Bishop Ranch concept as a vibrant, integrated, and cohesive mix of civic, retail, office, residential, and open space uses that promotes a walkable environment in the Master Plan area. The proposed Master Plan was found to be consistent with policies outlined in the City of San Ramon General Plan 2035 and consistent with applicable regulations of the San Ramon Zoning Ordinance.

Development projects in the San Ramon Sphere of Influence would continue to be required to demonstrate consistency with all applicable City of San Ramon General Plan 2035 and Municipal Code regulations. This would ensure that these projects comply with applicable planning regulations. The projects listed in Table 4-1 that have been previously approved by the City of San Ramon have been deemed consistent with all applicable planning documents. For pending projects, the City of San Ramon would be required to issue findings demonstrating consistency with the applicable planning documents when they are approved.

Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to land use.

4.2.11 - Noise

The geographic scope of the cumulative noise analysis is the ambient noise environment in the vicinity of the proposed Master Plan, including surrounding sensitive receptors. Noise impacts tend to be localized; therefore, the analysis in Section 3.11, Noise, includes a cumulative analysis of existing, proposed, and anticipated future noise levels near the Master Plan area. Outdoor noise measurements taken at the proposed Master Plan boundaries indicate that the average ambient noise levels are within the "normally acceptable" or "conditionally acceptable" range for all land uses.

Operational noise generated by the proposed Master Plan include noise from parking lot activities and from new exterior mechanical equipment sources, such as mechanical ventilation systems. As detailed in Section 3.11, Noise, the proposed Master Plan would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Master Plan area in excess of standards established in the local general plan or noise ordinance. As such, the impact of noise produced by parking lot activities and stationary equipment within the Master Plan area to off-site sensitive receptors would be less than significant. Therefore, the proposed Master Plan would not contribute to a cumulatively significant impact related to noise generated from parking lot activities and stationary equipment.

Construction noise associated with buildout of the Master Plan may cause a temporary substantial increase in noise levels at nearby receptors. The proposed Master Plan would implement MM NOI-2, which would require implementation of construction noise attenuation measures to reduce noise levels to a less than significant level. Other projects listed in Table 4-1 would be required to implement similar mitigation and adhere to San Ramon Municipal Code restrictions regarding construction noise. It is highly unlikely that a substantial number of the cumulative projects would be constructed simultaneously and close enough to one another for noise impacts to be compounded, since the projects listed in Table 4-1 are at widely varying stages of approval and development. Therefore, it is reasonable to conclude that construction noise from the proposed Master Plan would not combine with noise from other development projects to cause cumulatively significant noise impacts.

Construction activities associated with buildout of the Master Plan would require the use of heavy construction equipment, which could expose sensitive receptors to vibration. As described in Chapter 3.6, Geology, Soils, and Seismicity, due to the compressible nature of the soils on BR 1A, 14-inch concrete piles would be required as part of the building foundations to avoid expansive soil impacts. As a result, construction of the structures on BR 1A would require a pile driver to be used. However, as concluded in Section 3.11, Noise, the closest sensitive-receptor to where pile driving could occur is the Residence Inn by Marriott San Ramon. Vibration levels at the Residence Inn would not exceed the conservative threshold of 0.2 inch per second PPV and thus vibration impacts at the Residence Inn would be less than significant. Because vibration is a highly localized phenomenon, there is a low possibility for vibration associated with the proposed Master Plan to combine with vibration from other projects because of their distances from the proposed Master Plan boundaries. Therefore, the proposed Master Plan would not contribute to a cumulatively significant vibration impact.

The proposed Master Plan's contribution to vehicular noise levels would not exceed the applicable thresholds of significance, which take into account existing noise levels as well as noise from trips associated with other planned or approved projects, such as those projects included in Table 4-1. Thus, the proposed Master Plan would not combine with other projects to cause a cumulatively considerable increase in ambient roadway noise.

Other projects listed in Table 4-1 would be required to evaluate noise and vibration impacts and implement mitigation, if necessary, to minimize noise impacts pursuant to local regulations. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to noise.

4.2.12 - Population and Housing

The geographic scope of the cumulative population and housing analysis is the City of San Ramon. Population growth is typically measured in relation to the size of the applicable jurisdiction and, thus, the City of San Ramon is the appropriate geographical area.

The proposed Master Plan contemplates up to 4,500 dwelling units, which would add 13,365 persons to the City of San Ramon's population over a period of 25 years. This represents an average annual increase of 535 additional persons to the City's population, which was estimated to be 83,118 in January 2020. The Master Plan area is within the San Ramon city limits, is currently designated for urban use by the City of San Ramon General Plan 2035 and San Ramon Zoning Ordinance, and thus is contemplated to support population growth. Growth-inducing impacts were found to be less than significant (see Section 6: Other CEQA). Other cumulative projects in the City of San Ramon, such as those listed in Table 4-1, would be reviewed for impacts on population growth and would be required to address any potential impacts with mitigation. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to population and housing.

4.2.13 - Public Services and Recreation

The geographic scope of the cumulative public services and recreation analysis is the service area of each of the providers serving the Master Plan area. No existing cumulatively significant impacts have been identified for any of these areas, as all service providers are able to achieve the requisite level of service, capacity, or response times.

Fire Protection and Emergency Medical Services

The geographic scope of the cumulative fire protection and emergency medical services analysis is the San Ramon Valley Fire Protection District (Fire District) service area, which consists of the City of San Ramon, Town of Danville, and the unincorporated communities of Alamo, Blackhawk, Diablo, Morgan Territory, Norris Canyon Estates, and Tassajara.

Buildout of the Master Plan would increase the City of San Ramon's population and thus, increase demand for fire protection and emergency medical services. Fire District Station No. 34 is within 0.5 mile of the Master Plan area. Based on the proposed Master Plan's distance to this fire station and correspondence with Roy Wendel at the Fire District, the Fire District would require a new

station with full equipment, crews, and an additional ladder truck by 2023 to serve the Master Plan area. At 50 percent buildout of the proposed Master Plan, the Fire District would require an additional ambulance with a staff of two persons per shift for a total of 3 shifts. Sunset Development would provide development fees to the Fire District for capital improvements to fire facilities. This would allow the Fire District to develop additional facilities as the proposed Master Plan builds out.

New development that occurs pursuant to the proposed Master Plan would be required to comply with all California Fire Code requirements for emergency access, fire detection, suppression systems, and minimum fire flow. Code compliance would serve to reduce the susceptibility of new development to fires and, in turn, minimize demand for fire protection.

Other cumulative projects in the Fire District's service area would be reviewed for impacts on fire protection and emergency medical services and would be required to provide development fees to finance capital improvements to the facilities to maintain acceptable service ratios and performance standards. According to the Fire District, existing facilities are sufficient to serve the proposed Master Plan in conjunction with existing and cumulative projects within the City of San Ramon. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to fire protection and emergency medical services.

Police Protection

The geographic scope of the cumulative police protection analysis is the service area of the San Ramon Police Department, which consists of the area bounded by the San Ramon city limits.

Buildout of the Master Plan would increase the City's population and thus, increase demand for police protection. Based on correspondence with Craig Stevens at the San Ramon Police Department, the Police Department anticipates that in 20-25 years a new Beat[2] and/or substation would be needed in the vicinity of the Master Plan area to serve future uses. However, Mr. Stevens stated that there is no immediate need for additional equipment, staffing, etc. to serve the proposed Master Plan because the proposed Master Plan would be phased over 25 years. Sunset Development would provide development fees that would contribute to funding the Police Department for capital improvements to police facilities. This would allow the Police Department to develop additional facilities, as appropriate, as the proposed Master Plan builds out.

Other cumulative projects within the San Ramon Police Department service area would be reviewed for impacts on police protection and would be required to provide development fees to finance capital improvements to the facilities to maintain acceptable service ratios and performance standards. According to the San Ramon Police Department, existing facilities are sufficient to serve the proposed Master Plan in conjunction with existing and cumulative projects. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to police protection.

[2] The city is divided into five areas, known as "beats," and police officers are assigned a beat every workday.

Schools

The geographic scope of the cumulative school analysis is San Ramon Valley Unified School District (School District), which encompasses the City of San Ramon, the Town of Danville, and nearby unincorporated areas.

Buildout of the Master Plan is projected to add 1,575 new students to local schools over a 25-year period, which translates to an annual average of 63 student/year. The proposed Master Plan would pay development fees to the School District to fund capital improvements to school facilities. Other cumulative projects within the School District would be reviewed for impacts on schools and would be required to pay applicable development fees to the School District to reduce impacts to existing school facilities. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to schools.

Parks

The geographic scope of the cumulative park analysis is the San Ramon city limits. Within the city limits are neighborhood parks, community parks, regional parks, and trails.

Buildout of the Master Plan would increase the City's population and thus, increase demand for parks and recreation facilities. The City of San Ramon's established parkland standard, as described in the General Plan, is a city-wide standard of 6.5 acres of public parks per 1,000 residents at General Plan buildout (2035). The parkland standard is a standard the City of San Ramon aims to achieve over the entire General Plan area at buildout by 2035. The proposed Master Plan would include approximately 40.7 acres of publicly accessible, privately owned and maintained, parks, open space, and other public facilities. This includes new park spaces and improvements to existing BR 2600 facilities. (See Section 2, Project Description, for further details.) The proposed 40.7 acres of park and recreational facilities along with applicable development impact fees would assist the City in meeting the parkland standard at General Plan buildout. In addition, the City of San Ramon Parks and Community Services Master Plan Update determined that the construction of all planned parks would meet the City's established goal of 6.5 acres of parkland per 1,000 residents by 2035.

Other cumulative projects within the city limits may be required to dedicate parkland or provide in-lieu-of fees to mitigate for impacts on parks and recreational facilities. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to parks and recreational facilities.

4.2.14 - Transportation

The geographic scope of the cumulative transportation analysis is the roadway network within the City of San Ramon. As discussed in Section 3.14, Transportation, the Transportation Impact Study analyzed the Future with Project Conditions (Year 2040) scenario, which projects the potential intersection operating conditions that could be expected if the proposed Master Plan components were fully occupied in the projected buildout year. In this scenario, the traffic generated by the proposed Master Plan is added to Future without Project Conditions. The Project is expected to result in significant impacts at three of the 31 study intersections in Year 2040 prior to Project mitigation.

As concluded in Section 3.14, Transportation, the proposed Master Plan would contribute new trips to facilities that would operate at deficient levels. The proposed Master Plan would implement MM TRANS-2a through TRANS-2c, which require the applicant to fund the City to install roadway improvements. Therefore, impacts would be mitigated to a level of less than significant.

Other cumulative projects, such as those listed in Table 4-1, would generate new vehicle trips that may contribute to unacceptable intersection operations and freeway operations. All projects would be required to mitigate their fair share of impacts. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to transportation.

For other transportation-related areas (roadway safety, emergency access, public transit, bicycle facilities, and pedestrian facilities), the proposed Master Plan would have less than significant impacts and therefore would not have the potential to cumulatively contribute to deficiencies. Other cumulative projects would be required to provide appropriate public transit, bicycle facilities, and pedestrian facilities, as well as ensure that emergency access is maintained. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to roadway safety, emergency access, public transit, bicycle facilities, and pedestrian facilities.

4.2.15 - Utilities and Service Systems

Water

The geographic scope of the cumulative potable water analysis is the EBMUD service area, which encompasses portions of Alameda and Contra Costa counties. The EBMUD water service area is 325 square miles. Water supply impacts are analyzed in Section 3.15, Utilities and Service Systems, which concluded that EBMUD has adequate potable water supplies to serve the proposed Master Plan, as well as other existing and future users. Therefore, there is no existing cumulatively significant impact related to potable water supply.

A WSA was prepared EBMUD for the proposed Master Plan to assess the water supply availability for the buildout of the Master Plan. EBMUD estimated a water demand of 952,000 GPD, including approximately 19,600 GPD of recycled water demand. EBMUD determined that this amount is accounted for in EBMUD's water demand projections published in the 2015 UWMP. The 2015 UWMP concluded that EBMUD has, and will have, adequate water supplies to serve existing and projected demand within the Ultimate Service Boundary during normal and wet years, but that deficits are projected for multi-year droughts. During multi-year droughts, EBMUD may require significant customer water use reductions and may also need to acquire supplemental supplies to meet customer demand. The WSA states that the proposed Master Plan will be subject to the same drought restrictions that apply to all EBMUD customers.

Other cumulative projects would also be required to demonstrate that they would be served with potable water service as a standard requirement of the development review process, and these projects may be required to implement water conservation measures to the extent they are required. In addition, the WSA prepared for this project already accounted for the water demands of

the other cumulative impacts. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to water supply.

Wastewater

The geographic scope of the cumulative wastewater analysis is the area tributary to the Central San treatment plant. The facility treats all the effluent generated within Central Contra Costa including Martinez, Concord, Clayton, Walnut Creek, Lamorinda, Danville, Orinda, Lafayette, Moraga, Pleasant Hill, San Ramon, and the unincorporated communities of Alamo, Blackhawk, and Pacheco. The population of the service area is approximately 448,900.

As discussed in Section 3.15, Utilities and Service Systems, the proposed Master Plan would generate approximately 507,000 gallons of wastewater per day for an approximate total of approximately 185 million gallons per year. Central San treats sewage at a treatment plant located in Martinez. This treatment plant has an effluent discharge limit of approximately 54 mgd, and a wet weather flow of 240 mgd. During regular daily operating conditions, approximately 35 million gallons of wastewater flows by gravity to the treatment plant through approximately 1,500 miles of underground utility pipelines. Based on the estimated daily capacity of the treatment plant in Martinez, the proposed Master Plan would represent the addition of approximately 0.01 percent in flows per day to the wastewater treatment plant. Therefore, the proposed Master Plan would not require the expansion of wastewater facilities and impacts would be less than significant.

