

***SILVER ROSE RESORT PROJECT AIR
QUALITY AND GREENHOUSE GAS
ASSESSMENT
CALISTOGA, CA***

February 13, 2012



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Introduction

The purpose of this report is to address air quality impacts and greenhouse gas emissions associated with the proposed Silver Rose winery and resort project. The project site is approximately 22.5 acres and located within the City of Calistoga. Currently, the project site includes a 20-room hotel, a 5,000 case winery, approximately 7.8 acre vineyard, a private residence and an on-site manager residential unit. The property was entitled for new resort development in 2007 as the “Terrano” project, but that has not been constructed. We understand that this proposed project would consist of approximately 85 hotel rooms and approximately 21 residences. In addition to the hotel and residences, there will be an operating winery, including tasting room, crush pad, production facility, wine cave with barrel storage, and approximately 6 acres of vineyard. Adjacent to the winery will be a small deli, with limited retail and a gathering place for the residences. The hotel will include a restaurant and bar, spa and fitness, several pools, multiple meeting facilities, private dining rooms, and typical back of house infrastructure.

This report evaluates potential air quality and greenhouse gas (GHG) impacts for compliance with the California Environmental Quality Act. Modeling of project air pollutant and GHG emissions was conducted and is provided in this report. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD)¹.

Air Quality

Setting

The project is located in the northern portion of Napa County, which is near the very northern edge of the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}).

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area’s attempts to reduce ozone levels. Highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM₁₀) and fine particulate matter where particles have a diameter of 2.5 micrometers or less (PM_{2.5}). Elevated concentrations of PM₁₀ and PM_{2.5} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

The Bay Area Air Quality Management District (BAAQMD) is the regional agency tasked with managing air quality in the region. At the State level, the California Air Resources Board (a part of the California Environmental Protection Agency) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has recently published CEQA Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects².

¹ BAAQMD 2010. BAAQMD CEQA Air Quality Guidelines. June.

² Bay Area Air Quality Management District. 2010. BAAQMD CEQA Air Quality Guidelines. June.

Project Impacts

Impact 1: Conflict with or obstruct implementation of the applicable air quality plan? *No Impact*

The most recent clean air plan is the *Bay Area 2010 Clean Air Plan* that was adopted by BAAQMD in September 2010. The proposed project would not conflict with the latest Clean Air planning efforts since (1) the project would have emissions well below the BAAQMD thresholds (see Impact 2 and 3), (2) this development is an expansion of a land use that is currently used for the same purposes as the proposed project, and (3) the project is too small to incorporate project-specific transportation control measures listed in the latest Clean Air Plan (i.e., *Bay Area 2010 Clean Air Plan*)

Impact 2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? *Less than significant*

The Bay Area is considered a non-attainment area for ground-level ozone and fine particulate matter (PM_{2.5}) under both the federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for respirable particulates or particulate matter with a diameter of less than 10 micrometers (PM₁₀) under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM₁₀, the BAAQMD has established thresholds of significance for air pollutants. These thresholds are for ozone precursor pollutants (ROG and NO_x), PM₁₀ and PM_{2.5} and apply to both construction period and operational period impacts.

Construction period and operational emissions were computed using the URBEMIS2007 model. This model is recommended by the BAAQMD CEQA Guidelines for use in computing average daily emissions from construction activities and long-term project operation. The UREMIS2007 model predicts emissions based on the project type, size, location, and specific information input by the user (e.g., vehicle trip generation).

Construction Emissions

The project size, type and acreage were input to the URBEMIS2007 model. Specific construction inputs, such as phase scheduling and equipment usage were based on model defaults for the input project size and type. The highest daily emissions would occur during grading. Emissions during other phases would generally be lower. The exception would be ROG emissions during application of architectural coatings. The ROG architectural coating emissions produced by the model were reduced by 40 percent to reflect current BAAQMD regulations and rules (Regulation 8, Rule 3 – *Architectural Coatings*) that limit the content of volatile organic compounds in paints. Maximum average daily emissions modeled are reported in Table 1.

Table 1 Daily Construction Emissions

Range of Daily Construction Emissions				
Description	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_x)	Respirable Particulate Matter (PM₁₀)	Fine particulate matter (PM_{2.5})
Project Construction	5 to 15 pounds	15 to 31 pounds	1 to 2 pounds	1 to 2 pounds
<i>BAAQMD Significance Thresholds</i>	<i>54 pounds</i>	<i>54 pounds</i>	<i>82 pounds</i>	<i>54 pounds</i>
<i>Significant?</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>

Operational Emissions

Operational emissions were also modeled using the URBEMIS2007 model, based on the type and sizes of the project land uses. The project was assumed to be fully operational in 2014. Modeled summer average daily emissions modeled are reported in Table 2. The emissions reported do not include any adjustment for operation of the existing land uses at the project site. As a result, the net increase in emissions from the proposed project would be less than those reported in Table 2. URBEMIS2007 model output for both construction and operational emissions are shown in Attachment 1.

Trip generation rates were produced by W-Trans for proposed project conditions were input to the URBEMIS2007 model. The W-Trans trip generation rates include internal capture which are trips made from one use to another that do not involve a vehicle trip. W-Trans also developed daily trip generation rates for the winery. The methodology for developing the trip rates is described in the W-Trans report³. Trip generation represents the number of daily trips generated when the land use is fully operational. The adjusted trip rates were entered into the URBEMIS2007 model, such that the URBEMIS2007 model computed the same total number of trips generated as the W-Trans study (the URBEMIS2007 model output is included in Attachment 1).

Table 2 Average Daily Operational Emissions

Daily Operational Emissions				
Description	Reactive Organic Gases (ROG)	Nitrogen Oxides (NOx)	Respirable Particulate Matter (PM₁₀)	Fine particulate matter (PM_{2.5})
Area and Operational	10.3 pounds	10.4 pounds	18.5 pounds	3.6 pounds
<i>BAAQMD Significance Thresholds</i>	<i>54 pounds</i>	<i>54 pounds</i>	<i>82 pounds</i>	<i>54 pounds</i>
<i>Significant?</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>	<i>NO</i>

Impact 3: Violate any air quality standard or contribute substantially to an existing or projected air quality violation? ***Less than significant***

As discussed under Impact 2, the project would have emissions less than the significance thresholds adopted by BAAQMD for evaluating impacts to ozone and particulate matter. Therefore, the project would not contribute substantially to existing or projected violations of those standards. Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. There is an ambient air quality monitoring station in Napa that measures carbon monoxide concentrations. The highest measured level over any 8-hour averaging period during the last 3 years is less than 2 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm. The project would generate a small amount of traffic (less than 100 trips per busiest hour), so the contribution of project-generated traffic to these levels would be minimal and the project would not cause or contribute to a violation of an ambient air quality standard.

³ W-Trans letter to Dan Takasugi, PE (Public Works Director, City of Calistoga), September 27, 2011. *Subject: Focused Traffic Impact Analysis for the Silver Rose Winery and Resort Project.* Note that Omni-Means subsequently analyzed these data to develop annualized trip generation rates for computing annual GHG emissions.

Impact 4: Expose sensitive receptors to substantial pollutant concentrations? *Less than significant with construction period mitigation measures*

Operation of the project is not expected to cause any localized emissions that could expose sensitive receptors to unhealthy air pollutant levels. Construction activity would generate dust and equipment exhausts on a temporary basis. Nearby sources of air pollutant emissions are not anticipated to adversely affect new residents, which are considered sensitive receptors. The closest sensitive receptors are about 180 feet from the edge of the project construction areas.

