

Tables

Table 1a
Land Uses
Great Park Neighborhoods
Heritage Fields
Irvine, California

Land Use Category	Land Use Subtype	Size ²		Size Metric	Acreage ²	
		2011 Approved Project (GPN)	2012 Modified Project		2011 Approved Project (GPN)	2012 Modified Project
Commercial	Office Park	75	1,282	1000sqft	6	150
Commercial	Research & Development	2,600	3,364	1000sqft	194	237
Educational	Day-Care Center	11	11	1000sqft	8	8
Educational	High School	-	2,600	Student	-	40
Educational	K-8 Schools	2,000	2,000	Student	26	26
Educational	Place of Worship	25	25	1000sqft	8	8
Educational	University/College (4Yr)	7,741	-	Student	149	-
Recreational	City Park	60	100	Acre	60	100
Recreational	Exposition	708	-	1000sqft	358	-
Recreational	Golf Course	150	-	Acre	150	-
Residential	Apartments Low Rise	544	1,056	Dwelling Unit	23	45
Residential	Condo/Townhouse	1,609	5,086	Dwelling Unit	120	400
Residential	Single Family Housing	2,741	3,358	Dwelling Unit	366	432
Retail	Automobile Care Center	102	-	1000sqft	32	-
Retail	Strip Mall	350	220	1000sqft	35	25

Notes:

1. Land uses as available in CalEEMod. When an exact mapping of a land use provided by Heritage Fields was not available in CalEEMod, a land use with similar emission characteristics was chosen. For example, the multi-use non-residential land use was called 'Office Park.'
2. Information obtained from Heritage Fields and consistent with sizes used in the traffic study.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODel
GPN - Great Park Neighborhoods
sqft - square feet
yr - year

**Table 1b
Land Uses
Great Park Neighborhoods
Heritage Fields
Irvine, California**

Land Use Category	Land Use Subtype	Size ²		Size Metric	Acreage ²	
		2011 Approved Project (GPN)	2012 Modified Project Optional Conversion		2011 Approved Project (GPN)	2012 Modified Project Optional Conversion
Commercial	Office Park	75	747	1000sqft	6	49
Commercial	Research & Development	2,600	3,364	1000sqft	194	237
Educational	Day-Care Center	11	11	1000sqft	8	8
Educational	High School	-	2,600	Student	-	40
Educational	K-8 Schools	2,000	2,000	Student	26	26
Educational	Place of Worship	25	25	1000sqft	8	8
Educational	University/College (4Yr)	7,741	-	Student	149	-
Recreational	City Park	60	100	Acre	60	100
Recreational	Exposition	708	-	1000sqft	358	-
Recreational	Golf Course	150	-	Acre	150	-
Residential	Apartments Low Rise	544	1,189	Dwelling Unit	23	52
Residential	Condo/Townhouse	1,609	5,842	Dwelling Unit	120	456
Residential	Single Family Housing	2,741	3,669	Dwelling Unit	366	476
Retail	Automobile Care Center	102	-	1000sqft	32	-
Retail	Strip Mall	350	220	1000sqft	35	25

Notes:

1. Land uses as available in CalEEMod. When an exact mapping of a land use provided by Heritage Fields was not available in CalEEMod, a land use with similar emission characteristics was chosen. For example, the multi-use non-residential land use was called 'Office Park.'
2. Information obtained from Heritage Fields and consistent with sizes used in the traffic study.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODEL
GPN - Great Park Neighborhoods
sqft - square feet
yr - year

Table 2a
CAP Emissions from Area Sources
Great Park Neighborhoods
Heritage Fields
Irvine, California

Category ¹	Annual Emissions Associated with Area Sources ²											
	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project
	tons/year											
Architectural Coating	9.1	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	45	64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.32	0.61	0.02	0.03	0.00	0.00	0.00	0.00	0.22	0.42	0.22	0.42
Landscaping ³	1.6	3.1	54	104	0.00	0.01	0.61	1.20	0.30	0.58	0.30	0.58
Total	56	78	54	104	0.00	0.01	0.61	1.2	0.52	1.0	0.52	1.0