Other cumulative projects would be required to demonstrate that sewer service is available to ensure that adequate sanitation can be provided. Therefore, the proposed Master Plan, in conjunction with other planned and approved projects, would not have a cumulatively significant impact related to wastewater.

Storm Drainage

The geographic scope of the cumulative storm drainage analysis is the Alameda Creek watershed, which currently receives runoff from the Master Plan area and would continue to do so in the future.

The proposed Master Plan would install a network of storm drainage facilities within the proposed Master Plan boundaries consisting of inlets, underground piping, and basins. This would ensure that the proposed Master Plan would not contribute to downstream flooding conditions during peak storm events and would avoid cumulatively significant stormwater impacts to downstream waterways at times when capacity is most constrained. The proposed Master Plan would also implement pollution prevention measures during construction and at operation to ensure that downstream water quality impacts are minimized to the greatest extent possible.

Other cumulative projects in the Alameda Creek watershed would be required to provide drainage facilities that collect and detain runoff such that off-site releases are controlled and do not create flooding. Other cumulative projects would also be required to implement pollution prevention measures during construction and at operation. Therefore, the proposed Master Plan, in conjunction

with other planned and approved projects, would not have a cumulatively significant impact related to storm drainage.

Solid Waste

The geographic scope of the cumulative solid waste analysis is the area served by the Vasco Road Landfill and the Altamont Landfill in Alameda County. The landfills have a combined total of 72.8 million cubic yards of remaining capacity.

As described in Section 3.15, Utilities and Service Systems, the proposed Master Plan is estimated to generate 12,978 cubic yards of solid waste during construction and 16,015 cubic yards of solid waste annually during operations at buildout. The Bishop Ranch Business Park has an existing recycling program that would be expected to be expanded to include to the Master Plan area. Aluminum, glass, plastic, paper, carboard, and organic waste are collected and diverted from the waste stream. As such, the estimated values likely overstate the solid waste generation that would be expected to occur from buildout of the Master Plan. Nonetheless, the two landfills that serve San Ramon have 72.8 million cubic yards of remaining capacity and, thus, can accommodate the solid waste generated during construction and at operation of the proposed Master Plan.

Other cumulative projects would generate construction and operational solid waste and, depending on the volumes and end uses, would implement recycling and waste reduction measures. Accordingly, the proposed Master Plan, in conjunction with other future projects, would not have a cumulatively significant impact related to solid waste.

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SECTION 5: ALTERNATIVES TO THE PROPOSED MASTER PLAN

5.1 - Introduction

The following section contains a comparative impact assessment of potentially feasible alternatives to the proposed Master Plan. The primary purpose of an alternatives analysis under the California Environmental Quality Act (CEQA) is to provide the decisionmakers, other interested parties, and the general public with a reasonable number of potentially feasible project alternatives that could attain most of the basic project objectives, while avoiding or reducing any of the proposed Master Plan's significant adverse environmental effects.

However, as brought forth in this section, all impacts of the proposed Master Plan can be mitigated to below a level of significance; therefore, the proposed Master Plan does not have any significant unavoidable impacts. Findings rejecting alternatives are required only if one or more significant environmental effects will not be avoided or substantially lessened by mitigation measures. The City of San Ramon, as the lead agency, need not make findings rejecting alternatives described in the Draft Environmental Impact Report (Draft EIR) where all of the proposed Master Plan's significant impacts will be avoided or substantially lessened by mitigation measures. (*See Laurel Hills Homeowners Ass'n v. City Council* (1978) 83 Cal. App. 3rd 515 [if mitigation measures substantially lessen a project's significant environmental effects, the lead agency may approve the project without making findings on the feasibility of the EIR's project alternatives]; *see also Stevens v. City of Glendale* (1981) 125 Cal. App. 3rd 986, 996; *No Slo Transit, Inc. v. City of Long Beach* (1987) 197 Cal. App. 3rd 241].) Thus, if the City finds that all of the proposed Master Plan's significant adverse effects will be avoided or substantially lessened by mitigation measures, it need not make findings that environmentally superior alternatives are infeasible. (*See Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal. App. 4th 477; *Protect Our Water v. County of Merced* (2003) 110 Cal. App. 4th 362, 373; *Kings County Farm Bureau v City of Hanford* (1990) 221 Cal. App. 3rd 692.)

Accordingly, analysis of the following four alternatives to the proposed Master Plan are provided for informational purposes and to allow the decision makers to consider the proposed Master Plan in light of hypothetical alternative development scenarios, thereby promoting CEQA's purpose as an information disclosure statute. This analysis is guided by the following considerations set forth under CEQA Guidelines Section 15126.6:

- An EIR need not consider every conceivable alternative to a project;
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process;
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives;
  - Infeasibility; or
  - Inability to avoid significant environmental effects.

5.1.1 - Significant Unavoidable Impacts

The proposed Master Plan was analyzed for potentially significant impacts related to each of the environmental topic areas discussed in Sections 3.1 through 3.15. The results of the analysis demonstrate that the proposed Master Plan would not result in significant and unavoidable impacts.

5.1.2 - Alternatives to the Proposed Master Plan

For informational purposes, this Draft EIR presents a reasonable range of potentially feasible alternatives to the proposed Master Plan for analysis and evaluation of their comparative merits, pursuant to CEQA Guidelines Section 15126.6, discussed above. Where a project does not include any significant and unavoidable impacts and the potential impacts associated with a project can all be reduced to below a level of significance with the incorporation of mitigation, the analysis properly considers alternatives that would also reduce or eliminate those less than significant with mitigation impacts. CEQA Guidelines Section 15126.6(a) states that an EIR need not evaluate every conceivable alternative to a project. For informational purposes the following analysis is provided for each alternative to allow a meaningful comparison with the proposed Master Plan.

The four alternatives to the proposed Master Plan analyzed in this section are as follows:

- **No Project/Existing Entitlements Alternative:** The proposed Master Plan would not be pursued and instead the existing City Center entitlements for Bishop Ranch (BR) 1A and BR 3A would be developed. No new development would occur on BR 2600. Under this alternative, 487 dwelling units, 935,000 square feet of retail/office space, and a 169-key hotel would be developed.
- **Reduced Density Alternative:** A 25 percent reduction in development would be applied to each proposed Master Plan use, except for the hotel, which would remain at 169 keys. Under this alternative, 3,375 dwelling units, 124,500 square feet of retail/office use, and a 169-key hotel would be developed.
- **BR 2600/Existing Entitlements Alternative:** BR 2600 would be developed with similar uses as the proposed Master Plan and the existing City Center entitlements would be pursued on BR 1A and BR 3A. Under this alternative, 3,544 dwelling units, 1,031,000 square feet of retail/office space, and a 169-key hotel would be developed.
- **BR 1A and BR 3A Only Alternative:** BR 1A and BR 3A would be developed with similar uses as the proposed Master Plan. No development would occur on BR 2600; the existing parking lots and landscaping would remain in their current condition. Under this alternative, 1,443 dwelling units, 70,000 square feet of retail/office use, and a 169-key hotel would be developed.

5.2 - Project Objectives

Pursuant to CEQA Section 15124 (b), the project description shall include a statement of project objectives. The project objectives help the lead agency develop a reasonable range of alternatives to evaluate, and also aid the decision makers in preparing findings or a statement of overriding

considerations, if necessary. The statement of objectives presents the underlying purpose of the project and may discuss the project benefits.

As stated in Section 2, Project Description, the objectives of the proposed Master Plan are to:

1. Develop an appropriate mix of multi-family units (including affordable units), retail, and office uses within the Master Plan area that meets regional housing goals.
2. Provide affordable housing units in accordance with the City of San Ramon Housing Element (2015-2023).
3. Promote positive economic contributions to the local economy through new capital investment, expansion of the tax base, creation of new jobs, expansion of the consumer base, and opportunities for new taxable sales.
4. Locate housing next to jobs and in close proximity to transit in order to reduce vehicle miles traveled.
5. Support City Center Bishop Ranch by developing new dwelling units and a new hotel within walking distance.
6. Develop housing on undeveloped and underutilized infill sites within the Bishop Ranch Business Park in order to complement the existing employment center and maximize the use of existing infrastructure.
7. Provide housing with a variety of floor plans to allow for entry-level housing as well as opportunities for existing San Ramon residents to relocate to the City Center mixed use area.
8. Attract new businesses to San Ramon that are well suited for the retail/entertainment sector.
9. Phase development to allow for managed and orderly growth.
10. Provide public access to and enhance existing Bishop Ranch facilities, which are currently private.
11. Improve mobility within Bishop Ranch through the use of Transit Hubs, allowing for pick-up and drop-off at convenient locations easily accessible from major arterial roadways.
12. Provide connectivity with adjoining land uses including the Iron Horse Trail, Central Park, City Center Bishop Ranch, The Shops at Bishop Ranch, and the Marketplace through pedestrian and bicycle connections.

5.3 - Alternative 1—No Project/Existing Entitlements Alternative

CEQA Guidelines Section 15126.6(e) requires an EIR to evaluate a 'No Project Alternative,' which is defined as what would be reasonably expected to occur in the foreseeable future if the project were not approved. It is reasonable to expect Sunset Development (project applicant) to develop BR 1A

and BR 3A as currently entitled by the 2007 City Center Project if the proposed Master Plan is not approved.

The No Project/Existing Entitlements Alternative would result in the development of BR 1A and BR 3A with dwelling units, retail/office uses and a hotel, as entitled by the 2007 City Center Project. Under the No Project/Existing Entitlements Alternative no development would occur on BR 2600; the existing parking lots and landscaping would remain in their current condition.

Table 5-1 summarizes the No Project/Existing Entitlements Alternative. Under this alternative, 487 dwelling units, 935,000 square feet of retail/office space, and a 169-key hotel would be developed. Under the No Project/Existing Entitlements Alternative, there would be 4,013 fewer dwelling units and retail/office uses would increase by 769,000 square feet, as compared to the proposed Master Plan.

Table 5-1: No Project/Existing Entitlements Alternative

Scenario	Site	Characteristics
No Project/Existing Entitlements Alternative	BR 1A	600,000 square feet office use
	BR 3A	487 dwelling units; 335,000 square feet retail use; 169-key hotel
	Total	*Residential: 487 dwelling units* *Retail/Office: 935,000 square feet* *Hotel: 169 keys*
Proposed Master Plan	BR 1A	652 dwelling units
	BR 3A	791 dwelling units; 70,000 square feet retail/office use; 169-key hotel
	BR 2600	3,057 dwelling units; 96,000 square feet retail/office use
	Total	*Residential: 4,500 dwelling units* *Retail/Office: 166,000 square feet* *Hotel: 169 keys*
Net Change Relative to Proposed Master Plan		*Residential: decreased by 4,013 dwelling units* *Retail/Office: increased by 769,000 square feet*
Source: FCS 2020.		

Under the No Project/Existing Entitlements Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

5.3.1 - Impact Analysis

Aesthetics, Light, and Glare

As noted in this Draft EIR, the proposed Master Plan's impacts to scenic vistas, scenic resources, and the existing visual character and quality of public views of the site and its surroundings, as well as with respect to lighting and glare would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in the development of new structures on BR 1A and BR 3A, on sites that currently contain grassland and ornamental landscaping, resulting in similar impacts related to aesthetics, light, and glare. Unlike the proposed Master Plan, no new buildings or other improvements would be constructed on BR 2600 and the existing parking lots and landscaping would remain in their current condition. Under this alternative, there would be no changes related to aesthetics, light, and glare on BR 2600; therefore, no new buildings would be introduced on BR 2600 that could potentially impact views of scenic vistas or result in new lighting or glare on BR 2600. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts on aesthetics, light, and glare than the proposed Master Plan and impacts would be less than significant without mitigation.

Air Quality

As noted in this Draft EIR, the proposed Master Plan's impacts related to air quality would be less than significant with respect to impacts from odors. The Draft EIR identified potential air quality management plan consistency, cumulative criteria pollutant emissions, sensitive receptors exposure to toxic air contaminate concentrations and cumulative impacts, but these could be mitigated to a less than significant level.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and require the implementation of the Bay Area Air Quality Management District (BAAQMD) Best Management Practices (BMPs) to minimize air quality impacts during construction. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, no impacts to air quality would occur under this alternative on BR 2600 during construction. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, during construction there would be a smaller increase in criteria pollutant and toxic air contaminant emissions. At operation, this alternative could result in approximately 1,015 more daily trips than the proposed Master Plan (see Transportation below), which could result in greater air quality impacts. Under this alternative, similar mitigation measures would be implemented at operation, such as adherence to the existing approved Transportation Demand Management (TDM) Program for the Bishop Ranch Business Park, to reduce air quality impacts. While the No Project/Existing Entitlements Alternative would result in greater impacts on air quality than the proposed Master Plan, impacts would be less than significant with mitigation.

Biological Resources

As noted in this Draft EIR, the proposed Master Plan's impacts related to biological resources would be less than significant with mitigation.

Under the No Project/Existing Entitlements Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in the removal of grassland and ornamental vegetation on BR 1A and BR 3A, which may provide suitable habitat for burrowing owl and nesting birds. During construction, this alternative would require mitigation to reduce potential impacts to biological resources to less than significant. Unlike the proposed Master Plan, no trees or other vegetation would be removed from BR 2600, and thus no impacts to nesting birds would occur on BR 2600. As such, less vegetation removal and ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less potential to impact biological resources. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts on biological resources than the proposed Master Plan and impacts would be less than significant with mitigation.

Cultural Resources/Tribal Cultural Resources

As noted in this Draft EIR, should undiscovered cultural or tribal cultural resources be encountered during construction, the proposed Master Plan's impacts on these resources would be less than significant with mitigation.

Under the No Project/Existing Entitlements Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and require mitigation to reduce potential impacts to cultural resources to less than significant. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less potential to impact previously undiscovered cultural resources. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts on cultural resources than the proposed Master Plan and impacts would be less than significant with mitigation.