Construction Activity

Construction activity is anticipated to include some grading and trenching, building construction and painting. Because the site is generally developed, major grading activity that requires extensive use of heavy equipment is not anticipated. During construction activities, dust would be generated. Most of the dust would result during grading activities. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions and meteorological conditions. Typical winds during late spring through summer are generally from the south. Nearby land uses, especially those residences located immediately to the north could be adversely affected by dust generated during construction activities. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are employed to reduce these emissions.

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known Toxic Air Contaminant (i.e., TAC). As indicated under Impact 2 and 3, these emissions would not be considered to contribute substantially to existing or projected air quality violations. Emissions from TACs are typically evaluated through health risk assessments over the course of lifetime exposures (i.e., 24 hours per day over 70 years). Diesel exhaust poses both a health and nuisance impact to nearby receptors. Construction emissions from heavy equipment usage near the northern and eastern boundaries could affect nearby residences. Most of the construction involving use of heavy equipment (i.e., site grading) would occur within a 6-month period. These construction activities are expected to occur during a relatively short time, and therefore, the impacts are considered to be less than significant if reasonable available control measures are applied. Although construction activities would be temporary, they would have the potential to cause both nuisance and health air quality impacts. PM_{10} is the pollutant of greatest concern associated with dust. If uncontrolled, PM_{10} levels downwind of actively disturbed areas could possibly exceed State ambient air quality standards. In addition, dust fall on adjacent properties could be a nuisance. If uncontrolled, dust generated ground clearing, grading and construction activities represents a potentially significant impact.

Mitigation Measure 1: Include measures to control dust emissions.

Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant. The contractor shall implement the following Best Management Practices that are required of all projects:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Where possible, avoid staging construction equipment adjacent to existing residences or sensitive receptors.
9. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
10. The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).
11. As possible, avoid staging construction equipment adjacent to existing residences.

Impact 5: Create objectionable odors affecting a substantial number of people? *Less than significant*

The project would generate localized emissions of diesel exhaust during equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and is not likely to adversely affect people off site in that they would result in confirmed odor complaints. The project is not expected to produce odors that would cause odor complaints. The project site is not affected by existing odor sources that would cause odor complaints from new residents. This would be a *less-than-significant* impact.

GHGs and Global Warming

Global temperatures are affected by naturally occurring and anthropogenic-generated (generated by mankind) atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide⁴. Gases that trap heat in the atmosphere are called greenhouse gases (GHG). Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed at the surface. The earth emits this radiation back toward space as infrared radiation. Greenhouse gases, which are mostly transparent to incoming solar radiation, are effective in absorbing infrared radiation and redirecting some of this back to the earth's surface. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This is known as the greenhouse effect. The greenhouse effect maintains a habitable climate. Natural processes and human activities emit GHGs. Emissions from human activities, such as electricity production, motor vehicle use and agriculture are

⁴ IPCC, 2007: Summary for Policymakers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate

elevating the concentration of GHGs in the atmosphere, and are reported to have led to a trend of unnatural warming of the earth's natural climate, known as global warming or climate change. Other than water vapor, the GHGs contributing to global warming include the following gases:

- Carbon dioxide, primarily a byproduct of fuel combustion.
- Nitrous oxide is a byproduct of fuel combustion and also associated with agricultural operations such as fertilization of crops.
- Methane is commonly created by off-gassing from agricultural practices (e.g. keeping livestock) and landfill operations.
- Chlorofluorocarbons that were widely used as refrigerants, propellants and cleaning solvents but their production has been mostly reduced by international treaty.
- Hydrofluorocarbons are now used as a substitute for chlorofluorocarbons in refrigeration and cooling.
- Perfluorocarbons and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semiconductor manufacturing.

Gases in the atmosphere can contribute to the greenhouse effect both directly and indirectly. Direct effects occur when the gas itself absorbs outgoing radiation. Indirect effects occur when gases cause chemical reactions that produce other GHGs or prolong the existence of other GHGs. The Global Warming Potential (GWP) concept is used to compare the ability of each GHG to trap heat in the atmosphere relative to carbon dioxide (CO₂), which is the most abundant GHG. CO₂ has a GWP of 1, expressed as CO₂e. Other GHGs, such as methane and nitrous oxide are commonly found in the atmosphere but at much lower concentrations. However, the GWP for methane is 21, while nitrous oxide has a GWP of 310. Other trace gases, such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), which are halocarbons that contain chlorine, have much greater GWPs. Fortunately these gases are found at much lower concentrations and many are being phased out as a result of global efforts to reduce destruction of stratospheric ozone. In the United States, CO₂ emissions account for about 85 percent of the CO₂e emissions, followed by methane at about eight percent and nitrous oxide at about five percent. For consistency purposes, emissions are typically reported as metric tons of CO₂e on an annual basis. Note that one metric ton is equivalent to 1.1 U.S. tons.

Thresholds of Significance

Appendix G of the CEQA Guidelines (Environmental Checklist) contains a list of air quality effects that may be considered significant. The proposed project would have a significant effect on the environment if it were to:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The BAAQMD recently adopted thresholds for evaluating GHG emissions from projects and plans and developed guidelines for assessing these impacts^{5,6}. The thresholds include a bright line emissions threshold of 1,100 metric tons of CO₂ equivalent (i.e., CO₂e) per year or an emission efficiency metric of 4.6 tons of CO₂e per year per service population if the bright-line threshold is exceeded. Service population is the sum of new residents and full time workers.

Impact 5: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? *Less-than-significant.*

⁵ BAAQMD 2010. BAAQMD CEQA Thresholds of Significance. June.

⁶ BAAQMD. 2010. California Environmental Quality Act Air Quality Guidelines. May.

GHG Emissions Analysis Methodology

Greenhouse gas emissions associated with the development of the proposed project were computed. The BAAQMD CEQA Air Quality Guidelines provide guidance for calculating project emissions⁷. This includes the computation of emissions from traffic (mobile sources), area sources, electricity and natural gas consumption, and water usage are recommended by BAAQMD. In addition, potential emissions from solid waste generation were computed. These emissions were first computed using the URBEMIS2007 model, as recommended by BAAQMD and CAPCOA. BAAQMD developed the BAAQMD Greenhouse Gas Model (BGM) that post processes the URBEMIS2007 output to provide CO₂ equivalent (or CO₂e) emissions for projects.

URBEMIS2007 Model

URBEMIS2007 is a computer model originally developed by the California Air Resources Board (CARB) to estimate air pollutant emissions from land use developments⁸. The model predicts emissions for construction activities, area sources, and traffic associated with the project. The model uses the latest statewide emission inventory models for mobile sources (i.e., EMFAC2007) and construction equipment (i.e., OFFROAD2007). The model is periodically updated to reflect most recent emissions estimates for source types and incorporate accuracies in estimating emission from land use activities. The latest version of this model (i.e., Version 9.2.4) was used in this analysis.

BAAQMD Greenhouse Gas Model (BGM)

BGM is used with the URBEMIS2007 modeling file to provide operational GHG emissions estimates. BGM is an Excel workbook tool that uses the URBEMIS2007 file to provide GHG emissions in the form of equivalent CO₂ emissions (i.e., CO₂e) in metric tons per year. BGM provides emissions for transportation, area sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and solid waste land filling and transport. BGM applies effects of Pavley Rule and the Low Carbon Fuel Standard on motor vehicle emissions, which will result in lower future vehicle emission rates.

Construction Period Emissions

The BAAQMD does not have an adopted Threshold of Significance for construction-related GHG emissions. The District recommends calculating the emissions and disclosure that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. Best management practices assumed to be incorporated into construction of the proposed project include, but are not limited to: using local building materials of at least 10 percent and recycling or reusing at least 50 percent of construction waste or demolition materials.

