Rule 402 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Rule 403 – Fugitive Dust. This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. Rule 403 applies to any activity or man-made condition capable of generating fugitive dust.

Rule 1113 – Architectural Coatings. No person shall apply or solicit the application of any architectural coating within the SCAQMD, with VOC content in excess of the values specified in a table incorporated in the Rule.

THRESHOLD FOR DETERMINING SIGNIFICANCE

The criteria used to determine the significance of potential project-related air quality impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.). Based on these thresholds, implementation of the General Plan would result in a significant impact related to air quality if it would do any of the following:

(1) Conflict with or obstruct implementation of the applicable air quality plan.

(2) Violate any air quality standard or contribute to an existing or projected air quality violation.

(3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).

(4) Expose sensitive receptors to substantial pollutant concentrations.

(5) Create objectionable odors affecting a substantial number of people.

Within the context of he above threshold considerations, based on the SCAQMD's CEQA Air Quality Handbook (1993), project impacts would be significant if they exceed the following California standards for localized CO concentrations:

- 1-hour CO standard of 20.0 parts per million (ppm)
- 8-hour CO standard of 9.0 ppm.

The SCAQMD has also developed regional significance thresholds for other regulated pollutants, as summarized at Table 5. The SCAQMD's CEQA Air Quality Significance Thresholds (March 2011) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 5

MAXIMUM DAILY EMISSIONS THRESHOLDS (REGIONAL THRESHOLDS)		
Pollutant	**Construction**	**Operational**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

The SCAQMD has also developed localized significance threshold methodology that can be used to determine whether or not a project may generate significant adverse localized air quality impacts. Localized significance thresholds represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable Federal or State ambient air quality standards and are developed based on the ambient concentrations of that pollutant for each source receptor area.

Localized significance thresholds are applicable to the project-specific level. Although the City of Bradbury is located in Source Receptor Area 9 (East San Gabriel Valley), the proposed General Plan Update represents a regional project. Therefore, localized significance thresholds would not be applicable to the proposed General Plan Update.

ANALYSIS OF ENVIRONMENTAL IMPACTS – AIR QUALITY

Analysis Methodology

Regional and local emissions of criteria air pollutants and precursors, and TACs during project construction and operations consistent with the General Plan were assessed in accordance with the methodologies described below.

Air quality impacts from future development allowed by the General Plan can be divided into two types, short-term impacts and long-term impacts. Short-term impacts are associated with construction activities, and long-term impacts are associated with the continued operation of developed land uses and the associated increase in vehicular trips.

On October 2, 2013, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2013.2.2. The purpose of this model is to calculate construction-source and opertational-source criteria pollutant (NO_x, VOC, PM_{10}, $PM_{2.5}$, SO_x, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendix A.

CalEEMod utilizes widely accepted methods for emission estimates combined with appropriate default data that can be used when site-specific information is not available. CalEEMod references sources such as the United States Environmental Protection Agency (USEPA) AP-42 emission factors (Compilation of Emission Factors), California Air Resources Board (CARB) on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC)

and the Offroad Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle. With respect to the estimation of mass criteria pollutant emissions, CalEEMod is not only more current than URBEMIS2007, but it also corrects errors in that model and, in addition, utilizes new methods for estimating fugitive dust emissions from construction equipment that tie the emissions to actual equipment usage, and incorporates the latest methods for quantifying mitigation and project design features not available in URBEMIS 2007.

CONSTRUCTION CRITERIA POLLUTANT EMISSIONS

During construction activities associated with individual projects, emissions of emissions of CO, VOCs, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ will likely be released through the burning of fossil fuel in construction equipment, grading fugitive dust, asphalt paving, and the application of architectural coatings during painting activity. Because few details are known at this time regarding the construction resulting from implementation of the General Plan update, criteria pollutant emissions for construction activity have not been quantified in this evaluation. Construction related criteria pollutant emissions will instead be quantified in future air quality analyses to be conducted for individual CEQA projects. In addition, for projects that are estimated to exceed the construction emissions significance thresholds established by the SCAQMD (after mitigation), the preparation of an Environmental Impact Report (EIR) would be required (pursuant to CEQA) and an analysis of alternatives and other emissions reduction measures would take place.

It should be noted that construction projects within the City would also be required to comply with the applicable regulatory requirements established by the SCAQMD, including but not limited to Rule 1113 (Architectural Coatings), Rule 431.2 (Low Sulfur Fuel), Rule 403 (Fugitive Dust), and Rule 1186 / 1186.1 (Street Sweepers).

Because the General Plan identifies future land uses and does not contain specific development proposals, construction-related emissions are speculative and cannot be accurately determined at this stage of the planning process. Therefore, such impacts are too speculative to evaluate (see *CEQA* Guidelines Section 15145). To the extent that specific projects are known, those projects have already been or would be subjected to their own environmental analysis. Additionally, due to the variables that must be considered when examining construction impacts (e.g., development

rate, disturbance area per day, specific construction equipment and operating hours, etc.), it would be speculative to state conclusively that construction activity associated with the General Plan Update would cause a significant air quality impact.

OPERATIONAL POLLUTANT EMISSIONS

Operational activities associated with the proposed project will result in emissions of ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- Area Sources
- Building Energy Use
- Mobile Sources

Area Sources

The area source emissions included in this analysis result from landscaping equipment such as lawn mowers, consumer products and architectural coatings. Criteria pollutant emissions due to natural gas combustion in buildings, except for hearths, are also area sources but are excluded from this section since they are considered in the emissions associated with energy use category.

Building Energy Use

Combustion emissions would be generated by the use of natural gas to power heating, and HVAC systems in the development. The emissions associated with natural gas use were calculated based on assumptions from the CalEEMod model.

Mobile Sources

Project mobile (vehicular) impacts are dependent primarily on overall daily vehicle trip generation for the proposed project. The CalEEmod model defaults for trips and trip lengths were utilized.

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust. The emissions estimates for travel on paved roads were calculated using the CalEEMod model.

Operations Emissions Summary

The project-related operations emissions summary, along with a comparison of SCAQMD regional significance thresholds, is presented at Table 6. Additionally, detailed model output files and associated calculations are provided in Appendix "A". The project related emissions levels for operational emissions will not exceed the regional criteria pollutant thresholds established by the SCAQMD and a less than significant impact will occur.

TABLE 6

**SUMMARY OF OPERATIONAL EMISSIONS (SUMMER)
(POUNDS PER DAY) (WITHOUT MITIGATION)**

Operational Activities	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emissions [a]	29.49	0.74	56.79	0.08	7.45	7.45
Energy Emissions [b]	0.09	0.73	0.31	4.66e-3	0.06	0.06
Mobile Emissions [c]	2.88	8.05	33.36	0.11	7.23	2.02
Maximum Daily Emissions	**32.46**	**9.51**	**90.46**	**0.19**	**14.74**	**9.53**
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

**SUMMARY OF OPERATIONAL EMISSIONS (WINTER)
(POUNDS PER DAY) (WITHOUT MITIGATION)**

Operational Activities	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source Emissions [a]	29.49	0.74	56.79	0.08	7.45	7.45
Energy Emissions [b]	0.09	0.73	0.31	4.66e-3	0.06	0.06
Mobile Emissions [c]	2.96	8.45	32.83	0.10	7.23	2.02
Maximum Daily Emissions	**32.54**	**9.92**	**89.92**	**0.18**	**14.74**	**9.53**
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Note: Please refer to Appendix "A" for the CalEEMod output files and additional supporting information for the estimated emissions.

[a] Includes emissions of natural gas, landscape maintenance equipment, and architectural coatings emissions

[b] Includes emissions from natural gas combustion.

[c] Includes emissions of vehicle emissions and fugitive dust related to vehicular travel

SCAQMD AIR QUALITY MANAGEMENT PLAN IMPACTS

Emissions of criteria air pollutants and ozone precursors (ROG and NOX) associated with new growth under the General Plan are treated as new to the region. (This is a conservative [worst-case] assumption because many "new vehicle trips" may actually be moved from one part of the region to another partly as a result of the General Plan.)

In preparation of the AQMP, the SCAQMD and SCAG rely on population growth projections in the region to forecast, inventory, and allocate regional emissions from land use and development-related sources. The 2012 AQMP relied on demographic growth forecasts developed by SCAG for the 2012 Regional Transportation Plan (RTP). For purposes of analyzing consistency with the AQMP, it may be assumed that if the General Plan would accommodate population growth substantially greater than anticipated in the AQMP, then the proposed project would conflict with the AQMP. According to the most recent SCAG projections for the adopted 2012 RTP, the City of Bradbury is estimated to include 300 households (in 2008), the projected number of households is expected to be 400 households in 2020 and 2035. Thus, the General Plan would not conflict with the growth assumptions assumed in the AQMP and a less than significant impact will occur.

IMPACTS TO SENSITIVE RECEPTORS

With implementation of the General Plan, new or modified sources of TACs would not be placed near existing sensitive receptors, and new sensitive receptors would not be developed near existing sources of TACs. Emissions of TACs during construction of development envisioned under the General Plan (e.g., emissions from heavy-duty diesel equipment) and from operational sources under the General Plan (e.g., emissions from area, stationary and mobile source) and the resulting levels of TAC exposure of sensitive receptors will be less than significant.

Local CO Impacts

CO concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions), particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals. As a result, the SCAQMD recommends analysis of CO emissions at a local as well as a regional level.

As a part of the previously adopted 2003 SCAQMD AQMP, the SCAQMD modeled the four (4) highest volume intersections to determine the highest potential for a CO hotspot in the SCAB. The results of the SCAQMD's analysis are provided in Table 7 and illustrate that only one intersection for the 8-hour CO standard (Long Beach – Imperial) is exceeded.

Table 7. CO Modeling Results from the 2003 AQMP (ppm)

Intersection Location	Morning 1-hour	Afternoon 1-hour	Peak 1-hour	8-hour
Wilshire-Veteran	4.6	3.5	--	4.2
Sunset-Highland	4.0	4.5	--	3.9
La Cienega-Century	3.7	3.1	--	5.8
Long Beach-Imperial	3.0	3.1	1.2	9.3
Notes: ppm = parts per million. Federal 1-hour standard is 35 ppm and the federal 8- hour standard is 9.0 ppm.				

CO concentrations are expected to be lower for the project. When qualitatively comparing the locations in the attainment plan to the proposed project, several factors can be used to demonstrate that the project site can be expected to have lower CO concentrations than in the attainment plan. The factors considered are traffic demand, emission variables, site variables, and meteorological variables. Table 8 provides a summary of the traffic volumes contained in the SCAQMD's modeling. Future peak hour traffic volumes at intersections within the City would be less than those included in the AQMP modeling analysis. Based on this comparison, the proposed project is expected to result in lower CO concentrations than the intersections modeled in the attainment plan.

Because project implementation would not result in higher CO concentrations than those existing within the region at the time of attainment demonstration, a less than significant impact is expected for implementation of the proposed General Plan Update and no further analysis is needed. This approach is consistent with Caltrans CO Project-Level Protocol that is utilized in Caltrans Environmental Assessment Reports.

Table 8. Traffic Volumes Used in the 2003 AQMP				
Intersection Location	**Eastbound (AM/PM)**	**Westbound (AM/PM)**	**Southbound (AM/PM)**	**Northbound (AM/PM)**
Wilshire-Veteran	4,951/2,069	1,830/3,317	721/1,400	560/933
Sunset-Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238
La Cienega-Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674
Long Beach-Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150
Source: SCAQMD AQMP 2003.				

ODOR IMPACTS

As discussed previously, the human response to odors is extremely subjective, and sensitivity to odors varies greatly among the public. The screening-level distance identified by the SCAQMD under Rule 410 for transfer stations and material recovery facilities is 2,000 feet from sensitive receptors. The SCAQMD does not identify a screening-level distance for other major sources of odors near sensitive receptors. Minor sources of odors, such as exhaust from mobile sources and charbroilers associated with commercial uses, are not typically associated with numerous odor complaints but are known to have some temporary, less concentrated odorous emissions. Major and minor sources of odors are discussed separately below.

Major Sources of Odors

The SCAQMD has identified some common types of facilities that have been known to produce odors: agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, rendering plants, dairies, rail yards, and fiberglass molding operations. This list is not meant to be entirely inclusive, but to act as general guidance. The General Plan does not propose the development of any major odor sources identified above. Therefore, land use conflicts between major odor sources and sensitive receptors are not expected to occur. As a result, this impact would be less than significant.

Minor Sources of Odors

Minor sources of odors associated with the General Plan would be associated with the construction of the proposed land uses. The predominant source of power for construction equipment is diesel engines. Exhaust odors from diesel engines, as well as emissions associated with asphalt paving and the application of architectural coatings may be considered offensive to some individuals.

Similarly, diesel-fueled locomotives traveling along the rail lines in the City and diesel-fueled trucks traveling on local roadways would produce associated diesel exhaust fumes. However, because odors associated with diesel fumes and other minor sources would be temporary and would disperse rapidly with distance from the source, construction-generated and mobile-source odors would not result in the frequent exposure of receptors to objectionable odor emissions. As a result, short-term construction-related and long-term mobile-source related odors would be less than significant.

AIR QUALITY IMPACTS CONCLUSION

- The project is in compliance with the SCAQMD's 2012 Air Quality Management Plan.
- The project-generated emissions do not have the potential to violate federal and state ambient air quality standards.
- The project's contribution to cumulative impacts is not cumulatively considerable.
- The project does not have the potential to expose sensitive receptors to substantial pollutant concentrations.
- Project-generated odors will not affect a substantial number of people.

INTRODUCTION TO GLOBAL CLIMATE CHANGE

Global Climate Change (GCC) is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. GCC is currently one of the most controversial environmental issues in the United States, and much debate exists within the scientific community about whether or not GCC is occurring naturally or as a result of human activity. Some data suggests that GCC has occurred in the past over the course of thousands or millions of years. These historical changes to the Earth's climate have occurred naturally without human influence, as in the case of an ice age. However, many scientists believe that the climate shift taking place since the industrial revolution (1900) is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of greenhouse gases in the earth's atmosphere, including carbon dioxide, methane, nitrous oxide, and fluorinated gases. Many scientists believe that this increased rate of climate change is the result of greenhouse gases resulting from human activity and industrialization over the past 200 years.

An individual project like that considered here cannot generate enough greenhouse gas emissions to effect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of greenhouse gasses combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

GREENHOUSE GAS EMISSIONS INVENTORIES

Global

Worldwide anthropogenic (man-made) GHG emissions are tracked by the Intergovernmental Panel on Climate Change for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Man-made GHG emissions data for Annex I nations are available through 2009. Man-made GHG emissions data for Non-Annex I nations are available through

2007. For the Year 2009 the sum of these emissions totaled approximately 40,084 MMTCO2e.[1] Emissions from the top five countries and the European Union accounted for approximately 65 percent of the total global GHG emissions, according to the most recently available data (see Table 9, Top GHG Producer Countries and the European Union). The GHG emissions in more recent years may differ from the inventories presented in Table 9; however, the data is representative of currently available inventory data.

United States

As noted in Table 9, the United States, as a single country, was the number two producer of GHG emissions in 2009. The primary greenhouse gas emitted by human activities in the United States was CO2, representing approximately 83 percent of total greenhouse gas emissions.[2] Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 78 percent of the GHG emissions.[3]

TABLE 9

TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION[4]

Emitting Countries	GHG Emissions (MMT CO2e)
China	6,703
United States	6,608
European Union (27 member countries)	8,338
Russian Federation	2,159
India	1,410
Japan	1,209
Total	**26,427**

State of California

[1] The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," http://unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php and "Flexible GHG Data Queries" with selections for total GHG emissions excluding LULUCF/LUCF, all years, and non-Annex I countries, http://unfccc.int/di/FlexibleQueries/Event.do?event= showProjection. n.d.

[2] US Environmental Protection Agency, "Inventory of US Greenhouse Gas Emissions and Sinks 1990–2009," http://www.epa.gov/climatechange/emissions/usgginventory.html. 2011.

[3] *ibid*

[4] World Resources Institute, " Climate Analysis Indicator Tool (CAIT) Excludes emissions and removals from land use, land-use change and forestry (LULUCF) Emissions Inventory," http://cait.wri.org

CARB compiles GHG inventories for the State of California. Based upon the 2008 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2008 greenhouse gas emissions inventory, California emitted 474 MMTCO2e ***including*** emissions resulting from imported electrical power in 2008.[5] Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute[6], California's total statewide GHG emissions rank second in the United States (Texas is number one) with emissions of 417 MMTCO2e ***excluding*** emissions related to imported power. From a per capita standpoint, California had the 46th lowest emissions. This is attributed to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise. Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states. Further, per capita emissions in California have slightly decreased from 2000 to 2009 (by 9.7 percent), but the overall 9 percent increase in population during the same period offset this emission reduction.

South Coast Air Basin

An Environmental Impact Report for the SCAQMD's 2012 Air Quality Management Plan recently reported the GHG emissions in the South Coast Air Basin (SCAB) for calendar year 2008.[7] The emissions for each major source category were reported as follows: 43.1 MMT CO2e from fuel combustion, 4.78 MMT CO2e from waste disposal, 0.88 MMT CO2e from cleaning and surface coatings, 0.89 MMT CO2e from petroleum production and marketing, 0.10 MMT CO2e from industrial processes, and 13.1 MMT CO2e from miscellaneous processes. The SCAQMD Environmental Impact Report also reported that of these emissions, mobile sources generate 59.4 percent of the total GHG emissions in the Basin (47.0 percent from on-road vehicles and 12.5 percent from other mobile sources (aircraft, trains, ships and boats, and other sources (construction equipment, airport equipment, oil and gas drilling equipment))). The remaining 40.6 percent of the total Basin GHG emissions are from stationary and area sources. The largest

[5] California Air Resources Board, "California Greenhouse Gas 2000-2008 Inventory by Scoping Plan Category - Summary," http://www.arb.ca.gov/cc/inventory/data/data.htm. 2010.
[6] World Resources Institute, " Climate Analysis Indicator Tool (CAIT)-US – Yearly Emissions Inventory," http://cait.wri.org
[7] South Coast Air Quality Management District, Draft Program Environmental Impact Report for the 2012 Air Quality Management Plan, Available: http://www.aqmd.gov/ceqa/documents/2012/aqmd/draftEA/2012A149,087QMP/Chapter3/DPEIR_3_2_Air_Quality.pdf . Accessed October 2012.

stationary/area source is fuel combustion, which is 27.8 percent of the total Basin GHG emissions (68.6 percent of the GHG emissions from the stationary and area source category).