Energy

As noted in this Draft EIR, the proposed Master Plan's impacts related to energy would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and result in similar energy consumption during construction that would be less than significant without mitigation. Unlike the proposed Master Plan, no ground disturbance would occur

on BR 2600; therefore, no impacts to Energy would occur under this alternative on BR 2600 during construction. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less energy consumed during construction. At operation, this alternative could result in approximately 1,015 more daily trips than the proposed Master Plan (see Transportation below), which could result in greater energy impacts. Under this alternative, similar mitigation measures required for Air Quality would be implemented, such as adherence to the existing approved TDM Program for the Bishop Ranch Business Park and providing electric vehicle parking required by the California Green Building Standard. While the No Project/Existing Entitlements Alternative would result in greater impacts on energy than the proposed Master Plan, impacts would be less than significant without mitigation.

Geology, Soils, and Seismicity

As noted in this Draft EIR, the proposed Master Plan's impacts related to geology, soils, and seismicity would be less than significant with mitigation.

Under the No Project/Existing Entitlements Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and require mitigation to reduce potential impacts to less than significant. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less potential to impact geology, soils, and seismicity. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts on geology, soils, and seismicity than the proposed Master Plan and impacts would be less than significant with mitigation.

Greenhouse Gas Emissions

As noted in this Draft EIR, the proposed Master Plan's impacts related to GHG emissions would be less than significant with mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and result in similar GHG emissions during construction that would be less than significant without mitigation. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, no impacts to GHG emissions would occur under this alternative on BR 2600 during construction. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be a smaller increase in GHG emissions during construction. At operation, this alternative could result in approximately 1,015 more daily trips than the proposed Master Plan (see Transportation below), which could result in greater GHG emissions. Under this alternative, similar mitigation would be implemented to reduce GHG emissions at operation, such as adherence to the existing approved TDM Program for the Bishop Ranch Business Park. While the No

Project/Existing Entitlements Alternative would result in greater impacts on GHG emissions than the proposed Master Plan, impacts would be less than significant with mitigation.

Hazards and Hazardous Materials

As noted in this Draft EIR, the proposed Master Plan's impacts related to hazards and hazardous materials would be less than significant with mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A; therefore, during construction this alternative would use, transport, and dispose of hazardous materials and have the potential to encounter petroleum hydrocarbons in the soils within BR 3A during construction. During construction, this alternative would require mitigation to reduce potential impacts from contaminated soils encountered during excavation to less than significant. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, during construction, no hazardous materials would be used, transported, or disposed of on BR 2600 under this alternative. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be fewer impacts related to hazards and hazardous materials during construction. At operation, this alternative would result in similar impacts related to the storage, use, and disposal of hazardous materials as the proposed Master Plan. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts related to hazards and hazardous materials than the proposed Master Plan and impacts would be less than significant with mitigation.

Hydrology and Water Quality

As noted in this Draft EIR, the proposed Master Plan's impacts related to hydrology and water quality would be less than significant with mitigation.

Under the No Project/Existing Entitlements Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and require the preparation and implementation of a SWPPP to ensure that potential, short-term, construction water quality impacts are reduced to a level of less than significant. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, no impacts to water quality would occur under this alternative on BR 2600 during construction. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less potential to impact hydrology and water quality during construction. At operation, this alternative would result in similar impacts related to hydrology and water quality, as mitigation would be required to ensure that development would be designed to minimize stormwater runoff and pollution. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts

on hydrology and water quality than the proposed Master Plan and impacts would be less than significant with mitigation.

Land Use

As noted in this Draft EIR, the proposed Master Plan's impacts related to land use would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in the development of new residential uses, retail/office uses, and a hotel, and would be similarly consistent with the City of San Ramon General Plan 2035 and San Ramon Zoning Ordinance. As no new buildings or other improvements would be constructed on BR 2600 under this alternative, there would be no potential to conflict with the City of San Ramon General Plan 2035 and San Ramon Zoning Ordinance at this location. However, this alternative would provide 4,013 fewer dwelling units and approximately 600 fewer affordable units[1] than the Proposed Master Plan. As such, this alternative would be less effective in meeting policies in the City of San Ramon General Plan 2035 that promote housing on infill sites (Policy 2.3-I.6), provide a diversity of housing types and affordability levels (Policies 3.1-I-3c and 11.5-G-1), and provide a wide range of housing opportunities (Policy 4.6-I-10). While the No Project/Existing Entitlements Alternative would result in greater impacts related to potential conflicts with the General Plan and Zoning Ordinance than the proposed Master Plan, impacts would be less than significant without mitigation.

Noise

As noted in this Draft EIR, the proposed Master Plan's impacts related to noise would be less than significant with mitigation.

Under the No Project/Existing Entitlements Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in the development of new structures on BR 1A and BR 3A, on sites that are currently undeveloped, resulting in similar noise impacts during construction and at operation, which require mitigation to reduce impacts to less than significant. Unlike the proposed Master Plan, no new buildings or other improvements would be constructed on BR 2600 and the existing parking lots and landscaping would remain in their current condition; therefore, there would be no additional noise generated on BR 2600 during construction and operation under this alternative. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts related to noise than the proposed Master Plan and impacts would be less than significant with mitigation.

[1] Assumes 15 percent of total dwelling units would be affordable.

Population and Housing

As noted in this Draft EIR, the proposed Master Plan's impacts related to population and housing would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 4,013 fewer dwelling units and retail/office uses would increase by 769,000 square feet. As such, there would be less population and housing growth but more employment growth relative to the proposed Master Plan. While some of the new employment opportunities may result in additional people moving to and residing in San Ramon, the projected number of new residents would not constitute a substantial increase in population growth. However, this alternative would provide 4,013 fewer dwelling units and approximately 600 fewer affordable units[2] than the Proposed Master Plan. As such, in providing fewer affordable housing units, this alternative would be less effective in meeting the City's goal of providing affordable housing in accordance with the City of San Ramon Housing Element (2015–2023). While the No Project/Existing Entitlements Alternative would result in greater impacts related to population and housing than the proposed Master Plan, impacts would be less than significant without mitigation.

Public Services and Recreation

As noted in this Draft EIR, the proposed Master Plan's impacts related to public services and recreation would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 4,013 fewer dwelling units and retail/office uses would increase by 769,000 square feet. As such, there would be less population and housing growth but more employment growth relative to the proposed Master Plan. While some of the new employment opportunities may result in additional people moving to and residing in San Ramon, the projected number of new residents would not constitute a substantial increase in population growth. As this alternative would result in less population growth, demand for public services and recreation would be less than under the proposed Master Plan. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts on public services and recreation than the proposed Master Plan and impacts would be less than significant without mitigation.

Transportation

As noted in this Draft EIR, the proposed Master Plan's impacts related to transportation would be less than significant with mitigation.

As compared to the proposed Master Plan, this alternative would result in 4,013 fewer dwelling units and retail/office uses would increase by 769,000 square feet. As detailed in Section 3.14, Transportation, 37.75 daily trips are generated per 1,000 square feet of retail uses and 5.45 daily trips are generated per dwelling unit for multi-family housing. Accounting for internal capture, mode split adjustments, and pass-by reductions, this alternative could result in approximately 1,015 more

[2] Assumes 15 percent of total dwelling units would be affordable.

daily trips (17,418[3] - 16,403[4]) than the proposed Master Plan. Under this alternative, similar mitigation would be implemented to reduce transportation impacts at operation, such as roadway improvements, intersection signalization, and adjustments to signal timing. While the No Project/Existing Entitlements Alternative would result in greater impacts on transportation than the proposed Master Plan, impacts would be less than significant with mitigation.

Utilities and Service Systems

As noted in this Draft EIR, the proposed Master Plan's impacts related to utilities and service systems would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 4,013 fewer dwelling units and retail/office uses would increase by 769,000 square feet. As such, there would be less population and housing growth but more employment growth relative to the proposed Master Plan. While some of the new employment opportunities may result in additional people moving to and residing in San Ramon, the projected number of new residents would not constitute a substantial increase in population growth. As this alternative would result in less population growth, demand for utilities and service systems would be less than under the proposed Master Plan. Therefore, the No Project/Existing Entitlements Alternative would result in fewer impacts on utilities and service systems than the proposed Master Plan and impacts would be less than significant without mitigation.

5.3.2 - Conclusion

The No Project/Existing Entitlements Alternative would lessen the severity of the proposed Master Plan's less-than-significant impacts associated with aesthetics, light, and glare, biological resources, cultural resources/tribal cultural resources, geology, soils, and seismicity, hazards and hazardous materials, hydrology and water quality, noise, public services and recreation, and utilities and service systems. This alternative would increase the severity of the proposed Master Plan's less-than-significant impacts associated with air quality, energy, greenhouse gas emissions, land use, population and housing, and transportation.

The No Project/Existing Entitlements Alternative does not meet all of the project objectives because of the reduction in buildout potential. For example, this alternative would provide 4,013 fewer dwelling units and approximately 600 fewer affordable units[5] than the Proposed Master Plan. As such, this alternative would not meet the objective of providing affordable housing units in accordance with the City of San Ramon Housing Element (2015–2023). This alternative would not meet the objective of locating housing next to jobs to reduce or eliminate motor vehicle travel for home-to-work trips. Since improvements to the existing BR 2600 facilities would not occur under this alternative---such as improving the pathway around the perimeter of BR 2600, development of a new community center, or development of an outdoor amphitheater---this alternative would not

[3] Retail trips calculated as: 37.75 x 769 = 29,030. Reducing trips by 40 percent to adjust for internal capture, etc. would result in approximately 17,418 daily retail trips.
[4] Residential trips calculated as: 5.45 x 4,013 = 21,871. Reducing trips by 25 percent to adjust for internal capture, etc. would result in approximately 16,403 daily residential trips.
[5] Assumes 15 percent of total dwelling units would be affordable.

meet the objective of providing public access to and enhancing existing Bishop Ranch facilities, which are currently private.

5.4 - Alternative 2—Reduced Density Alternative

Under the Reduced Density Alternative, a 25 percent reduction in development would be applied to each proposed Master Plan use, except for the hotel, which would remain at 169 keys. The purpose of the Reduced Density Alternative is to evaluate a version of the proposed Master Plan that develops the same end uses on the same sites, but at a lower density.

Table 5-2 summarizes the Reduced Density Alternative. Under this alternative, 3,375 dwelling units, 124,500 square feet of retail/office use, and a 169-key hotel would be developed. The proposed Master Plan's geographical boundaries would remain the same; however, less development would occur. Under the Reduced Density Alternative, there would be 1,125 fewer dwelling units and retail/office uses would decrease by 41,500 square feet, as compared to the proposed Master Plan.

Table 5-2: Reduced Density Alternative

Scenario	Site	Characteristics
Reduced Density Alternative	BR 1A	489 dwelling units
	BR 3A	593 dwelling units; 52,500 square feet retail/office use; 127-key hotel
	BR 2600	2,293 dwelling units; 72,000 square feet retail/office use
	Total	*Residential: 3,375 dwelling units* *Retail/Office: 124,500 square feet* *Hotel: 169 keys*
Proposed Master Plan	BR 1A	652 dwelling units
	BR 3A	791 dwelling units; 70,000 square feet retail/office use; 169-key hotel
	BR 2600	3,057 dwelling units; 96,000 square feet retail/office use
	Total	*Residential: 4,500 dwelling units* *Retail/Office: 166,000 square feet* *Hotel: 169 keys*
Net Change Relative to Proposed Master Plan		*Residential: decreased by 1,125 dwelling units* *Retail/Office: decreased by 41,500 square feet*
Source: FCS 2020.		

Under the Reduced Density Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan. As this alternative would provide fewer dwelling units and less retail/office uses, the height of the structures may be slightly reduced as compared to the proposed Master Plan.

5.4.1 - Impact Analysis

Aesthetics, Light, and Glare

As noted in this Draft EIR, the proposed Master Plan's impacts to scenic vistas, scenic resources, and the existing visual character and quality of public views of the site and its surroundings, as well as with respect to lighting and glare would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in the development of new structures on BR 1A and BR 3A, on sites that currently contain grassland and ornamental landscaping. Similar to the proposed Master Plan, new buildings and other improvements would be constructed on BR 2600 within existing parking lots. As this alternative would provide fewer dwelling units and less retail/office uses, the height of the structures may be slightly reduced as compared to the proposed Master Plan. Thus, under this alternative, the visual character and light and glare condition would change on all three sites, but to a lesser degree as compared to the proposed Master Plan. Therefore, the Reduced Density Alternative would result in fewer impacts on aesthetics, light, and glare than the proposed Master Plan and impacts would be less than significant without mitigation.

Air Quality

As noted in this Draft EIR, the proposed Master Plan's impacts related to air quality would be less than significant with respect to impacts from odors. The Draft EIR identified potential air quality management plan consistency, cumulative criteria pollutant emissions, sensitive receptors exposure to toxic air contaminate concentrations and cumulative impacts, but these could be mitigated to a less than significant level.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600 and require the implementation of the Bay Area Air Quality Management District (BAAQMD) Best Management Practices (BMPs) to minimize air quality impacts during construction. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, during construction there would be a similar increase in criteria pollutant and toxic air contaminant emissions. At operation, this alternative would result in fewer dwelling units and less retail/office uses relative to the proposed Master Plan. However, this alternative could result in a greater number of trips on the transportation network (see Transportation below), which could result in greater air quality impacts. Under this alternative, similar mitigation measures would be implemented at operation, such as adherence to the existing approved Transportation Demand Management (TDM) Program for the Bishop Ranch Business Park, to reduce air quality impacts. While the Reduced Density Alternative would result in greater impacts on air quality than the proposed Master Plan, impacts would be less than significant with mitigation.

Biological Resources

As noted in this Draft EIR, the proposed Master Plan's impacts related to biological resources would be less than significant with mitigation.