Category ¹	Daily Emissions Associated with Area Sources ³											
	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project
	lb/day											
Architectural Coating	50	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	248	348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	8.4	16	0.46	0.89	0.00	0.00	0.00	0.00	5.8	11	5.8	11
Landscaping ³	9	17	294	570	0.01	0.03	3.4	6.5	1.6	3.2	1.6	3.2
Total	315	442	294	571	0.01	0.03	3.4	6.5	7.5	14	7.4	14.4

Notes:

1. Categories which CalEEMod classifies as "Area Sources."

2. Emissions as estimated by CalEEMod.

3. The landscape-related emissions for the 2012 Modified Project (with and without optional conversion) were reduced by 28%, to account for the type of development and the amount landscaping therein planned by Heritage Fields.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODEL

CAP - criteria air pollutants

GPN - Great Park Neighborhoods

NOx - nitrogen oxides

PM - particulate matter

VOC - volatile organic compounds

yr - year

Table 2b
CAP Emissions from Area Sources
Great Park Neighborhoods
Heritage Fields
Irvine, California

Category ¹	Annual Emissions Associated with Area Sources ²											
	VOC		CO		SO ₂		NO _x		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion
	tons/year											
Architectural Coating	9.1	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	45	67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.32	0.69	0.02	0.04	0.00	0.00	0.00	0.00	0.22	0.48	0.22	0.47
Landscaping ³	1.6	3.5	54	117	0.00	0.01	0.61	1.35	0.30	0.65	0.30	0.65
Total	56	82	54	117	0.00	0.01	0.61	1.3	0.52	1.1	0.52	1.1

Category ¹	Daily Emissions Associated with Area Sources ³											
	VOC		CO		SO ₂		NO _x		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion
	lb/day											
Architectural Coating	50	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	248	367	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	8.4	18	0.46	1.01	0.00	0.00	0.00	0.00	5.8	13	5.8	13
Landscaping ³	9	19	294	642	0.01	0.04	3.4	7.4	1.6	3.6	1.6	3.6
Total	315	464	294	643	0.01	0.04	3.4	7.4	7.5	16	7.4	16.2

Notes:

1. Categories which CalEEMod classifies as "Area Sources."

2. Emissions as estimated by CalEEMod.

3. The landscape-related emissions for the 2012 Modified Project (with and without optional conversion) were reduced by 28%, to account for the type of development and the amount landscaping therein planned by Heritage Fields.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODEL

CAP - criteria air pollutants

GPN - Great Park Neighborhoods

NO_x - nitrogen oxides

PM - particulate matter

VOC - volatile organic compounds

Table 3a
CAP Emissions Associated with Natural Gas Use
Great Park Neighborhoods
Heritage Fields
Irvine, California

Land Use Subtype	Natural Gas Use ¹		Annual Emissions from Natural Gas Use ¹											
	2011 Approved Project (GPN)	2012 Modified Project	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
			2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project
			kBTU/yr		tons/year									
Apartments Low Rise	8,930,550	17,335,800	0.05	0.09	0.18	0.34	0.00	0.01	0.41	0.80	0.03	0.06	0.03	0.06
Exposition	13,751,500	-	0.07	-	0.57	-	0.00	-	0.67	-	0.05	-	0.05	-
Automobile Care Center	1,981,150	-	0.01	-	0.08	-	0.00	-	0.10	-	0.01	-	0.01	-
City Park	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Condo/Townhouse	35,857,600	113,345,000	0.19	0.61	0.70	2.2	0.01	0.03	1.7	5.2	0.13	0.42	0.13	0.42
Day-Care Center	117,733	117,733	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
K-8 Schools	1,789,610	1,789,610	0.01	0.01	0.07	0.07	0.00	0.00	0.09	0.09	0.01	0.01	0.01	0.01
Golf Course	0	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
High School	-	3,691,660	-	0.02	-	0.15	-	0.00	-	0.2	-	0.01	-	0.01
Office Park	768,750	13,142,600	0.00	0.07	0.03	0.54	0.00	0.00	0.04	0.64	0.00	0.05	0.00	0.05
Place of Worship	485,575	485,575	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00
Research & Development	50,499,800	65,339,000	0.27	0.35	2.08	2.69	0.01	0.02	2.5	3.2	0.19	0.24	0.19	0.24
Single Family Housing	100,958,000	123,683,000	0.54	0.67	1.98	2.43	0.03	0.04	4.7	5.7	0.38	0.46	0.38	0.46
Strip Mall	665,000	418,000	0.00	0.00	0.03	0.02	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00
University/College (4Yr)	20,292,300	-	0.11	-	0.84	-	0.01	-	0.99	-	0.08	-	0.08	-
Total	236,097,568	339,347,978	1.3	1.8	6.6	8.5	0.06	0.10	11	16	0.88	1.3	0.88	1.3