GLOBAL CLIMATE CHANGE DEFINED

Global Climate Change (GCC) refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2 (Carbon Dioxide), N_2O (Nitrous Oxide), CH_4 (Methane), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These particular gases are important due to 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. GCC can occur naturally as it has in the past with the previous ice ages. According to the California Air Resources Board (CARB), the climate change since the industrial revolution differs from previous climate changes in both rate and magnitude (CARB, 2004, Technical Support document for Staff Proposal Regarding Reduction of Greenhouse Gas Emissions from Motor Vehicles).

Gases that trap heat in the atmosphere are often referred to as greenhouse gases. Greenhouse gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the Earth's average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

Although California's rate of growth of greenhouse gas emissions is slowing, the state is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to have produced 492 million gross metric tons of carbon dioxide equivalent (CO2e) greenhouse gas emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of greenhouse gas emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls.[8]

[8] California Energy Commission, "Inventory of California Greenhouse Gas Emissions and Sinks," http://www.energy.ca.gov/2005publications/CEC-600-2005-025/CEC-600-2005-025.PDF. 2005.

GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated (see Table 3-4 later in this report) because these gasses are the primary contributors to GCC from development projects. Although other substances such as fluorinated gases also contribute to GCC, sources of fluorinated gases are not well defined and no accepted emissions factors or methodology exist to accurately calculate these gases.

Greenhouse gases have varying global warming potential (GWP) values; GWP values represent the potential of a gas to trap heat in the atmosphere. Carbon dioxide is utilized as the reference gas for GWP, and thus has a GWP of 1.

The atmospheric lifetime and GWP of selected greenhouse gases are summarized in the following Table. As shown in the table below, GWP range from 1 for carbon dioxide to 23,900 for sulfur hexafluoride.

TABLE 10
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
Carbon Dioxide	50-200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CH4)	50,000	6,500
PFC: Hexafluoroethane (C2F6)	10,000	9,200
Sulfur Hexafluoride (SF6)	3,200	23,900

Source: EPA 2006 (URL: http://www.epa.gov/nonco2/econ-inv/table.html)

Water Vapor: Water vapor (H_20) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

There are no human health effects from water vapor itself; however, when some pollutants come in contact with water vapor, they can dissolve and the water vapor can then act as a pollutant-carrying agent. The main source of water vapor is evaporation from the oceans (approximately 85 percent).[9] Other sources include: evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide: Carbon dioxide (CO_2) is an odorless and colorless GHG. Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Carbon dioxide is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from

[9] ibid.

oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks[10].

Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources.[11]

Methane: Methane (CH_4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs. No health effects are known to occur from exposure to methane.

Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning. [12]

Nitrous Oxide: Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small

[10] On a warmer Earth, chemical weathering is promoted by more vigorous cycling of water through the atmosphere and higher temperatures. "More chemical weathering removes more CO2 from the atmosphere as carbonic acid reacts with silicate minerals, producing bicarbonate ion." ***Carbon Cycle and Climate Change*** – J Bret Bennington, Hofstra University. http://www.cengage.com/custom/enrichment_modules/data/Carbon_Cycle_0495738557_LowRes.pdf

[11] International Panel on Climate Change 2007, "Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report," http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_science_basis.htm

[12] ibid.

doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage)[13].

Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb).[14] Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. Nitrous oxide can be transported into the stratosphere, be deposited on the Earth's surface, and be converted to other compounds by chemical reaction

Chlorofluorocarbons: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs are no longer being used; therefore, it is not likely that health effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons: Hydrofluorocarbons (HFCs) are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric

[13] U.S. Department of Labor. Occupational Safety and Health Guideline for Nitrous Oxide. http://www.osha.gov/SLTC/healthguidelines/nitrousoxide/recognition.html
[14] ibid.

abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations of HFC-23 and HFC-134a are now about 10 parts per trillion (ppt) each; and that concentrations of HFC-152a are about 1 ppt.[15] No health effects are known to result from exposure to HFCs, which are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above Earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The U.S. EPA estimates that concentrations of CF_4 in the atmosphere are over 70 ppt.[16]

No health effects are known to result from exposure to PFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride: Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900). The U.S. EPA indicates that concentrations in the 1990s were about 4 ppt.[17] In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

ENVIRONMENTAL EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

The California Environmental Protection Agency (CalEPA) published a report titled "Scenarios of Climate Change in California: An Overview" (Climate Scenarios report) in February 2006

[15] U.S. EPA. High Global Warming Potential (GWP) Gases. http://www.epa.gov/highgwp/scientific.html
[16] ibid.
[17] ibid.

(California Climate Change Center 2006), that while not adequate for a CEQA project-specific or cumulative analysis, is generally instructive about the statewide impacts of global warming.

The Climate Scenarios report uses a range of emissions scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century: lower warming range (3.0-5.5°F); medium warming range (5.5-8.0°F); and higher warming range (8.0-10.5°F). The Climate Scenarios report then presents an analysis of future climate in California under each warming range, that while uncertain, present a picture of the impacts of global climate change trends in California.

In addition, most recently on August 5, 2009, the State's Natural Resources Agency released a public review draft of its "California Climate Adaptation Strategy" report that details many vulnerabilities arising from climate change with respect to matters such as temperature extremes, sea level rise, wildfires, floods and droughts and precipitation changes. This report responds to the Governor's Executive Order S-13-2008 that called on state agencies to develop California's strategy to identify and prepare for expected climate impacts

According to the reports, substantial temperature increases arising from increased GHG emissions potentially could result in a variety of impacts to the people, economy, and environment of California associated with a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming.

It should be noted, however, that the Second District Court of Appeal recently held that the environment's effects on a proposed project do not have to be analyzed under CEQA in *Ballona Wetlands Land Trust et al. v. City of Los Angeles* (2011) 201 Cal.App.4th 455 (*Ballona Wetlands*). Specifically, the *Ballona Wetlands* court evaluated the issue of whether CEQA required an analysis of the environmental impact of sea level rise on a proposed mixed-use development project. The court held: "[w]e believe that identifying the environmental effects of attracting development and people to an area is consistent with CEQA's legislative purpose and statutory requirements, but identifying the effects on the project and its users of locating the

project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes." The court also cited three decisions in support of its holding that the purpose of an EIR is to identify the significant effects of a project on the environment and not the significant effects of the environment on a project. The Supreme Court court's denial of the petition for review leaves the opinion intact as controlling appellate law on all superior courts throughout the state.

Under the emissions scenarios of the Climate Scenarios report, the impacts of global warming in California have the potential to include, but are not limited to, the following areas:

Air Quality/General Thermal Effects

According to Cal EPA, higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35 percent under the lower warming range to 75 to 85 percent under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become difficult to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months.

Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply they need. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate O_3 pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so

rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued global climate change could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued global climate change could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90 percent due to decreased precipitation.

Moreover, continued global climate change has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of global climate change.

Rising Sea Levels

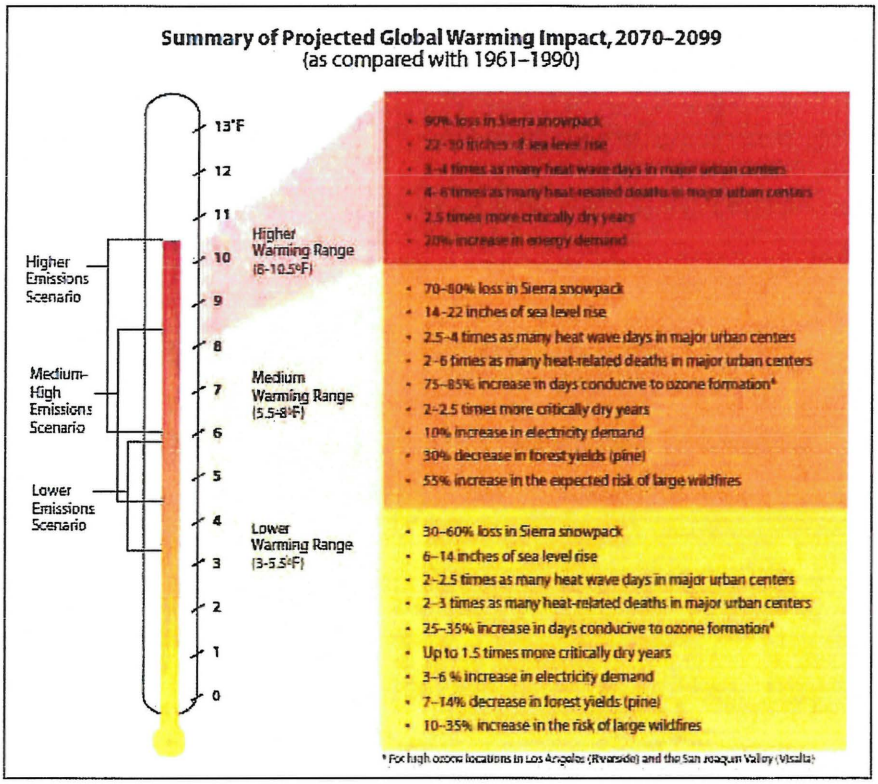
Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water

systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

HUMAN HEALTH EFFECTS OF GHG EMISSIONS

The potential health effects related directly to the emissions of carbon dioxide, methane, and nitrous oxide as they relate to development projects such as the proposed Project are still being debated in the scientific community. Their cumulative effects to global climate change have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (American Lung Association, 2004). Figure 1 presents the potential impacts of global warming.

Figure 1



Source: California Energy Commission, 2006. Our Changing Climate, Assessing the Risks to California, 2006 Biennial Report.

Specific health effects associated with directly emitted GHG emissions are as follows:

Water Vapor: There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

Carbon Dioxide: According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of carbon dioxide can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of carbon dioxide in the earth's atmosphere are estimated to be approximately 370 parts per million (ppm), the actual reference exposure level (level at which adverse health effects

typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (NIOSH 2005).

Methane: Methane is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Methane is also an asphyxiant and may displace oxygen in an enclosed space (OSHA 2003).

Nitrous Oxide: Nitrous Oxide is often referred to as laughing gas; it is a colorless greenhouse gas. The health effects associated with exposure to elevated concentrations of nitrous oxide include dizziness, euphoria, slight hallucinations, and in extreme cases of elevated concentrations nitrous oxide can also cause brain damage (OSHA 1999).

Fluorinated Gases: High concentrations of fluorinated gases can also result in adverse health effects such as asphyxiation, dizziness, headache, cardiovascular disease, cardiac disorders, and in extreme cases, increased mortality (NIOSH 1989, 1997).

Aerosols: The health effects of aerosols are similar to that of other fine particulate matter. Thus aerosols can cause elevated respiratory and cardiovascular diseases as well as increased mortality (NASA 2002).

REGULATORY SETTING

International Regulation and the Kyoto Protocol:

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling greenhouse gas emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The Plan currently consists of more than 50 voluntary programs for member nations to adopt.

The Kyoto protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. Some have estimated that if the commitments outlined in the Kyoto protocol are met, global GHG emissions could be reduced an estimated five percent from 1990 levels during the first commitment period of 2008-2012. Notably, while the United States is a signatory to the Kyoto protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol's commitments. In December 2009, international leaders from 192 nations met in Copenhagen to address the future of international climate change commitments post-Kyoto.

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. The targets amount to an average of five percent reduction levels against 1990 levels over the five-year period 2008-2012. The major distinction between the Protocol and the Convention is that while the Convention encouraged industrialized countries to stabilize GHG emissions, the Protocol commits them to do so. Recognizing that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

Negotiations after Kyoto have continued in an attempt to address the period after the first "commitment period" of the Kyoto Protocol, which is set to conclude at the end of 2012. In Durban, South Africa, in 2011, parties to the protocol agreed in principle to negotiate a new comprehensive and legally binding climate agreement by 2015 to enter into force for all parties from 2020. However, significant divisions remain in determining the parameters of any such new protocol, including its enforcement mechanisms and the degree to which developing economies will begin to be subject to binding emissions targets.

Federal Regulation and the Clean Air Act:

Although the U.S. is not a party to the Kyoto Protocol, in 2002, President George W. Bush set a national policy goal of reducing the GHG emission intensity (tons of GHG emissions per million

dollars of gross domestic product) of the U.S. economy by 18% by 2012.[18] The goal did not establish any binding reduction mandates. Rather, the United States Environmental Protection Agency (USEPA) began to administer a variety of voluntary programs and partnerships with industries that produce and utilize synthetic gases to reduce emissions of particularly potent GHGs.

Coinciding 2009 meeting in Copenhagen, on December 7, 2009, the U.S. 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. 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.

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 greenhouse gas emissions. In order to manage the

[18] National Oceanic and Atmospheric Administration. 2002. President Announces Clear Skies & Global Climate Change Initiative [online]. February. Available: http://georgewbushwhitehouse.archives.gov/news/releases/2002/02/20020214-5.html.

state's energy needs and promote energy efficiency, AB 1575 created the California Energy Commission (CEC) in 1975.

Title 24 Energy Standards:

The California Energy Commission (CEC) first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods. The latest revisions were adopted in 2008 and became effective on January 1, 2010.

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality."[19] The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC). The CBSC has released the *2010 California Green Building Standards Code* on its Web site.[20] Unless otherwise noted in the regulation, all newly constructed buildings in California are subject of the requirements of the CALGreen Code.

Vehicle Standards

Other regulations have been adopted to address vehicle standards including the USEPA and NHTSA joint rulemaking for vehicle standards:

[19] California Building Standards Commission, 2008 California Green Building Standards Code, (2009).
[20] "CALGreen," http://www.bsc.ca.gov/CALGreen/default.htm. 2010

- On March 30, 2009, the NHTSA issued a final rule for model year 2011.[21]
- On May 7, 2010, the USEPA and the NHTSA issued a final rule regulating fuel efficiency and GHG pollution from motor vehicles for cars and light-duty trucks for model years 2012–2016.[22]
- On August 9, 2011, USEPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal greenhouse gas and fuel economy standards for model year 2017-2025 light-duty vehicles.[23]
- NHSTA intends to set standards for model years 2022-2025 in a future rulemaking.[24]
- In addition to the regulations applicable to cars and light-duty trucks, on August 9, 2011, the USEPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks, which applies to vehicles from model year 2014–2018.[25]

Energy Independence and Security Act

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law.[26] Among other key measures, the Act would do the following, which would aid in the reduction of national GHG emissions, both mobile and non-mobile.

CEQ NEPA Guidelines on GHG

On February 18, 2010, the White House Council on Environmental Quality published draft guidance on the consideration of greenhouse gases and climate change for NEPA analyses.[27] It recommends that proposed federal actions that are reasonably expected to directly emit 25,000 metric tons of CO2e/year should prepare a quantitative and qualitative NEPA analysis of direct and indirect greenhouse gas emissions.

---

[21] NHSTA. 2009. *Average Fuel Economy Standards Passenger Cars and Light Trucks Model Year 2011, Final Rule.* 75 Fed. Reg. 25324.
[22] USEPA. 2010. Light Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Final Rule. 75 Fed. Reg. 25324.
[23] Available: http://www.gpo.gov/fdsys/pkg/FR-2011-08-09/pdf/2011-19905.pdf. Accessed November 2011.
[24] NHSTA. 2012. *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards.* 77 Fed. Reg. 62624.
[25] USEPA Office of Transportation and Air Quality. 2011. EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium-and Heavy-Duty Vehicles. Available: http://www.epa.gov/otaq/climate/documents/420f11031.pdf. Accessed November 2011.
[26] EISA. 2007. Pub.L. 110-140. 110th U.S Congress. Washington D.C. (January 4).
[27] Sutley, Nancy H. (Council on Environmental Quality). Memorandum for Heads of Federal Departments and Agencies: Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions. February 2010. Available: http://www.whitehouse.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf

The draft guidance provides reporting tools and instructions on how to assess the effects of climate change. The draft guidance does not apply to land and resource management actions, nor does it propose to regulate greenhouse gases. Although CEQ has not yet issued final guidance, various NEPA documents are beginning to incorporate the approach recommended in the draft guidance.[28]

Other Applicable Regulations and Policies

In addition to the federal regulations and programs described above, there are still more policies and programs to address climate change. A database compiled by the International Energy Agency lists more than 300 policies and measures addressing climate change in the United States.[29]

The Western Regional Climate Action Initiative (WCI)

The Western Regional Climate Action Initiative (WCI) is a partnership among seven states, including California, and four Canadian provinces to implement a regional, economy-wide cap-and-trade system to reduce global warming pollution. The WCI will cap GHG emissions from the region's electricity, industrial, and transportation sectors with the goal to reduce the heat trapping emissions that cause global warming to 15% below 2005 levels by 2020. When the WCI adopted this goal in 2007, it estimated that this would require 2007 levels to be reduced worldwide between 50% and 85% by 2050. California is working closely with the other states and provinces to design a regional GHG reduction program that includes a cap-and-trade approach. ARB's planned cap and-trade program, discussed below, is also intended to link California and the other member states and provinces.

California Assembly Bill No. 1493 (AB 1493):

AB 1493 requires CARB to develop and adopt the nation's first greenhouse gas emission standards for automobiles. The Legislature declared in AB 1493 that global warming was a matter of increasing concern for public health and environment in California. Further, the legislature stated that technological solutions to reduce greenhouse gas emissions would stimulate the California economy and provide jobs.

[28] See, e.g., National Highway Traffic Safety Administration, Corporate Average Fuel Economy Standards, Passenger Cars and Light Trucks, Model Years 2017–2025, Final Environmental Impact Statement, 5-1, 9-62 (July 2012) available at http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf.
[29] International Energy Agency, Addressing Climate Change: Policies and Measures Database. Available: http://www.iea.org/policiesandmeasures/climatechange/. Accessed October 2012.