Under the Reduced Density Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in the removal of grassland and ornamental vegetation on BR 1A and BR 3A, which may provide suitable habitat for burrowing owl and nesting birds. Similar to the proposed Master Plan, trees and other vegetation that may provide habitat for nesting birds, would be removed from BR 2600. During construction, this alternative would require mitigation to reduce potential impacts to biological resources to less than significant. As such, similar vegetation removal and ground disturbance would occur relative to the proposed Master Plan and, thus, there would be the same potential to impact biological resources. Therefore, the Reduced Density Alternative would result in the same impacts on biological resources as the proposed Master Plan and impacts would be less than significant with mitigation.

Cultural Resources/Tribal Cultural Resources

As noted in this Draft EIR, should undiscovered cultural or tribal cultural resources be encountered during construction, the proposed Master Plan's impacts on these resources would be less than significant with mitigation.

Under the Reduced Density Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600 and require mitigation to reduce potential impacts to cultural resources to less than significant. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be the same potential to impact previously undiscovered cultural resources. Therefore, the Reduced Density Alternative would result in the same impacts on cultural resources as the proposed Master Plan and impacts would be less than significant with mitigation.

Energy

As noted in this Draft EIR, the proposed Master Plan's impacts related to energy would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, a similar amount of energy would be consumed during construction and impacts would be less than significant without mitigation. At operation, this alternative would result in fewer dwelling units and less retail/office uses relative to the proposed Master Plan. However, this alternative could result in a greater number of trips on the transportation network (see Transportation below), which could result in greater energy impacts. Under this alternative, similar mitigation measures required for Air Quality would be implemented, such as adherence to the

existing approved TDM Program for the Bishop Ranch Business Park and providing electric vehicle parking required by the California Green Building Standard. While the Reduced Density Alternative would result in greater impacts on energy than the proposed Master Plan, impacts would be less than significant without mitigation.

Geology, Soils, and Seismicity

As noted in this Draft EIR, the proposed Master Plan's impacts related to geology, soils, and seismicity would be less than significant with mitigation.

Under the Reduced Density Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600 and require mitigation to reduce potential impacts to less than significant. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be the same potential to impact geology, soils, and seismicity. Therefore, the Reduced Density Alternative would result in the same impacts on geology, soils, and seismicity as the proposed Master Plan and impacts would be less than significant with mitigation.

Greenhouse Gas Emissions

As noted in this Draft EIR, the proposed Master Plan's impacts related to GHG emissions would be less than significant with mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be similar increases in greenhouse gas (GHG) emissions during construction and impacts would be less than significant without mitigation. At operation, this alternative would result in fewer dwelling units and less retail/office uses relative to the proposed Master Plan. However, this alternative could result in a greater number of trips on the transportation network (see Transportation below), which could result in greater GHG emissions at operation. Under this alternative, similar mitigation would be implemented to reduce GHG emissions at operation, such as adherence to the existing approved TDM Program for the Bishop Ranch Business Park. While the Reduced Density Alternative would have greater impacts on GHG emissions than the proposed Master Plan, impacts would be less than significant with mitigation.

Hazards and Hazardous Material

As noted in this Draft EIR, the proposed Master Plan's impacts related to hazards and hazardous materials would be less than significant with mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600; therefore, during construction this alternative would use, transport, and dispose of hazardous materials and have the potential to encounter petroleum hydrocarbons in the

soils within BR 3A during construction. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be similar impacts related to hazards and hazardous materials during construction. During construction, this alternative would require mitigation to reduce potential impacts from contaminated soils encountered during excavation to less than significant. At operation, this alternative would result in similar impacts related to the storage, use, and disposal of hazardous materials as the proposed Master Plan. Therefore, the Reduced Density Alternative would result in the same impacts related to hazards and hazardous materials as the proposed Master Plan and impacts would be less than significant with mitigation.

Hydrology and Water Quality

As noted in this Draft EIR, the proposed Master Plan's impacts related to hydrology and water quality would be less than significant with mitigation.

Under the Reduced Density Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be the same potential to impact hydrology and water quality during construction. During construction, this alternative would require the preparation and implementation of a SWPPP to ensure that potential, short-term, construction water quality impacts are reduced to a level of less than significant. At operation, this alternative would result in similar impacts related to hydrology and water quality, as mitigation would be required to ensure that development would be designed to minimize stormwater runoff and pollution. Therefore, the Reduced Density Alternative would result in the same impacts on hydrology and water quality as the proposed Master Plan and impacts would be less than significant with mitigation.

Land Use

As noted in this Draft EIR, the proposed Master Plan's impacts related to land use would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in the development of new residential uses, retail/office uses, and a hotel, the uses of which would be similarly consistent with the City of San Ramon General Plan 2035 and San Ramon Zoning Ordinance. However, this alternative would provide 1,125 fewer dwelling units and approximately 168 fewer affordable units[6] than the Proposed Master Plan. As such, this alternative would be less effective in meeting policies in the City of San Ramon General Plan 2035 that promote housing on infill sites (Policy 2.3-I.6), provide a diversity of housing types and affordability levels (Policies 3.1-I-3c and 11.5-G-1), and provide a wide range of housing opportunities (Policy 4.6-I-10). While the Reduced Density Alternative would result in greater impacts related to potential conflicts with the General Plan and

[6] Assumes 15 percent of total dwelling units would be affordable.

Zoning Ordinance than the proposed Master Plan, impacts would be less than significant without mitigation.

Noise

As noted in this Draft EIR, the proposed Master Plan's impacts related to noise would be less than significant with mitigation.

Under the Reduced Density Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan. As this alternative would provide fewer dwelling units and less retail/office uses, the height of the structures may be slightly reduced as compared to the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in the development of new structures on BR 1A and BR 3A, on sites that are currently undeveloped. Similar to the proposed Master Plan, new buildings and other improvements would be constructed on BR 2600 on existing parking lots. During construction and at operation, this alternative would require mitigation to reduce impacts to less than significant. As this alternative would construct fewer dwelling units and less retail/office uses, noise generation at construction and at operation would be less than the proposed Master Plan. Therefore, the Reduced Density Alternative would result in fewer impacts on noise than the proposed Master Plan and impacts would be less than significant with mitigation.

Population and Housing

As noted in this Draft EIR, the proposed Master Plan's impacts related to population and housing would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in fewer dwelling units and less retail/office uses. As such, there would be less population, housing, and employment growth relative to the proposed Master Plan. However, this alternative would provide 1,125 fewer dwelling units and approximately 168 fewer affordable units[7] than the Proposed Master Plan. As such, in providing fewer affordable housing units, this alternative would be less effective in meeting the City's goal of providing affordable housing in accordance with the City of San Ramon Housing Element (2015–2023). While the Reduced Density Alternative would result in greater impacts related to population and housing than the proposed Master Plan, impacts would be less than significant without mitigation.

Public Services and Recreation

As noted in this Draft EIR, the proposed Master Plan's impacts related to public services and recreation would be less than significant without mitigation.

[7] Assumes 15 percent of total dwelling units would be affordable.

As compared to the proposed Master Plan, this alternative would result in fewer dwelling units and less retail/office uses. As such, there would be less population, housing, and employment growth relative to the proposed Master Plan. As this alternative would result in less population growth, demand for public services and recreation would be less than under the proposed Master Plan. Therefore, the Reduced Density Alternative would result in fewer impacts on public services and recreation than the proposed Master Plan and impacts would be less than significant without mitigation.

Transportation

As noted in this Draft EIR, the proposed Master Plan's impacts related to transportation would be less than significant with mitigation.

As compared to the proposed Master Plan, this alternative would result in approximately 1,125 fewer dwelling units and retail/office uses would decrease by 41,500 square feet. As detailed in Section 3.14, Transportation, 37.75 daily trips are generated per 1,000 square feet of retail uses and 5.45 daily trips are generated per dwelling unit for multi-family housing. Accounting for internal capture, mode split adjustments, and pass-by reductions, this alternative could result in approximately 5,538 fewer daily trips (940[8] + 4,598[9])] than the proposed Master Plan.

However, the residential units in the Master Plan as currently proposed would provide opportunities to enhance the job/housing balance in San Ramon and Bishop Ranch, specifically. As such, the Reduced Density Alternative, by providing fewer units, could result in a less effective job/housing balance, thereby generating a greater number of trips on the transportation network, as a greater number of employees would commute to the Master Plan area from other locations. Under this alternative, similar mitigation would be implemented to reduce transportation impacts at operation, such as roadway improvements, intersection signalization, and adjustments to signal timing. Therefore, while the Reduced Density Alternative would result in greater impacts on transportation than the proposed Master Plan, impacts would be less than significant with mitigation.

Utilities and Service Systems

As noted in this Draft EIR, the proposed Master Plan's impacts related to utilities and service systems would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in fewer dwelling units and less retail/office uses. As such, there would be less population, housing, and employment growth relative to the proposed Master Plan. As this alternative would result in less population growth, demand for utilities and service systems would be less than under the proposed Master Plan. Therefore, the Reduced Density Alternative would result in fewer impacts on utilities and service systems than the proposed Master Plan and impacts would be less than significant without mitigation.

[8] Retail trips calculated as: 37.75 x 41.5 = 1,567. Reducing trips by 40 percent to adjust for internal capture, etc. would result in approximately 940 daily retail trips.

[9] Residential trips calculated as: 5.45 x 1,125 = 6,131. Reducing trips by 25 percent to adjust for internal capture, etc. would result in approximately 4,598 daily residential trips.

5.4.2 - Conclusion

The Reduced Density Alternative would lessen the severity of the proposed Master Plan's less-than-significant impacts associated with aesthetics, light, and glare, noise, public services and recreation, and utilities and service systems. This alternative would increase the severity of the proposed Master Plan's less-than-significant impacts associated with air quality, energy, greenhouse gas emissions, land use, population and housing, and transportation. This alternative would have similar impacts to the proposed Master Plan's less-than-significant impacts associated with biological resources, cultural resources/tribal cultural resources, geology, soils, and seismicity, hazards and hazardous materials, and hydrology and water quality.

The Reduced density Alternative does not meet all of the project objectives because of the reduction in buildout potential. For example, this alternative would provide 1,125 fewer dwelling units and approximately 168 fewer affordable units[10] than the Proposed Master Plan. As such, this alternative would not meet the objective of providing affordable housing units in accordance with the City of San Ramon Housing Element (2015–2023). This alternative would not meet the objective of locating housing next to jobs to reduce or eliminate motor vehicle travel for home-to-work trips. In addition, this alternative would provide less retail/office uses and would not meet the objective of promoting positive economic contributions to the local economy through new capital investment, expansion of tax base, creation of new jobs, and opportunities for new taxable sales.

5.5 - Alternative 3—BR 2600/Existing Entitlements Alternative

Under the BR 2600/Existing Entitlements Alternative, BR 2600 would be developed with similar uses as the proposed Master Plan. This alternative would result in the development of BR 1A and BR 3A with dwelling units, retail/office uses, and a hotel, as entitled by the 2007 City Center Project. The purpose of the BR 2600/Existing Entitlements Alternative is to evaluate whether this alternative could lessen the severity of impacts while achieving all of the objectives of the proposed Master Plan, to the maximum extent possible.

Table 5-3 summarizes the BR 2600/Existing Entitlements Alternative. Under this alternative, 3,544 dwelling units, 1,031,000 square feet of retail/office space, and a 169-key hotel would be developed. Under the BR 2600/Existing Entitlements Alternative, there would be 956 fewer dwelling units and retail/office uses would increase by 865,000 square feet, as compared to the proposed Master Plan.

Table 5-3: BR 2600/Existing Entitlements Alternative

Scenario	Site	Characteristics
BR 2600/Existing Entitlements Alternative	BR 1A	600,000 square feet office use
	BR 3A	487 dwelling units; 335,000 square feet retail use; 169-key hotel
	BR 2600	3,057 dwelling units; 96,000 square feet retail/office use
	Total	*Residential: 3,544 dwelling units* *Retail/Office: 1,031,000 square feet*

[10] Assumes 15 percent of total dwelling units would be affordable.

Scenario	Site	Characteristics
		Hotel: 169 keys
Proposed Master Plan	BR 1A	652 dwelling units
	BR 3A	791 dwelling units; 70,000 square feet retail/office use; 169-key hotel
	BR 2600	3,057 dwelling units; 96,000 square feet retail/office use
	Total	*Residential: 4,500 dwelling units* *Retail/Office: 166,000 square feet* *Hotel: 169 keys*
Net Change Relative to Proposed Master Plan		*Residential: decreased by 956 dwelling units* *Retail/Office: increased by 865,000 square feet*
Source: FCS 2020.		

Under the BR 2600/Existing Entitlements Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan. While this alternative would construct 956 fewer dwelling units, retail/office would increase by 865,000 square feet and, thus, the height of the structures on BR 1A and BR 3A may be slightly increased as compared to the proposed Master Plan.

5.5.1 - Impact Analysis

Aesthetics, Light, and Glare

As noted in this Draft EIR, the proposed Master Plan's impacts to scenic vistas, scenic resources, and the existing visual character and quality of public views of the site and its surroundings, as well as with respect to lighting and glare would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in the development of new structures on BR 1A and BR 3A, on sites that currently contain grassland and ornamental landscaping. Similar to the proposed Master Plan, new buildings and other improvements would be constructed on BR 2600 within existing parking lots. While this alternative would construct 956 fewer dwelling units, retail/office would increase by 865,000 square feet and, thus, the height of the structures on BR 1A and BR 3A may be slightly increased as compared to the proposed Master Plan, resulting in an increased potential to impact views of scenic vistas. While the BR 2600/Existing Entitlements Alternative would result in greater impacts on aesthetics, light, and glare than the proposed Master Plan, impacts would be less than significant without mitigation.