Land Use Subtype	Natural Gas Use ¹		Maximum Daily Emissions from Natural Gas Use ¹											
			VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project
	kBTU/day		lb/day											
Apartments Low Rise	24,467	47,495	0.26	0.51	0.96	1.9	0.01	0.03	2.3	4.4	0.18	0.35	0.18	0.35
Exposition	37,675	-	0.41	-	3.10	-	0.02	-	3.7	-	0.28	-	0.28	-
Automobile Care Center	5,428	-	0.06	-	0.45	-	0.00	-	0.53	-	0.04	-	0.04	-
City Park	0	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Condo/Townhouse	98,240	310,534	1.1	3.4	3.9	12.2	0.06	0.18	9.1	29	0.73	2.31	0.73	2.3
Day-Care Center	323	323	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00
K-8 Schools	4,903	4,903	0.05	0.05	0.40	0.40	0.00	0.00	0.48	0.48	0.04	0.04	0.04	0.04
Golf Course	0	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
High School	-	10,114	-	0.11	-	0.8	-	0.01	-	1.0	-	0.08	-	0.08
Office Park	2,106	36,007	0.02	0.39	0.17	3.0	0.00	0.02	0.21	3.5	0.02	0.27	0.02	0.27
Place of Worship	1,330	1,330	0.01	0.01	0.11	0.11	0.00	0.00	0.13	0.13	0.01	0.01	0.01	0.01
Research & Development	138,356	179,011	1.5	1.9	11	15	0.08	0.11	14	18	1.0	1.3	1.0	1.3
Single Family Housing	276,596	338,858	3.0	3.7	11	13	0.16	0.20	25	31	2.1	2.5	2.1	2.5
Strip Mall	1,822	1,145	0.02	0.01	0.15	0.09	0.00	0.00	0.18	0.11	0.01	0.01	0.01	0.01
University/College (4Yr)	55,596	-	0.60	-	4.6	-	0.03	-	5.5	-	0.41	-	0.41	-
Total	646,842	929,721	7.0	10.0	36	47	0.36	0.55	61	87	4.8	6.9	4.8	6.9

Notes:

1. Energy usage for each land use is assumed to be consistent with CalEEMod defaults, which is obtained from CEUS or RASS studies on energy use and adjusted to account for 2008 Title 24 building standards. See Appendix A of the CalEEMod user's guide for details. The Modified Project reflects a 15% improvement over Title -24 building standards.
2. Emissions as estimated by CalEEMod.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODEL
CAP - criteria air pollutants
CEUS - California Commercial End-Use Survey
GPN - Great Park Neighborhoods
kBTU - 1,000 British thermal units
NOx - nitrogen oxides
PM - particulate matter
RASS - California Statewide Residential Appliance Saturation Study
VOC - volatile organic compounds
SCAQMD - South Coast Air Quality Management District
yr - year

Sources:

Table 3b
CAP Emissions Associated with Natural Gas Use
Great Park Neighborhoods
Heritage Fields
Irvine, California