To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards in 2004. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961) and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016.

In December 2004 a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of CCR 13 1900 and CCR 13 1961 as amended by AB 1493 and CCR 13 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon*, in her official capacity as Executive Director of the California Air Resources Board, et al.). The suit, heard in the U.S. District Court for the Eastern District of California, contended that California's implementation of regulations that in effect regulate vehicle fuel economy violates various federal laws, regulations, and policies. In January 2007, the judge hearing the case accepted a request from the State Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court Case, *Massachusetts vs. EPA*, the primary issue in question is whether the federal CAA provides authority for USEPA to regulate CO_2 emissions. In April 2007, the U.S. Supreme Court ruled in Massachusetts' favor, holding that GHGs are air pollutants under the CAA. On December 11, 2007, the judge in the *Central Valley Chrysler-Jeep* case rejected each plaintiff's arguments and ruled in California's favor. On December 19, 2007, the USEPA denied California's waiver request. California filed a petition with the Ninth Circuit Court of Appeals challenging USEPA's denial on January 2, 2008.

The Obama administration subsequently directed the USEPA to re-examine their decision. On May 19, 2009, challenging parties, automakers, the State of California, and the federal government reached an agreement on a series of actions that would resolve these current and potential future disputes over the standards through model year 2016. In summary, the USEPA and the U.S. Department of Transportation agreed to adopt a federal program to reduce GHGs and improve fuel economy, respectively, from passenger vehicles in order to achieve equivalent

or greater greenhouse gas benefits as the AB 1493 regulations for the 2012–2016 model years. Manufacturers agreed to ultimately drop current and forego similar future legal challenges, including challenging a waiver grant, which occurred on June 30, 2009. The State of California committed to (1) revise its standards to allow manufacturers to demonstrate compliance with the fleet-average GHG emission standard by "pooling" California and specified State vehicle sales; (2) revise its standards for 2012–2016 model year vehicles so that compliance with USEPA-adopted GHG standards would also comply with California's standards; and (3) revise its standards, as necessary, to allow manufacturers to use emissions data from the federal CAFE program to demonstrate compliance with the AB 1493 regulations (CARB 2009, http://www.arb.ca.gov/regact/2009/ghgpv09/ghgpvisor.pdf) both of these programs are aimed at light-duty auto and light-duty trucks.

Executive Order S-3-05:

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 1990 level by 2020, and to 80% below the 1990 level by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary also is required to submit biannual reports to the Governor and state Legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created a Climate Action Team (CAT) made up of members from various state agencies and commission. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

California Assembly Bill 32 (AB 32):

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Climate Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels

by the year 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

In November 2007, CARB completed its estimates of 1990 GHG levels. Net emission 1990 levels were estimated at 427 MMTs (emission sources by sector were: transportation – 35 percent; electricity generation – 26 percent; industrial – 24 percent; residential – 7 percent; agriculture – 5 percent; and commercial – 3 percent)[30]. Accordingly, 427 MMTs of CO_2 equivalent was established as the emissions limit for 2020. For comparison, CARB's estimate for baseline GHG emissions was 473 MMT for 2000 and 532 MMT for 2010. "Business as usual" conditions (without the 30 percent reduction to be implemented by CARB regulations) for 2020 were projected to be 596 MMTs.

In December 2007, CARB approved a regulation for mandatory reporting and verification of GHG emissions for major sources. This regulation covered major stationary sources such as cement plans, oil refineries, electric generating facilities/providers, and co-generation facilities, which comprise 94 percent of the point source CO_2 emissions in the State.

[30] On a national level, the EPA's Endangerment Finding stated that electricity generation is the largest emitting sector (34%), followed by transportation (28%), and industry (19%).

On December 11, 2008, CARB adopted a scoping plan to reduce GHG emissions to 1990 levels. The Scoping Plan's recommendations for reducing GHG emissions to 1990 levels by 2020 include emission reduction measures, including a cap-and-trade program linked to Western Climate Initiative partner jurisdictions, green building strategies, recycling and waste-related measures, as well as Voluntary Early Actions and Reductions. Implementation of individual measures must begin no later than January 1, 2012, so that the emissions reduction target can be fully achieved by 2020.

Table 11 shows the proposed reductions from regulations and programs outlined in the Scoping Plan. While local government operations were not accounted for in achieving the 2020 emissions reduction, local land use changes are estimated to result in a reduction of 5 MMTons of CO2e, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments will play in successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of 2006 levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target. According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 MMTons tons of CO_2e (or approximately 1.2 percent of the GHG reduction target).

California Senate Bill No. 1368 (SB 1368):

In 2006, the State Legislature adopted Senate Bill 1368 ("SB 1368"), which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission ("CPUC") to adopt a greenhouse gas emission performance standard ("EPS") 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 five years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Due to 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 will effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower greenhouse gas

emissions associated with California energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out of state producers that cannot satisfy the EPS standard required by SB 1368.

Senate Bill 97 (SB 97):

Pursuant to the direction of SB 97, OPR released preliminary draft CEQA Guideline amendments for greenhouse gas emissions on January 8, 2009, and submitted its final proposed guidelines to the Secretary for Natural Resources on April 13, 2009. The Natural Resources Agency adopted the Guideline amendments and they became effective on March 18, 2010.

Of note, the new guidelines state that a lead agency shall have discretion to determine whether to use a quantitative model or methodology, or in the alternative, rely on a qualitative analysis or performance based standards. CEQA Guideline § 15064.4(a)"A lead agency shall have discretion to determine, in the context of a particular project, whether to: (1) Use a model or methodology to

TABLE 11

SCOPING PLAN GHG REDUCTION MEASURES TOWARD 2020 TARGET

Recommended Reduction Measures	*Reductions Counted toward 2020 Target of 169 MMT CO2e*	*Percentage of Statewide 2020 Target*
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets1	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	146.7	87%
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	27.3	16%
Total Reductions Counted toward 2020 Target	174	100%
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations	To Be Determined2	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	42.8	NA

Source: CARB. 2008, MMTons CO2e: million metric tons of CO2e 1 Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target. 2 According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO2e (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 Target

quantify greenhouse gas emissions resulting from a project, and which model or methodology to use . . .; or (2) Rely on a qualitative analysis or performance based standards."

CEQA emphasizes that the effects of greenhouse gas emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis. (See CEQA Guidelines Section 15130(f)).

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of greenhouse gas emissions:

1. The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of 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 Guideline amendments do not identify a threshold of significance for greenhouse gas 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. Specific GHG language incorporated in the Guidelines' suggested Environmental Checklist (Guidelines Appendix G) is as follows:

VII. GREENHOUSE GAS EMISSIONS

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Executive Order S-01-07:

On January 18, 2007 California Governor Arnold Schwarzenegger, through Executive Order S-01-07, mandated a statewide goal to reduce the carbon intensity of California's transportation fuel by at least ten percent by 2020. The order also requires that a California specific Low Carbon Fuel Standard be established for transportation fuels.

Senate Bills 1078 and 107 and Executive Order S-14-08:

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20% of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008 Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33% renewable power by 2020.

Senate Bill 375:

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPO's regional transportation plan. ARB, in consultation with MPOs, will

provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012.

On September 23, 2010, ARB adopted Regional Targets for the reduction of GHG applying to the years 2020 and 2035.[31] For the area under SCAG's jurisdiction—including the project area—ARB adopted Regional Targets for reduction of GHG emissions by 8 percent for 2020 and by 13 percent for 2035. On February 15, 2011, the ARB's Executive Officer approved the final targets.[32]

SCAG's SCS is included in the SCAG 2012-2035 Regional Transportation Plan Sustainable Communities Strategy (RTP/SCS) (SCAG 2012). The document was adopted by SCAG in April 2012. The goals and policies of the RTP/SCS that reduce VMT focus on transportation and land use planning that include building infill projects, locating residents closer to where they work and play and designing communities so there is access to high quality transit service. The RTP/SCS adopts land use patterns at the jurisdictional level.[33]

The RTP/SCS also includes an appendix listing examples of measures that could reduce impacts from planning, development and transportation.[34] It notes, however, that the example measures are "not intended to serve as any kind of checklist to be used on a project-specific

[31] ARB. 2010. *Notice of Decision: Regional Greenhouse Gas Emissions Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.* Sacramento, CA: ARB. http://www.arb.ca.gov/cc/sb375/notice%20of%20decision.pdf

[32] ARB. 2011. *Executive Order No. G-11-024: Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.* Sacramento, CA: ARB. (February)

[33] SCAG 2012-2035 Regional Transportation Plan Sustainable Communities Strategy, Table 18, Growth Forecast Appendix.

[34] SCAG, Final PEIR for the 2012-2035 RTP/SCS, Appendix G, available here: http://rtpscs.scag.ca.gov/Documents/peir/2012/final/2012fPEIR_AppendixG_ExampleMeasures.pdf.

basis." Since every project and project setting is different, project specific analysis is needed to identify applicable and feasible mitigation. The GHG example measures include the following:

- **GHG1**: SCAG member cities and the county governments may adopt and implement Climate Actions Plans (CAPS, also known as Plans for the Reduction of Greenhouse Gas Emissions as described in CEQA Guidelines Section 15183.5 Tiering and Streamlining the Analysis of Greenhouse Gas Emissions).
- **GHG2**: Project sponsors may require Best Available Control Technology (BACT) during construction and operation of projects, including:
    a) Solicit bids that include use of energy and fuel efficient fleets;
    b) Solicit preference construction bids that use BACT, particularly those seeking to deploy zero- and/or near zero emission technologies;
    c) Employ use of alternative fueled vehicles;
    d) Use lighting systems that are energy efficient, such as LED technology;
    e) Use CEQA Guidelines Appendix F, Energy Conservation, to create an energy conservation plan;
    f) Streamline permitting process to infill, redevelopment, and energy-efficient projects;
    g) Use an adopted emissions calculator to estimate construction-related emissions;
    h) Use the minimum feasible amount of GHG-emitting construction materials that is feasible;
    i) Use of cement blended with the maximum feasible amount of flash or other materials that reduce GHG emissions from cement production;
    j) Use of lighter-colored pavement where feasible;
    k) Recycle construction debris to maximum extent feasible; and
    l) Plant shade trees in or near construction projects where feasible.
- **GHG3**: Local jurisdictions can and may establish a coordinated, creative public outreach activities, including publicizing the importance of reducing GHG emissions and steps community members may take to reduce their individual impacts.
- **GHG4**: Pedestrian and Bicycle Promotion: Local jurisdictions may work with local community groups and business associations to organize and publicize walking tours and bicycle events, and to encourage pedestrian and bicycle modes of transportation.

- **GHG5**: Waste Reduction: Local jurisdictions can and should may organize workshops on waste reduction activities for the home or business, such as backyard composting, or office paper recycling, and may schedule recycling drop-off events and neighborhood chipping/mulching days.
- **GHG6**: Water Conservation: Local jurisdictions may organize support and/or sponsor workshops on water conservation activities, such as selecting and planting drought tolerant, native plants in landscaping, and installing advanced irrigation systems.
- **GHG7**: Energy Efficiency: Local jurisdictions may organize workshops on steps to increase energy efficiency in the home or business, such as weatherizing the home or building envelope, installing smart lighting systems, and how to conduct a self-audit for energy use and efficiency.
- **GHG8**: Schools Programs: Local jurisdictions may develop and implement a program to present information to school children about climate change and ways to reduce GHG emissions, and may support school-based programs for GHG reduction, such as school based trip reduction and the importance of recycling.

This law also extends the minimum time period for the regional housing needs allocation cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required being consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

CARB's Preliminary Draft Staff Proposal for Interim Significance Thresholds:

Separate from its Scoping Plan approved in December of 2008, CARB issued a Staff Proposal in October 2008, as its first step toward developing recommended statewide interim thresholds of significance for GHGs that may be adopted by local agencies for their own use. CARB staff's objective in this proposal is to develop a threshold of significance that will result in the vast majority (approximately 90 percent statewide) of GHG emissions from new industrial projects being subject to CEQA's requirement to impose feasible mitigation. The proposal does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that, collectively, are responsible for substantial GHG emissions – specifically, industrial,

residential, and commercial projects. CARB is developing these thresholds in these sectors to advance climate objectives, streamline project review, and encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state. These draft thresholds are under revision in response to comments. There is currently no timetable for finalized thresholds at this time.

As currently proposed by CARB, the threshold consists of a quantitative threshold of 7,000 metric tons (MT) of CO_2e per year for operational emissions (excluding transportation), and performance standards for construction and transportation emissions. These performance standards have not yet been adopted.

However, CARB's proposal is not yet final, and thus is not applied to the Project. Further, CARB's proposal sets forth draft thresholds for industrial projects that have high operational stationary GHG emissions, such as manufacturing plants, or uses that utilize combustion engines. The Project does not propose or requires these types of uses, and therefore, if the CARB threshold were applied to the Project, such an application could be either misleading, or irrelevant. This Project's GHG emissions are mostly from mobile sources, and as such, the CARB proposal is not germane to the Project.[35]

South Coast Air Quality Management District Recommendations for Significance Thresholds:

In April 2008, the South Coast Air Quality Management District (SCAQMD), in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, convened a "GHG CEQA Significance Threshold Working Group."[36] The goal of the working group is to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be utilized on an interim basis until CARB (or some other state agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects—residential; non-residential; industrial; etc. However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing

[35] http://www.arb.ca.gov/cc/localgov/ceqa/meetings/102708/prelimdraftproposal102408.pdf
[36] For more information visit: http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html.

Board with a significance threshold for stationary source projects where it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) as a screening numerical threshold for stationary sources.

In September 2010, the Working Group released additional revisions which recommended a threshold of 3,500 $MTCO_2e$ for residential projects, 1,400 $MTCO_2e$ for commercial projects, and 3,000 $MTCO_2e$ for mixed use projects, additionally the working group identified project-level efficiency target of 4.8 $MTCO_2e$ per service population as a 2020 target and 3.0 $MTCO_2e$ per service population as a 2035 target. The recommended areawide or plan-level target for 2020 was 6.6 $MTCO_2e$ and the plan-level target for 2035 was 4.1 $MTCO_2e$. The SCAQMD has not established a timeline for formal consideration of these thresholds.

The SCAQMD has also adopted Rules 2700, 2701, and 2702 that address GHG reductions. However, these rules address boilers and process heaters, forestry, and manure management projects, none of which are proposed or required by the Project.

DISCUSSION ON ESTABLISHMENT OF SIGNIFICANCE THRESHOLDS

In order to assess the significance of a proposed Project's environmental impacts it is necessary to identify quantitative or qualitative thresholds which, if exceeded, would constitute a finding of significance. As discussed above, while Project-related GHG emissions can be estimated, the direct impacts of such emissions on climate change and global warming cannot be determined on the basis of available science. There is no evidence at this time that would indicate that the emissions from a project the size of the proposed Project would directly affect global climate change.

AB 32 states, in part, that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." Because global warming is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is considered to be a significant cumulative impact. GHG emissions from the project would contribute to cumulative GHG emissions in California and to the potential adverse environmental impacts of climate change.

As previously discussed, the new CEQA guidelines indicate that a project would result in a significant impact on climate change if a project were to: a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Or b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

For the purposes of this analysis, implementation of the proposed project may have a significant adverse impact on GHG emissions if it would result in any of the following:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance.
    1. A potentially significant impact would occur if the project exceeds the SCAQMD's interim screening threshold of 3,000 MT/yr of CO_2e.

2. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.
    2. Since no local plan currently exists, a significant impact could occur if a project were unable to show consistency with AB 32's Scoping Plan and related measures.

ANALYSIS OF ENVIRONMENTAL IMPACTS – CLIMATE CHANGE

This section presents an assessment of potential GHG impacts associated with the proposed project. On February 3, 2011, the SCAQMD released the California Emissions Estimator Model™ (CalEEMod™). The purpose of this new model is to more accurately calculate air quality and greenhouse gas (GHG) emissions from direct and indirect sources and quantify applicable air quality and GHG reductions achieved from mitigation measures. As such, the latest version of CalEEMod™ has been used for this project to determine construction and operational greenhouse gas emissions. Output from the model runs are provided in Appendix "A". The GHG emissions for this scenario were calculated using CalEEMod defaults.

LIFE-CYCLE ANALYSIS

A full life-cycle analysis (LCA) is not included in this analysis due to the lack of consensus guidance on CA methodology at this time.[37] Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development and infrastructure) depends on emission factors or econometric factors that are not well established for all processes. At this time a LCA would be extremely speculative and thus has not been prepared.

OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of CO_2, CH_4, and N_2O from the following primary sources:

- Building Energy Use (Combustion Emissions Associated with Natural Gas and Electricity)
- Water Supply, Treatment and Distribution
- Solid Waste
- Vehicles

BUILDING ENERGY USE

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the off-site generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod™ default parameters were used.

WATER SUPPLY, TREATMENT AND DISTRIBUTION

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and

[37] California Natural Resources Agency, *Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97,* December 2009.

distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod™ default parameters were used.

SOLID WASTE

Commercial land uses will result in the generation and disposal of solid waste. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the proposed Project were calculated by the CalEEMod™ model using default parameters.

MOBILE SOURCE EMISSIONS

GHG emissions will also result from mobile sources associated with the Project. These mobile source emissions will result from the typical daily operation of motor vehicles by visitors, employees, and customers.

Project mobile source emissions are dependent on both overall daily vehicle trip generation. Trip characteristics based on CalEEMod defaults were utilized in this analysis.

EMISSIONS SUMMARY

A summary of the net increase in GHG emissions that would occur as a result of the General Plan Update are presented on Table 12.

