Construction Greenhouse Gas Emissions

TABLE 6-1
Total Greenhouse Gas Emissions for Construction Duration

	Emissions (metric tons)		
	CO2	**CH4**	**CO2e**
Total for Construction	582	0.06	583

For tables 6-1 to 6-11, a global warming potential of 21 was used to convert CH4 emissions to CO2e emissions.

TABLE 6-2
Clearing and Grubbing Phase

Length of Phase	40	working days	Emissions (metric tons)		
Unit	**Number**	**Hour/day**	**CO2**	**CH4**	**CO2e**
Dozer	2	5	48.06	0.006	48.18
Front-end Loader	2	8	30.86	0.004	30.94
Excavator	1	8	16.29	0.002	16.33
Totals			95.21	0.01	95.44

Table 6-3
Excavation and Grading

Length of Phase	100	working days	Emissions (metric tons)		
Unit	**Number**	**Hour/day**	**CO2**	**CH4**	**CO2e**
Dozer	2	5	120.14	0.014	120.44
Front-end Loader	2	8	77.16	0.009	77.35
Excavator	1	8	40.72	0.005	40.82
Totals			238.02	0.03	238.61

Table 6-4
Installation Phase

Length of Phase	80	working days	Emissions (metric tons)		
Unit	**Number**	**Hour/day**	**CO2**	**CH4**	**CO2e**
Excavator	1	8	32.58	0.004	32.65
Front-end Loader	1	8	30.86	0.004	30.94
Crane	1	8	32.56	0.003	32.62
Totals			96.00	0.01	96.22

Table 6-5
Landscape and Planting

Length of Phase 60 working days

			Emissions (metric tons)		
Unit	**Number**	**Hour/day**	**CO2**	**CH4**	**CO2e**
Roller	1	8	12.84	0.002	12.89
Paver	1	8	15.07	0.003	15.13
Totals			27.91	0.01	28.02

Table 6-6
Irrigation System

Length of Phase 40 working days

Unit	**Number**	**Hour/day**
N/A		
Totals		

N/A = Not Applicable. No heavy construction equipment anticipated for this phase

TABLE 6-7
Clearing and Grubbing Phase

Length of Phase 40 working days

	Parameters			Emissions (metric tons)		
Source	**Number of Vehicles**	**Total Number of Trips**	**Distance Traveled per Trip**	**CO2**	**CH4**	**CO2e**
Construction Workers Commuting	12	24	20	9.60	0.00067	9.61
Light Duty Trucks On-site	4	4	10	0.80	0.00006	0.80
Daily Delivery Trucks	0	--	--	--	--	--
Dump Trucks on-site	4	4	5	1.53	0.00005	1.53
Water Truck on-site	1	1	10	0.77	0.00002	0.77
Totals				12.70	0.0008	12.71

Table 6-8
Excavation and Grading
Length of Phase 100 working days

	Parameters			Emissions (metric tons)		
Source	**Number of Vehicles**	**Total Number of Trips**	**Distance Traveled per Trip**	**CO2**	**CH4**	**CO2e**
Construction Workers Commuting	12	24	20	24.00	0.00201	24.04
Light Duty Trucks On-site	4	4	10	2.00	0.0001	2.00
Daily Delivery Trucks	0	--	--	--	--	--
Dump Trucks on-site	4	4	5	3.83	0.0001	3.83
Water Truck on-site	1	1	10	1.91	0.0001	1.92
Totals				31.74	0.00	31.79

Table 6-9
Installation Phase
Length of Phase 80 working days

	Parameters			Emissions (metric tons)		
Source	**Number of Vehicles**	**Total Number of Trips**	**Distance Traveled per Trip**	**CO2**	**CH4**	**CO2e**
Construction Workers Commuting	16	32	20	25.60	0.0018	25.64
Light Duty Trucks On-site	4	4	10	1.60	0.0001	1.60
Daily Delivery Trucks	1	3	20	9.19	0.0003	9.19
Dump Trucks on-site	1	1	5	0.77	0.0000	0.77
Water Truck on-site	1	1	10	1.53	0.0000	1.53
Concrete Truck	1	1	20	3.06	0.0001	3.06
Totals				41.75	0.00	41.80

Table 6-10
Landscape and Planting
Length of Phase 60 working days

	Parameters			Emissions (metric tons)		
Source	**Number of Vehicles**	**Total Number of Trips**	**Distance Traveled per Trip**	**CO2**	**CH4**	**CO2e**
Construction Workers Commuting	12	24	20	14.40	0.001	14.42
Light Duty Trucks On-site	4	4	10	1.20	0.0001	1.20
Daily Delivery Trucks	1	3	20	6.89	0.0002	6.90
Dump Trucks on-site	0	--	--	--	--	--
Water Truck on-site	1	1	10	1.15	0.0000	1.15
Totals				23.64	0.00	23.67

Table 6-11
Irrigation System
Length of Phase 40 working days

	Parameters			Emissions (metric tons)		
Source	**Number of Vehicles**	**Total Number of Trips**	**Distance Traveled per Trip**	**CO2**	**CH4**	**CO2e**
Construction Workers Commuting	12	24	20	9.60	0.001	9.61
Light Duty Trucks On-site	4	4	10	0.80	0.0001	0.80
Daily Delivery Trucks	1	3	20	4.59	0.0001	4.60
Dump Trucks on-site	0	--	--	--	--	--
Water Truck on-site	0	--	--	--	--	--
Totals				14.99	0.00	15.01

Table 6-12
Heavy Construction Equipment Greenhouse Gas Exhaust Emission Factors

Equipment Type	Fuel	Horsepower	CO2 Emissions Factor (lb/hr)	CH4 Emission Factor (lb/hr)
Dozer	Diesel	356	265	0.0314
Front End Loader	Diesel	147	106	0.0126
Excavator	Diesel	151.7	112	0.0124
Crane	Diesel	194	112	0.0106
Roller	Diesel	99	59	0.0102
Paver	Diesel	91	69	0.0140

SCAB Fleet Average Emission Factors (Diesel) for the year 2011 from http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html

Table 6-13
On Road Mobile Emission Factors from California ARB EMFAC2002 Scenario Year 2011 (Model Years 1967 to 2011)

Vehicle Type	CO2 Emission Factor (lb/mile)	CH4 Emission Factor (lb/mile)
Construction Workers Commuting	1.102	7.68E-05
Light Duty Trucks	1.102	7.68E-05
Heavy Diesel Trucks	4.220	1.29E-04

Highest (Most Conservative) EMFAC2007 (version 2.3) for On-Road Passenger Vehicles and
Heavy Duty Diesel Trucks from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html