Land Use Subtype	Natural Gas Use ¹		Annual Emissions from Natural Gas Use ¹											
	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
			2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion		
			tons/year											
Apartments Low Rise	8,930,550	19,519,200	0.05	0.11	0.18	0.38	0.00	0.01	0.41	0.90	0.03	0.07	0.03	0.07
Exposition	13,751,500	-	0.07	-	0.57	-	0.00	-	0.67	-	0.05	-	0.05	-
Automobile Care Center	1,981,150	-	0.01	-	0.08	-	0.00	-	0.10	-	0.01	-	0.01	-
City Park	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Condo/Townhouse	35,857,600	130,193,000	0.19	0.70	0.70	2.6	0.01	0.04	1.7	6.0	0.13	0.49	0.13	0.49
Day-Care Center	117,733	117,733	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
K-8 Schools	1,789,610	1,789,610	0.01	0.01	0.07	0.07	0.00	0.00	0.09	0.09	0.01	0.01	0.01	0.01
Golf Course	0	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
High School	-	3,691,660	-	0.02	-	0.15	-	0.00	-	0.2	-	0.01	-	0.01
Office Park	768,750	7,658,800	0.00	0.04	0.03	0.32	0.00	0.00	0.04	0.38	0.00	0.03	0.00	0.03
Place of Worship	485,575	485,575	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00
Research & Development	50,499,800	65,339,000	0.27	0.35	2.08	2.69	0.01	0.02	2.5	3.2	0.19	0.24	0.19	0.24
Single Family Housing	100,958,000	135,138,000	0.54	0.73	1.98	2.65	0.03	0.04	4.7	6.2	0.38	0.5	0.38	0.5
Strip Mall	665,000	418,000	0.00	0.00	0.03	0.02	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00
University/College (4Yr)	20,292,300	-	0.11	-	0.84	-	0.01	-	0.99	-	0.08	-	0.08	-
Total	236,097,568	364,350,578	1.3	2.0	6.6	8.9	0.06	0.11	11	17	0.88	1.4	0.88	1.4

Land Use Subtype	Natural Gas Use ¹		Maximum Daily Emissions from Natural Gas Use ¹											
	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
			2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion		
kBTU/day			lb/day											
Apartments Low Rise	24,467	53,477	0.26	0.58	0.96	2.1	0.01	0.03	2.3	4.9	0.18	0.40	0.18	0.40
Exposition	37,675	-	0.41	-	3.10	-	0.02	-	3.7	-	0.28	-	0.28	-
Automobile Care Center	5,428	-	0.06	-	0.45	-	0.00	-	0.53	-	0.04	-	0.04	-
City Park	0	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Condo/Townhouse	98,240	356,693	1.1	3.9	3.9	14.0	0.06	0.21	9.1	33	0.73	2.66	0.73	2.7
Day-Care Center	323	323	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00
K-8 Schools	4,903	4,903	0.05	0.05	0.40	0.40	0.00	0.00	0.48	0.48	0.04	0.04	0.04	0.04
Golf Course	0	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
High School	-	10,114	-	0.11	-	0.8	-	0.01	-	1.0	-	0.08	-	0.08
Office Park	2,106	20,983	0.02	0.23	0.17	1.7	0.00	0.01	0.21	2.1	0.02	0.16	0.02	0.16
Place of Worship	1,330	1,330	0.01	0.01	0.11	0.11	0.00	0.00	0.13	0.13	0.01	0.01	0.01	0.01
Research & Development	138,356	179,011	1.5	1.9	11	15	0.08	0.11	14	18	1.0	1.3	1.0	1.3
Single Family Housing	276,596	370,241	3.0	4.0	11	15	0.16	0.22	25	34	2.1	2.8	2.1	2.8
Strip Mall	1,822	1,145	0.02	0.01	0.15	0.09	0.00	0.00	0.18	0.11	0.01	0.01	0.01	0.01
University/College (4Yr)	55,596	-	0.60	-	4.6	-	0.03	-	5.5	-	0.41	-	0.41	-
Total	646,842	998,220	7.0	10.8	36	49	0.36	0.59	61	93	4.8	7.5	4.8	7.5

Notes:

1. Energy usage for each land use is assumed to be consistent with CalEEMod defaults, which is obtained from CEUS or RASS studies on energy use and adjusted to account for 2008 Title 24 building standards. See Appendix A of the CalEEMod user's guide for details. The Modified Project reflects a 15% improvement over Title -24 building standards.
2. Emissions as estimated by CalEEMod.