TABLE 12

TOTAL GREENHOUSE GAS EMISSIONS (METRIC TONS PER YEAR) 2020 SCENARIO

	Emissions Type			
Emission Source	**CO_2**	**CH_4**	**N_2O**	**Total CO_2E**
Area	31.74	0.03	7.00e-4	32.63
Energy	304.12	0.01	4.75e-3	305.85
Mobile	1,232.86	0.04	--	1,233.78
Waste	23.05	1.36	--	51.66
Water	28.81	0.21	5.20e-3	34.78
			Total CO_2E	**1,658.71**
			Threshold	**3,000**
			Significant?	**NO**

NOTES: See Appendix "A" for detailed calculation summaries

GREENHOUSE GAS IMPACTS CONCLUSION

- Project-generated greenhouse gas emissions, either directly or indirectly will not have a significant impact on the environment.

- The project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

If you have any questions, please contact me directly at (949) 660-1994.

Respectfully submitted,

URBAN CROSSROADS, INC.

Haseeb Qureshi, MES

Senior Associate

HQ

JN: 08553-02 REPORT

REFERENCES

1. California Air Resources Board, 2007. *California Air Resources Board Almanac.*

2. California Air Resources Board, 2007. *EMFAC 2007.*

3. California Air Resources Board, 2010. *California Greenhouse Gas 2000-2008 Inventory by Scoping Plan Category - Summary.*

4. California Building Standards Commission, 2010. 2008 *California Green Building Standards Code.*

5. California Energy Commission, 2005. *Inventory of California Greenhouse Gas Emissions and Sinks.*

6. California Integrated Waste Management Board, 2011. *Estimated Solid Waste Generation Rates for Industrial Establishments:* http://www.calrecycle.ca.gov/wastechar/WasteGenRates/Industrial.htm

7. International Panel on Climate Change, 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report.*

8. South Coast Air Quality Management District (SCAQMD), 1993. *CEQA Air Quality Handbook.*

9. South Coast Air Quality Management District (SCAQMD), 2011. *California Emissions Estimator Model (CalEEMod™).*

10. United States Department of Labor, 2011. *Occupational Safety and Health Guideline for Nitrous Oxide.*

11. United States Environmental Protection Agency, 2011. *Inventory of US Greenhouse Gas Emissions and Sinks 1990-2011.*

12. United States Environmental Protection Agency, 2010. *High Global Warming Potential (GWP) Gases.*

13. World Resources Institute, 2011. *Climate Analysis Indicator Tool (CAIT) – US – Yearly Emissions Inventory.*

ATTACHMENT A

CalEEMod™ Input/Output
Construction and Operational Emissions

Bradbury Addendum

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	97.00	Dwelling Unit	31.49	174,600.00	277

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	466.91	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - information provided by the applicant

Construction Phase - no construction emissions modeled

Off-road Equipment - no construction emissions modeled

Architectural Coating -

Woodstoves - no woodstoves. all natural gas fireplaces

Energy Use - based on a 2020 operational year

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	466.91
tblProjectCharacteristics	OperationalYear	2014	2020

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	29.4932	0.7378	56.7855	0.0780		7.4538	7.4538		7.4527	7.4527	908.5911	1,760.4096	2,669.0007	2.7236	0.0617	2,745.3145
Energy	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
Mobile	2.8807	8.0469	33.3613	0.1062	7.0879	0.1394	7.2273	1.8940	0.1285	2.0225		8,203.9798	8,203.9798	0.2815		8,209.8911
Total	**32.4594**	**9.5145**	**90.4574**	**0.1888**	**7.0879**	**7.6522**	**14.7401**	**1.8940**	**7.6402**	**9.5342**	**908.5911**	**10,896.1190**	**11,804.7101**	**3.0230**	**0.0788**	**11,892.6056**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	29.4932	0.7378	56.7855	0.0780		7.4538	7.4538		7.4527	7.4527	908.5911	1,760.4096	2,669.0007	2.7236	0.0617	2,745.3145
Energy	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
Mobile	2.8807	8.0469	33.3613	0.1062	7.0879	0.1394	7.2273	1.8940	0.1285	2.0225		8,203.9798	8,203.9798	0.2815		8,209.8911
Total	**32.4594**	**9.5145**	**90.4574**	**0.1888**	**7.0879**	**7.6522**	**14.7401**	**1.8940**	**7.6402**	**9.5342**	**908.5911**	**10,896.1190**	**11,804.7101**	**3.0230**	**0.0788**	**11,892.6056**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2015	1/1/2015	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	162	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Demolition - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.8807	8.0469	33.3613	0.1062	7.0879	0.1394	7.2273	1.8940	0.1285	2.0225		8,203.9798	8,203.9798	0.2815		8,209.8911
Unmitigated	2.8807	8.0469	33.3613	0.1062	7.0879	0.1394	7.2273	1.8940	0.1285	2.0225		8,203.9798	8,203.9798	0.2815		8,209.8911

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	928.29	977.76	850.69	3,158,376	3,158,376
Total	928.29	977.76	850.69	3,158,376	3,158,376

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.509128	0.059640	0.181069	0.139276	0.042833	0.006726	0.016156	0.033615	0.001941	0.002483	0.004400	0.000574	0.002159

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
NaturalGas Unmitigated	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	7919.7	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
Total		**0.0854**	**0.7299**	**0.3106**	**4.6600e-003**		**0.0590**	**0.0590**		**0.0590**	**0.0590**		**931.7296**	**931.7296**	**0.0179**	**0.0171**	**937.4000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	7.9197	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
Total		**0.0854**	**0.7299**	**0.3106**	**4.6600e-003**		**0.0590**	**0.0590**		**0.0590**	**0.0590**		**931.7296**	**931.7296**	**0.0179**	**0.0171**	**937.4000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	29.4932	0.7378	56.7855	0.0780		7.4538	7.4538		7.4527	7.4527	908.5911	1,760.4096	2,669.0007	2.7236	0.0617	2,745.3145
Unmitigated	29.4932	0.7378	56.7855	0.0780		7.4538	7.4538		7.4527	7.4527	908.5911	1,760.4096	2,669.0007	2.7236	0.0617	2,745.3145

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	3.4571					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	25.4175	0.6449	48.7563	0.0776		7.4097	7.4097		7.4085	7.4085	908.5911	1,746.0000	2,654.5911	2.7096	0.0617	2,730.6099
Landscaping	0.2445	0.0929	8.0292	4.2000e-004		0.0442	0.0442		0.0442	0.0442		14.4096	14.4096	0.0141		14.7046
Architectural Coating	0.3742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**29.4932**	**0.7378**	**56.7855**	**0.0780**		**7.4538**	**7.4538**		**7.4527**	**7.4527**	**908.5911**	**1,760.4096**	**2,669.0007**	**2.7236**	**0.0617**	**2,745.3145**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	3.4571					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	25.4175	0.6449	48.7563	0.0776		7.4097	7.4097		7.4085	7.4085	908.5911	1,746.0000	2,654.5911	2.7096	0.0617	2,730.6099
Landscaping	0.2445	0.0929	8.0292	4.2000e-004		0.0442	0.0442		0.0442	0.0442		14.4096	14.4096	0.0141		14.7046
Architectural Coating	0.3742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**29.4932**	**0.7378**	**56.7855**	**0.0780**		**7.4538**	**7.4538**		**7.4527**	**7.4527**	**908.5911**	**1,760.4096**	**2,669.0007**	**2.7236**	**0.0617**	**2,745.3145**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Bradbury Addendum

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	97.00	Dwelling Unit	31.49	174,600.00	277

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	466.91	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - information provided by the applicant

Construction Phase - no construction emissions modeled

Off-road Equipment - no construction emissions modeled

Architectural Coating -

Woodstoves - no woodstoves. all natural gas fireplaces

Energy Use - based on a 2020 operational year

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	466.91
tblProjectCharacteristics	OperationalYear	2014	2020

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	29.4932	0.7378	56.7855	0.0780		7.4538	7.4538		7.4527	7.4527	908.5911	1,760.4096	2,669.0007	2.7236	0.0617	2,745.3145
Energy	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
Mobile	2.9593	8.4535	32.8259	0.1009	7.0879	0.1398	7.2277	1.8940	0.1289	2.0229		7,814.9874	7,814.9874	0.2818		7,820.9052
Total	**32.5379**	**9.9211**	**89.9220**	**0.1835**	**7.0879**	**7.6526**	**14.7405**	**1.8940**	**7.6406**	**9.5346**	**908.5911**	**10,507.1266**	**11,415.7177**	**3.0233**	**0.0788**	**11,503.6197**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	29.4932	0.7378	56.7855	0.0780		7.4538	7.4538		7.4527	7.4527	908.5911	1,760.4096	2,669.0007	2.7236	0.0617	2,745.3145
Energy	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
Mobile	2.9593	8.4535	32.8259	0.1009	7.0879	0.1398	7.2277	1.8940	0.1289	2.0229		7,814.9874	7,814.9874	0.2818		7,820.9052
Total	**32.5379**	**9.9211**	**89.9220**	**0.1835**	**7.0879**	**7.6526**	**14.7405**	**1.8940**	**7.6406**	**9.5346**	**908.5911**	**10,507.1266**	**11,415.7177**	**3.0233**	**0.0788**	**11,503.6197**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2015	1/1/2015	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Demolition - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.9593	8.4535	32.8259	0.1009	7.0879	0.1398	7.2277	1.8940	0.1289	2.0229		7,814.9874	7,814.9874	0.2818		7,820.9052
Unmitigated	2.9593	8.4535	32.8259	0.1009	7.0879	0.1398	7.2277	1.8940	0.1289	2.0229		7,814.9874	7,814.9874	0.2818		7,820.9052

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	928.29	977.76	850.69	3,158,376	3,158,376
Total	928.29	977.76	850.69	3,158,376	3,158,376

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.509128	0.059640	0.181069	0.139276	0.042833	0.006726	0.016156	0.033615	0.001941	0.002483	0.004400	0.000574	0.002159

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
NaturalGas Unmitigated	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	7919.7	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
Total		**0.0854**	**0.7299**	**0.3106**	**4.6600e-003**		**0.0590**	**0.0590**		**0.0590**	**0.0590**		**931.7296**	**931.7296**	**0.0179**	**0.0171**	**937.4000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	7.9197	0.0854	0.7299	0.3106	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.7296	931.7296	0.0179	0.0171	937.4000
Total		**0.0854**	**0.7299**	**0.3106**	**4.6600e-003**		**0.0590**	**0.0590**		**0.0590**	**0.0590**		**931.7296**	**931.7296**	**0.0179**	**0.0171**	**937.4000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	29.4932	0.7378	56.7855	0.0780		7.4538	7.4538		7.4527	7.4527	908.5911	1,760.4096	2,669.0007	2.7236	0.0617	2,745.3145
Unmitigated	29.4932	0.7378	56.7855	0.0780		7.4538	7.4538		7.4527	7.4527	908.5911	1,760.4096	2,669.0007	2.7236	0.0617	2,745.3145

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.4571					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	25.4175	0.6449	48.7563	0.0776		7.4097	7.4097		7.4085	7.4085	908.5911	1,746.0000	2,654.5911	2.7096	0.0617	2,730.6099
Landscaping	0.2445	0.0929	8.0292	4.2000e-004		0.0442	0.0442		0.0442	0.0442		14.4096	14.4096	0.0141		14.7046
Total	**29.4932**	**0.7378**	**56.7855**	**0.0780**		**7.4538**	**7.4538**		**7.4527**	**7.4527**	**908.5911**	**1,760.4096**	**2,669.0007**	**2.7236**	**0.0617**	**2,745.3145**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	3.4571					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	25.4175	0.6449	48.7563	0.0776		7.4097	7.4097		7.4085	7.4085	908.5911	1,746.0000	2,654.5911	2.7096	0.0617	2,730.6099
Landscaping	0.2445	0.0929	8.0292	4.2000e-004		0.0442	0.0442		0.0442	0.0442		14.4096	14.4096	0.0141		14.7046
Architectural Coating	0.3742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**29.4932**	**0.7378**	**56.7855**	**0.0780**		**7.4538**	**7.4538**		**7.4527**	**7.4527**	**908.5911**	**1,760.4096**	**2,669.0007**	**2.7236**	**0.0617**	**2,745.3145**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Bradbury Addendum

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	97.00	Dwelling Unit	31.49	174,600.00	277

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	466.91	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - information provided by the applicant

Construction Phase - no construction emissions modeled

Off-road Equipment - no construction emissions modeled

Architectural Coating -

Woodstoves - no woodstoves. all natural gas fireplaces

Energy Use - based on a 2020 operational year

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	466.91
tblProjectCharacteristics	OperationalYear	2014	2020

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0475	0.0197	1.6131	1.0200e-003		0.0981	0.0981		0.0981	0.0981	10.3033	21.4333	31.7366	0.0323	7.0000e-004	32.6321
Energy	0.0156	0.1332	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	304.1167	304.1167	0.0123	4.7500e-003	305.8479
Mobile	0.4847	1.4833	5.7027	0.0176	1.1973	0.0240	1.2213	0.3204	0.0221	0.3425	0.0000	1,232.8602	1,232.8602	0.0439	0.0000	1,233.7822
Waste						0.0000	0.0000		0.0000	0.0000	23.0537	0.0000	23.0537	1.3624	0.0000	51.6648
Water						0.0000	0.0000		0.0000	0.0000	2.0050	26.8032	28.8083	0.2076	5.2100e-003	34.7820
Total	**1.5477**	**1.6362**	**7.3725**	**0.0194**	**1.1973**	**0.1329**	**1.3302**	**0.3204**	**0.1310**	**0.4514**	**35.3620**	**1,585.2135**	**1,620.5754**	**1.6585**	**0.0107**	**1,658.7090**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0475	0.0197	1.6131	1.0200e-003		0.0981	0.0981		0.0981	0.0981	10.3033	21.4333	31.7366	0.0323	7.0000e-004	32.6321
Energy	0.0156	0.1332	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	304.1167	304.1167	0.0123	4.7500e-003	305.8479
Mobile	0.4847	1.4833	5.7027	0.0176	1.1973	0.0240	1.2213	0.3204	0.0221	0.3425	0.0000	1,232.8602	1,232.8602	0.0439	0.0000	1,233.7822
Waste						0.0000	0.0000		0.0000	0.0000	23.0537	0.0000	23.0537	1.3624	0.0000	51.6648
Water						0.0000	0.0000		0.0000	0.0000	2.0050	26.8032	28.8083	0.2076	5.2000e-003	34.7788
Total	**1.5477**	**1.6362**	**7.3725**	**0.0194**	**1.1973**	**0.1329**	**1.3302**	**0.3204**	**0.1310**	**0.4514**	**35.3620**	**1,585.2135**	**1,620.5754**	**1.6585**	**0.0107**	**1,658.7058**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2015	1/1/2015	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	162	0.38
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4847	1.4833	5.7027	0.0176	1.1973	0.0240	1.2213	0.3204	0.0221	0.3425	0.0000	1,232.8602	1,232.8602	0.0439	0.0000	1,233.7822
Unmitigated	0.4847	1.4833	5.7027	0.0176	1.1973	0.0240	1.2213	0.3204	0.0221	0.3425	0.0000	1,232.8602	1,232.8602	0.0439	0.0000	1,233.7822

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	928.29	977.76	850.69	3,158,376	3,158,376
Total	928.29	977.76	850.69	3,158,376	3,158,376

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.509128	0.059640	0.181069	0.139276	0.042833	0.006726	0.016156	0.033615	0.001941	0.002483	0.004400	0.000574	0.002159

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	149.8584	149.8584	9.3100e-003	1.9300e-003	150.6508
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	149.8584	149.8584	9.3100e-003	1.9300e-003	150.6508
NaturalGas Mitigated	0.0156	0.1332	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.2583	154.2583	2.9600e-003	2.8300e-003	155.1971
NaturalGas Unmitigated	0.0156	0.1332	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.2583	154.2583	2.9600e-003	2.8300e-003	155.1971

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	2.89069e+006	0.0156	0.1332	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.2583	154.2583	2.9600e-003	2.8300e-003	155.1971
Total		**0.0156**	**0.1332**	**0.0567**	**8.5000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**154.2583**	**154.2583**	**2.9600e-003**	**2.8300e-003**	**155.1971**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	2.89069e+006	0.0156	0.1332	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.2583	154.2583	2.9600e-003	2.8300e-003	155.1971
Total		**0.0156**	**0.1332**	**0.0567**	**8.5000e-004**		**0.0108**	**0.0108**		**0.0108**	**0.0108**	**0.0000**	**154.2583**	**154.2583**	**2.9600e-003**	**2.8300e-003**	**155.1971**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	707591	149.8584	9.3100e-003	1.9300e-003	150.6508
Total		**149.8584**	**9.3100e-003**	**1.9300e-003**	**150.6508**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	707591	149.8584	9.3100e-003	1.9300e-003	150.6508
Total		**149.8584**	**9.3100e-003**	**1.9300e-003**	**150.6508**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0475	0.0197	1.6131	1.0200e-003		0.0981	0.0981		0.0981	0.0981	10.3033	21.4333	31.7366	0.0323	7.0000e-004	32.6321
Unmitigated	1.0475	0.0197	1.6131	1.0200e-003		0.0981	0.0981		0.0981	0.0981	10.3033	21.4333	31.7366	0.0323	7.0000e-004	32.6321

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0683					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3177	8.0600e-003	0.6095	9.7000e-004		0.0926	0.0926		0.0926	0.0926	10.3033	19.7993	30.1026	0.0307	7.0000e-004	30.9646
Landscaping	0.0306	0.0116	1.0037	5.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	1.6340	1.6340	1.5900e-003	0.0000	1.6675
Total	**1.0475**	**0.0197**	**1.6131**	**1.0200e-003**		**0.0981**	**0.0981**		**0.0981**	**0.0981**	**10.3033**	**21.4333**	**31.7366**	**0.0323**	**7.0000e-004**	**32.6321**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.6309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3177	8.0600e-003	0.6095	9.7000e-004		0.0926	0.0926		0.0926	0.0926	10.3033	19.7993	30.1026	0.0307	7.0000e-004	30.9646
Landscaping	0.0306	0.0116	1.0037	5.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	1.6340	1.6340	1.5900e-003	0.0000	1.6675
Architectural Coating	0.0683					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0475**	**0.0197**	**1.6131**	**1.0200e-003**		**0.0981**	**0.0981**		**0.0981**	**0.0981**	**10.3033**	**21.4333**	**31.7366**	**0.0323**	**7.0000e-004**	**32.6321**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	28.8083	0.2076	5.2000e-003	34.7788
Unmitigated	28.8083	0.2076	5.2100e-003	34.7820