The URBEMIS2007 modeling conducted for the air quality analysis provided the estimate of construction GHG emissions in the form of CO₂. Emissions associated with construction were assumed to all occur over two years, beginning in 2012 and continuing through 2013. Under this scenario, construction of the project would emit 202 to 340 metric tons of CO₂ annually. This would be the emissions from construction equipment, truck traffic and associated construction worker traffic. It does not include indirect emissions associated with the manufacturing and transport of building materials.

⁷ California Air Pollution Control Officers Association, 2008, *CEQA & Climate Change*, January.

⁸ The model has been updated through funding provided mostly by Air Districts, with URBEMIS2007 being the most recent update.

These emissions, of up to 340 metric tons of CO₂ annually, were conservatively compared to the BAAQMD operational threshold of 1,100 annual metric tons and determined to be a *less-than-significant impact* for the construction period.

Project Operation Period Greenhouse Gas Emissions

Net new project GHG emissions were computed and take into account emissions associated with the current use of the project site. The project site currently consists of a 20-room hotel that includes a small health club, two single family homes and a 5,000-case winery. To evaluate the future operational emissions of the proposed project, existing and proposed project emissions were computed. The net difference in emissions is considered the project impact. The following land uses were modeled:

Existing Uses

Hotel -20 rooms (including meeting rooms)

Health Club (1,230 square feet)

Single family homes – 2 dwelling units (one SFH and 1 on-site manager residential unit)

Winery – 5,000 cases

Proposed Uses

Hotel – 85 rooms (including meeting rooms)

Health Club (9,500 square feet)

Single family homes – 21 dwelling units

Restaurant (150 seats)

Winery – 10,000 cases

GHG emissions were computed for 2020 in order to evaluate emissions against the BAAQMD significance thresholds that are meant to be consistent with AB32 GHG emission targets. The AB32 Scoping Plan identifies 2020 as the target date to reduce statewide emissions to 1990 levels. BAAQMD developed their CEQA thresholds to be consistent with this target year. The land use types, sizes and vehicle trip generation rates were input to the URBEMIS2007 model. A majority of the emissions from this type of project are associated with motor vehicle usage.

Trip generation rates produced by W-Trans and analyzed by Omni-Means Engineers and Planners for existing and proposed project conditions were input to the URBEMIS2007 model^{9,10}. The W-Trans trip generation rates include internal capture which are trips made from one use to another that do not involve a vehicle trip. W-Trans also developed daily trip generation rates for the winery. The methodology for developing the trip rates is described in the W-Trans report. Trip generation represents the daily number of daily trips generated when the land use is fully operational. Omni-Means used these data to generate annual trip generation forecasts that were entered into the URBEMIS2007 model; such that the

⁹ W-Trans letter to Dan Takasugi, PE (Public Works Director, City of Calistoga), September 27, 2011. *Subject: Focused Traffic Impact Analysis for the Silver Rose Winery and Resort Project.*

¹⁰ Omni-Means letter to Geoff Heber (Silver Rose), December 8, 2011. *Subject: Focused Annualized Trip Generation Analysis for the Silver Rose Resort in the City of Calistoga.*

URBEMIS2007 model computed the same total number of trips generated as the traffic studies (the URBEMIS2007 model output is included in Attachment 2).

The URBEMIS2007 modeling file for the year 2020 was used in the BGM model. The BGM model provides annual emissions of carbon dioxide equivalent or CO₂e in term of metric tons per year for each scenario modeled. Adjustments were made either in the BGM model or to the model output. These include:

- Emissions associated with electricity consumption output by BGM were adjusted to account for Pacific Gas & Electric utility's (PG&E) lower emission rate. BGM uses a statewide rate of 805 pounds of CO₂ per megawatt of electricity produced, while the rate for PG&E is much lower¹¹. The PG&E rate was also adjusted to account for increased use of renewable sources using the California Public Utilities GHG Calculator. The current renewable portfolio of 13 percent was assumed to increase in the future¹². The derived 2014 rate for PG&E was estimated at 412 pounds of CO₂ per megawatt of electricity delivered. This rate is anticipated to decrease to 290 pounds of CO₂ per megawatt of electricity produced in 2020.
- Emissions from energy usage by the new buildings were assumed to be at least 15 percent lower than emissions that would occur under model default conditions (i.e., pre-2005 Title 24 requirements). This is a conservative adjustment since the project would rely on geothermal heating of water that would provide space and water heating. The exact affect on project energy efficiency is not known, but is expected to exceed a 15-percent reduction in natural gas consumption.
- A waste diversion rate of at least 50% was assumed, since the project would be served by a waste hauler that has mandatory recycling and waste diversion programs.

The BGM model outputs are contained in Attachment 2. GHG emissions are reported on an annual basis. The models used produce annual emissions that assume full occupancy of the land uses every day of the year. Hotel uses are not completely occupied during the entire year, so that annual emissions are less than the daily emissions annualized. As previously described, annual occupancy data (or annual usage of the project) were incorporated into the forecasted traffic data by Omni-Means. Trip generation rates adjusted for annual occupancy were input to the URBEMIS2007 model and subsequently used in BGM.

Annual emissions generated by the BGM model and adjusted for PG&E electricity emissions rates and annual occupancy is presented in Table 3. The emissions generated by the project are those that would be emitted by the full build-out of the project minus the emissions from the existing uses that would be anticipated to continue operating if the proposed project was not developed. In addition, emissions associated with the approved restaurant are provided. However, the approved restaurant emissions are not considered when evaluating the projects impacts with respect to GHG emissions.

Currently, the project site generates 438 metric tons of CO₂e per year. In 2014, annual emissions resulting from the proposed project would be 1,427 metric tons of CO₂e. These emissions include 186 metric tons emitted from the transport and land filling of solid waste (note that BAAQMD did not include solid waste related-emissions when developing the significance thresholds for GHG). When accounting for existing emissions, the project would increase annual GHG emissions by 989 metric tons per in 2014. Under the no-project condition, where the existing site operations continue into the future, emissions would be 361 metric tons of CO₂e annually in 2020. The proposed project would have annual emissions

¹¹ PG&E publishes a projected CO₂ emission rate for electricity generated in 2014 of 412 pounds per megawatt based on their historical certified rate for 2005 to 2009 and the CPUC GHG calculator (see Attachment 2).

¹² 2010. BAAQMD. CEQA Guidelines Update – Thresholds of Significance. June. Page 19 discusses the effect of the renewable portfolio Standard (rules) on PG&E's portfolio.

of 1,241 metric tons in 2020. The net increase caused by the proposed project would be 880 metric tons of CO₂e per year in 2020. This increase in emissions caused by the proposed project would not exceed the BAAQMD threshold of 1,100 MT of CO₂e/yr. Therefore, the project's GHG emissions would *not* be considered to have a cumulatively considerable contribution to a significant impact and would be considered *less-than-significant*.

Table 3 Average Annual Operational GHG Emissions

Scenario Analyzed	Annual CO₂e Emissions in metric tons
Existing Conditions in 2011	438
Construction in 2012	202
Construction in 2013	340
Proposed Project in 2014	1,427
Net Increase (Project Impact)	989
Existing Conditions operating in 2020	361
Proposed Project operating in 2020	1,241
Net increase in 2020	880
<i>BAAQMD Threshold</i>	<i>1,100</i>

Impact: **Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?** *No Impact.*

The project would be subject to new requirements under rule making developed at the State and local level regarding greenhouse gas emissions and would be subject to local policies that may affect emissions of greenhouse gases.