Abbreviations:

CalEEMod - California Emissions Estimator Model
CAP - criteria air pollutants
CEUS - California Commercial End-Use Survey
GPN - Great Park Neighborhoods
kBTU - 1,000 British thermal units
NOx - nitrogen oxides
PM - particulate matter
RASS - California Statewide Residential Appliance Saturation Study
VOC - volatile organic compounds
SCAQMD - South Coast Air Quality Management District
yr - year

Sources:

Table 4a
CAP Emissions Associated with Traffic
Great Park Neighborhoods
Heritage Fields
Irvine, California

Land Use Subtype	Vehicle Miles Travelled		Annual Emissions from Traffic											
	2011 Approved Project (GPN)	2012 Modified Project	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
			2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project
	VMT/yr		tons/yr											
Apartments Low Rise	7,712,583	17,949,582	1.2	2.8	10	23	0.04	0.09	0.73	1.7	0.32	0.7	0.20	0.47
Exposition	55,954,719	-	8.2	-	69	-	0.28	-	6.2	-	2.3	-	1.5	-
Automobile Care Center	3,387,087	-	0.95	-	6.7	-	0.02	-	2.9	-	0.19	-	0.13	-
City Park	419,168	768,052	0.07	0.13	0.56	1.0	0.00	0.00	0.05	0.09	0.02	0.03	0.01	0.02
Condo/Townhouse	23,374,349	90,935,715	3.7	14	30	118	0.11	0.45	2.2	8.6	0.96	3.7	0.61	2.4
Day-Care Center	929,079	492,321	0.18	0.10	1.4	0.73	0.00	0.00	0.10	0.05	0.04	0.02	0.03	0.01
K-8 Schools	3,540,522	3,403,293	0.62	0.59	4.9	4.7	0.02	0.02	0.36	0.35	0.15	0.14	0.09	0.09
Golf Course	1,431,816	-	0.25	-	2.0	-	0.01	-	0.14	-	0.06	-	0.04	-
High School	-	5,291,415	-	0.89	-	7.1	-	0.03	-	0.53	-	0.22	-	0.14
Office Park	1,998,372	30,087,044	0.32	4.9	2.6	40	0.01	0.15	0.30	4.5	0.08	1.3	0.05	0.82
Place of Worship	825,392	735,695	0.13	0.12	1.1	0.96	0.00	0.00	0.09	0.08	0.03	0.03	0.02	0.02
Research & Development	40,642,448	67,563,299	7.5	13	58	97	0.23	0.38	20	33	2.1	3.4	1.4	2.3
Single Family Housing	65,240,495	73,409,755	10	12	84	95	0.32	0.36	6.2	6.9	2.7	3.0	1.7	1.9
Strip Mall	40,123,298	18,992,974	8.7	4.1	64	30	0.24	0.11	25	12	2.2	1.0	1.5	0.71
University/College (4Yr)	47,281,106	-	6.9	-	59	-	0.23	-	4.5	-	1.9	-	1.2	-
Total	292,860,435	309,629,145	49	52	393	417	1.5	1.6	69	68	13	14	8.5	8.9