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	6.31994 / 3.98431	28.8083	0.2076	5.2100e-003	34.7820
Total		**28.8083**	**0.2076**	**5.2100e-003**	**34.7820**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	6.31994 / 3.98431	28.8083	0.2076	5.2000e-003	34.7788
Total		**28.8083**	**0.2076**	**5.2000e-003**	**34.7788**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	23.0537	1.3624	0.0000	51.6648
Mitigated	23.0537	1.3624	0.0000	51.6648

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	113.57	23.0537	1.3624	0.0000	51.6648
Total		**23.0537**	**1.3624**	**0.0000**	**51.6648**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	113.57	23.0537	1.3624	0.0000	51.6648
Total		**23.0537**	**1.3624**	**0.0000**	**51.6648**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX C – Noise Contours

Table 1. Distance to Existing CNEL Contour Lines, City of Bradbury

Arterial / Reach	Speed Limit, mph	% Trucks Med.	% Trucks Hvy.	Traffic Dist.*	Avg. Daily Traffic Existing	Hard (H) or Soft (S) Site?	Barrier Details** (leave blank if none) Height (2-10m)	Barrier Details** (leave blank if none) Distance (10/30m)	Dist., Sens. Rec. to C/L	CNEL at Sens. Rec.	Distance to CNEL Contours From Roadway Centerline, feet 60dB	65dB	70dB	75dB	80dB
Deodar Lane															
Wildrose Ave. to the gated entry	25	1.84%	0.74%	1	1,668	H			33'	54.8	--	--	--	--	--
Deodar West															
Mountain Ave. to Palm Hill Ln.	25	1.84%	0.74%	1	101	H			33'	42.6	--	--	--	--	--
Lemon Avenue															
Sombrero Rd. to Winston Ave.	25	1.84%	0.74%	1	690	H			33'	51.0	--	--	--	--	--
Mt. Olive Drive															
Royal Oaks Dr. to Gardi St.	25	1.84%	0.74%	1	1,859	H			33'	55.3	--	--	--	--	--
Royal Oaks Drive															
Buena Vista St. to Highland Ave.	30	1.84%	0.74%	1	8,550	H			164'	56.8	77	--	--	--	--
Highland Ave. to Bradbourne Ave.	25	1.84%	0.74%	1	7,610	H			164'	54.6	48	--	--	--	--
Bradbourne Ave. to Mt. Olive Dr.	25	1.84%	0.74%	1	7,870	H			156'	55.0	50	--	--	--	--
Mt. Olive Dr. to Las Lomas Rd.	30	1.84%	0.74%	1	10,380	H			98'	59.8	94	--	--	--	--
Winston Avenue															
Royal Oaks Dr. N. to Lemon Ave.	25	1.84%	0.74%	1	672	H			33'	50.8	--	--	--	--	--
Woodlyn Road															
Royal Oaks Dr. N. to Deodar Ln.	25	1.84%	0.74%	1	470	H			33'	49.3	--	--	--	--	--

* The following summarizes the traffic distributions used in the analysis:

Traffic Distribution No.	Day A	Day MT	Day HT	Evening A	Evening MT	Evening HT	Night A	Night MT	Night HT
1	75.51%	1.56%	0.64%	12.57%	0.09%	0.02%	9.34%	0.19%	0.08%

A = automobiles; MT = medium (2-axle) trucks; HT = heavy (3+ axle) trucks

The above values are adjusted as needed so that the overall medium truck and heavy truck percentages for a traffic distribution number agree with the values entered into the "% Trucks" columns on the summary table.

** For street segments with barriers, noise levels and contour distances are only reported for locations 10m (approx. 30') or more beyond the noise barrier.

Table 2. Distance to Future CNEL Contour Lines, City of Bradbury

Arterial / Reach	Speed Limit, mph	% Trucks		Traffic Dist.*	Avg. Daily Traffic	Hard (H) or Soft (S) Site?	Barrier Details** (leave blank if none)		Dist., Sens. Rec. to C/L	CNEL at Sens. Rec.	Distance to CNEL Contours From Roadway Centerline, feet				
		Med.	Hvy.		Future		Height (2-10m)	Distance (10/30m)			60dB	65dB	70dB	75dB	80dB
Deodar Lane															
Wildrose Ave. to the gated entry	25	1.84%	0.74%	1	1,874	H			33'	55.3	--	--	--	--	--
Deodar West															
Mountain Ave. to Palm Hill Ln.	25	1.84%	0.74%	1	101	H			33'	42.6	--	--	--	--	--
Lemon Avenue															
Sombrero Rd. to Winston Ave.	25	1.84%	0.74%	1	724	H			33'	51.2	--	--	--	--	--
Mt. Olive Drive															
Royal Oaks Dr. to Gardi St.	25	1.84%	0.74%	1	2,064	H			33'	55.7	--	--	--	--	--
Royal Oaks Drive															
Buena Vista St. to Highland Ave.	30	1.84%	0.74%	1	10,944	H			164'	57.9	99	--	--	--	--
Highland Ave. to Bradbourne Ave.	25	1.84%	0.74%	1	9,741	H			164'	55.7	60	--	--	--	--
Bradbourne Ave. to Mt. Olive Dr.	25	1.84%	0.74%	1	10,074	H			156'	56.1	62	--	--	--	--
Mt. Olive Dr. to Las Lomas Rd.	30	1.84%	0.74%	1	13,286	H			98'	60.9	123	38	--	--	--
Winston Avenue															
Royal Oaks Dr. N. to Lemon Ave.	25	1.84%	0.74%	1	820	H			33'	51.7	--	--	--	--	--
Woodlyn Road															
Royal Oaks Dr. N. to Deodar Ln.	25	1.84%	0.74%	1	780	H			33'	51.5	--	--	--	--	--

* The following summarizes the traffic distributions used in the analysis:

Traffic Distribution No.	Day			Evening			Night		
	A	MT	HT	A	MT	HT	A	MT	HT
1	75.51%	1.56%	0.64%	12.57%	0.09%	0.02%	9.34%	0.19%	0.08%

A = automobiles; MT = medium (2-axle) trucks; HT = heavy (3+ axle) trucks

The above values are adjusted as needed so that the overall medium truck and heavy truck percentages for a traffic distribution number agree with the values entered into the "% Trucks" columns on the summary table.

** For street segments with barriers, noise levels and contour distances are only reported for locations 10m (approx. 30') or more beyond the noise barrier.

APPENDIX D – California Natural Diversity Data Base Survey

WERNER BIOLOGICAL CONSULTING
P.O. BOX 547 805-272-5871 PH
OJAI, CA 93024 805-330-4712 FAX

January 17, 2014

Candida Neal
114 N. Indian Hill Blvd. #S
P.O. Box 1978
Claremont, CA 91711

Subject: CNDDB search for the City of Bradbury General Plan update

Dear Ms. Neal:

This letter report is in response to your request for a records search of the California Natural Diversity Database (CNDDB) as it relates to the City of Bradbury.

Introduction and Background

Werner Biological Consulting's Principal Biological and Owner, Scott Werner, was contacted by Candida Neal in December 2013 about conducting a CNDDB (CDFW 2013) search for sensitive and/or protected biological resources in support of the City of Bradbury's General Plan Update (Neal 2014). Mr. Werner was provided with the draft plan update containing maps and general land-use descriptions of Bradbury and agreed to draft this letter describing an overview of CNDDB-listed resources, or their habitats, associated with the City of Bradbury and it immediate surroundings. Scott Werner is a wildlife ecologist with over 17 years of experience and holds a U.S. Fish and Wildlife Service (USFWS) Recovery Permit TE-179013-1 for least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*), and California Department of Fish and Wildlife (CDFW) Scientific Collecting Permit SC-005186 with MOU. Mr. Werner is listed as an approved consulting biologist for the County of Ventura's Planning Division and has conducted biological surveys throughout southern California with an emphasis on Ventura, Los Angeles, and San Bernardino Counties. He has written hundreds of biological impact assessment reports and is a regular contributor to the CNDDB.

Methods

The City of Bradbury covers a 1216-acre (1.9 square mile) area of primarily residential developments at the southern edge of the San Gabriel Mountains in Los Angeles County. The elevation within the city ranges from approximately 565 feet to 2000 feet above mean sea level. The city is bordered by the cities of Monrovia and Duarte to the east, west, and south, and by the Angeles National Forest to the north (Neal 2014). The General Plan update calls for maintaining much of the existing rural residential character of the city, and the proposed land use would be very similar to existing land use (Figures 1 and 2).

This report presents the results of a desktop review of the biological resources potentially occurring in or nearby the City of Bradbury using the CNDDB and publically available aerial photography (e.g., Google Earth). No field work was conducted and no attempt was made to determine the presence or absence of any species, habitats, or natural vegetation communities within the City of Bradbury. Mr. Werner has extensive field experience with the flora and fauna of the San Gabriel Mountains and outlying areas but

does not claim to have any particular knowledge of rare or protected species located within the City of Bradbury unless cited directly from the CNDDB.

The CNDDB is the primary statewide biological resources database accepted by land-use agencies for planning purposes, but it has certain limitations for land-use planning. It is a database of rare species occurrences maintained by the CDFW and populated with species data by voluntary users. Because it only contains data from field surveys of specific locations at specific points in time, it is not an exhaustive list and cannot predict a species' presence or absence. It can be quite useful as a supplemental tool for field surveys, in which a field biologist identifies potentially suitable habitat and then conducts a presence/absence survey for that species.

Given the CNDDB's limitations is it usually appropriate to conduct a database search of as wide a geographic area as possible. The City of Bradbury is located entirely within the boundaries of the Azusa U.S. Geological Survey 7.5-minute quadrangle map. A CNDDB search of the Azusa and the surrounding 8 quadrangles (Mt. Wilson, Glendora, El Monte, Baldwin Park, San Dimas, Chilao Flat, Waterman Mtn, and Crystal Lake) was conducted. This search area is approximately 25.8 miles by 21.4 miles, totaling 553 square miles. Additional references were consulted to filter the results based on elevational range, or highly limited ranges that do not extend to the Bradbury area (USDA Forest Service 2005a, 2005b, CNPS 2014). In addition to the CNDDB search, the city limits and immediate surroundings were searched for any U.S. Fish and Wildlife Service designated critical habitat for species listed under the U.S. Endangered Species Act.

Results

The 9-quadrangle search revealed 31 plant species and 32 wildlife species with the potential to occur in the Bradbury area (Table 1). Many of these species are habitat specialists whose habitat likely does not occur in Bradbury, but they are included nonetheless because of the lack of habitat data available at the time of the database search. For example, based on aerial photos there appears to be little or no perennial riverine habitat, a requirement of all three fish species listed in Table 1. Similarly, Bradbury may lack suitable riparian habitat for two federally endangered bird species, least Bell's vireo and southwestern willow flycatcher, although known populations exist several miles east in the San Gabriel River watershed. Eight sensitive vegetation communities are documented in this 9-quadrangle area (Table 1). This exhaustive list of species and communities may well be reduced if it is cross-referenced with habitat data from field surveys conducted in Bradbury.

No U.S. Fish and Wildlife designated critical habitat occurs in Bradbury, but there is a known population and critical habitat unit of federally endangered Braunton's milkvetch located 1.32 miles northwest of the city limits (USFWS 2006). It is not known if its specialized habitat (calcareous soils in chaparral or coastal sage scrub) occurs within the city.

In reviewing the CNDDB GIS layer, one CNDDB-sensitive community, southern coast live oak riparian forest, was documented within the Bradbury city limits, in Bradbury Canyon and Bliss Canyon. One-mile radius occurrence polygons for California saw-grass (*Cladium californicum*) and pallid bat (*Antrozous pallidus*) extend slightly into the eastern city limits, but these polygons were drawn for occurrences outside of the city. One extirpated occurrence of the CNDDB-sensitive community Riversidean alluvial fan sage scrub extends into the southwestern edge of the city limits.

Table 1. CNDDB search results from the Asuza quadrangle and eight surrounding quadrangles (Mt. Wilson, Glendora, El Monte, Baldwin Park, San Dimas, Chilao Flat, Waterman Mtn, and Crystal Lake). Species whose ranges do not overlap with Bradbury, including elevational ranges not extending below 2000 feet, were excluded.

Common Name	Scientific Name	Status	General Habitat Description
PLANTS			
slender silver moss	*Anomobryum julaceum*	2B.2	Broadleafed upland forest, lower montane coniferous forest, north coast coniferous forest. Moss which grows on damp rocks and soil; acidic substrates. Usually seen on roadcuts. 330-3280 ft.
San Gabriel manzanita	*Arctostaphylos glandulosa ssp. gabrielensis*	1B.2	Rocky outcroppings, chaparral. 1950-4920 ft.
Braunton's milk-vetch	*Astragalus brauntonii*	FE, 1B.1	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland. Recent burns or disturbed areas; in saline, somewhat alkaline soils high in calcium, magnesium, with some potassium. Soil specialist; requires shallow soils to defeat pocket gophers and open areas. Preferably on hilltops, saddles or bowls between hills. 13-2100 ft.
Nevin's barberry	*Berberis nevinii*	FE, SE, 1B.1	Sandy to gravelly soils. Washes, chaparral, cismontane woodland, and coastal scrub. Generally found in lowlands or drainages. 900-2700 ft.
thread-leaved brodiaea	*Brodiaea filifolia*	FT, SE, 1B.1	Grasslands and vernal pools, openings in chaparral or coastal sage scrub, playas. Often found in clay. Southern base of San Gabriel Mts. At Glendora and San Dimas and San Bernardino at Arrowhead Springs. 82-3675 ft.
round-leaved filaree	*California macrophylla*	1B.1	Found in cismontane woodland, valley and foothill grasslands. Prefers clay soils at elevations 50-3936 ft.
slender mariposa lily	*Calochortus clavatus* var. *gracilis*	1B.2	Shaded foothill canyons on steep grassy slopes within chaparral and CSS, south base of San Gabriel and Sierra Pelona mountains. 246-4264 ft.
Plummer's mariposa lily	*Calochortus plummerae*	4.2	Occurs in coastal scrub, chaparral, valley foothill grassland, cismontane woodland, and lower montane coniferous forest habitats on rocky, sandy sites composed of alluvial and granitic materials. 328-5576 ft.
Intermediate mariposa lily	*Calochortus weedii* var. *intermedius*	1B.2	Occurs in coastal scrub, chaparral, and valley and foothill grassland on dry, rocky open slopes and rocky outcrops. 345-2800 ft.
southern tarplant	*Centromadia parryi* ssp. *australis*	1B.1	Marshes and swamps (margins), valley and foothill grassland. Often in disturbed sites near the coast at marsh edges; also in alkaline soils sometimes with saltgrass. Sometimes on vernal pool margins. 0-1575 ft.
Parry's spineflower	*Chorizanthe parryi* var. *parryi*	1B.1	Dry slopes in chaparral coastal sage scrub, or alluvial scrub, often in ecotones. Dry, sandy areas, 900-4000 ft.
California saw-grass	*Cladium californicum*	2B.2	Freshwater and alkali marshes, seeps. Freshwater or alkaline moist habitats. 200-2840 ft.
Peruvian dodder	*Cuscuta obtusiflora* var. *glandulosa*	2B.2	Marshes and swamps (freshwater). Freshwater marsh. 50-920 ft.
slender-horned spineflower	*Dodecahema leptoceras*	SE, FE, 1B.1	Occurs in chaparral and alluvial fan sage scrub on flood-deposited terraces and washes. 656-2490 ft.

Common Name	Scientific Name	Status	General Habitat Description
San Gabriel River dudleya	*Dudleya cymosa* ssp. *crebrifolia*	1B.2	On exposed granite outcroppings in CSS or chaparral areas. Fish Canyon, possibly Lytle Creek area. 900-1500 ft.
San Gabriel Mountains dudleya	*Dudleya densiflora*	1B.1	Steep granitic canyon walls adjacent to chaparral, coastal scrub, and coniferous forest. Southeast San Gabriel Mountains. 800-2000 ft.
many-stemmed dudleya	*Dudleya multicaulis*	1B.2	Heavy soils, often clayey, coastal plain. Chaparral, coastal scrub, and valley and foothill grassland. 50-2600 ft.
hot springs fimbristylis	*Fimbristylis thermalis*	2B.2	Meadows (alkaline). Near hot springs. 360-4400 ft.
San Gabriel bedstraw	*Galium grande*	1B.2	Open, broad-leafed forest, open chaparral, cismontane woodland, and lower forest. Rocky slopes. 1400-4920 ft. San Gabriel Mtns.
mesa horkelia	*Horkelia cuneata var. puberula*	1B.1	Chaparral, cismontane woodland, coastal scrub. Sandy/gravelly sites at 230-2660 ft.
California satintail	*Imperata brevifolia*	2B.1	Calcareous seeps, hot springs, disturbed wet areas. Generally 0-4000 ft.
Robinson's pepper-grass	*Lepidium virginicum var. robinsonii*	4.3	Chaparral, coastal scrub. Dry soils, shrubland. 3-2900 ft.
California muhly	*Muhlenbergia californica*	4.3	Coastal sage, chaparral, lower montane coniferous forest, meadows. Usually found near streams or seeps. 328-6560 ft.
Robbins' nemacladus	*Nemacladus secundiflorus var. robbinsii*	1B.2	Chaparral, valley and foothill grassland. Dry, sandy or gravelly slopes. 1148-5576 ft.
Brand's star phacelia	*Phacelia stellaris*	1B.1	Coastal scrub, coastal dunes. Open areas. 3.28-1312 ft.
white rabbit-tobacco	*Pseudognaphalium leucocephalum*	2B.2	Riparian woodland, cismontane woodland, coastal scrub, chaparral. Sandy, gravelly sites. 0-6888 ft.
southern mountains skullcap	*Scutellaria bolanderi ssp. austromontana*	1B.2	Chaparral, cismontane woodland, lower montane coniferous forest. In gravelly soils on streambanks or in mesic sites in oak or pine woodland. 1394-6560 ft.
chaparral ragwort	*Senecio aphanactis*	2B.2	Cismontane woodland, coastal scrub. Drying alkaline flats. 50-2624 ft.
San Bernardino aster	*Symphyotrichum defoliatum*	1B.2	Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 7-6700 ft.
Greata's aster	*Symphyotrichum greatae*	1B.3	Chaparral, cismontane woodland. Mesic canyons. 984-6600 ft.
Sonoran maiden fern	*Thelypteris puberula var. sonorensis*	2B.2	Streams, meadows, and seeps. 164-2000 ft.
FISH			
arroyo chub	*Gila orcuttii*	CSC	Species found in slow moving or backwater sections of warm to cool streams with mud or sand substrates.
Santa Ana speckled dace	*Rhinichthys osculus* ssp. *3*	CSC	Species inhabits a number of streams and channel types, small springs, brooks, and pools in intermittent streams and large rivers. Generally requires abundant cover and well-oxygenated water flowing over shallow cobble and gravel riffles.
Santa Ana sucker	*Catostomus santaanae*	FT, CSC	Species inhabits shallow streams and rivers less than 23 feet wide where water temperature is generally below 72° F. Generally prefer clear water and often found in pools.