Air Quality

As noted in this Draft EIR, the proposed Master Plan's impacts related to air quality would be less than significant with respect to impacts from odors. The Draft EIR identified potential air quality management plan consistency, cumulative criteria pollutant emissions, sensitive receptors exposure

to toxic air contaminate concentrations and cumulative impacts, but these could be mitigated to a less than significant level.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600 and require the implementation of the Bay Area Air Quality Management District (BAAQMD) Best Management Practices (BMPs) to minimize air quality impacts during construction. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, during construction there would be a similar increase in criteria pollutant and toxic air contaminant emissions. At operation, this alternative could result in approximately 15,684 more daily trips than the proposed Master Plan (see Transportation below), which could result in greater air quality impacts at operation. Under this alternative, similar mitigation measures would be implemented at operation, such as adherence to the existing approved Transportation Demand Management (TDM) Program for the Bishop Ranch Business Park, to reduce air quality impacts. While the BR 2600/Existing Entitlements Alternative would result in greater impacts on air quality than the proposed Master Plan, impacts would be less than significant with mitigation.

Biological Resources

As noted in this Draft EIR, the proposed Master Plan's impacts related to biological resources would be less than significant with mitigation.

Under the BR 2600/Existing Entitlements Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in the removal of grassland and ornamental vegetation on BR 1A and BR 3A, which may provide suitable habitat for burrowing owl and nesting birds. Similar to the proposed Master Plan, trees and other vegetation that may provide habitat for nesting birds, would be removed from BR 2600. During construction, this alternative would require mitigation to reduce potential impacts to biological resources to less than significant. As such, similar vegetation removal and ground disturbance would occur relative to the proposed Master Plan and, thus, there would be the same potential to impact biological resources. Therefore, the BR 2600/Existing Entitlements Alternative would result in the same impacts on biological resources as the proposed Master Plan and impacts would be less than significant with mitigation.

Cultural Resources/Tribal Cultural Resources

As noted in this Draft EIR, should undiscovered cultural or tribal cultural resources be encountered during construction, the proposed Master Plan's impacts on these resources would be less than significant with mitigation.

Under the BR 2600/Existing Entitlements Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600 and require mitigation to reduce potential impacts to cultural resources to less than significant. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be the same potential to impact previously undiscovered cultural resources. Therefore, the BR 2600/Existing Entitlements Alternative would result in the same impacts on cultural resources as the proposed Master Plan and impacts would be less than significant with mitigation.

Energy

As noted in this Draft EIR, the proposed Master Plan's impacts related to energy would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, energy consumption during construction would be similar and impacts would be less than significant without mitigation. At operation, this alternative could result in approximately 15,684 more daily trips than the proposed Master Plan (see Transportation below), which could likely result in greater energy consumption. Under this alternative, similar mitigation measures required for Air Quality would be implemented, such as adherence to the existing approved TDM Program for the Bishop Ranch Business Park and providing electric vehicle parking required by the California Green Building Standard. While the BR 2600/Existing Entitlements Alternative would result in greater impacts on energy than the proposed Master Plan, impacts would be less than significant without mitigation.

Geology, Soils, and Seismicity

As noted in this Draft EIR, the proposed Master Plan's impacts related to geology, soils, and seismicity would be less than significant with mitigation.

Under the BR 2600/Existing Entitlements Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600 and require mitigation to reduce potential impacts to less than significant. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be the same potential to impact geology, soils, and seismicity. Therefore, the BR 2600/Existing Entitlements Alternative would result in the same impact on geology, soils, and seismicity as the proposed Master Plan and impacts would be less than significant with mitigation.

Greenhouse Gas Emissions

As noted in this Draft EIR, the proposed Master Plan's impacts related to GHG emissions would be less than significant with mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be similar increases in greenhouse gas (GHG) emissions during construction and impacts would be less than significant without mitigation. At operation, this alternative would result in approximately 15,684 more daily trips than the proposed Master Plan (see Transportation below), which would likely result in greater GHG emissions at operation. Under this alternative, similar mitigation would be implemented to reduce GHG emissions at operation, such as adherence to the existing approved TDM Program for the Bishop Ranch Business Park. While the BR 2600/Existing Entitlements Alternative would result in greater impacts on GHG emissions than the proposed Master Plan, impacts would be less than significant with mitigation.

Hazards and Hazardous Material

As noted in this Draft EIR, the proposed Master Plan's impacts related to hazards and hazardous materials would be less than significant with mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600; therefore, during construction this alternative would use, transport, and dispose of hazardous materials and have the potential to encounter petroleum hydrocarbons in the soils within BR 3A during construction. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be similar impacts related to hazards and hazardous materials during construction. During construction, this alternative would require mitigation to reduce potential impacts from contaminated soils encountered during excavation to less than significant. At operation, this alternative would result in similar impacts related to the storage, use, and disposal of hazardous materials as the proposed Master Plan. Therefore, the BR 2600/Existing Entitlements Alternative would result in the same impacts related to hazards and hazardous materials as the proposed Master Plan and impacts would be less than significant with mitigation.

Hydrology and Water Quality

As noted in this Draft EIR, the proposed Master Plan's impacts related to hydrology and water quality would be less than significant with mitigation.

Under the BR 2600/Existing Entitlements Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A, BR 3A, and BR 2600. As such, similar ground disturbance would occur relative to the proposed Master Plan and, thus, there would be the same potential to impact hydrology and water quality during construction. During construction, this alternative would require the preparation and implementation of a SWPPP to ensure that potential, short-term, construction water quality impacts are reduced to a level of less than significant. At operation, this alternative would result in similar impacts related to hydrology and water quality, as mitigation would be required to ensure that

development would be designed to minimize stormwater runoff and pollution. Therefore, the BR 2600/Existing Entitlements Alternative would result in the same impacts on hydrology and water quality as the proposed Master Plan and impacts would be less than significant with mitigation.

Land Use

As noted in this Draft EIR, the proposed Master Plan's impacts related to land use would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in the development of new residential uses, retail/office uses, and a hotel, the uses of which would be similarly consistent with the City of San Ramon General Plan 2035 and San Ramon Zoning Ordinance. However, this alternative would provide 956 fewer dwelling units and approximately 143 fewer affordable units[11] than the Proposed Master Plan. As such, this alternative would be less effective in meeting policies in the City of San Ramon General Plan 2035 that promote housing on infill sites (Policy 2.3-I.6), provide a diversity of housing types and affordability levels (Policies 3.1-I-3c and 11.5-G-1), and provide a wide range of housing opportunities (Policy 4.6-I-10). While the BR 2600/Existing Entitlements Alternative would result in greater impacts related to potential conflicts with the General Plan and Zoning Ordinance than the proposed Master Plan, impacts would be less than significant without mitigation.

Noise

As noted in this Draft EIR, the proposed Master Plan's impacts related to noise would be less than significant with mitigation.

Under the BR 2600/Existing Entitlements Alternative, BR 2600, BR 1A, and BR 3A would be disturbed by construction activities, such as the removal of existing paved surfaces, grassland, and ornamental landscaping; grading; utility installation; building construction; and paving. As such, this alternative would result in similar ground disturbance and a similar footprint as the proposed Master Plan. While this alternative would construct 956 fewer dwelling units, retail/office would increase by 865,000 square feet and, thus, the height of the structures on BR 1A and BR 3A may be slightly increased as compared to the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in the development of new structures on BR 1A and BR 3A, on sites that are currently undeveloped. Similar to the proposed Master Plan, new buildings and other improvements would be constructed on BR 2600 on existing parking lots. During construction and at operation, this alternative would require mitigation to reduce impacts to less than significant. While this alternative would construct 956 fewer dwelling units, retail/office would increase by 865,000 square feet and, thus, the height of the structures on BR 1A and BR 3A may be slightly increased as compared to the proposed Master Plan. As such, noise generation during construction would be greater than the proposed Master Plan. At operation, this alternative would result in approximately 15,684 more daily trips than the proposed Master Plan (see Transportation below), which would likely result in greater noise generation at operation. While

[11] Assumes 15 percent of total dwelling units would be affordable.

the BR 2600/Existing Entitlements Alternative would result in greater impacts on noise than the proposed Master Plan, impacts would be less than significant with mitigation.

Population and Housing

As noted in this Draft EIR, the proposed Master Plan's impacts related to population and housing would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 956 fewer dwelling units and retail/office uses would increase by 865,000 square feet. As such, there would be less population and housing growth but more employment growth relative to the proposed Master Plan. While some of the new employment opportunities may result in additional people moving to and residing in San Ramon, the projected number of new residents would not constitute a substantial increase in population growth. However, this alternative would provide 956 fewer dwelling units and approximately 143 fewer affordable units[12] than the Proposed Master Plan. As such, in providing fewer affordable housing units, this alternative would be less effective in meeting the City's goal of providing affordable housing in accordance with the City of San Ramon Housing Element (2015–2023). While the BR 2600/Existing Entitlements Alternative would result in greater impacts related to population and housing than the proposed Master Plan, impacts would be less than significant without mitigation.

Public Services and Recreation

As noted in this Draft EIR, the proposed Master Plan's impacts related to public services and recreation would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 956 fewer dwelling units and retail/office uses would increase by 865,000 square feet. As such, there would be less population and housing growth but more employment growth relative to the proposed Master Plan. While some of the new employment opportunities may result in additional people moving to and residing in San Ramon, the projected number of new residents would not constitute a substantial increase in population growth. As this alternative would result in less population growth, demand for public services and recreation would be less than under the proposed Master Plan. Therefore, the BR 2600/Existing Entitlements Alternative would result in fewer impacts on public services and recreation than the proposed Master Plan and impacts would be less than significant without mitigation.

Transportation

As noted in this Draft EIR, the proposed Master Plan's impacts related to transportation would be less than significant with mitigation.

As compared to the proposed Master Plan, this alternative would result in 956 fewer dwelling units and retail/office uses would increase by 865,000 square feet. As detailed in Section 3.14, Transportation, 37.75 daily trips are generated per 1,000 square feet of retail uses and 5.45 daily

[12] Assumes 15 percent of total dwelling units would be affordable.

trips are generated per dwelling unit for multi-family housing. Accounting for internal capture, mode split adjustments, and pass-by reductions, this alternative could result in approximately 15,684 more daily trips (19,592[13] - 3,908[14])] than the proposed Master Plan. Under this alternative, similar mitigation would be implemented to reduce transportation impacts at operation, such as roadway improvements, intersection signalization, and adjustments to signal timing. While the BR 2600/Existing Entitlements Alternative would result in greater impacts on transportation than the proposed Master Plan, impacts would be less than significant with mitigation.

Utilities and Service Systems

As noted in this Draft EIR, the proposed Master Plan's impacts related to utilities and service systems would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 956 fewer dwelling units and retail/office uses would increase by 865,000 square feet. As such, there would be less population and housing growth but more employment growth relative to the proposed Master Plan. While some of the new employment opportunities may result in additional people moving to and residing in San Ramon, the projected number of new residents would not constitute a substantial increase in population growth. As this alternative would result in less population growth, demand for utilities and service systems would be less than under the proposed Master Plan. Therefore, the BR 2600/Existing Entitlements Alternative would result in fewer impacts on utilities and service systems than the proposed Master Plan and impacts would be less than significant without mitigation.

5.5.2 - Conclusion

The BR 2600/Existing Entitlements Alternative would increase the severity of the proposed Master Plan's less-than-significant impacts associated with aesthetics, light, and glare, air quality, energy, greenhouse gas emissions, land use, noise, population and housing, and transportation. This alternative would lessen the severity of the proposed Master Plan's less-than-significant impacts associated with public services and recreation and utilities and service systems. This alternative would have similar impacts to the proposed Master Plan's less-than-significant impacts associated with biological resources, cultural resources/tribal cultural resources, geology, soils, and seismicity, hazards and hazardous materials, and hydrology and water quality.

The BR 2600/Existing Entitlements Alternative meets most the project objectives. For example, with the improvements to the existing BR 2600 facilities, such as improving the pathway around the perimeter of BR 2600 for public access, this alternative would meet the objective of providing public access to existing Bishop Ranch facilities, which are currently private. In addition, this alternative would provide more retail/office uses and would meet the objective of promoting positive economic contributions to the local economy through new capital investment, expansion of tax base, creation of new jobs, and opportunities for new taxable sales. The BR 2600/Existing Entitlements Alternative would meet the objective of attracting new businesses to San Ramon that are well suited for the

[13] Retail trips calculated as: 37.75 x 865 = 32,654. Reducing trips by 40 percent to adjust for internal capture, etc. would result in approximately 19,592 daily retail trips.

[14] Residential trips calculated as: 5.45 x 956 = 5,210. Reducing trips by 25 percent to adjust for internal capture, etc. would result in approximately 3,908 daily residential trips.

retail/entertainment sector. By providing 956 fewer dwelling units and approximately 143 fewer affordable units[15] than the proposed Master Plan, this alternative would not meet the objective of providing affordable housing units in accordance with the City of San Ramon Housing Element (2015–2023).

5.6 - Alternative 4—BR 1A and BR 3A Only Alternative

Under the BR 1A and BR 3A Only Alternative, BR 1A and BR 3A would be developed with similar uses as the proposed Master Plan. No development would occur on BR 2600; the existing parking lots and landscaping would remain in their current condition. The purpose of the BR 1A and BR 3A Only Alternative is to reduce the footprint and buildout potential, as compared to the proposed Master Plan.

Table 5-4 summarizes the BR 1A and BR 3A Only Alternative. Under this alternative, 1,443 dwelling units, 70,000 square feet of retail/office use, and a 169-key hotel would be developed. Under the BR 1A and BR 3A Only Alternative, there would be 3,057 fewer dwelling units and retail/office uses would decrease by 96,000 square feet, as compared to the proposed Master Plan.