ATTACHMENT 1 URBEMIS2007 AIR POLLUTANT MODELING

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\I&R Docs\2011\11-171 Silver Rose Calistoga GHG Study\Silver Rose\Proposed2014.urb924

Project Name: Silver Rose Proposed 2014

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2012 TOTALS (lbs/day unmitigated)	4.63	30.60	56.00	2.01	57.08	11.70	1.85	12.69
2013 TOTALS (lbs/day unmitigated)	21.85	15.81	0.06	1.01	1.06	0.02	0.92	0.94
2014 TOTALS (lbs/day unmitigated)	21.57	14.68	0.06	0.90	0.95	0.02	0.82	0.84

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
TOTALS (lbs/day, unmitigated)	2.75	1.96	0.03	0.03

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
TOTALS (lbs/day, unmitigated)	7.52	8.42	18.47	3.52

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
TOTALS (lbs/day, unmitigated)	10.27	10.38	18.50	3.55

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>PM10</u>	<u>PM2.5</u>
Natural Gas	0.14	1.87	0.00	0.00
Hearth - No Summer Emissions				
Landscape	0.69	0.09	0.03	0.03
Consumer Products	1.17			
Architectural Coatings	0.75			
TOTALS (lbs/day, unmitigated)	2.75	1.96	0.03	0.03

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>PM10</u>	<u>PM25</u>
Single family housing	1.38	1.53	3.37	0.64
Racquetball/health	0.77	0.92	2.01	0.38
Quality resturant	0.98	1.26	2.76	0.53
Hotel	3.83	4.17	9.14	1.74
General light industry	0.56	0.54	1.19	0.23
TOTALS (lbs/day, unmitigated)	7.52	8.42	18.47	3.52

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	8.00	9.57	dwelling units	24.00	229.68	1,963.70
Racquetball/health		16.50	1000 sq ft	9.50	156.75	1,168.96
Quality resturant		62.94	1000 sq ft	3.40	214.00	1,609.68
Hotel		8.92	rooms	80.00	713.60	5,321.67
General light industry		4.97	1000 sq ft	16.50	82.00	690.89
					1,396.03	10,754.90

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.4	99.4	0.2
Light Truck < 3750 lbs	12.7	0.8	96.8	2.4
Light Truck 3751-5750 lbs	19.9	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Racquetball/health	5.0	2.5	92.5
Quality resturant	8.0	4.0	88.0
Hotel	5.0	2.5	92.5
General light industry	50.0	25.0	25.0

ATTACHMENT 2 GHG MODELING

- **Summary Emissions Table**
- **BGM Results Output**
- **URBEMIS2007 MODEL**
- **PG&E Emission Rates**
- **Omni-Means Trip Generation**

Project Name: Silver Rose Winery Development
Project Years: 2014 and 2020
Emissions of CO2e in Metric Tons Per Year

Source Category	BGM Unmitigated Emissions	Emissions with Project and City Conditions	Emissions Converted for PG&E rates adjusted for RPS
Existing Conditions Projected to 2011			
Transportation:	277	277	277
Area Source:	2	2	2
Electricity:	62	62	43
Natural Gas:	32	32	32
Water & Wastewater:	1	1	1
Solid Waste:	83	83	83
			438
Proposed Project in 2014			
Transportation:	987	987	987
Area Source:	12	12	12
Electricity:	323	258	132
Natural Gas:	132	106	106
Water & Wastewater:	7	7	4
Solid Waste:	372	186	186
			1427
Existing Conditions Projected to 2020			
Transportation:	222	222	222
Area Source:	2	2	2
Electricity:	62	62	22
Natural Gas:	32	32	32
Water & Wastewater:	1	1	1
Solid Waste:	83	83	83
			361
Proposed Project in 2020			
Transportation:	840	840	840
Area Source:	12	12	12
Electricity:	323	258	93
Natural Gas:	132	106	106
Water & Wastewater:	7	7	5
Solid Waste:	372	186	186
			1241

Project Impact (i.e., Proposed Project - Existing)	
in 2014	989
in 2020	880

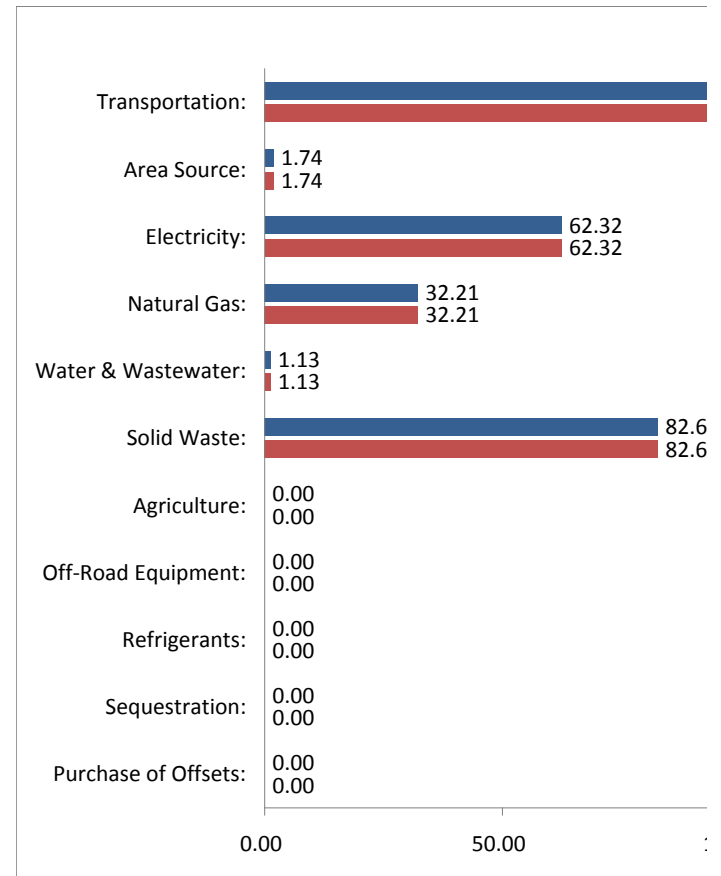
Construction Emissions from URBEMIS	US tons/year	Metric tons/year
2012	223	202
2013	375	340

- Model Adjustments:
- 1) Used URBEMIS2007 with Omni-Means Traffic Study trip generation
 - 2) Used PG&E emission rates for 2011 (Existing), 2014 and 2020
 - 3) Assumed 20% reduction in energy usage due to new building codes and LEED commitment
 - 4) Assumed 50% less natural gas usage for hotel and amenities due to geothermal sources
 - 5) Assumed 50% waste diversion through recycling programs

Summary Results

Project Name: Silver Rose Existing in 2011 adjusted to Omni-Means Traffic
 Project and Baseline Years: 2011 N/A

Results	Unmitigated Project-Baseline CO2e (metric tons/year)	Mitigated Project-Baseline CO2e (metric tons/year)
Transportation:	277.09	277.09
Area Source:	1.74	1.74
Electricity:	62.32	62.32
Natural Gas:	32.21	32.21
Water & Wastewater:	1.13	1.13
Solid Waste:	82.67	82.67
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	457.15	457.15



Baseline is currently: **OFF**

Baseline Project Name:

Go to Settings Tab to Turn On Baseline

Detailed Results

Unmitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				277.09	60.61%
Area Source:	1.66	0.00	0.00	1.74	0.38%
Electricity:	62.22	0.00	0.00	62.32	13.63%
Natural Gas:	32.12	0.00	0.00	32.21	7.04%
Water & Wastewater:	1.13	0.00	0.00	1.13	0.25%
Solid Waste:	0.60	3.91	N/A	82.67	18.08%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				457.15	100.00%

* Several adjustments were made to transportation emissions after they have been imported from URBEMIS.

After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley" regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs (CH4, N2O, and HFCs [from leaking air conditioning]). Finally, CO2e is adjusted to account for the low carbon fuels rule.

Mitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				277.09	60.61%
Area Source:	1.66	0.00	0.00	1.74	0.38%
Electricity:	62.22	0.00	0.00	62.32	13.63%
Natural Gas:	32.12	0.00	0.00	32.21	7.04%
Water & Wastewater:	1.13	0.00	0.00	1.13	0.25%
Solid Waste:	0.60	3.91	N/A	82.67	18.08%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total:				457.15	100.00%

Mitigation Measures Selected:

Transportation: Go to the following tab: [Transp. Detail Mit](#) for a list of the transportation mitigation measures selected (in URBE

Electricity: The following mitigation measure(s) have been selected to reduce electricity emissions.

Natural Gas: The following mitigation measure(s) have been selected to reduce natural gas emissions.

Water and Wastewater: The following mitigation measure(s) have been selected to reduce water and wastewater emissions.

Solid Waste: The following mitigation measure has been selected to reduce solid waste related GHG emissions.

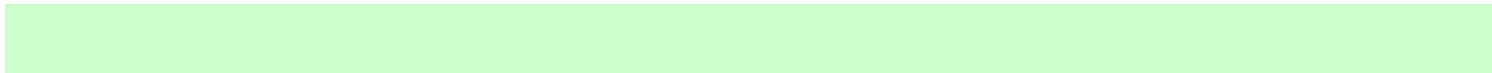
Ag: No existing mitigation measures available.

Off-Road Equipment: No existing mitigation measures available.

Refrigerants: The following mitigation measure has been selected to reduce refrigerant emissions:

Carbon Sequestration: Project does not include carbon sequestration through tree planting.

Emission Offsets/Credits: Project does not include purchase of emission offsets/credits.



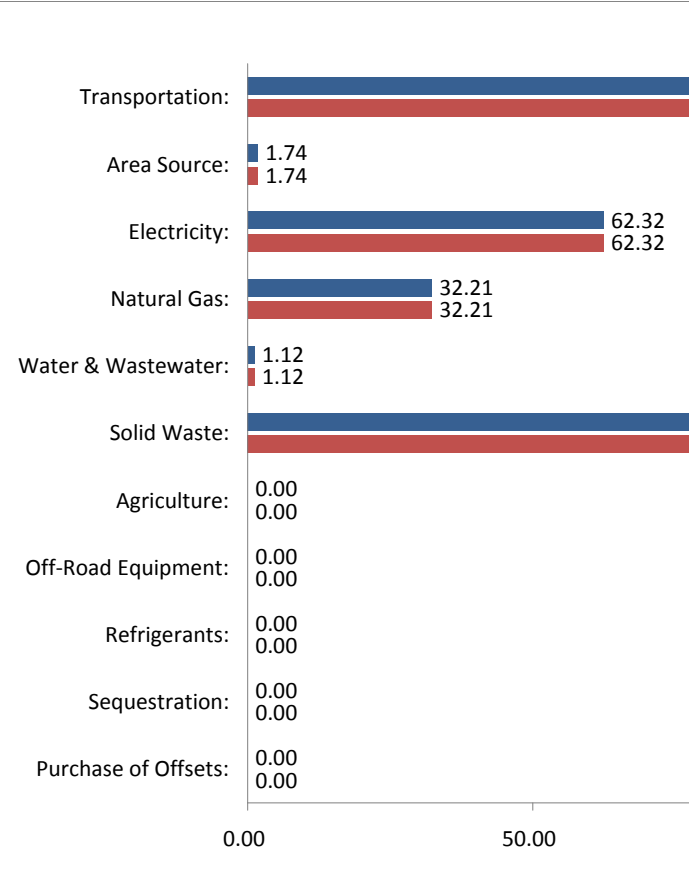
Baseline	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				0.00	N/A
Area Source:	0.00	0.00	0.00	0.00	N/A
Electricity:	0.00	0.00	0.00	0.00	N/A
Natural Gas:	0.00	0.00	0.00	0.00	N/A
Water & Wastewater:	0.00	0.00	0.00	0.00	N/A
Solid Waste:	0.00	0.00	N/A	0.00	N/A
Agriculture:	0.00	0.00	0.00	0.00	N/A
Off-Road Equipment:	0.00	0.00	0.00	0.00	N/A
Refrigerants:	N/A	N/A	N/A	0.00	N/A
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				0.00	0.00%

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Summary Results

Project Name: Silver Rose Existing in 2020 adjusted to Omni-Means Traffic
 Project and Baseline Years: 2020 N/A

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	221.57	221.57
Area Source:	1.74	1.74
Electricity:	62.32	62.32
Natural Gas:	32.21	32.21
Water & Wastewater:	1.12	1.12
Solid Waste:	82.64	82.64
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	401.58	401.58



Baseline is currently: **OFF**
 Baseline Project Name:
 Go to Settings Tab to Turn On Baseline

Detailed Results

Unmitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				221.57	55.17%
Area Source:	1.66	0.00	0.00	1.74	0.43%
Electricity:	62.22	0.00	0.00	62.32	15.52%
Natural Gas:	32.12	0.00	0.00	32.21	8.02%
Water & Wastewater:	1.12	0.00	0.00	1.12	0.28%
Solid Waste:	0.57	3.91	N/A	82.64	20.58%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				401.58	100.00%

* Several adjustments were made to transportation emissions after they have been imported from URBEMIS.

After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley" regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs (CH4, N2O, and HFCs [from leaking air conditioning]). Finally, CO2e is adjusted to account for the low carbon fuels rule.

Mitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				221.57	55.17%
Area Source:	1.66	0.00	0.00	1.74	0.43%
Electricity:	62.22	0.00	0.00	62.32	15.52%
Natural Gas:	32.12	0.00	0.00	32.21	8.02%
Water & Wastewater:	1.12	0.00	0.00	1.12	0.28%
Solid Waste:	0.57	3.91	N/A	82.64	20.58%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total:				401.58	100.00%

Mitigation Measures Selected:

Transportation: Go to the following tab: [Transp. Detail Mit](#) for a list of the transportation mitigation measures selected (in URBE

Electricity: The following mitigation measure(s) have been selected to reduce electricity emissions.

Natural Gas: The following mitigation measure(s) have been selected to reduce natural gas emissions.

Water and Wastewater: The following mitigation measure(s) have been selected to reduce water and wastewater emissions.

Solid Waste: The following mitigation measure has been selected to reduce solid waste related GHG emissions.

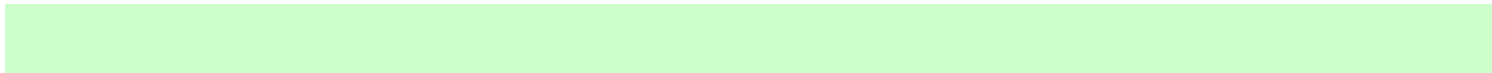
Ag: No existing mitigation measures available.

Off-Road Equipment: No existing mitigation measures available.

Refrigerants: The following mitigation measure has been selected to reduce refrigerant emissions:

Carbon Sequestration: Project does not include carbon sequestration through tree planting.

Emission Offsets/Credits: Project does not include purchase of emission offsets/credits.