Land Use Subtype	Day of Maximum	Vehicle Miles Travelled		Maximum Daily Emissions											
		2011 Approved Project (GPN)	2012 Modified Project	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
				2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project		
														VMT/day	
Apartments Low Rise	Saturday	22,996	53,519	7.4	17	60	140	0.24	0.55	3.9	9.1	1.9	4.4	1.2	2.8
Exposition	Weekday	153,722	-	45	-	387	-	1.6	-	31	-	13	-	8.2	-
Automobile Care Center	Weekday	9,305	-	5.4	-	34	-	0.12	-	16	-	1.0	-	0.72	-
City Park	Weekday	1,152	2,110	0.40	0.73	3.1	5.7	0.01	0.02	0.25	0.46	0.10	0.18	0.06	0.12
Condo/Townhouse	Saturday	69,673	271,138	22	88	183	711	0.72	2.8	12	46	5.7	22	3.6	14
Day-Care Center	Weekday	3,468	1,838	1.4	0.75	10	5.4	0.04	0.02	0.7	0.37	0.29	0.15	0.19	0.10
K-8 Schools	Weekday	13,617	13,090	4.9	4.7	37	36	0.14	0.14	2.5	2.4	1.1	1.1	0.72	0.70
Golf Course	Sunday	4,388	-	1.6	-	12	-	0.05	-	0.8	-	0.36	-	0.23	-
High School	Weekday	-	18,492	-	6.4	-	50	-	0.19	-	3.4	-	1.5	-	0.98
Office Park	Weekday	7,375	111,052	2.4	36	20	295	0.08	1.2	2.1	31	0.62	9.4	0.40	6.0
Place of Worship	Sunday	6,282	5,600	2.0	1.8	17	15	0.06	0.06	1.2	1.1	0.52	0.46	0.33	0.30
Research & Development	Weekday	145,516	241,903	54	90	412	684	1.7	2.8	144	239	15	25	10	17
Single Family Housing	Saturday	189,604	213,346	61	69	497	560	1.9	2.2	32	36	16	17	10	11
Strip Mall	Weekday	120,385	56,985	53	25	368	174	1.5	0.7	153	73	13	6.1	9.0	4.2
University/College (4Yr)	Weekday	163,941	-	48	-	416	-	1.7	-	28	-	13	-	8.5	-
Total ⁴	Weekday	889,135	948,225	303	326	2,399	2,569	10	10	425	435	79	84	52	55

Notes:

1. Trip rates are based on the Traffic study. All other values (trip length, trip purpose, and trip type) are based on the defaults in CalEEMod which come from ITE, SCAQMD, SANDAG, and SCAG.
2. Emissions estimated using CalEEMod methodologies and emission factors from EMFAC. The fleet mix has been adjusted for each land use consistent with data from ITE and validation of the SCAG traffic model. Emissions associated with transportation include running, idling, and startup emissions.
3. The 2011 Approved Project and 2012 Modified Project assume a 25% reduction in traffic based on project design features.
4. Because maximum daily emissions for each land use does not occur on the same day, the total shown here does not equal the sum of the contributions from each land use.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODEL
CAP- criteria air pollutants
EMFAC - Vehicular EMission FACtor model
GPN - Great Park Neighborhoods
NOx - nitrogen oxides
PM - particulate matter
VOC - volatile organic compounds
SCAQMD - South Coast Air Quality Management District
VMT - vehicle miles traveled
yr - year

Sources:

SCAQMD. 2011. CalEEMod User's Guide. Online: <http://caleemod.com/>. Accessed March 30, 2011.

Table 4b
CAP Emissions Associated with Traffic
Great Park Neighborhoods
Heritage Fields
Irvine, California