Table 5-4: BR 1A and BR 3A Only Alternative

Scenario	Site	Characteristics
BR 1A and BR 3A Only Alternative	BR 1A	652 dwelling units
	BR 3A	791 dwelling units; 70,000 square feet retail/office use; 169-key hotel
	Total	*Residential: 1,443 dwelling units* *Retail/Office: 70,000 square feet* *Hotel: 169 keys*
Proposed Master Plan	BR 1A	652 dwelling units
	BR 3A	791 dwelling units; 70,000 square feet retail/office use; 169-key hotel
	BR 2600	3,057 dwelling units; 96,000 square feet retail/office use
	Total	*Residential: 4,500 dwelling units* *Retail/Office: 166,000 square feet* *Hotel: 169 keys*
Net Change Relative to Proposed Master Plan		*Residential: decreased by 3,057 dwelling units* *Retail/Office: decreased by 96,000 square feet*
Source: FCS 2020.		

Under the BR 1A and BR 3A Only Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving.

[15] Assumes 15 percent of total dwelling units would be affordable.

As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

5.6.1 - Impact Analysis

Aesthetics, Light, and Glare

As noted in this Draft EIR, the proposed Master Plan's impacts to scenic vistas, scenic resources, and the existing visual character and quality of public views of the site and its surroundings, as well as with respect to lighting and glare would be less than significant without mitigation.

Under the BR 1A and BR 3A Only Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in the development of new structures on BR 1A and BR 3A, on sites that currently contain grassland and ornamental landscaping, resulting in similar impacts related to aesthetics, light, and glare. Unlike the proposed Master Plan, no new buildings or other improvements would be constructed on BR 2600 and the existing parking lots and landscaping would remain in their current condition. Under this alternative, there would be no changes related to aesthetics, light, and glare on BR 2600; therefore, no new buildings would be introduced on BR 2600 that could potentially impact views of scenic vistas or result in new lighting or glare on BR 2600. Therefore, the BR 1A and BR 3A Only Alternative would result in fewer impacts on aesthetics, light, and glare than the proposed Master Plan and impacts would be less than significant without mitigation.

Air Quality

As noted in this Draft EIR, the proposed Master Plan's impacts related to air quality would be less than significant with respect to impacts from odors. The Draft EIR identified potential air quality management plan consistency, cumulative criteria pollutant emissions, sensitive receptors exposure to toxic air contaminate concentrations and cumulative impacts, but these could be mitigated to a less than significant level.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and require the implementation of the Bay Area Air Quality Management District (BAAQMD) Best Management Practices (BMPs) to minimize air quality impacts during construction. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, no impacts to air quality would occur under this alternative on BR 2600 during construction. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, during construction there would be a smaller increase in criteria pollutant and toxic air contaminant emissions. At operation, this alternative would result in fewer dwelling units and less retail/office uses relative to the proposed Master Plan. However, this alternative could result in a greater number of trips on the transportation network (see Transportation below), which could result in greater air

quality impacts. Under this alternative, similar mitigation measures would be implemented at operation, such as adherence to the existing approved Transportation Demand Management (TDM) Program for the Bishop Ranch Business Park, to reduce air quality impacts. While the BR 1A and BR 3A Only Alternative would result in greater impacts on air quality than the proposed Master Plan, impacts would be less than significant with mitigation.

Biological Resources

As noted in this Draft EIR, the proposed Master Plan's impacts related to biological resources would be less than significant with mitigation.

Under the BR 1A and BR 3A Only Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in the removal of grassland and ornamental vegetation on BR 1A and BR 3A, which may provide suitable habitat for burrowing owl and nesting birds. During construction, this alternative would require mitigation to reduce potential impacts to biological resources to less than significant. Unlike the proposed Master Plan, no trees or other vegetation would be removed from BR 2600, and thus no impacts to nesting birds would occur on BR 2600. As such, less vegetation removal and ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less potential to impact biological resources. Therefore, the BR 1A and BR 3A Only Alternative would result in fewer impacts on biological resources than the proposed Master Plan and impacts would be less than significant with mitigation.

Cultural Resources/Tribal Cultural Resources

As noted in this Draft EIR, should undiscovered cultural or tribal cultural resources be encountered during construction, the proposed Master Plan's impacts on these resources would be less than significant with mitigation.

Under the BR 1A and BR 3A Only Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and require mitigation to reduce potential impacts to cultural resources to less than significant. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less potential to impact previously undiscovered cultural resources. Therefore, the BR 1A

and BR 3A Only Alternative would result in fewer impacts on cultural resources than the proposed Master Plan and impacts would be less than significant with mitigation.

Energy

As noted in this Draft EIR, the proposed Master Plan's impacts related to energy would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and result in similar energy consumption during construction that would be less than significant without mitigation. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, no impacts to Energy would occur under this alternative on BR 2600 during construction. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less energy consumed during construction. At operation, this alternative would result in fewer dwelling units and less retail/office uses relative to the proposed Master Plan. However, this alternative could result in a greater number of trips on the transportation network (see Transportation below), which could result in greater energy impacts. Under this alternative, similar mitigation measures required for Air Quality would be implemented, such as adherence to the existing approved TDM Program for the Bishop Ranch Business Park and providing electric vehicle parking required by the California Green Building Standard. While the BR 1A and BR 3A Only Alternative would result in greater impacts on energy than the proposed Master Plan, impacts would be less than significant without mitigation.

Geology, Soils, and Seismicity

As noted in this Draft EIR, the proposed Master Plan's impacts related to geology, soils, and seismicity would be less than significant with mitigation.

Under the BR 1A and BR 3A Only Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and require mitigation to reduce potential impacts to less than significant. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less potential to impact geology, soils, and seismicity. Therefore, the BR 1A and BR 3A Only Alternative would result in fewer impacts on geology, soils, and seismicity than the proposed Master Plan and impacts would be less than significant with mitigation.

Greenhouse Gas Emissions

As noted in this Draft EIR, the proposed Master Plan's impacts related to GHG emissions would be less than significant with mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and result in similar GHG emissions during construction that would be less than significant without mitigation. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, no impacts to GHG emissions would occur under this alternative on BR 2600 during construction. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be a smaller increase in greenhouse gas (GHG) emissions during construction. At operation, this alternative would result in fewer dwelling units and less retail/office uses relative to the proposed Master Plan. However, this alternative could result in a greater number of trips on the transportation network (see Transportation below), which could result in greater GHG emissions at operation. Under this alternative, similar mitigation would be implemented to reduce GHG emissions at operation, such as adherence to the existing approved TDM Program for the Bishop Ranch Business Park. While the BR 1A and BR 3A Only Alternative would result in greater impacts on GHG emissions than the proposed Master Plan, impacts would be less than significant with mitigation.

Hazards and Hazardous Materials

As noted in this Draft EIR, the proposed Master Plan's impacts related to hazards and hazardous materials would be less than significant with mitigation.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A; therefore, during construction this alternative would use, transport, and dispose of hazardous materials and have the potential to encounter petroleum hydrocarbons in the soils within BR 3A during construction. During construction, this alternative would require mitigation to reduce potential impacts from contaminated soils encountered during excavation to less than significant. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, during construction, no hazardous materials would be used, transported, or disposed of on BR 2600 under this alternative. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be fewer impacts related to hazards and hazardous materials during construction. At operation, this alternative would result in similar impacts related to the storage, use, and disposal of hazardous materials as the proposed Master Plan. Therefore, the BR 1A and BR 3A Only Alternative would result in fewer impacts related to hazards and hazardous materials than the proposed Master Plan and impacts would be less than significant with mitigation.

Hydrology and Water Quality

As noted in this Draft EIR, the proposed Master Plan's impacts related to hydrology and water quality would be less than significant with mitigation.

Under the BR 1A and BR 3A Only Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

Similar to the proposed Master Plan, this alternative would result in ground disturbance on BR 1A and BR 3A and require the preparation and implementation of a SWPPP to ensure that potential, short-term, construction water quality impacts are reduced to a level of less than significant. Unlike the proposed Master Plan, no ground disturbance would occur on BR 2600; therefore, no impacts to water quality would occur under this alternative on BR 2600 during construction. As such, less ground disturbance would occur relative to the proposed Master Plan and, thus, there would be less potential to impact hydrology and water quality during construction. At operation, this alternative would result in similar impacts related to hydrology and water quality, as mitigation would be required to ensure that development would be designed to minimize stormwater runoff and pollution. Therefore, the BR 1A and BR 3A Only Alternative would result in fewer impacts on hydrology and water quality than the proposed Master Plan and impacts would be less than significant with mitigation.

Land Use

As noted in this Draft EIR, the proposed Master Plan's impacts related to land use would be less than significant without mitigation.

Similar to the proposed Master Plan, this alternative would result in the development of new residential uses, retail/office uses, and a hotel, the uses of which would be similarly consistent with the City of San Ramon General Plan 2035 and San Ramon Zoning Ordinance. As no new buildings or other improvements would be constructed on BR 2600 under this alternative, there would be no potential to conflict with the City of San Ramon General Plan 2035 and San Ramon Zoning Ordinance at this location. However, this alternative would provide 3,057 fewer dwelling units and approximately 458 fewer affordable units[16] than the Proposed Master Plan. As such, this alternative would be less effective in meeting policies in the City of San Ramon General Plan 2035 that promote housing on infill sites (Policy 2.3-I.6), provide a diversity of housing types and affordability levels (Policies 3.1-I-3c and 11.5-G-1), and provide a wide range of housing opportunities (Policy 4.6-I-10). While the BR 1A and BR 3A Only Alternative would result in greater impacts related to potential conflicts with the General Plan and Zoning Ordinance than the proposed Master Plan, impacts would be less than significant without mitigation.

Noise

As noted in this Draft EIR, the proposed Master Plan's impacts related to noise would be less than significant with mitigation.

Under the No Project/Existing Entitlements Alternative, BR 2600 would remain in its current condition with the existing parking lots and landscaping and no new buildings or improvements would be developed. BR 1A and BR 3A would be disturbed by construction activities, such as the removal of existing grassland and ornamental landscaping, grading, utility installation, building construction, and paving. As such, this alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan.

[16] Assumes 15 percent of total dwelling units would be affordable.

Similar to the proposed Master Plan, this alternative would result in the development of new structures on BR 1A and BR 3A, on sites that are currently undeveloped, resulting in similar noise impacts during construction and at operation, which require mitigation to reduce impacts to less than significant. Unlike the proposed Master Plan, no new buildings or other improvements would be constructed on BR 2600 and the existing parking lots and landscaping would remain in their current condition; therefore, there would be no additional noise generated on BR 2600 during construction and operation under this alternative. Therefore, the BR 1A and BR 3A Only Alternative would result in fewer impacts related to noise than the proposed Master Plan and impacts would be less than significant with mitigation.

Population and Housing

As noted in this Draft EIR, the proposed Master Plan's impacts related to population and housing would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 3,057 fewer dwelling units and retail/office uses would decrease by 96,000 square feet. As such, there would be less population, housing, and employment growth relative to the proposed Master Plan. However, this alternative would provide 3,057 fewer dwelling units and approximately 458 fewer affordable units[17] than the Proposed Master Plan. As such, in providing fewer affordable housing units, this alternative would be less effective in meeting the City's goal of providing affordable housing in accordance with the City of San Ramon Housing Element (2015–2023). While the BR 1A and BR 3A Only Alternative would result in greater impacts related to population and housing than the proposed Master Plan, impacts would be less than significant without mitigation.

Public Services and Recreation

As noted in this Draft EIR, the proposed Master Plan's impacts related to public services and recreation would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 3,057 fewer dwelling units and retail/office uses would decrease by 96,000 square feet. As such, there would be less population, housing, and employment growth relative to the proposed Master Plan. As this alternative would result in less population growth, demand for public services and recreation would be less than under the proposed Master Plan. Therefore, the BR 1A and BR 3A Only Alternative would result in fewer impacts on public services and recreation than the proposed Master Plan and impacts would be less than significant without mitigation.

Transportation

As noted in this Draft EIR, the proposed Master Plan's impacts related to transportation would be less than significant with mitigation.

As compared to the proposed Master Plan, this alternative would result in 3,057 fewer dwelling units and retail/office uses would decrease by 96,000 square feet. As detailed in Section 3.14,

[17] Assumes 15 percent of total dwelling units would be affordable.

Transportation, 37.75 daily trips are generated per 1,000 square feet of retail uses and 5.45 daily trips are generated per dwelling unit for multi-family housing. Accounting for internal capture, mode split adjustments, and pass-by reductions, this alternative could result in approximately 14,670 fewer daily trips (2,174[18] + 12,496[19])] than the proposed Master Plan.

However, the residential units in the Master Plan as currently proposed would provide opportunities to enhance the job/housing balance in San Ramon and Bishop Ranch, specifically. As such, the BR 1A and BR 3A Only Alternative, by providing fewer dwelling units, could result in a less effective job/housing balance, thereby generating a greater number of trips on the transportation network, as a greater number of employees would commute to the Master Plan area from other locations. Under this alternative, similar mitigation would be implemented to reduce transportation impacts at operation, such as roadway improvements, intersection signalization, and adjustments to signal timing. Therefore, while the BR 1A and BR 3A Only Alternative would result in greater impacts on transportation than the proposed Master Plan, impacts would be less than significant with mitigation.

Utilities and Service Systems

As noted in this Draft EIR, the proposed Master Plan's impacts related to utilities and service systems would be less than significant without mitigation.

As compared to the proposed Master Plan, this alternative would result in 3,057 fewer dwelling units and retail/office uses would decrease by 96,000 square feet. As such, there would be less population, housing, and employment growth relative to the proposed Master Plan. As this alternative would result in less population growth, demand for utilities and service systems would be less than under the proposed Master Plan. Therefore, the BR 1A and BR 3A Only Alternative would result in fewer impacts on utilities and service systems than the proposed Master Plan and impacts would be less than significant without mitigation.

5.6.2 - Conclusion

The BR 1A and BR 3A Only Alternative would lessen the severity of the proposed Master Plan's less-than-significant impacts associated with aesthetics, light, and glare, biological resources, cultural resources/tribal cultural resources, geology, soils, and seismicity, hazards and hazardous materials, hydrology and water quality, noise, public services and recreation, and utilities and service systems. This alternative would increase the severity of the proposed Master Plan's less-than-significant impacts associated with air quality, energy, greenhouse gas emissions, land use, population and housing, and transportation.

