FIRSTCARBON SOLUTIONS™

Memo

Date: September 21, 2017

To: Leslie R. Perry
Perry, Johnson, Anderson, Miller & Moskowitz LLP

From: Jason Brandman, Vice President, FirstCarbon Solutions

Subject: Sonoma Country Inn Greenhouse Gas Memorandum

Project Understanding

The Sonoma Country Inn was originally approved in 2004 following preparation of an EIR. The Project Owner is now ready to commence construction and operation. The current stage of the process is Design Review approval of the final design. The Project as presented includes a 50-room inn, spa, and restaurant.

Project Analysis Methodology

We have been asked to review the Greenhouse Gas Emissions (GHG) study that was submitted by opponents of the project on August 14, 2017. Specifically, a California Emissions Estimator Model (CalEEMod) was prepared by Valley of the Moon Alliance (VOTMA), which purports to calculate the total GHG emissions from the project. The CalEEMod, as run by VOTMA, results in an estimated emission total of 1,275 metric tons of carbon dioxide equivalents (MT CO_2e) per year. It further notes that this exceeds the Bay Area Air Quality Management District (BAAQMD) threshold of significance, which is 1,100 MT CO_2e per year.

The CalEEMod, developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with several California air districts, is a statewide land use emissions model designed to estimate air quality criteria pollutant and GHG emissions associated with construction and operation of a project.

The CalEEMod output files presented by VOTMA rely exclusively on defaults built into the program. The exclusive use of defaults is generally accepted when project-specific data is unavailable. However, according to the CalEEMod User's Guide, in instances where project-specific data is available, the user is encouraged to override the defaults in order to provide a more accurate, project-specific analysis of emissions. Because a traffic report was prepared by W-Trans for this project, the CalEEMod mobile source defaults were overridden to reflect project-specific mobile trip characteristics consistent with the W-Trans report.

As such, we have run the CalEEMod for the project utilizing the same land uses as the VOTMA model, but with mobile trip characteristics consistent with the W-Trans Report. The W-Trans report provided land use-specific peak-hour trip volumes based on the Institute of Traffic Engineers (ITE) Trip Generation Manual, 9th Edition. Since the CalEEMod needs daily trip rate inputs in order to calculate the daily traffic volumes, ITE Trip Generation Manual daily trip rates for land uses used in the W-Trans report were utilized. It should be noted that when daily trip rates are unavailable, we assume peak PM volumes would occur over a full 10-hour period to determine the daily trip generation. This produces a conservative analysis of GHG emissions as it is not likely the project traffic activity would operate at peak levels for a full 10 hours. Our analysis is additionally more conservative in that no credit for internal capture[1] was taken for the restaurant component.

Project GHG Emissions

The project would result in a total GHG emission, based on the CalEEMod calculation, of 895 MT CO_2e, which is substantially below the BAAQMD threshold of significance. As such, project impacts would be less than significant on a cumulative basis. Our model run is attached hereto.

GHG EMISSIONS RELATED TO ALLEGED CHANGES TO THE PROJECT

We have been advised that VOTMA has alleged that changes were made to the project different from those considered conceptually in the 2004 EIR. Those changes included modified locations of some of the structures, reconfiguration of the parking lot, implementation of a valet parking program, increase in the size of the swimming pools and spas/hot tubs, taking hotel laundry off-site, and a new rooftop lounge. In our opinion, these changes would pose no significant impact with respect to GHG emissions.

Thank you for the opportunity to conduct a general analysis for the aforementioned technical area. Please feel free to contact Jason Brandman at 925.200.1656 or jbrandman@fcs-intl.com should you have any questions.

Sincerely,

Jason Brandman, Vice President
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
Walnut Creek, CA 94597

[1] Portion of trips generated by mixed-use land developments that would occur among the different land uses within the project.

Appendix A:
Modeling Result

CalEEMod Output

Table of Contents

Sonoma County Inn - Sonoma-San Francisco County, Annual

Sonoma County Inn

Sonoma-San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	102.00	Space	0.92	40,800.00	0
Health Club	6.27	1000sqft	0.14	6,270.00	0
Hotel	50.00	Room	1.67	50,250.00	0
Quality Restaurant	5.50	1000sqft	0.13	5,500.00	0
Recreational Swimming Pool	2.28	1000sqft	0.05	2,280.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	75
Climate Zone	4			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - .

Land Use - No separate building area entered for main swimming pool-pool building facilities assumed to be included in main lodge footage. Square footage for inn calculated by adding guestroom, main lodge and service/staff building square footages minus estimated restaurant square footages

Construction Phase - Operations only

Off-road Equipment - Operations only

Trips and VMT - Operations only

On-road Fugitive Dust - Operations only

Architectural Coating - Operations only

Vehicle Trips - Based on information provided by the traffic study and ITE Trip Generation Manual 9th Edition for hotel (LU 330) and quality restaurant (LU 931)

Stationary Sources - Emergency Generators and Fire Pumps - Emergency Generators and Fire Pumps - Conservatively estimate that a 1,250 kW generator will be utilized for an hour a month. 1HP=1.34102 kW

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	31,010.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	93,030.00	0.00
tblArchitecturalCoating	ConstArea_Parking	2,448.00	0.00
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstructionPhase	NumDays	10.00	1.00
tblLandUse	BuildingSpaceSquareFeet	72,600.00	50,250.00
tblLandUse	LandUseSquareFeet	72,600.00	50,250.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,676.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	9.00	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	4.20
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	26.73	0.00

tblVehicleTrips	SU_TR	5.95	4.20
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	4.20
tblVehicleTrips	WD_TR	33.82	0.00

2.0 Emissions Summary

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	0.2782	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9700e-003	2.9700e-003	1.0000e-005	0.0000	3.1700e-003
Energy	0.0191	0.1739	0.1461	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	381.8419	381.8419	0.0123	5.2700e-003	383.7213
Mobile	0.2210	0.9642	2.0661	4.9100e-003	0.3613	6.7600e-003	0.3680	0.0972	6.3700e-003	0.1036	0.0000	450.9286	450.9286	0.0243	0.0000	451.5366
Stationary	0.0165	0.0738	0.0421	8.0000e-005		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	7.6586	7.6586	1.0700e-003	0.0000	7.6854
Waste						0.0000	0.0000		0.0000	0.0000	16.4707	0.0000	16.4707	0.9734	0.0000	40.8054
Water						0.0000	0.0000		0.0000	0.0000	1.0925	5.9880	7.0804	0.1125	2.7100e-003	10.6985
Total	**0.5348**	**1.2119**	**2.2558**	**6.0300e-003**	**0.3613**	**0.0224**	**0.3837**	**0.0972**	**0.0220**	**0.1193**	**17.5631**	**846.4200**	**863.9831**	**1.1236**	**7.9800e-003**	**894.4504**

	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 Operational Detail - Mobile

3.1 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	0.2210	0.9642	2.0661	4.9100e-003	0.3613	6.7600e-003	0.3680	0.0972	6.3700e-003	0.1036	0.0000	450.9286	450.9286	0.0243	0.0000	451.5366
Unmitigated	0.2210	0.9642	2.0661	4.9100e-003	0.3613	6.7600e-003	0.3680	0.0972	6.3700e-003	0.1036	0.0000	450.9286	450.9286	0.0243	0.0000	451.5366

3.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Health Club	0.00	0.00	0.00		
Hotel	210.00	210.00	210.00	398,985	398,985
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	494.73	518.98	396.88	574,356	574,356
Recreational Swimming Pool	0.00	0.00	0.00		
Total	704.73	728.98	606.88	973,342	973,342

3.3 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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

3.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.568926	0.041373	0.172015	0.112977	0.030659	0.007080	0.028564	0.025868	0.003029	0.001930	0.005517	0.000872	0.001190
Health Club	0.568926	0.041373	0.172015	0.112977	0.030659	0.007080	0.028564	0.025868	0.003029	0.001930	0.005517	0.000872	0.001190
Hotel	0.568926	0.041373	0.172015	0.112977	0.030659	0.007080	0.028564	0.025868	0.003029	0.001930	0.005517	0.000872	0.001190
Quality Restaurant	0.568926	0.041373	0.172015	0.112977	0.030659	0.007080	0.028564	0.025868	0.003029	0.001930	0.005517	0.000872	0.001190
Recreational Swimming Pool	0.568926	0.041373	0.172015	0.112977	0.030659	0.007080	0.028564	0.025868	0.003029	0.001930	0.005517	0.000872	0.001190