Baseline	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				0.00	N/A
Area Source:	0.00	0.00	0.00	0.00	N/A
Electricity:	0.00	0.00	0.00	0.00	N/A
Natural Gas:	0.00	0.00	0.00	0.00	N/A
Water & Wastewater:	0.00	0.00	0.00	0.00	N/A
Solid Waste:	0.00	0.00	N/A	0.00	N/A
Agriculture:	0.00	0.00	0.00	0.00	N/A
Off-Road Equipment:	0.00	0.00	0.00	0.00	N/A
Refrigerants:	N/A	N/A	N/A	0.00	N/A
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				0.00	0.00%

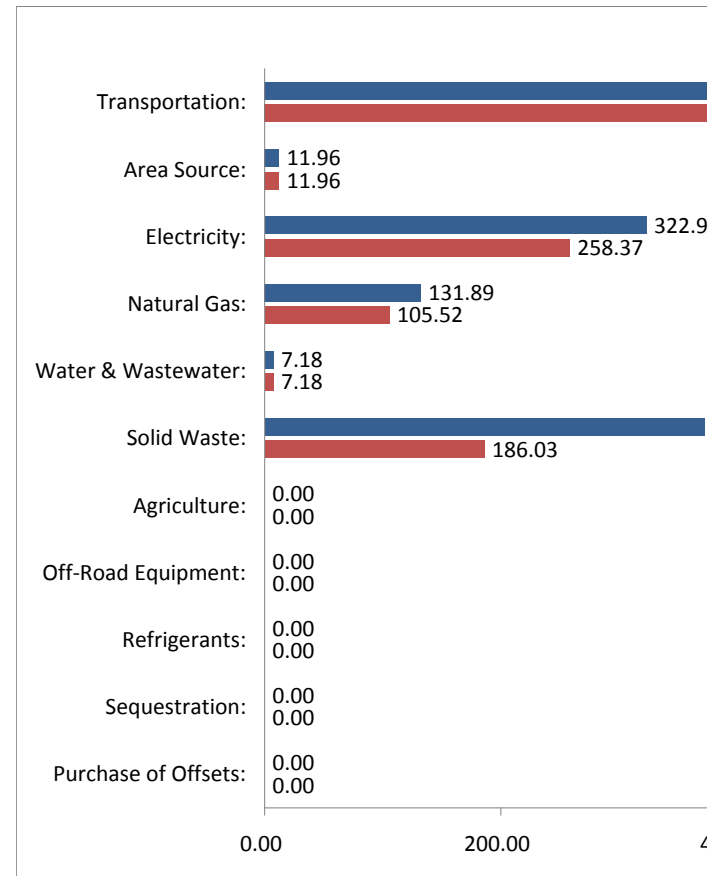
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Summary Results

Project Name: Silver Rose Proposed 2014
 Project and Baseline Years: 2014 N/A

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	987.14	987.14
Area Source:	11.96	11.96
Electricity:	322.97	258.37
Natural Gas:	131.89	105.52
Water & Wastewater:	7.18	7.18
Solid Waste:	372.06	186.03
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	1,833.20	1,556.20

Baseline is currently: **OFF**
 Baseline Project Name:
 Go to Settings Tab to Turn On Baseline



Detailed Results

Unmitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				987.14	53.85%
Area Source:	11.13	0.04	0.00	11.96	0.65%
Electricity:	322.45	0.00	0.00	322.97	17.62%
Natural Gas:	131.56	0.01	0.00	131.89	7.19%
Water & Wastewater:	7.17	0.00	0.00	7.18	0.39%
Solid Waste:	2.72	17.59	N/A	372.06	20.30%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				1,833.20	100.00%

* Several adjustments were made to transportation emissions after they have been imported from URBEMIS.

After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley" regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs (CH4, N2O, and HFCs [from leaking air conditioning]). Finally, CO2e is adjusted to account for the low carbon fuels rule.

Mitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				987.14	63.43%
Area Source:	11.13	0.04	0.00	11.96	0.77%
Electricity:	257.96	0.00	0.00	258.37	16.60%
Natural Gas:	105.25	0.01	0.00	105.52	6.78%
Water & Wastewater:	7.17	0.00	0.00	7.18	0.46%
Solid Waste:	1.36	8.79	N/A	186.03	11.95%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total:				1,556.20	100.00%

Mitigation Measures Selected:

Transportation: Go to the following tab: [Transp. Detail Mit](#) for a list of the transportation mitigation measures selected (in URBE

Electricity: The following mitigation measure(s) have been selected to reduce electricity emissions.

Natural Gas: The following mitigation measure(s) have been selected to reduce natural gas emissions.

Water and Wastewater: The following mitigation measure(s) have been selected to reduce water and wastewater emissions.

Solid Waste: The following mitigation measure has been selected to reduce solid waste related GHG emissions.

Reduce Solid Waste by the Following Percentage

50 Solid Waste Reduction %

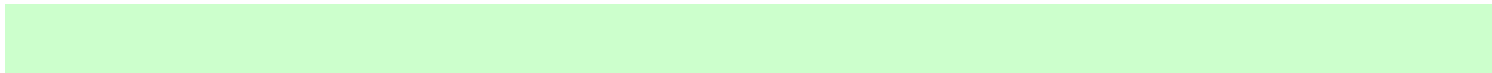
Ag: No existing mitigation measures available.

Off-Road Equipment: No existing mitigation measures available.

Refrigerants: The following mitigation measure has been selected to reduce refrigerant emissions:

Carbon Sequestration: Project does not include carbon sequestration through tree planting.

Emission Offsets/Credits: Project does not include purchase of emission offsets/credits.



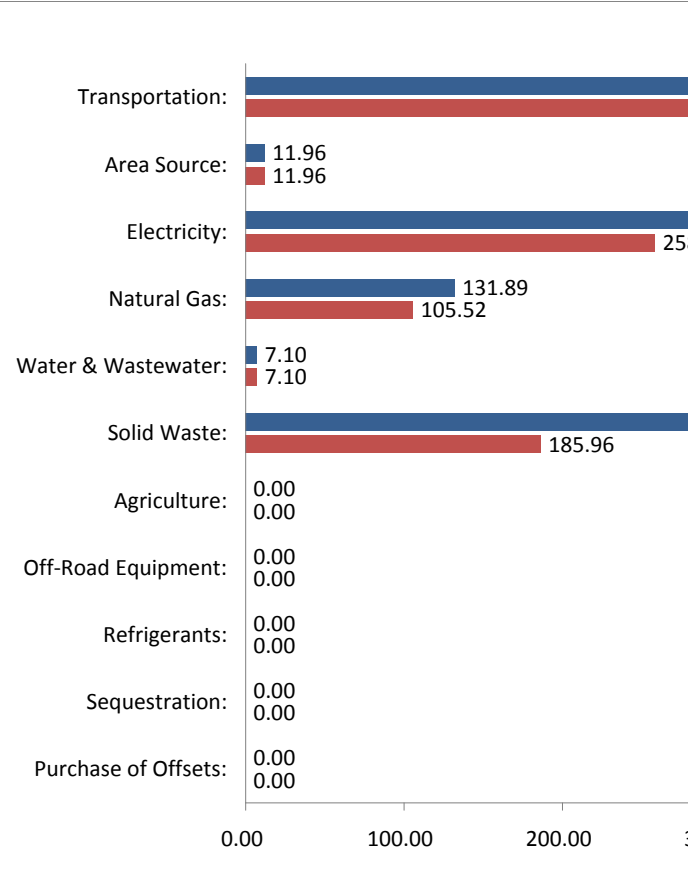
Baseline	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				0.00	N/A
Area Source:	0.00	0.00	0.00	0.00	N/A
Electricity:	0.00	0.00	0.00	0.00	N/A
Natural Gas:	0.00	0.00	0.00	0.00	N/A
Water & Wastewater:	0.00	0.00	0.00	0.00	N/A
Solid Waste:	0.00	0.00	N/A	0.00	N/A
Agriculture:	0.00	0.00	0.00	0.00	N/A
Off-Road Equipment:	0.00	0.00	0.00	0.00	N/A
Refrigerants:	N/A	N/A	N/A	0.00	N/A
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				0.00	0.00%

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Summary Results

Project Name: Silver Rose Proposed 2020 with Trip Rates Adjusted to O-M Tra
 Project and Baseline Years: 2020 N/A

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	840.02	840.02
Area Source:	11.96	11.96
Electricity:	322.97	258.37
Natural Gas:	131.89	105.52
Water & Wastewater:	7.10	7.10
Solid Waste:	371.92	185.96
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	1,685.87	1,408.94



Baseline is currently: **OFF**
 Baseline Project Name:
 Go to Settings Tab to Turn On Baseline

Detailed Results

Unmitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				840.02	49.83%
Area Source:	11.13	0.04	0.00	11.96	0.71%
Electricity:	322.45	0.00	0.00	322.97	19.16%
Natural Gas:	131.56	0.01	0.00	131.89	7.82%
Water & Wastewater:	7.09	0.00	0.00	7.10	0.42%
Solid Waste:	2.57	17.59	N/A	371.92	22.06%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				1,685.87	100.00%

* Several adjustments were made to transportation emissions after they have been imported from URBEMIS.