The BR 1A and BR 3A Only Alternative does not meet all of the project objectives because of the reduction in buildout potential. For example, this alternative would provide 3,057 fewer dwelling units and approximately 458 fewer affordable units[20] than the Proposed Master Plan. As such, this

[18] Retail trips calculated as: 37.75 x 96 = 3,624. Reducing trips by 40 percent to adjust for internal capture, etc. would result in approximately 2,174 daily retail trips.
[19] Residential trips calculated as: 5.45 x 3,057 = 16,661. Reducing trips by 25 percent to adjust for internal capture, etc. would result in approximately 12,496 daily residential trips.
[20] Assumes 15 percent of total dwelling units would be affordable.

alternative would not meet the objective of providing affordable housing units in accordance with the City of San Ramon Housing Element (2015–2023). This alternative would not meet the objective of locating housing next to jobs to reduce or eliminate motor vehicle travel for home-to-work trips. Since improvements to the existing BR 2600 facilities would not occur under this alternative---such as improving the pathway around the perimeter of BR 2600, development of a new community center, or development of an outdoor amphitheater---this alternative would not meet the objective of providing public access to and enhancing existing Bishop Ranch facilities, which are currently private.

5.7 - Environmentally Superior Alternative

The qualitative environmental effects of each alternative in relation to the proposed Master Plan are summarized in Table 5-5. The significance conclusion for each alternative is also identified in the table. As explained in detail above, because there are no significant and unavoidable impacts, the comparison contained in Table 5-5 and the subsequent discussion are provided for informational purposes only.

Table 5-5: Summary of Alternatives

Environmental Topic Area	Significance Conclusion for Master Plan as Proposed	No Project/Existing Entitlements Alternative	Reduced Density Alternative	BR 2600/Existing Entitlements Alternative	BR 1A and BR 3A Only Alternative
Aesthetics, Light, and Glare	LTS	LTS (less)	LTS (less)	LTS (greater)	LTS (less)
Air Quality	LTSM	LTSM (greater)	LTSM (greater)	LTSM (greater)	LTSM (greater)
Biological Resources	LTSM	LTSM (less)	LTSM (same)	LTSM (same)	LTSM (less)
Cultural Resources/Tribal Cultural Resources	LTSM	LTSM (less)	LTSM (same)	LTSM (same)	LTSM (less)
Energy	LTS	LTS (greater)	LTS (greater)	LTS (greater)	LTS (greater)
Geology, Soils, and Seismicity	LTSM	LTSM (less)	LTSM (same)	LTSM (same)	LTSM (less)
Greenhouse Gas Emissions	LTSM	LTSM (greater)	LTSM (greater)	LTSM (greater)	LTSM (greater)
Hazards and Hazardous Materials	LTSM	LTSM (less)	LTSM (same)	LTSM (same)	LTSM (less)
Hydrology and Water Quality	LTSM	LTSM (less)	LTSM (same)	LTSM (same)	LTSM (less)
Land Use	LTS	LTS (greater)	LTS (greater)	LTS (greater)	LTS (greater)

Environmental Topic Area	Significance Conclusion for Master Plan as Proposed	No Project/Existing Entitlements Alternative	Reduced Density Alternative	BR 2600/Existing Entitlements Alternative	BR 1A and BR 3A Only Alternative
Noise	LTSM	LTSM (less)	LTSM (less)	LTSM (greater)	LTSM (less)
Population and Housing	LTS	LTS (greater)	LTS (greater)	LTS (greater)	LTS (greater)
Public Services and Recreation	LTS	LTS (less)	LTS (less)	LTS (less)	LTS (less)
Transportation	LTSM	LTSM (greater)	LTSM (greater)	LTSM (greater)	LTSM (greater)
Utilities and Service Systems	LTS	LTS (less)	LTS (less)	LTS (less)	LTS (less)
	Total Less:	**9**	**4**	**2**	**9**
	Total Same:	**0**	**5**	**5**	**0**
	Total Greater:	**6**	**6**	**8**	**6**

Notes:
LTS = less than significant
LTSM = less than significant with mitigation incorporated
less = less than proposed Master Plan
same = similar to proposed Master Plan
greater = greater than proposed Master Plan
Source: FCS 2020.

CEQA Guidelines Section 15126(e)(2) requires an EIR to identify an environmentally superior alternative. If the No Project Alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives.

As shown in Table 5-5, the No Project/Existing Entitlements Alternative, and the BR 1A and BR 3A Only Alternative would further reduce the proposed Master Plan's less-than-significant impacts associated with nine environmental topic areas. Although the No Project/Existing Entitlements Alternative and the BR1A and BR 3A Only Alternative would result in less ground disturbance and a smaller footprint than the proposed Master Plan, both alternatives would increase the proposed Master Plan's less-than-significant impacts associated with six environmental topic areas.

Both the No Project/Existing Entitlements Alternative and the BR1A and BR 3A Only Alternative do not meet all the objectives of the proposed Master Plan because of the reduction in buildout potential. For example, both alternatives provide fewer dwelling units (and fewer affordable units) than the Proposed Master Plan. As such, both alternatives would not meet the objective of providing affordable housing units in accordance with the City of San Ramon Housing Element (2015–2023). Both alternatives would not meet the objective of locating housing next to jobs to reduce or eliminate motor vehicle travel for home-to-work trips. Since improvements to the existing BR 2600 facilities would not occur under both alternatives---such as improving the pathway around the perimeter of BR 2600, development of a new community center, or development of an outdoor

amphitheater---both alternatives would not meet the objective of providing public access to and enhancing existing Bishop Ranch facilities, which are currently private.

5.8 - Alternatives Rejected from Further Consideration

CEQA Guidelines 15126.6(c) requires an EIR to discuss alternatives that were initially considered but rejected from further consideration.

5.8.1 - No Project/No Development Alternative

A No Project/No Development Alternative was rejected from further consideration because BR 2600 is developed as a 1.75-million-square-foot office complex and BR 1A and BR 3A are currently entitled for dwelling units, retail/office uses and a hotel by the 2007 City Center Project. Accordingly, the project applicant could continue operating BR 2600 for the foreseeable future and could develop both BR 1A and BR 3A consistent with existing land use entitlements. This alternative was not studied in further detail because the existing land use entitlements that are associated with BR 1A and BR 3A render this alternative infeasible.

5.8.2 - Alternative Location

CEQA Guidelines Section 15126.6(f)(2) sets forth considerations to be used in evaluating an alternative location. The section states that the "key question" is whether any of the significant effects of the project would be avoided or substantially lessened by relocating the project. The CEQA Guidelines identify the following factors that may be taken into account when addressing the feasibility of an alternative location:

1) Site suitability
2) Economic viability
3) Availability of infrastructure
4) General Plan consistency
5) Other plans or regulatory limitations
6) Jurisdictional boundaries
7) Whether the project applicant can reasonably acquire, control, or otherwise have access to the alternative site

The CEQA Guidelines establishes that only locations that would accomplish this objective should be considered as alternative locations for the project.

Table 5-6 summarizes the feasibility of two alternative locations for the proposed Master Plan. As shown in the table, neither of the sites is considered feasible for a variety of reasons; therefore, pursuing the proposed Master Plan at an alternative location has been rejected from further consideration.

Table 5-6: Alternative Project Location

Name	Description	Feasibility Analysis
Crow Canyon Specific Plan	± 128 acres located along San Ramon Valley Boulevard in the northern portion of the City of San Ramon. The Specific Plan area contains ± 1.3 million square feet of existing development. The City of San Ramon's Crow Canyon Specific Plan contemplates 735 dwelling units and 357,000 square feet of new commercial uses. The City of San Ramon contemplated this area as the original location of the City Center.	**Not Feasible:** Although this was contemplated as the original location of the City Center, it was later eliminated from consideration. The project applicant does not control any of the parcels within this area. Moreover, several new projects have been developed (e.g., Sherwin Williams, O'Reilly Auto Parts, Wendy's, etc.) or are entitled (e.g., ROEM San Ramon Valley Boulevard Apartments, Hampton Inn, etc.) and, thus, these sites would not be available to the project applicant. Furthermore, this area is not within the Bishop Ranch Business Park and would not meet the project objectives, such as supporting City Center Bishop Ranch by developing new dwelling units and a new hotel within walking distance or providing public access to and enhancement of existing Bishop Ranch facilities, which are currently private. For these reasons, this location has been rejected from further consideration.
North Camino Ramon Specific Plan	± 295 acres located along Camino Ramon in the northern portion of the City of San Ramon. The Specific Plan area contains ± 3.4 million square feet of existing development. The City of San Ramon's North Camino Ramon Specific Plan contemplates 1,124 dwelling units and 6.7 million square feet of new commercial uses. The Specific Plan contemplated the North Camino Area as complementing the City Center.	**Not Feasible:** The project applicant does control several of the parcels within the southern portion of this area that supports office/medical office development. These office complexes are occupied, and the project applicant is obligated to uphold the leases. Moreover, several new projects have been developed (e.g., St. James Place, Ulta Beauty, the natural gas fuel station) and, thus, these sites would not be available to the project applicant. Furthermore, the North Camino Area is intended to complement the City Center and not replace it. Use of the North Camino Area would not meet the project objectives, such as providing connectivity with adjoining land uses including the Iron Horse Trail, Central Park, City Center Bishop Ranch, The Shops at Bishop Ranch, and the Marketplace through pedestrian and bicycle connections. Use of this location would not meet the project objective of providing public access to and enhancement of existing Bishop Ranch facilities, which are currently private. For these reasons, this location has been rejected from further consideration.
Source: FCS 2020.		

SECTION 6: OTHER CEQA CONSIDERATIONS

CEQA Guidelines Section 15126 requires that all aspects of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must also identify (1) significant environmental effects of the proposed Master Plan; (2) significant environmental effects which cannot be avoided if the proposed Master Plan is implemented; (3) significant irreversible environmental changes which would be involved in the proposed Master Plan should it be implemented; (4) growth-inducing impact of the proposed Master Plan; (5) mitigation measures proposed to minimize the significant effects; and (6) alternatives to the proposed Master Plan.

This section provides a discussion of other CEQA-mandated topics including significant unavoidable impacts, growth inducement, and significant irreversible environmental changes which would be involved in the proposed Master Plan should it be implemented. Section 3, Environmental Impact Analysis, describes the significant environmental effects of the proposed Master Plan and provides mitigation measures proposed to minimize significant effects. Section 5, Alternatives to the Proposed Master Plan, discusses alternatives to the proposed Master Plan.

6.1 - Significant Unavoidable Impacts

CEQA Guidelines Section 15126.2(c) requires an EIR to describe significant environmental effects of the proposed Master Plan that cannot be avoided if the proposed Master Plan were implemented.

The proposed Master Plan would not result in any significant unavoidable impacts.

6.2 - Growth-Inducing Impacts

There are two types of growth-inducing impacts that a project may have: direct and indirect. To assess the potential for growth-inducing impacts, the project's characteristics that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated (CEQA Guidelines § 15126.2(e)).

Direct growth-inducing impacts occur when the development of a project imposes new burdens on a community by directly inducing population growth, or by leading to the construction of additional developments in the same area. Also included in this category are projects that remove physical obstacles to population growth (such as a new road into an undeveloped area or a wastewater treatment plant with excess capacity that could allow additional development in the service area). Construction of these types of infrastructure projects cannot be considered isolated from the development they facilitate and serve. Projects that physically remove obstacles to growth, or projects that indirectly induce growth may provide a catalyst for future unrelated development in an area such as a new residential community that requires additional commercial uses to support residents.

Direct Growth-Inducing Impacts

Using the City of San Ramon's average household size of 2.97 persons from the Department of Finance, the proposed Master Plan would add an estimated 13,365 persons to the City's population at full Master Plan buildout. Averaged over the 25-year buildout horizon, this represents an increase of 535 persons per year or less than 1 percent of the ABAG projected population growth per year.

The City of San Ramon's 2020 population estimate of 83,118 persons exceeds ABAG's Projections for 2020, 2025, 2020, and 2035, but is within the General Plan's population estimate of 96,179 for 2035. Implementation of the proposed Master Plan would result in an increase in 13,365 persons at full project buildout, for a total of 96,483 persons within the City of San Ramon by 2048. However, the proposed Master Plan would be constructed over 25 years and would thus increase population in San Ramon by approximately 535 persons per year. The San Ramon General Plan 2035 anticipates a population of 96,179 at buildout by 2035, which represents an additional 816 persons per year from 2020 to 2035 [(96,179 – 83,118) / 16 years)]. As such, annual population growth resulting from the proposed Master Plan (535 persons per year) is within the General Plan's annual population growth projections through 2035 (816 persons per year). Although the planning horizon for the proposed Master Plan extends beyond the planning horizon for the General Plan, population growth from the Master Plan would occur in phases, ensuring that the proposed Master Plan would not result in substantial unplanned growth beyond 2035. Thus, because annual population growth through 2035 is within the General Plan's population projections and would not result in substantial unplanned growth beyond 2035, the proposed Master Plan's direct growth impacts would be less than significant.

Indirect Growth-Inducing Impacts

The proposed Master Plan would create new employment opportunities associated with the hotel and retail uses and therefore may have the potential to induce population growth because new employees may move into the City. Hotel employment is estimated at 200 and the retail uses are estimated to employ 332 workers. In total, the proposed Master Plan would increase employment by an estimated 532 workers over a 25-year period. This represents a small percentage of employment growth, which within the context of the larger East Bay region, would not be considered unplanned or growth inducing. Impacts would be less than significant.

Removal of a Physical Barrier to Growth

The Master Plan area is currently served by urban infrastructure and utilities including roads, potable water, recycled water, sewer, storm drainage, electricity, natural gas, and telecommunications. The Master Plan area is also currently served by urban services, such as fire, police, school, and community services. Furthermore, the provision of utilities and services to the Master Plan area has been previously considered as a part of General Plan buildout. As such, the proposed Master Plan would not result in indirect population growth through providing an extension of infrastructure or services, or through the removal of a barrier to growth. Impacts would be less than significant.