Common Name	Scientific Name	Status	General Habitat Description
AMPHIBIANS			
large-blotched salamander	*Ensatina klauberi*	CSC	Found in conifer and woodland associations. Found in leaf litter, decaying logs and shrubs in heavily forested areas.
Coast Range newt	*Taricha torosa*	CSC	Coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats and will migrate over 0.5 miles to breed in ponds, reservoirs and slow moving streams.
arroyo toad	*Anaxyrus californicus*	FE, CSC	Habitat requirements are perennial and intermittent streams with shallow, sandy or gravelly pools adjacent to sand or fine gravel terraces. Found in plains, mountains, and desert slopes of So. California, below 7900 ft.
REPTILES			
western pond turtle	*Emys marmorata*	CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.
coast horned lizard	*Phrynosoma blainvillii*	CSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.
coastal whiptail	*Aspidoscelis tigris stejnegeri*	-	Found in deserts and semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.
rosy boa	*Charina trivirgata*	-	Desert and chaparral from the coast to the Mojave and Colorado deserts. Prefers moderate to dense vegetation and rocky cover. Habitats with a mix of brushy cover and rocky soil such as coastal canyons and hillsides, desert canyons, washes and mountains.
two-striped garter snake	*Thamnophis hammondii*	CSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.
BIRDS			
Cooper's hawk	*Accipiter cooperii*	WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.
merlin	*Falco columbarius*	WL	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches. Clumps of trees or windbreaks are required for roosting in open country. An uncommon winter resident of the San Gabriel foothills.

Common Name	Scientific Name	Status	General Habitat Description
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FPE, SE	Riparian forest. Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.
black swift	*Cypseloides niger*	CSC	Coastal belt of Santa Cruz and Monterey Co; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.
southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE	Riparian woodland. Riparian woodlands in Southern California. Requires dense vegetation and standing water or saturated soils.
bank swallow	*Riparia riparia*	ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.
coastal California gnatcatcher	*Polioptila californica californica*	FT, CSC	Obligate, permanent resident of coastal sage scrub dominated by California sagebrush (*Artemisia californica*) below 2500 feet in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes.
least Bell's vireo	*Vireo bellii pusillus*	FE, SE	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.
yellow-breasted chat	*Icteria virens*	CSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	WL	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.
MAMMALS			
pallid bat	*Antrozous pallidus*	CSC, WBWG H	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.
hoary bat	*Lasiurus cinereus*	WBWG M	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.
western yellow bat	*Lasiurus xanthinus*	CSC, WBWG H	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.
fringed myotis	*Myotis thysanodes*	WBWG H	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.

Common Name	Scientific Name	Status	General Habitat Description
long-legged myotis	*Myotis volans*	WBWG H	Most common in woodland and forest habitats above 4000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.
Yuma myotis	*Myotis yumanensis*	WBWG LM	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.
western mastiff bat	*Eumops perotis californicus*	CSC, WBWG H	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.
pocketed free-tailed bat	*Nyctinomops femorosaccus*	CSC, WBWG M	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.
big free-tailed bat	*Nyctinomops macrotis*	CSC, WBWG MH	Low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.
San Diego black-tailed jackrabbit	Lepus californicus bennettii	CSC	Intermediate canopy stages of shrub habitats and open shrub / herbaceous and tree / herbaceous edges. Coastal sage scrub habitats in Southern California.
American badger	Taxidea taxus	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.
CNDDB SENSITIVE COMMUNITIES			
Riversidian Alluvial Fan Sage Scrub		G1S1.1	See Holland (1986). Detailed description provided upon request.
Southern Coast Live Oak Riparian Forest		G4S4	See Holland (1986). Detailed description provided upon request.
Southern Cottonwood Willow Riparian Forest		G3S3.2	See Holland (1986). Detailed description provided upon request.
Canyon Live Oak Ravine Forest		G3S3.3	See Holland (1986). Detailed description provided upon request.
Southern Sycamore Alder Riparian Woodland		G4S4	See Holland (1986). Detailed description provided upon request.
Open Engelmann Oak Woodland		G2S2.2	See Holland (1986). Detailed description provided upon request.
California Walnut Woodland		G2S2.1	See Holland (1986). Detailed description provided upon request.
Walnut Forest		G1S1.1	See Holland (1986). Detailed description provided upon request.

Status Key (see CDFW 2011):
FE = Federal Endangered
FT = Federal Threatened
FPE = Federal Proposed Endangered
SE= California Endangered
ST = California Threatened
CSC = California Species of Concern
CR = California Rare
WL = California Watch List
WBWG H: Western Bat Working Group - High Priority

WBWG LM: Western Bat Working Group - Low-Medium Priority
WBWG M: Western Bat Working Group - Medium Priority
WBWG MH: Western Bat Working Group - Medium-High Priority
California Rare Plant Ranks: 1B = Rare, Threatened or Endangered in California and elsewhere
2 = Rare, Threatened or Endangered in California, but more common elsewhere
3 = Plants about which we need more information – a review list
4 = Plants of limited distribution - a watch list
.1 = seriously threatened in California
.2 = fairly threatened in California
.3 = not very threatened in California
G1: Globally critically imperiled
G2: Globally imperiled
G3: Globally vulnerable
G4: Globally apparently secure
G5: Globally secure
S1: Critically imperiled in California
S2: Imperiled in California
S3: Vulnerable in California
S4: Apparently secure in California
S5: Secure in California

Conclusion

Many CNDDB-listed species and communities were documented within the 9-quadrangle area centered at the City of Bradbury, but only one CNDDB element, an occurrence of southern coast live oak riparian forest, was confirmed with the city limits. Additional analysis based on field habitat data is recommended to determine the potential for occurrence for the 63 species and 8 vegetation communities documented in the CNDDB search.

Please contact me at (805) 272-5871 or scott@wernerbio.com if you have any questions.

Sincerely,

Scott Werner
Principal Biologist/Owner

REFERENCES

California Department of Fish and Wildlife (CDFW). 2011. Special animals (898 taxa). January 2011. California Natural Diversity Database, Biogeographic Data Branch, California Department of Fish and Wildlife.

California Department of Fish and Wildlife (CDFW). 2013. Rarefind 5. California Natural Diversity Database, Biogeographic Data Branch, California Department of Fish and Wildlife. Commercial version dated January 17, 2014.

California Native Plant Society (CNPS). 2014. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. http://www.rareplants.cnps.org. Accessed Friday, January 17, 2014.

Neal, Candida. 2014. City of Bradbury, General Plan 2012-2030 Update, Land Use Element. Received by Scott Werner via email correspondence from Candida Neal on January 8, 2014.

USFWS [U.S. Fish and Wildlife Service]. 2006. Endangered and threatened wildlife and plants; designation of critical habitat for *Astragalus brauntonii* and *Pentachaeta lyonii*; Final Rule. Federal Register 71:66373-66423.

USDA Forest Service. 2005a. Species Accounts – Animals. Southern California Forest Plan Revisions, Final Publications. http://www.fs.fed.us/r5/scfpr/projects/lmp/docs/species-animals.

USDA Forest Service. 2005b. Species Accounts – Plants. Southern California Forest Plan Revisions, Final Publications. http://www.fs.fed.us/r5/scfpr/projects/lmp/docs/species-plants.

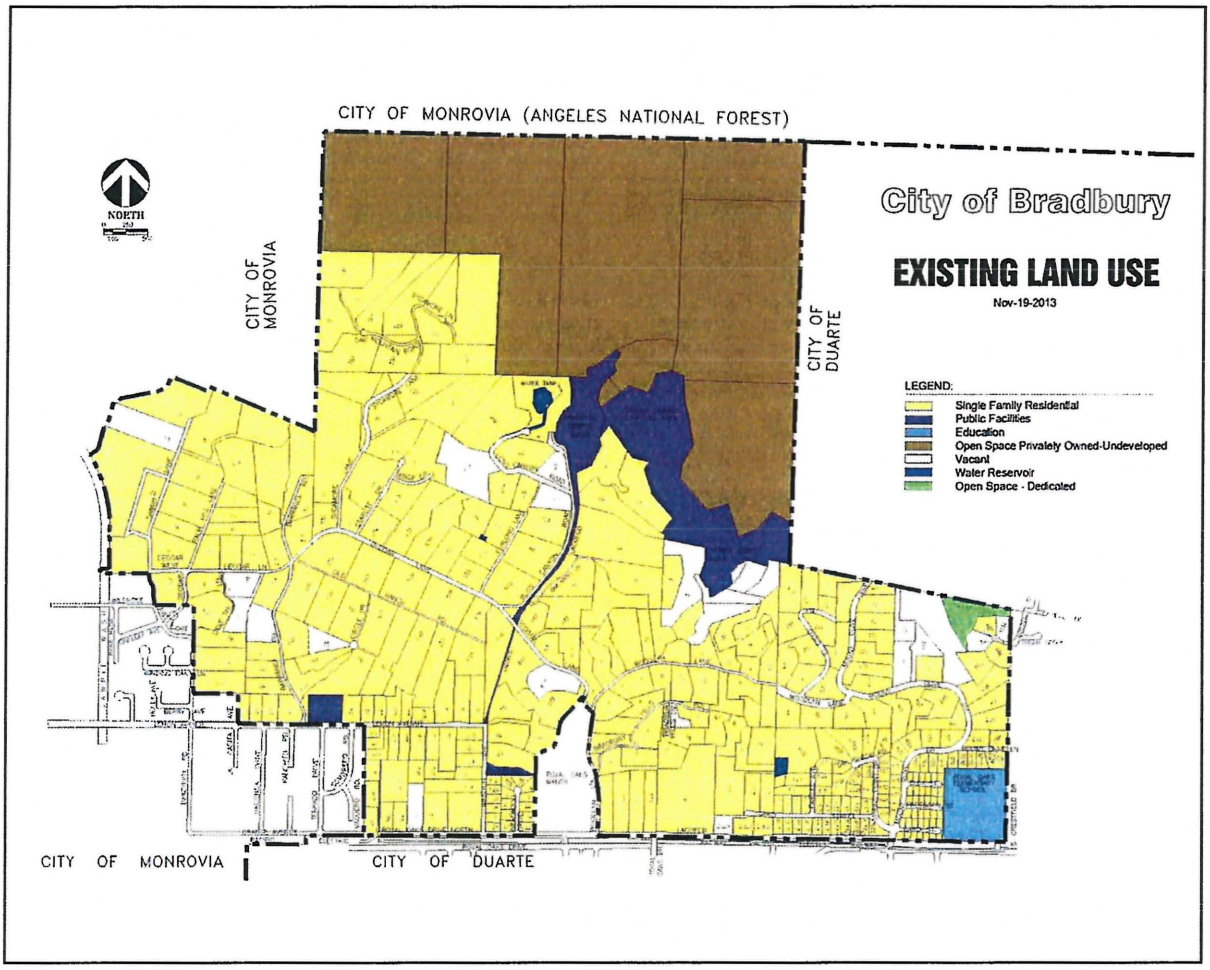


Figure 1. Existing land use in the City of Bradbury (Neal 2014).

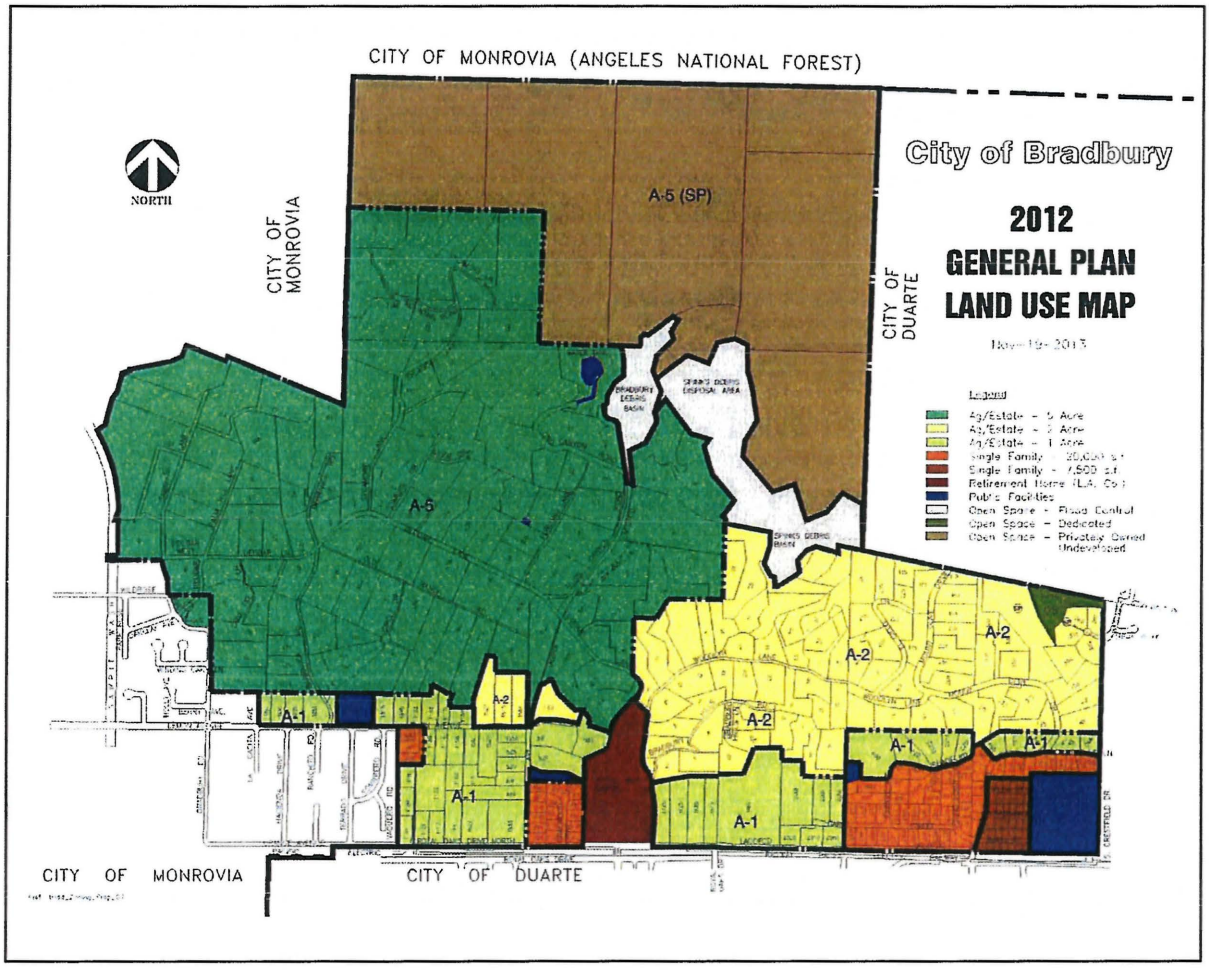


Figure 2. Land use in the City of Bradbury proposed under the 2013 General Plan update (Neal 2014).

APPENDIX E – City of Bradbury General Plan Matrices

- City of Bradbury General Plan Comparison Matrix

- City of Bradbury General Plan Goals and Objectives Comparison Matrix

City of Bradbury General Plan Policy Comparison
1994 General Plan
2007 General Plan, and
2012-2030 General Plan Update
Matrix

January 30 2014

The purpose of the matrix is to review the City of Bradbury general plans for 1994, 2007 and the proposed 2012-2030 General Plan Update that is under consideration by the City Council and compare the documents with specific focus on the impact of the general plans on some 302-acres of privately owned hillside undeveloped property which has been questioned by the owners of approximately 192-acres of vacant undeveloped hillside property. The intent of the matrix is to ascertain how each mandatory general plan element identified the potential development opportunities for the entire 302-acres of Privately Owned Undeveloped Hillside Property.

It should be noted that the 1994 General Plan and associated environmental impact report (EIR) described and mapped the property in question as 316-acres. A review of the Los Angeles County Tax Assessor records indicates that the property in question contains only 302-acres of land area. The reason for this 14-acre discrepancy has not been analyzed.

Furthermore it should be noted that the City of Bradbury in an attempt to comply with encouragement from the State Department of Planning and Research (OPR) reviewed and re-adopted the 1994 General Plan as its long-range planning policy document in 2007.

The 2012-2030 General Plan Update is an attempt to reformat the previously adopted General Plan in conformance with the State's current General Plan Guidelines. Data provided by the 2010 federal Census and data provided by State agencies and others has been used to update the narrative portions of the General Plan in an attempt to describe the City of Bradbury in a contemporary context. The development opportunity for the 302-acres of vacant undeveloped hillside property remains unchanged in the proposed General Plan 2012-2030 Update.