4.0 Energy Detail

Historical Energy Use: N

4.1 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	192.5259	192.5259	8.7100e-003	1.8000e-003	193.2803
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	192.5259	192.5259	8.7100e-003	1.8000e-003	193.2803
NaturalGas Mitigated	0.0191	0.1739	0.1461	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	189.3160	189.3160	3.6300e-003	3.4700e-003	190.4410
NaturalGas Unmitigated	0.0191	0.1739	0.1461	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	189.3160	189.3160	3.6300e-003	3.4700e-003	190.4410

4.2 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					
Health Club	166030	9.0000e-004	8.1400e-003	6.8400e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	8.8600	8.8600	1.7000e-004	1.6000e-004	8.9126
Hotel	2.23663e+006	0.0121	0.1096	0.0921	6.6000e-004		8.3300e-003	8.3300e-003		8.3300e-003	8.3300e-003	0.0000	119.3550	119.3550	2.2900e-003	2.1900e-003	120.0642
Parking Lot	0	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
Quality Restaurant	1.14499e+006	6.1700e-003	0.0561	0.0472	3.4000e-004		4.2700e-003	4.2700e-003		4.2700e-003	4.2700e-003	0.0000	61.1010	61.1010	1.1700e-003	1.1200e-003	61.4641
Recreational Swimming Pool	0	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		**0.0191**	**0.1739**	**0.1461**	**1.0500e-003**		**0.0132**	**0.0132**		**0.0132**	**0.0132**	**0.0000**	**189.3160**	**189.3160**	**3.6300e-003**	**3.4700e-003**	**190.4410**

4.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Health Club	52793.4	15.3582	6.9000e-004	1.4000e-004	15.4184
Hotel	390945	113.7304	5.1400e-003	1.0600e-003	114.1760
Parking Lot	35904	10.4449	4.7000e-004	1.0000e-004	10.4858
Quality Restaurant	182160	52.9924	2.4000e-003	5.0000e-004	53.2001
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**192.5259**	**8.7000e-003**	**1.8000e-003**	**193.2803**

5.0 Area Detail

5.1 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	0.2782	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9700e-003	2.9700e-003	1.0000e-005	0.0000	3.1700e-003
Unmitigated	0.2782	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9700e-003	2.9700e-003	1.0000e-005	0.0000	3.1700e-003

5.2 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					
Architectural Coating	0.0332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2449					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4000e-004	1.0000e-005	1.5400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9700e-003	2.9700e-003	1.0000e-005	0.0000	3.1700e-003
Total	**0.2782**	**1.0000e-005**	**1.5400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.9700e-003**	**2.9700e-003**	**1.0000e-005**	**0.0000**	**3.1700e-003**

6.0 Water Detail

6.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.0804	0.1125	2.7100e-003	10.6985
Unmitigated	7.0804	0.1125	2.7100e-003	10.6985

6.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Health Club	0.370828 / 0.227281	0.9328	0.0121	2.9000e-004	1.3231
Hotel	1.26834 / 0.140927	2.5424	0.0414	1.0000e-003	3.8748
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.66944 / 0.10656	3.2660	0.0545	1.3100e-003	5.0195
Recreational Swimming Pool	0.134846 / 0.0826478	0.3392	4.4100e-003	1.1000e-004	0.4811
Total		**7.0804**	**0.1125**	**2.7100e-003**	**10.6985**

7.0 Waste Detail

7.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	16.4707	0.9734	0.0000	40.8054
Unmitigated	16.4707	0.9734	0.0000	40.8054

7.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Health Club	35.74	7.2549	0.4288	0.0000	17.9737
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	5.02	1.0190	0.0602	0.0000	2.5246
Recreational Swimming Pool	13	2.6389	0.1560	0.0000	6.5377
Total		**16.4707**	**0.9734**	**0.0000**	**40.8054**

8.0 Operational Offroad

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

9.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	12	1676	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

9.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0165	0.0738	0.0421	8.0000e-005		2.4300e-003	2.4300e-003		2.4300e-003	2.4300e-003	0.0000	7.6586	7.6586	1.0700e-003	0.0000	7.6854
Total	**0.0165**	**0.0738**	**0.0421**	**8.0000e-005**		**2.4300e-003**	**2.4300e-003**		**2.4300e-003**	**2.4300e-003**	**0.0000**	**7.6586**	**7.6586**	**1.0700e-003**	**0.0000**	**7.6854**

10.0 Vegetation