6.3 - Significant Irreversible Environmental Changes

As mandated by CEQA Guidelines Section 15126.2(d), the EIR must address significant irreversible environmental changes which would be caused by the proposed Master Plan should it be implemented. Specifically, such an irreversible environmental change would occur if:

- The proposed Master Plan would involve a large commitment of nonrenewable resources;
- Primary and secondary impacts would generally commit future generations to similar uses;
- The proposed Master Plan involves uses in which irreversible damage could result from any potential environmental accidents associated with the Master Plan; or
- The proposed consumption of resources is not justified (e.g., the Master Plan results in wasteful use of energy).

The buildout potential of the proposed Master Plan is up to 4,500 dwelling units, a 169-key hotel, 166,000 square feet of retail or office uses, three new parking structures, and publicly accessible, privately owned and maintained park and public spaces. Protected trees proposed for removal would be required to be replaced in accordance with Chapter II of the City of San Ramon's Zoning Ordinance, Division D5, Resource Management.

Construction of the proposed Master Plan would include the consumption of resources that are not replenishable or which may renew so slowly to be considered nonrenewable. These resources would include the following: certain types of lumber and other forest products; aggregate materials used in concrete and asphalt such as sand, gravel, and stone; metals such as steel, copper, and lead; petrochemical construction materials such as plastics; and water. Fossil fuels such as gasoline and oil would also be consumed in the use of construction vehicles and equipment. Consumption of building materials and energy is common to most other development in the region, and commitments of resources are not unique or unusual to the proposed Master Plan. Development would not be expected to involve an unusual commitment of nonrenewable resources, nor be expected to consume any resources in a wasteful manner. Energy demands associated with construction of the proposed Master Plan are discussed in greater detail in Section 3.5, Energy, which concluded that construction-related impacts related to electricity and fuel consumption would be less than significant.

At operation, the proposed Master Plan would include the consumption of energy as part of building operations and transportation activities (vehicle trips associated with the proposed Master Plan). Fossil fuels would represent the primary energy source during operation of the project, and the existing, finite supplies of these nonrenewable resources would be incrementally reduced. As discussed in Section 3.5, Energy, the proposed Master Plan would be designed and constructed in accordance with the City's latest adopted energy efficiency standards, which are based on the State's Title 24 energy efficiency standards. Furthermore, the proposed Master Plan would be required to comply with applicable policies in the City of San Ramon General Plan 2035 and CAP that promote efficient energy consumption. Lastly, the project applicant currently manages a TDM Plan that includes a set of strategies designed to reduce peak-hour vehicular traffic to and from the Bishop Ranch Business Park, which encompasses the Master Plan area. Several of the strategies aim to reduce vehicle miles traveled and fuel consumption demand, including promoting and supporting carpools and rideshare. Thus, although the proposed Master Plan would result in an irretrievable

commitment of nonrenewable resources at operation, the resources would not be consumed inefficiently, unnecessarily, or wastefully.

Implementation of the proposed Master Plan represents an essentially irreversible commitment of land uses that would change the existing uses on-site (paved parking lots and ruderal/disturbed land) to mixed-use development. The restoration of the site to pre-developed conditions after development would not be feasible given the level of capital investment and degree of disturbance needed to develop the properties in the first place. Therefore, future generations would be committed to similar uses and the irreversible long-term environmental changes discussed below.

The irreversible long-term environmental changes associated with the proposed Master Plan would include a change in the visual character of the site as a result of the conversion of the undeveloped ruderal/disturbed land to a mixed-use development. Additional irreversible environmental changes are associated with the increase in local and regional vehicular traffic, and the resultant increase in air pollutants, greenhouse gas emissions, and noise generated by this traffic. The proposed Master Plan would also irreversibly increase the commitment of energy resources, potable water supply, wastewater treatment, solid waste disposal, and public services, such as providing police and fire services, to support the proposed Master Plan through its lifetime. However, features have been incorporated into the project and mitigation measures are proposed in this EIR that would minimize or avoid the significant effects of the environmental changes associated with project to the maximum degree feasible.

The proposed Master Plan does not include any uses in which irreversible damage could result from potential environmental accidents associated with the Master Plan. As a mixed-use development, the proposed Master Plan would not introduce highly hazardous land uses or activities such that there would be a potential for irreversible damage from incidents such as a release of hazardous materials, explosion or other potentially catastrophic event. As discussed in Section 3.8, Hazards and Hazardous Materials, the proposed uses would not require the use of large quantities of hazardous materials. Small quantities of hazardous materials would be used on-site, including cleaning solvents (e.g., degreasers, paint thinners, and aerosol propellants), paints (both latex- and oil-based), acids and bases (such as many cleaners), disinfectants, and fertilizers. However, compliance with existing regulations regarding the storage, handling, usage, and disposal of the hazardous materials would reduce the potential for irreversible damage from environmental accidents to less than significant levels.

SECTION 7: EFFECTS FOUND NOT TO BE SIGNIFICANT

7.1 - Introduction

This section is based on the Notice of Preparation (NOP), dated September 25, 2019, and contained in Appendix A of this Draft Environmental Impact Report (Draft EIR). The NOP was prepared to identify the potentially significant effects of the proposed Master Plan and was circulated for public review between September 25, 2019, and October 25, 2019. In the course of this evaluation, certain impacts were found to be less than significant because the proposed Master Plan's characteristics would not create such impacts. This section provides a brief description of effects found not to be significant or less than significant, based on the NOP comments or more detailed analysis conducted as part of the EIR preparation process. Note that a number of impacts found to be less than significant are addressed in the various EIR topical sections to allow for additional details to support the determination (see Sections 3.1 through 3.15).

7.2 - Effects Found not to be Significant

7.2.1 - Agriculture and Forest Resources

Important Farmland

The Master Plan area is located within an urbanized area and does not support agricultural land use activities. The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) maps the Master Plan area as 'Urban and Built-Up Land' (CDC 2018). This precludes the possibility of conversion of Important Farmland to non-agricultural use. No impact would occur.

Agricultural Zoning and Williamson Act Contracts

The Master Plan area is zoned 'City Center Mixed Use' (CCMU) by the San Ramon Zoning Ordinance, a non-agricultural zoning designation. The Master Plan area does not support agricultural land use activities and, therefore, would not be eligible for a Williamson Act contract. This condition precludes the possibility of conflicts with agricultural zoning or Williamson Act contract. No impact would occur.

Forest Land

The Master Plan area is located within an urbanized area and does not support forest land use activities. The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) maps the Master Plan area as 'Urban and Built-Up Land.' This precludes the possibility of conversion of forest land to non-forest use. No impact would occur.

Forest Zoning

The Master Plan area is zoned CCMU by the San Ramon Zoning Ordinance, a non-forest zoning designation. This condition precludes the possibility of conflicts with forest zoning. No impact would occur.

Pressures to Convert Agricultural Land or Forest Land

The Master Plan area is located within an urbanized area and does not support agricultural or forest land use activities. As such, development of the proposed Master Plan would not result in the conversion of agricultural or forest land in the vicinity of the Master Plan area to urban uses. No impact would occur.

7.2.2 - Biological Resources

Riparian Habitat or Other Sensitive Natural Community

The Master Plan area does not contain or lie adjacent to any riparian habitat or other sensitive natural community. The Watson Canyon Drainage is located east of the Master Plan area within Central Park on the east side of the Iron Horse Trail corridor. Runoff from Parcel BR 3A does not enter the drainage because the raised rail bed within the Iron Horse Trail corridor acts as an obstruction to an eastward drainage gradient. Therefore, the proposed Master Plan would have no impact to riparian habitat or other sensitive natural communities.

Federally Protected Wetlands

The Master Plan area does not contain or lie adjacent to any federally protected wetlands. The Watson Canyon Drainage is located east of the Master Plan area within Central Park on the east side of the Iron Horse Trail corridor. Runoff from Parcel BR 3A does not enter the drainage because the raised rail bed within the Iron Horse Trail corridor acts as an obstruction to an eastward drainage gradient. Therefore, the proposed Master Plan would have no impact to federally protected wetlands.

Conservation Plans

The Master Plan area does not lie within the boundaries of any local, State, or regional habitat conservation plan. The nearest habitat conservation plan is the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) which is located approximately 6 miles northeast of the Master Plan area. As such, the proposed Master Plan would have no impact under this topic.

7.2.3 - Geology, Soils, and Seismicity

Septic or Alternative Wastewater Disposal Systems

The proposed Master Plan does not include the use of septic tanks or alternative wastewater disposal systems. Each structure would be connected to the Central Contra Costa Sanitation District (Central San) municipal sewer systems available within the City of San Ramon. The lack of septic systems and alternative wastewater disposal systems precludes significant impacts. As such, no impacts would occur under this topic.

7.2.4 - Hazards and Hazardous Materials

Airports

The nearest airport to the Master Plan area is Livermore Municipal Airport, located 8.3 miles to the southeast. Based on this distance, the proposed Master Plan would not have the potential to expose persons residing or working in the vicinity of the Master Plan area to aviation hazards. No impact would occur.

Wildland Fires

The proposed Master Plan does not lie within an area designated as a fire hazard zone and is surrounded by urban uses on all sides (CAL FIRE 2009). Land classified as Moderate Fire Hazard Severity Zone is located approximately 1 mile southeast of the Master Plan area (CAL FIRE 2007). Land classified as High Fire Hazard Severity Zone is located approximately 1 mile southwest of the Master Plan area (CAL FIRE 2007). As such, impacts related to wildland fires would be less than significant.

7.2.5 - Hydrology and Water Quality

100-year Flood Hazards

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06013C0464F indicates that the Master Plan area is located within the Zone X designation, which signifies locations outside the 100-year and 500-year floodplains. As a result, the Master Plan area is not at risk of flooding during a 100-year storm event. No impact would occur.

Levee or Dam Failure

The Master Plan area is not protected by a levee and is not within a dam failure inundation area. This condition precludes flooding by levee or dam failure. No impact would occur.

Seiches, Tsunamis, or Mudflows

The Master Plan area does not contain or is near any bodies of water susceptible to a seiche. The Master Plan area is more than 30 miles from the Pacific Ocean and, therefore, is not susceptible to a tsunami. The Master Plan area is not located at the base of a hillside slope and, thus, is not susceptible to a mudflow. No impacts would occur.

Water Quality Control or Groundwater Management Plans

The Master Plan area is not subject to any additional water quality control or groundwater management plans other than those required by state or regional regulatory agencies. This condition precludes the possibility of conflicts with such a plan. No impacts would occur.

7.2.6 - Land Use

Division of an Established Community

BR 1A and BR 3a are undeveloped and do not support any structures. This precludes the possibility of division of an established community.

BR 2600 contains a 1.75-million-square-foot multi-story office building, which would be retained by the proposed Master Plan. The outlying parking areas would be developed as multi-story structures and parking garages. This would not constitute division of an established community.

No impacts would occur.

7.2.7 - Mineral Resources

According to the California Department of Conservation Mineral Lands Classification Map, the Master Plan area and vicinity are identified within an area labeled Mineral Resource Zone 1 (CDC 1982). This zone corresponds to areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. Based on the Department of Conservation Mineral Lands Classification Map, the proposed Master Plan would not result in the loss of locally important mineral resources. As such, no impacts would occur as a result of the proposed Master Plan.

7.2.8 - Noise

Aviation Noise

The nearest airport to the Master Plan area is Livermore Municipal Airport, located 8.3 miles to the southeast. Based on this distance, the proposed Master Plan would not have the potential to expose persons residing or working in the Master Plan area to excessive aviation noise. No impact would occur.

7.2.9 - Population and Housing

People or Housing Displacement

The Master Plan area does not currently contain any housing and therefore would not remove or displace housing. On the contrary, the proposed Master Plan includes up to 4,500 new dwelling units in the City Center area. BR 2600 currently contains a 1.75-million-square-foot multi-story office building that likely contains significant employment opportunities. This building would not be removed as a part of the proposed Master Plan and therefore, employees would not be displaced. Overall, the proposed Master Plan would not displace people or housing and would add 4,500 dwelling units and additional employment opportunities. Replacement housing would not be required. As such, no impact would occur.

7.2.10 - Transportation

Air Traffic Patterns

The nearest airport to the City of San Ramon is located within the City of Livermore, approximately 8.3 miles from the Master Plan area. Furthermore, according to the United States National Transportation Noise Map, the City of San Ramon is not identified as a city subject to potentially hazardous levels of noise associated with aircraft or traffic. Therefore, the Master Plan area would not be subject to excessive noise or safety hazards associated with the operation of an airport. As such, no impacts would occur.

7.2.11 - Wildfire

According to the California Department of Forestry and Fire Protection (CAL FIRE), Fire and Resource Assessment Program (FRAP), Contra Costa County contains numerous areas where fire hazards are identified as very high. However, the City of San Ramon does not contain any areas where fire hazards are elevated. The Master Plan area is not identified by CAL FIRE as an area subject to moderate, high, or very high fire hazards. The Master Plan area is currently located in an urbanized area of the City of San Ramon. Bishop Ranch 1A and 3A are currently undeveloped properties which are lined with trees; however, no wildlands are located on the properties. Furthermore, Bishop Ranch 2600 is currently developed with commercial structures and asphalt paved parking areas. According to the Local Responsibility Area (LRA) map, the City of San Ramon is identified as a non-Very High Fire Hazard Severity Zone (Non-VHFHSZ). Based on the lack of elevated fire hazards in the vicinity of the Master Plan area, there would be no impacts.

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SECTION 8: PERSONS AND ORGANIZATIONS CONSULTED/LIST OF PREPARERS

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8.1.1 - City of San Ramon

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Director ..... Kathi Heimann

8.1.2 - Public Agencies

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