After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley" regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs (CH4, N2O, and HFCs [from leaking air conditioning]). Finally, CO2e is adjusted to account for the low carbon fuels rule.

Mitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				840.02	59.62%
Area Source:	11.13	0.04	0.00	11.96	0.85%
Electricity:	257.96	0.00	0.00	258.37	18.34%
Natural Gas:	105.25	0.01	0.00	105.52	7.49%
Water & Wastewater:	7.09	0.00	0.00	7.10	0.50%
Solid Waste:	1.29	8.79	N/A	185.96	13.20%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total:				1,408.94	100.00%

Mitigation Measures Selected:

Transportation: Go to the following tab: [Transp. Detail Mit](#) for a list of the transportation mitigation measures selected (in URBE

Electricity: The following mitigation measure(s) have been selected to reduce electricity emissions.

Natural Gas: The following mitigation measure(s) have been selected to reduce natural gas emissions.

Water and Wastewater: The following mitigation measure(s) have been selected to reduce water and wastewater emissions.

Solid Waste: The following mitigation measure has been selected to reduce solid waste related GHG emissions.

Reduce Solid Waste by the Following Percentage

50 Solid Waste Reduction %

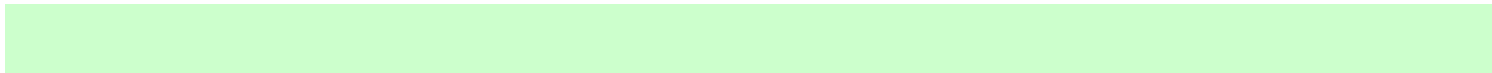
Ag: No existing mitigation measures available.

Off-Road Equipment: No existing mitigation measures available.

Refrigerants: The following mitigation measure has been selected to reduce refrigerant emissions:

Carbon Sequestration: Project does not include carbon sequestration through tree planting.

Emission Offsets/Credits: Project does not include purchase of emission offsets/credits.



Baseline	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				0.00	N/A
Area Source:	0.00	0.00	0.00	0.00	N/A
Electricity:	0.00	0.00	0.00	0.00	N/A
Natural Gas:	0.00	0.00	0.00	0.00	N/A
Water & Wastewater:	0.00	0.00	0.00	0.00	N/A
Solid Waste:	0.00	0.00	N/A	0.00	N/A
Agriculture:	0.00	0.00	0.00	0.00	N/A
Off-Road Equipment:	0.00	0.00	0.00	0.00	N/A
Refrigerants:	N/A	N/A	N/A	0.00	N/A
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				0.00	0.00%

tioners]).

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: Z:\I&R Docs\2011\11-171 Silver Rose Calistoga GHG Study\Silver Rose\Existing2011adjusted.urb924

Project Name: Silver Rose Existing in 2011 adjusted to Omni-Means Traffic

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	221.69

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	294.37

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	516.06

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Natural Gas	219.86
Hearth	1.06
Landscape	0.77
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	221.69

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Single family housing	27.79
Racquetball/health	25.43
Hotel	145.42
General light industry	95.73
TOTALS (tons/year, unmitigated)	294.37

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	0.67	9.57	dwelling units	2.00	19.14	163.64
Racquetball/health		16.49	1000 sq ft	1.23	20.28	151.26
Hotel		5.80	rooms	20.00	116.00	865.07
General light industry		8.38	1000 sq ft	8.00	67.04	564.81
					222.46	1,744.78

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.9	98.7	0.4
Light Truck < 3750 lbs	12.8	1.6	95.3	3.1
Light Truck 3751-5750 lbs	19.8	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	62.5	37.5	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
General light industry				50.0	25.0	25.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: Z:\I&R Docs\2011\11-171 Silver Rose Calistoga GHG Study\Silver Rose\Existing2020adjusted.urb924

Project Name: Silver Rose Existing in 2020 adjusted to Omni-Means Traffic

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	221.69

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	292.79

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	514.48

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Natural Gas	219.86
Hearth	1.06
Landscape	0.77
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	221.69

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Single family housing	27.64
Racquetball/health	25.29
Hotel	144.64
General light industry	95.22
TOTALS (tons/year, unmitigated)	292.79

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	0.67	9.57	dwelling units	2.00	19.14	163.64
Racquetball/health		16.49	1000 sq ft	1.23	20.28	151.26
Hotel		5.80	rooms	20.00	116.00	865.07
General light industry		8.38	1000 sq ft	8.00	67.04	564.81
					222.46	1,744.78

Vehicle Fleet Mix

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	54.0	0.0	100.0	0.0
Light Truck < 3750 lbs	12.6	0.0	98.4	1.6
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.3	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	40.6	59.4	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
General light industry				50.0	25.0	25.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: Z:\I&R Docs\2011\11-171 Silver Rose Calistoga GHG Study\Silver Rose\Proposed2014.urb924

Project Name: Silver Rose Proposed 2014

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

CO2

2012 TOTALS (tons/year unmitigated) 222.42

2013 TOTALS (tons/year unmitigated) 369.19

2014 TOTALS (tons/year unmitigated) 61.11

AREA SOURCE EMISSION ESTIMATES

CO2

TOTALS (tons/year, unmitigated) 424.70

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

CO2

TOTALS (tons/year, unmitigated) 1,110.56

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

CO2

TOTALS (tons/year, unmitigated) 1,535.26

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

CO2

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2012	222.42
Fine Grading 05/01/2012-10/31/2012	155.06
Fine Grading Dust	0.00
Fine Grading Off Road Diesel	148.32
Fine Grading On Road Diesel	0.00
Fine Grading Worker Trips	6.73
Asphalt 11/01/2012-11/30/2012	17.77
Paving Off-Gas	0.00
Paving Off Road Diesel	13.99
Paving On Road Diesel	1.53
Paving Worker Trips	2.24
Trenching 11/01/2012-11/30/2012	19.98
Trenching Off Road Diesel	18.86
Trenching Worker Trips	1.12
Building 12/01/2012-02/28/2014	29.61
Building Off Road Diesel	17.02
Building Vendor Trips	4.11
Building Worker Trips	8.48

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2013	369.19
Building 12/01/2012-02/28/2014	368.09
Building Off Road Diesel	211.57
Building Vendor Trips	51.13
Building Worker Trips	105.40
Coating 08/08/2013-02/28/2014	1.10
Architectural Coating	0.00
Coating Worker Trips	1.10
2014	61.11
Building 12/01/2012-02/28/2014	60.65
Building Off Road Diesel	34.86
Building Vendor Trips	8.42
Building Worker Trips	17.37
Coating 08/08/2013-02/28/2014	0.46
Architectural Coating	0.00
Coating Worker Trips	0.46

Phase Assumptions

Phase: Fine Grading 5/1/2012 - 10/31/2012 - Default Fine Site Grading Description

Total Acres Disturbed: 10.27

Maximum Daily Acreage Disturbed: 2.57

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

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- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 11/1/2012 - 11/30/2012 - Type Your Description Here

Off-Road Equipment:

- 2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 11/1/2012 - 11/30/2012 - Default Paving Description