Element	1994	2007	2012	Comment
Executive Summary	The subject undeveloped open space area designated as Estate – Five Acres/Hillside Development Overlay is described as being subject to the requirements of the City's Hillside Ordinance Area described as 316-acres appears to be 302-acres in size as tabulated using the tax Assessor Maps. Objectives and policies for each element stated in the executive summary	The 2007 General Plan contains a new Executive Summary that essentially restates the 1994 Executive Summary.	The 2012-2030 General Plan Update does not include an Executive Summary. The Introduction section contains information similar to that contained in the 2007 General Plan Executive Summary. Goals, objectives and policies for each Element included at the end of each Element, or Chapter of each Element	
Introduction	Provides overview of the general plan content and a summary of various long-range planning policies.	The 2007 General Plan is a carbon copy of the 1994 General Plan.	The 2012-2030 General Plan Update provides an overview of the general plan content to include goals. A statement is included that essentially the land use policies and patterns established in 1994 and 2007 general plans are followed. Development potential for the 302-acre area is not meant to be changed from that previously approved and adopted.	The only difference between the 1994/ 2007 and the 2012-2030 General Plans is the detailing of the community goals. The community expressed a desire that the 1994 general plan goal "to promote rural tranquility" be retained as the guiding principal for future physical development of the community.
Land Use Element	The 1994 City population was reported to be 850. The number of dwelling units was reported to be 281. Estimated that under theoretical buildout would have an additional 220 units for a total of 501 units. Property included in the Estate (Hillside) -5 acre land use with corresponding zoning of A-5 (1 unit per 5 acres) and shown to be	The 2007 General Plan Land Use Element is a carbon copy of the 1994 General Plan Land Use Element.	The 2012-2030 General Plan Update population estimate is based on 2010 federal Census data and it is reported to be 1,048. The number of dwelling units is reported to be 400. Estimated that an additional 97 units could be built for a total of 497 units. Property in question was redesignated as Open Space, Privately Owned Undeveloped without any change in	The 1994 General theoretical Buildout estimate for the subject Open Space Undeveloped privately owned land of 32 dwelling units did not include allowable accessory dwelling units. The theoretical Buildout for the 316-acres could have been calculated at 316-acres/5-acres per dwelling = 63.2 x two or a maximum yield of 126.4 dwelling units. The total theoretical City Buildout was estimated to be 501 dwellings and a

Element	1994	2007	2012	Comment
	Open Space – Undeveloped on Land Use Map. The Hillside Development standards require that between 50% and 85% of each lot in the property be kept in natural open space depending upon the slope Theoretical Buildout density for the subject "316-acre" Open Space area was estimated to be 32 dwelling units. The theoretical Buildout population for the property in question was estimated to be 95 persons. No method of calculating the dwelling unit yield for the property in question was given. The Buildout projection of 32 dwelling units represents a 50% reduction of the maximum theoretical yield (e.g. 316-acres/5-acres per dwelling = 64 DUs) Recognized that theoretical buildout is not likely to occur in hillside areas because of constraints and hillside standards. Existing Land Use of the property in question defined as Open Space-Undeveloped. Proposed Land Use of the property in question defined as Open Space Undeveloped with density of one dwelling unit per 5-acres. Land Use category was noted as		zoning. Hillside Development standards still apply to require between 50% and 85% of each lot of the property in question to be kept in natural open space depending upon the slope. The proposed development density for the subject Privately Owned Undeveloped Open Space area was set as 1 unit per 5-acres. Theoretical Buildout density for the subject property is based on its eight (8) lot configuration. One main dwelling and one accessory dwelling is permitted for each lot therefore, a Buildout projection of 16 dwelling units has been calculated. Additional dwelling unit yield for the property in question would be based on future subdivision and development plans that would be elements of a required specific plan. Development of the site in question would include extensive environmental review. General Plan development density is the same as the 1994 and 2007 general plans.	projected population of 1,500. The reduction of 126.4 dwelling units for the subject property to 32 dwelling units was not explained. However the 1994 and the 2007 general plans did indicate that the property in question was subject to site and environmental constraints. The 2012-2030 General Plan Update identifies that the subject property is currently comprised of 8 parcels. Each A-5-SP zoned parcel has the potential of developing two dwelling units per parcel (one primary and one accessory dwelling). Development proposals for the property in question must be in the form of a Specific Plan. Additional density yield for the property in question will be the topic site specific environmental and hillside development standards review. Total City Buildout potential in the 1994 and 2007 general plans was 501 dwelling units and a projected population of 1,500 persons. Total City Buildout potential in the 2012-2030 General Plan Update is 497 dwelling units and a projected population of 1,540 persons.

Element	1994	2007	2012	Comment
	being subject to requirements of the City's hillside development standards because of topographic constraints. Property in question said to be bisected by intermittent streams			
Housing Element	The 1994 General Plan Housing Element states that housing accommodations should be provided for all economic segments of the community in accordance with State Law. The Housing Element identifies 331-acres as subject to Environmental Constraints such as steep hillsides and that the area is subject to development at the owner's discretion. The 331-acre designation includes the subject undeveloped hillside property.	The 2007 General Plan includes a Housing Element that was revised in 2000 in accordance with State Law. The Housing element recognizes the subject 302-acre Open Space Undeveloped parcel as constrained by environmental issues, lack of infrastructure and cost of construction. Nothing in the Housing Element 2000 indicates that the property in question was not developable. The development potential of the subject property was only described as difficult or constrained.	The 2012-2030 General Plan Update does not include a housing element modification. The existing Housing Element 2008 was certified as in compliance with State Law. The Housing Element may be considered for revision in 2014. The subject 302-acre Open Space Undeveloped site is defined as having marginal expectation for development due to steep hillsides, lack of infrastructure, topographical, geological and geotechnical constraints. The area is subject to natural hazards to include wild fires. A density yield of 28 dwelling units was projected for the property in question. No explanation of how the projection was derived was offered in the Housing Element. However, it was noted that the subject property may have difficulty in achieving the projected density.	The required revision schedule for housing elements is different than that for the remaining mandatory elements of the general plan. The subject 302-acre Open Space Undeveloped site is considered to have significant development constraints. The notation that the subject 302-acre Open Space Undeveloped site would be difficult to develop is constant throughout the 1994/ 2007 and the 2012-2030 general plans.
Circulation Element	The 1994 General Plan Circulation Element's guiding principal was to preserve the City's rural residential character. Buildout was projected to be 501 dwelling units. Traffic generated by	The 2007 Circulation Element is a carbon copy of the 1994 Circulation Element.	The 2012-2030 General Plan Update Circulation-Transportation Element addresses the Complete Streets Network as required by the State Planning Law. Alternate methods and modes of	A traffic study was conducted to determine if the local and regional circulation and transportation systems were adequate to handle existing and projected demand and traffic volumes. The systems were deemed adequate.

Element	1994	2007	2012	Comment
	the projected density and population was analyzed and the impact on the rural residential circulation system was anticipated to be minimal.		transportation are advocated. Surrounding regional arterial circulation and transportation systems were analyzed. It was determined that impact on the City and regional transportation and circulation systems is negligible. A traffic study was undertaken and the information was used to determine that the circulation and transportation systems for the City and the region were adequate.	The 2012-2030 General Plan Update promotes the use of alternate modes and methods of transportation. Reduction of the use of motor vehicles is encouraged. Emergency Access and Evacuation routes were identified and evaluated
Conservation Element	The 1994 General Plan Conservation Element contains a major goal directed at the restoration and protection of the quality of the physical environment through conservation of natural water courses, soils, and native plant and animal life. The Element states that conservation of natural resources should be a leading determinant for development type and density, as well as for the preservation of open space. 302 acres identified as being in high sensitivity Resource Management Area and development subject to specified guidelines and field survey requirements	The 2007 General Plan Conservation Element is a carbon copy of the 1994 general plan.	The 2012-2030 General Plan Update Conservation Chapter of the Community Resources Element contains the same objective as the 1994 and 2007 general plans. The subject 302-acre Open Space Undeveloped site is identified as an area that might require extensive analysis prior to development. The revised Resource Management Area Map excludes the developed portion of the Bradbury Estates and the Woodlyn Lane Estates as shown on the previously adopted general plan Resource Management Area Maps. However, the subject 302-acre Open Space Privately Owned Undeveloped site was retained as shown on the 1994 and 2007 general plan Resource Management Area Maps and continues to be in a high sensitivity area. Development in high sensitivity area subject to same guidelines and filed	The format of the Conservation Element has been modified to comply with the State's General Plan Guidelines. Current demographic and technical data has been cited regarding water, energy and solid waste conservation issues. Two previously identified "Wildlife Habitat" areas have been removed from the Resource Management Area Map because these areas have been developed with residential estates. The map legend identifying "Wildlife Habitat" has been replaced with legend designations of: Open Space, dedicated; and Opens Space privately owned-Undeveloped. Additionally, the flood control debris basins have been included on the map. Goals, objectives, policies and action programs have been expanded to reflect current positions and activities undertaken by the City.

Element	1994	2007	2012	Comment
			survey requirements. The recently dedicated privately owned 4-acre open space parcel at Sharon Hill Lane was added as a Resource Management Area. An Environmental Resources Map was added depicting the location of the seasonal Blueline streams, the flood control debris basins and significant prominent ridgelines. A photograph of the 302-acres of the privately owned undeveloped hillside property has been included for informational purposes. Information regarding community resources has been updated using current demographic and technical data. Additional topics have been added such as Mineral Resources and Air Quality, Recycling, Hazardous Waste, and NPDES	
Safety Element	The 1994 General Plan Safety Element focuses on those issues that may affect the health and safety of City residents that should be considered in current and future planning. Specific issues include fire risk and prevention; flooding; geologic and seismic hazards; and other natural and man-made hazards that could affect the City. Property shown as being in Hillside/Slope Failure area. Identifies threat from fires in foothill areas.	The 2007 General Plan Safety Element is a carbon copy of the 1994 General Plan.	The 2012-2030 General Plan Update combines the required Noise Element and the required Safety Element. The Safety Element format has been updated to be consistent with the State's General Plan Guidelines. The history of natural and man-made disasters that have occurred has been updated. The adopted Fire Hazard Severity Zone Map prepared by the County Fire Department has been included. The Seismic Hazard Zones Map as prepared by the State Department of Mines and Geology has been included	The Fire Hazard Severity Zone Map reflects current assessment of the potential fire hazard to the community, but the area was already identified as being subject to fire threats. The Seismic Hazard Zones Map identifies areas of potential hazards such as: Liquefaction Zones; Earthquake induced Landslide Zones; Surface Rupture/Fault Trace Areas; and potential regulatory zones surrounding the surface rupture/fault trace areas. Safety and Emergency Preparedness Plans and Programs have been identified and elaborated on. Emergency Access and Evacuation routes

Element	1994	2007	2012	Comment
			and property still shown as being subject to earthquake induced landslide area.	have been updated. Goals, objectives, policies and action programs have been memorialized to reflect current policies and activities.
Noise Element	The 1994 General Plan Noise Element objective is to maintain and preserve the existing quiet and noise-free environment in the City. A noise mitigation plan was outlined in the element. No significant noise impacts were identified. Noise control measures and standards were included. A Noise Environment Map was prepared to locate noise contours	The 2007 General Plan Noise Element is a carbon copy of the 1994 General Plan Noise Element.	The 2012-2030 Noise Element is now a part of the Health and Safety Element. Potential noise impacts were identified as associated with traffic in and around the City. A traffic study was prepared and noise contours were identified and mapped. A revised Noise Environment Map was prepared. Noise goals, objectives, policies and action programs were written for the protection of the community.	A revised noise contour map was prepared based on recent traffic volume studies. The Noise Goals, Objectives, Policies and Action Programs were revised to clearly define the City's expectations aspiration.
Open Space Element	The 1994 General Plan Open Space Element goal is to maintain the rural character of the community and to maximize the existing open space resources. It was noted that there was large undeveloped areas in the City and that many of these areas are not suitable for development due to steep slopes or water drainage. Although it was recognized that the much of the land was best served as open space, it was noted that it was under private ownership and remained undeveloped at owner's discretion. The Open Space Plan identifies	The 2007 Open Space Element is a carbon copy of the 1994 Open Space Element.	The 2012-2030 General Plan Update includes the required open space element as part of the Community Resources Element. This General Plan Element notes that the City is concerned and committed to the preservation of the agricultural uses of land that are part of the community's heritage. . Locally significant historical buildings were identified and mapped. The City's existing Open Space Areas were mapped to include the subject 302-acres of privately owned undeveloped property. The undeveloped privately owned	The preservation of open space both private and publicly owned is a goal consistent throughout the 1994/ 2007 and the 2012 General Plan iterations. The 2012-2030 General Plan Update identifies the existing publically owned flood control debris basins, flood control channels, civic center, pedestrian/equestrian trails and the elementary school as open space areas. Privately Owned Open Space areas include: water reservoirs, privately owned dedicated natural open space and 302-acres of privately owned undeveloped hillside property. Goals, objectives, policies have been clearly defined as per direction from community residents.

Element	1994	2007	2012	Comment
	331-acres of open space undeveloped hillside property that is subject to environmental constraints.		hillside property was described as being developable at the density of one dwelling unit per five acres of land area. Development of hillside property having an average slope in excess of 10% and a land area in excess of 2-acres is subject to the City's hillside development standards. The City's hillside development standards require the preservation of the natural topography. The amount of land area to be preserved depends on the average slope of the property being developed.	Action plans include the use of specific development plans to set aside open-space areas. But specific plans are already required for development in 302 acre area. Idea of specific plan is that development standards can be modified to allow alternative developments, such as cluster developments in order to preserve more sensitive areas.
Climate Action Plan	Not Included	Not Included	The 2012-2030 General Plan Update includes the Climate Action Plan adopted previously by the City Council.	

City of Bradbury General Plan Goals and Objectives
1994 – 2007 and 2012 Update
Comparison Matrix

January 31, 2014

Element	1994/2007	2012
Executive Summary	Includes objectives and policies for each element that will be discussed below.	No Executive Summary
Introduction	Repeats objectives and policies set forth in Executive Summary	Includes overall community goals: **Goals:** The objectives and policies expressed throughout this General Plan shall be based on achieving and implementing the following goals: 1. Financial sustainability. 2. Independent local government. 3. Local responsive and responsible governance. 4. Quiet and peaceful living environment. 5. Safe community. 6. Compatibility between rural agriculture and residential estate development. 7. Balance the City's rural character, including agricultural opportunities, preservation of open-space and natural topography, with residential necessities such as traditional municipal services and utilities. 8. Living/housing opportunities for all ages and economic levels. 9. Services for residents that encompass and are sensitive to an aging population and cultural diversity.
Land Use Element	**Objective:** To maintain the existing character of the community and to preserve those environmental resources and amenities that make the City of Bradbury a desirable place to live **Policy:** The residential character of the community and environmental resources important to the City will be maintained	**Land Use Goal 1:** The Land Use Element maintains the existing rural residential character of the City. The element designates the general location, distribution, and extent of existing and permitted development. **Land Use Goal 2:** Preserve the identity, image and environmental quality of the hillside and open space areas in perpetuity by enforcing the Hillside Development Standards **Land Use Objectives** **Land Use Objective 1**: To maintain the existing character of the community and to preserve those environmental resources and amenities that make the City of Bradbury a desirable place to live. **Land Use Policies** **Land Use Policy 1:** The residential character of the community and environmental resources important to the City will be maintained.

Element	1994/2007	2012
		Land Use Actions **Land Use Action 1:** Encourage as much hillside preservation as possible through the use of conservation easements, acquisition efforts by conservation organizations or preservation as natural preserves that promote the protection of natural hillsides as open-space in perpetuity. **Land Use Action 2:** Work with the City of Monrovia to adjust the common municipal boundaries to expand the City of Bradbury to the edge of the Wild Rose Avenue right-of-way to be consistent with the legal boundaries of the Bradbury Estates Community Services District. **Land Use Action 3:** Revise the City's Design Guidelines to promote sustainable building and development design alternatives. **Land Use Action 4:** Encourage the homeowner associations to consider the update or adoption of design guidelines for their respective jurisdictions. **Land Use Action 5:** Engage the community and the homeowner associations to explore the need to control development intensity including but not limited to re-examination of lot coverage definitions, relationship of setbacks and building height and the ratio of main dwelling unit footprints to the total parcel size. **Land Use Action 6:** Perform a biennial review of the Hillside Development Standards and update if necessary to carry out the goals of the General Plan.
Housing Element	**Objective:** To maintain the existing residential character of the community while providing for the housing needs of the City residents. **Policy 1:** The City will promote and cooperate in the enforcement of fair housing laws. **Policy 2:** The City will continue to permit the development of a variety of housing types and to designate sites for new residential development in the General Plan. **Policy 3:** The City will pursue opportunities to provide housing for low and moderate income households. **Policy 4:** The City will continue to work to remove those governmental constraints that	The 2012-2030 General Plan Update does not include a housing element modification. The existing Housing Element 2008 was certified as in compliance with State Law. The Housing Element may be considered for revision in 2014. The subject 302-acre Open Space Undeveloped site is defined as having marginal expectation for development due to steep hillsides, lack of infrastructure, topographical, geological and geotechnical constraints. The area is subject to natural hazards to include wild fires. A density yield of 28 dwelling units was projected for the property in question. No explanation of how the projection was derived was offered in the Housing Element. However, it was noted that the subject property may have difficulty in achieving the projected density.

Element	1994/2007	2012
	limit or discourage the development of new housing in the City. **Policy 5:** The City will work to conserve and improve the existing housing (including affordable housing) in the City. **Policy 6:** The City will promote and encourage public participation.	
Circulation Element	**Objective:** To accommodate existing traffic (equestrians, pedestrians, and vehicles) in a manner that is both safe and sensitive to the City's unique character. **Policy:** All public roadways and roadway improvements will be constructed to City of Bradbury local street standards so as to preserve the residential character of the City.	**Goals** **C-T Goal 1:** The C-T Element seeks to maintain safe and efficient circulation systems that do not impact the rural residential character of the City. **C-T Goal 2:** Maintain transit programs that do not exceed the City's annual transit funding allocation or budget. **C-T Goal 3:** Inform residents of all available transit programs. **C-T Goal 4:** Support regional rail services such as the METRO Gold Line light rail system. **C-T Goal 5:** Promote traffic safety throughout the community **C-T Goal 6:** Promote a "Dark Sky" development concept for all circulation systems that is consistent with the City's rural character. **Objectives** **C-T Objective 1:** To accommodate existing traffic patterns and plan for future demand. **C-T Objective 2:** Strive for the creation of new transportation facilities for motorists, equestrians, pedestrians, and bicyclists. Emphasize design standards that result in the construction of circulation and transportation systems that are safe and efficient; and sensitive to the needs of the disabled and City's unique rural residential character **Policies** **C-T Policy 1:** All public roadways and roadway improvements will be constructed to the City of Bradbury local street standards so as to preserve the rural residential character of the City. **C-T Policy 2:** Continue inter-jurisdictional relationships with neighboring cities to coordinate the design and implementation of transportation systems. **C-T Policy 3:** Explore all available funding sources and opportunities for improving transportation programs and facilities.

Element	1994/2007	2012
		C-T Policy 4: Develop a public information/marketing campaign to advertise the availability of transit services to City residents. **C-T Policy 5:** Continue to support and work with regional agencies to support the expansion of the Gold Line and other transportation programs and services for the San Gabriel Valley. **C-T Policy 6:** Promote enforcement of speed laws and continue to monitor the use of City streets. **Implementation Action Programs** **C-T Action 1: Safety:** Continue to evaluate traffic calming measures such as speed bumps, bulb-outs, stop signs and other improvements that effectively reduce speed. **C-T Action 2: Light-Rail:** Promote improvements that expand access to the Gold Line light-rail and other regional transportation systems for community residents. Examine the feasibility of creating a park-and-ride lot at the Civic Center for use by City residents. **C-T Action 3: Public Information:** Develop a marketing program to provide information to residents on the various available transportation services including Dial-A-Ride, Foothill Transit, and the Gold Line. Post this information on the City website. **C-T Action 4: Para-Transit System:** Maintain a Dial-a-Ride program that does not exceed the City's annual transit funding allocation of budget. **C-T Action 5: Roadway Coordination -** Support roadway improvements to intersections of all streets with the surrounding arterial highway network. Coordinate street improvements with the adjacent cities that may result in the improvement of Level-of-Service (LOS) at all street intersections. **C-T Action 6: Roadway Improvements –** Continue to work with the City of Duarte and the Duarte Unified School District to identify improvements that will reduce traffic congestion and improve pedestrian access to Royal Oaks Elementary School during hours of operation. **C-T Action 7: Complete Streets Network** – Continue to examine the existing circulation system in order to identify improvements that will lead to improved compliance with the "Complete Streets Network" as envisioned by AB 1358.
Conservation Element	**Objective:** To preserve those resources that are important to the community and to cooperate in regional efforts to improve environmental quality throughout the region. **Policy:** Existing and future development will be sensitive to those natural resources found in the City and in maintaining those natural resources.	**Conservation Goals** **Conservation Goal 1.** Maintain a healthy and clean city. **Conservation Goal 2.** Ensure adequate and cost effective trash collection for Bradbury residents. **Conservation Goal 3.** Protect the valuable watershed and natural habitat areas. **Conservation Goal 4.** Protect and maintain the local water supply to ensure that the City's growing demand for water is properly accommodated. **Conservation Goal 5.** Protect Bradbury's environment through the use of renewable energy

Element	1994/2007	2012
		resources. **Conservation Goal 6**. Prolong the life and safety of landfills and find an environmentally safe alternative means for the disposal of solid waste. **Conservation Goal 7.** Regulate future surface streets to minimize impacting natural open-space areas. **Conservation Goal 8**. Ensure that development in the steep foothill area is sensitive to the local environment. **Conservation Goal 9**. Maintain Land Use policies that have minimal impact on existing air quality. **Conservation Goal 10.** Maximize efforts to reduce air pollution from mobile sources. **Conservation Goal 11.** Strive to achieve ambient levels of particulate matter to meet State and Federal clean air standards. **Conservation Objectives:** **Conservation Objective 1.** Continue to improve the waste diversion and recycling programs already in place. **Conservation Objective 2.** Provide adequate waste disposal systems and increase the use of compatible renewable energy resources. **Conservation Objective 3** When markets for new types of recyclables open up, the City should begin implementing new programs with the trash hauler. **Conservation Objective 4.** Require that toxic and hazardous waste be disposed of properly. **Conservation Objective 5.** Continue to develop a comprehensive NPDES plan that meets State standards. **Conservation Policies:** **Conservation Policy 1.** Protect water bodies, watersheds and courses from development impacts. **Conservation Policy 2.** Assist residents in developing compatible renewable resources and identifying funding sources. **Conservation Policy 3.** Protect surface water resources from contamination. **Conservation Policy 4.** Support water purveyor in efforts to provide domestic and agricultural water. **Conservation Policy 5.** Conserve water supplies (ground and surface). **Conservation Policy 6.** Conserve riparian vegetation. **Conservation Policy 7.** Conserve wildlife habitat and assist residents in living with wildlife.

Element	1994/2007	2012
		Conservation Policy 8. Conserve oak woodlands. **Conservation Policy 9.** Minimize conflict between agricultural and urban land uses. **Conservation Policy 10.** Control and prevent erosion. **Conservation Policy 11**. Enforce preservation landscape design programs. **Conservation Policy 12.** Protect sensitive plant species and their habitats. **Conservation Policy 13.** Protect rare, threatened, or endangered species. **Conservation Policy 14.** Explore the use of Habitat Conservation Plans and Natural Communities Conservation Programs. **Conservation Policy 15.** Eliminate identified water pollution sources. **Conservation Policy 16.** Improve major sewer, water, and storm drainage systems. **Conservation Policy 17.** Control hazardous materials in areas where water pollution is possible. **Conservation Policy 18.** Implement and maintain flood management facilities. **Conservation Policy 19.** Protect natural resources. **Conservation Policy 20.** Protect and improve air quality through coordinated efforts with other public agencies and jurisdictions. **Conservation Policy 21.** Protect archaeological, historical and paleontological resources **Conservation Action Programs** **Conservation Action 1.** Maintain a contract with a waste hauler to provide services to residences for trash and recycling collection. **Conservation Action 2.** Continue to provide opportunities for the disposal of large household items. **Conservation Action 3.** Require the waste collection purveyor to provide recycling containers to all customers. **Conservation Action 4.** Continue to implement the Collection, Disposal and Recycling program. **Conservation Action 5.** Purchase and use post-consumer and recycled products as much as possible. **Conservation Action 6.** Promote green waste and recycling programs such as "green and clean" which increases the usage of green waste for compost and reduces the amount of green waste exported. **Conservation Action 7.** Continue to partner with the County of Los Angeles on hazardous waste pick-up at least once a year.

Element	1994/2007	2012
		Conservation Action 8. Continue to provide information to community members regarding various options for safe hazardous waste disposal. **Conservation Action 9.** Continue with regular street sweeping. **Conservation Action 10.** Create and maintain renewable energy guidelines for residents **Conservation Action 11.** Plan and schedule implementation for additional TMDL's. **Conservation Action 12.** Plan for measures to control pollutants in surface run off. **Conservation Action 13.** Develop public education and outreach programs with regard to surface runoff, catch basin and storm drainage system maintenance. **Conservation Action 14.** Implement procedures to detect and eliminate illegal discharges and illicit disposal practices. **Conservation Action 15.** Promote, publicize and facilitate public reporting of illegal dumping activities. **Conservation Action 16.** Continue city-wide catch basin stenciling program. **Conservation Action 17.** Provide community residents with information as to how to peacefully coexist with the natural wildlife inhabiting the area. **Conservation Action 18.** Adopt ordinances that require new development to utilize techniques and equipment that reduce consumption of non-renewable resources.
Safety Element	**Objective:** To enable the City to be sensitive to natural and manmade hazards in future decision-making for future planning efforts. **Policy:** Public safety will be the focus of the City's comprehensive emergency preparedness plan which will emphasize wildfire hazards, seismic risk, and a range of other manmade and natural hazards.	**Safety Goals** **Safety Goal 1.** To protect the citizens, their property and public facilities from natural and man-made hazards. **Safety Goal 2.** To establish, maintain, and develop awareness on the part of all residents of Bradbury as to how to react and protect themselves and each other, in the event of a natural or man-made hazard or disaster. **Safety Goal 3.** To achieve a greater sense of citizen satisfaction with the safety services within the community, through constantly monitoring the effective and efficient staffing of safety service personnel. **Safety Goal 4.** To minimize the risk to persons and property due to seismic activity. **Safety Goal 5.** To minimize the risk to lives and property due to fire hazards. **Safety Goal 6.** To minimize the risk to persons and property due to the use and storage of hazardous materials. **Safety Goal 7.** Protect the community from floods and landslides.

Element	1994/2007	2012
		Safety Goal 8. Assure that existing and new development addresses fire protection in a proactive and preventative way. **Safety Objectives** **Safety Objective 1.** Prepare the community for expected or unexpected disasters resulting from natural or manmade causes. **Safety Objective 2.** Prepare the residents of Bradbury to be aware of potential hazards and disasters and to be prepared to be self reliant for at least seven-days in the event of a disaster. **Safety Objective 3.** Communicate with Bradbury residents through all available media, that safety personnel are properly trained to provide assistance in the event of a disaster. **Safety Objective 4.** Implement the City's Hazard's Mitigation Plan in a timely manner. **Safety Objective 5.** Reduce the possibility of hazardous materials becoming a health and safety issue within the community. **Safety Objective 6.** Assure that potential flooding and landslide hazards are reviewed during new development. **Safety Objective 7.** Ensure that adequate service levels of fire protection are maintained in the City. **Safety Policies** **Safety Policy 1.** Support community programs that train volunteers to assist "First Responders" in the implementation of the Hazard Mitigation Plan programs. **Safety Policy 2.** Implement precautionary measures in high risk areas to reduce injury and loss of property caused by natural or manmade hazards. **Safety Policy 3.** Review all development proposals for compliance with established hazard avoidance criteria. **Safety Policy 4.** Provide adequate levels of service to ensure that the residents are protected to the best of the City's ability from natural and manmade disasters. **Safety Policy 5.** Cooperate with Federal, State and County agencies responsible for the enforcement of all health and safety laws and regulations. **Safety Policy 6.** Establish and maintain a variety of media sources to enable interactive safety awareness and preparedness educational opportunities for the residents. **Safety Policy 7.** Obtain materials and support the dissemination of written information to all Bradbury households regarding minimizing or avoiding hazards within the home. **Safety Policy 8.** Provide opportunities to continually advise and update community residents regarding actions and activities they should engage in after a significant natural or manmade disaster.

Element	1994/2007	2012
		Safety Policy 9. Support continuing review and updating of the City's Disaster Preparedness Program manual. **Safety Policy 10.** Work closely with adjacent cities, County, State and Federal agencies to inform, monitor and communicate the presence of wild animals. **Safety Policy 11.** Maintain and evaluate the level of safety services available to the community. **Safety Policy 12.** Regulate development in accordance with State statutes in areas prone to seismic hazards. **Safety Policy 13.** Continue to support "mutual assistance" agreements between local and State fire fighting agencies. **Safety Policy 14.** Continue to support programs to reduce fire hazards within the community. **Safety Policy 15.** Provide appropriate fire-fighting equipment, personnel and peakload water supply. **Safety Policy 16.** Provide access to potable water for emergency purposes. **Safety Policy 17.** Regulate and monitor, to the extent possible, the delivery, use and storage of hazardous materials within the City. **Safety Policy 18.** Require all existing and new development to install and maintain adequate smoke detection systems. **Safety Policy 19.** All new development to install fire sprinkler systems. **Safety Policy 20.** Require that all new development incorporate sufficient measures to mitigate flood and landslide hazards including but not limited to on-site drainage systems and grading of site to minimize storm-water runoff. **Safety Implementation Program** **Safety Action 1.** Assure that the land use element recognizes and addresses seismic threats. **Safety Action 2.** Promote public education about fire safety at home. **Safety Action 3.** Promote public education about disaster preparedness. **Safety Action 4.** Update the hillside development standards which include fire prevention design measures. **Safety Action 5.** Continue to make emergency and disaster preparedness a community priority. **Safety Action 6.** Update and review the Emergency Operation Plan annually. **Safety Action 7.** City staff to continue to work with the LACFD on brush removal and weed

Element	1994/2007	2012
		abatement from April to June. **Safety Action 8.** Conduct public outreach on wildfire prevention awareness. **Safety Action 9.** Promote voluntary efforts of tree trimming and brush and weed abatement. **Safety Action 10.** Maintain and update the multi-hazard emergency plan for the City. **Safety Action 11.** Continue support and participation with the Emergency Response Committee.
Noise Element	**Objective:** To maintain a quiet and noise-free environment in the City. **Policy:** The City will strive to maintain its quiet and noise free environment.	**Noise Goals** **Noise Goal 1.** Reduce noise impacts from transportation sources. **Noise Goal 2.** Develop measures to address non-transportation noise impacts such as those that are generated from surrounding commercial and recreational activities (racetracks, etc.). **Noise Goal 3.** Establish land uses which are compatible with existing noise levels within the community. **Noise Goal 4.** Prevent and mitigate the adverse impacts of noise on City residents. **Noise Objectives** **Noise Objective 1.** Maintain and reduce where feasible background noise levels emanating from citywide transportation sources. **Noise Objective 2.** Identify and mitigate construction activity and other sources of noise that may impact the community. **Noise Objective 3.** Careful consideration of noise impacts should be a part of all land use decisions. **Noise Objective 4.** Maintain the quiet residential character of the City free from excessive noise from mobile and fixed source generators both Citywide and region-wide. **Noise Policies** **Noise Policy 1.** Ensure noise mitigation measures are included in the design of new developments. **Noise Policy 2.** Encourage the State Department of Transportation (Caltrans) to continue programs that lead to the reduction of noise levels on the Interstate I-210 and I-605 freeways. **Noise Policy 3.** Continue the City's street improvement program to help reduce noise levels. **Noise Policy 4.** Encourage the use of acoustical materials in all new residential developments.

Element	1994/2007	2012
		Noise Policy 5. Limit delivery, and truck traffic to designated routes. **Noise Policy 6.** Ensure residential developments are designed and mitigated to achieve a maximum exterior CNEL of 65 dB and a maximum interior CNEL of 45 dB. **Noise Policy 7.** Encourage, support, and enforce all State and Federal legislation designed to abate and control noise pollution. **Noise Policy 8.** Encourage the use of rubberized asphalt for resurfacing streets. **Noise Policy 9.** Continuously review the Noise Ordinance to ensure noise- generating uses are adequately addressed. **Noise Policy 10.** Strive to resolve existing and potential conflicts between noise-generating uses and human activities. **Noise Policy 11.** Prohibit significant noise-generating activities on land located near sensitive noise receptors. **Noise Policy 12.** Evaluate the noise impacts generated by existing and future projects located in surrounding communities that impact or may impact the Bradbury ambient noise level. **Noise Policy 13.** Enforce limits set by the State to control noise levels, particularly those governing motor vehicles. **Noise Policy 14.** Ensure that construction noise does not cause an adverse impact to the residents of the City. **Noise Implementation Action Program** **Noise Action 1:** Review current policies regarding the use of gas-powered maintenance equipment and consider restricting the type of equipment used and duration of operation. **Noise Action 2:** The City will continue to enforce the noise ordinance to protect residents from undue disturbance.
Open Space Element	**Objective:** To maintain the rural character of the community and to maximize the remaining open space resources. **Policy:** The preservation of the existing natural open space resources in the community will be emphasized, where appropriate, through the implementation of the General Plan.	**Open-Space Goals:** **Open-Space Goal No.** 1: Protect and enhance Bradbury's Open-Space. **Open-Space Goal No. 2:** To develop sufficient open-space and park acreage to meet the needs of the community residents. **Open-Space Goal No. 3:** To provide open-space and recreational opportunities to the greatest extent possible. **Open-Space Objectives:** **Open-Space Objective No. 1.** Make open-space resources available to existing and future

Element	1994/2007	2012
		residents. **Open-Space Objective No. 2.** Make open-space resources accessible without the need to use motorized transportation. **Open-Space Policies:** **Open-Space Policy No. 1.** Protect and preserve oak woodlands and mandate replacement planting of native oaks where oak woodlands are proposed for alteration. **Open-Space Policy No. 2.** Protect water quality. **Open-Space Policy No. 3.** Mandatory replacement planting of native trees and oaks. **Open-Space Policy No. 4.** Protect existing Blueline Streams. **Open-Space Policy No. 5.** Prevention of soil erosion. **Open-Space Policy No. 6.** Preservation of historically or culturally significant sites. **Open-Space Policy No. 7.** Protect wildlife and their habitats, including rare and endangered species. **Open-Space Policy No. 8.** Explore the use of transferring development rights to create and preserve open-space. **Open-Space Policy No. 9.** Promote development and management of public and private parks, trails and recreational areas. **Open-Space Policy No. 10.** Protect areas of outstanding scenic beauty. **Open Space Action Programs** **Open-Space Action No. 1.** Protect water quality **Open-Space Action No. 2.** Avoid drainage run-off where possible **Open-Space Action No. 3.** Promote landscaping efforts that comply with State water efficient standards, fire department standards, and protection of plant and wildlife communities. **Open-Space Action No. 4.** Prevent soil erosion. **Open-Space Action No. 5.** Promote agricultural uses by the use of large-lot zones and overlay zones for hazard areas. **Open-Space Action No. 6.** Promote public acquisition of open-space land by non-profit land trusts or conservation organizations. **Open-Space Action No. 7.** Use Specific Plans to set aside open-space areas as part of development proposals.

Element	1994/2007	2012
		Open-Space Action No. 8. Explore the use of transferring development rights to create and preserve open-space **Open-Space Action No. 9.** Explore grant financing opportunities to acquire and development pedestrian and equestrian trails.
Climate Action Plan	Not Included	The 2012-2030 General Plan Update includes the Climate Action Plan adopted previously by the City Council.