Acres to be Paved: 2.57

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 12/1/2012 - 2/28/2014 - Default Building Construction Description

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2013 - 2/28/2014 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Natural Gas	412.43
Hearth	11.12
Landscape	1.15
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	424.70

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	CO2
Single family housing	96.27
Racquetball/health	25.02
Quality resturant	270.53
Hotel	617.51
General light industry	101.23
TOTALS (tons/year, unmitigated)	1,110.56

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	7.00	3.16	dwelling units	21.00	66.36	567.36
Racquetball/health		2.27	1000 sq ft	8.80	19.98	148.97
Quality resturant		62.94	1000 sq ft	3.40	214.00	1,609.68
Hotel		5.80	rooms	85.00	493.00	3,676.55
General light industry		4.30	1000 sq ft	16.50	70.95	597.75
					864.29	6,600.31

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.4	99.4	0.2
Light Truck < 3750 lbs	12.7	0.8	96.8	2.4
Light Truck 3751-5750 lbs	19.9	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Quality resturant				8.0	4.0	88.0
Hotel				5.0	2.5	92.5
General light industry				50.0	25.0	25.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: Z:\I&R Docs\2011\11-171 Silver Rose Calistoga GHG Study\Silver Rose\Proposed2020-adjusted.urb924

Project Name: Silver Rose Proposed 2020 with Trip Rates Adjusted to O-M Traffic

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	424.70

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1,110.04

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>CO2</u>
TOTALS (tons/year, unmitigated)	1,534.74

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Natural Gas	412.43
Hearth	11.12
Landscape	1.15
Consumer Products	
Architectural Coatings	
TOTALS (tons/year, unmitigated)	424.70

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>CO2</u>
Single family housing	96.22
Racquetball/health	25.01
Quality resturant	270.40
Hotel	617.23
General light industry	101.18
TOTALS (tons/year, unmitigated)	1,110.04

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	7.00	3.16	dwelling units	21.00	66.36	567.36
Racquetball/health		2.27	1000 sq ft	8.80	19.98	148.97
Quality resturant		62.94	1000 sq ft	3.40	214.00	1,609.68
Hotel		5.80	rooms	85.00	493.00	3,676.55
General light industry		4.30	1000 sq ft	16.50	70.95	597.75
					864.29	6,600.31

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.8	0.4	99.4	0.2
Light Truck < 3750 lbs	12.7	0.8	96.8	2.4
Light Truck 3751-5750 lbs	19.9	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
Quality resturant				8.0	4.0	88.0
Hotel				5.0	2.5	92.5
General light industry				50.0	25.0	25.0

FOR INFORMATIONAL PURPOSES ONLY

Emission Type	Emission Factor			Source
	Year	Lbs CO ₂ /MWh	Metric tons CO ₂ /MWh	
Historical Emissions	2003	620	0.281	PG&E's third-party-verified GHG inventory submitted to the California Climate Action Registry (CCAR) ⁶ (2003-2008) or The Climate Registry (TCR) (2009)
	2004	566	0.257	
	2005	489	0.222	
	2006	456	0.207	
	2007	636	0.288	
	2008	641	0.291	
	2009	575	0.261	
Current Emissions	2010, 2011 ⁷	559	0.254	Average of PG&E's 2005 to 2009 GHG emission factors
Future Emissions (estimated)	2012	453	0.205	CPUC GHG Calculator, which provides an independent forecast of PG&E's emission factors as part of a model on how the electricity sector would reduce emissions under AB 32 ⁸
	2013	431	0.196	
	2014	412	0.187	
	2015	391	0.177	
	2016	370	0.168	
	2017	349	0.158	
	2018	328	0.149	
	2019	307	0.139	
ClimateSmart Program Emission Reductions ⁹	2007-2011	-524	-0.238	CPUC ClimateSmart Decision (06-12-032)
Note: The ClimateSmart program reduces emissions. Therefore, for net GHG reporting, emissions reductions from accounts participating in the program can be subtracted from an entity's total emissions.				

⁶ The 2003-2008 factors are in the Power/Utility Protocol (PUP) spreadsheet of PG&E's [CCAR reports](#). The 2009 factor is in the Additional Optional Information tab of the Electric Power Sector (EPS) Report spreadsheet of PG&E's [TCR report](#).

⁷ PG&E's 2010 emission factor will be available in late December 2011. As the CPUC GHG Calculator does not include a 2011 emission factor, we recommend using the "current" emission factor for 2011. These factors will be reviewed and updated annually.

⁸ E3, [GHG Calculator version 3c](#), worksheet tab "CO₂ Allocations," cells AH35 - AH44.

⁹ The ClimateSmart program electricity emission factor is in lbs CO₂e. CO₂e (or CO₂ equivalent) is a measure used to compare the emissions from various GHGs based upon their global warming potential (GWP). The CO₂e for a GHG is derived by multiplying the amount of the GHG by the GWP of the GHG. The ClimateSmart program electricity emission factor is in lbs CO₂e because it includes both the emissions from customers' use of PG&E electricity as well as an estimate of some of the emissions associated with electricity delivery. This factor was put forth by PG&E in CPUC Application 06-01-012 on 1/26/2006, approved in Decision 06-12-032, and extended through 2011 in Decision 10-10-025.

ClimateSmart emission factor for customer use of electricity	520 lbs CO ₂ /MWh
ClimateSmart emission factor for delivery of electricity	4 lbs CO ₂ e/MWh
Total ClimateSmart emission factor for electricity	524 lbs CO ₂ e/MWh

Table 1
Annualized (Daily) Project Trip Generation^{1,2,3}

Land Use	Daily Trip Generation		
	Units	Rate	Trips
Existing Conditions:			
Hotel	20 rm occ	8.92	178
<i>Annual Occupancy Rate Reduction</i>	-35%		-62
Health Club	1.23 ksf	32.92	41
<i>Internal Capture</i>	-50%		-21
Single Family	2du	9.57	19
Winery	5,000 cases		
<i>Employees</i>	10	3	30
<i>Truck Deliveries</i>	n/a	n/a	<1
<i>Visitors</i>	45	0.80	36
Total Existing Trips			222
Approved Conditions:			
Restaurant	160 sts	2.86	458
<i>Internal Capture</i>	-15%		-69
Total Approved Trips			389
Proposed Project Conditions:			
Hotel	85 rm occ	8.92	758
<i>Annual Occupancy Rate Reduction</i>	-35%		-265
Health Club	8.8 ksf	32.92	290
<i>Internal Capture</i>	-93%		-270
Single Family	21du	3.16	66
Restaurant	150 sts	2.86	429
<i>Internal Capture</i>	-50%		-215
Winery	10,000 cases		
<i>Employees</i>	11	3	33
<i>Truck Deliveries</i>	n/a	n/a	<1
<i>Visitors</i>	60	0.80	48
<i>Pass-By Rate Reduction</i>	20%		-10
Total Proposed Project Trips			865
Existing Trips			222
Existing plus Approved Trips			611
Net New Daily Project Trips			643

1. Institute of Transportation Engineers (ITE), *Trip Generation*, 8th Edition, Hotel (#310), Health Club (#492), Single-Family Dwelling Units (#210), Recreational Home (#260), 2008.

2. W-Trans, *Focused Traffic Impact Analysis for the Silver Rose Winery and Resort Project*, Letter report from Vanessa Aguayo (W-Trans) to Mr. Dan Takasugi (City of Calistoga Public Works Director), September 27, 2011.

3. Silver Rose Venture LLC, *Silver Rose Annualized Traffic Study for Green House Gas Emissions Analysis*, Memorandum to George Nickelson (Omni-Means), November 21, 2011.

du=dwelling units, rm occ= room occupied, sts=seats, ksf=1,000 square feet