Land Use Subtype	Vehicle Miles Travelled		Annual Emissions from Traffic												
	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}		
			2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	
VMT/yr		tons/yr													
Apartments Low Rise	7,712,583	N/A ¹	1.2	N/A ¹	10	N/A ¹	0.04	N/A ¹	0.73	N/A ¹	0.32	N/A ¹	0.20	N/A ¹	
Exposition	55,954,719		8.2		69		0.28		6.2		2.3		1.5		
Automobile Care Center	3,387,087		0.95		6.7		0.02		2.9		0.19		0.13		
City Park	419,168		0.07		0.56		0.00		0.05		0.02		0.01		
Condo/Townhouse	23,374,349		3.7		30		0.11		2.2		0.96		0.61		
Day-Care Center	929,079		0.18		1.4		0.00		0.10		0.04		0.03		
K-8 Schools	3,540,522		0.62		4.9		0.02		0.36		0.15		0.09		
Golf Course	1,431,816		0.25		2.0		0.01		0.14		0.06		0.04		
High School	-		-		-		-		-		-		-		
Office Park	1,998,372		0.32		2.6		0.01		0.30		0.08		0.05		
Place of Worship	825,392		0.13		1.1		0.00		0.09		0.03		0.02		
Research & Development	40,642,448		7.5		58		0.23		20		2.1		1.4		
Single Family Housing	65,240,495		10		84		0.32		6.2		2.7		1.7		
Strip Mall	40,123,298		8.7		64		0.24		25		2.2		1.5		
University/College (4Yr)	47,281,106		6.9		59		0.23		4.5		1.9		1.2		
Total	292,860,435	309,629,145	49	52	393	417	1.5	1.6	69	68	13	14	8.5	8.9	

Land Use Subtype	Day of Maximum	Vehicle Miles Travelled		Maximum Daily Emissions											
		2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	VOC		CO		SO ₂		NOx		PM ₁₀		PM _{2.5}	
				2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion
		VMT/day		lbs/day											
Apartments Low Rise	Saturday	22,996	N/A ¹	7.4	N/A ¹	60	N/A ¹	0.24	N/A ¹	3.9	N/A ¹	1.9	N/A ¹	1.2	N/A ¹
Exposition	Weekday	153,722		45		387		1.6		31		13		8.2	
Automobile Care Center	Weekday	9,305		5.4		34		0.12		16		1.0		0.72	
City Park	Weekday	1,152		0.40		3.1		0.01		0.25		0.10		0.06	
Condo/Townhouse	Saturday	69,673		22		183		0.72		12		5.7		3.6	
Day-Care Center	Weekday	3,468		1.4		10		0.04		0.7		0.29		0.19	
K-8 Schools	Weekday	13,617		4.9		37		0.14		2.5		1.1		0.72	
Golf Course	Sunday	4,388		1.6		12		0.05		0.8		0.36		0.23	
High School	Weekday	-		-		-		-		-		-		-	
Office Park	Weekday	7,375		2.4		20		0.08		2.1		0.62		0.40	
Place of Worship	Sunday	6,282		2.0		17		0.06		1.2		0.52		0.33	
Research & Development	Weekday	145,516		54		412		1.7		144		15		10	
Single Family Housing	Saturday	189,604		61		497		1.9		32		16		10	
Strip Mall	Weekday	120,385		53		368		1.5		153		13		9.0	
University/College (4Yr)	Weekday	163,941		48		416		1.7		28		13		8.5	
Total ⁵	Weekday	889,135	948,225	303	326	2,399	2,569	10	10	425	435	79	84	52	55

Notes:

1. Based on land use conversion assumptions, the traffic assumptions (i.e. trip generation, trip lengths, and VMT) for the 2012 Modified Project (with and without Optional Conversion) are assumed to be equal.
2. Trip rates are based on the Traffic study. All other values (trip length, trip purpose, and trip type) are based on the defaults in CalEEMod which come from ITE, SCAQMD, SANDAG, and SCAG
3. Emissions estimated using CalEEMod methodologies and emission factors from EMFAC. The fleet mix has been adjusted for each land use consistent with data from ITE and validation of the SCAG traffic model. Emissions associated with transportation include running, idling, and startup emissions.
4. The 2011 Approved Project and 2012 Modified Project assume a 25% reduction in traffic based on project design features.
5. Because maximum daily emissions for each land use does not occur on the same day, the total shown here does not equal the sum of the contributions from each land use.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODEL
CAP - criteria air pollutants
EMFAC - Vehicular Emission FACTor model
GPN - Great Park Neighborhoods
NOx - nitrogen oxides
PM - particulate matter
VOC - volatile organic compounds
SCAQMD - South Coast Air Quality Management District
VMT - vehicle miles traveled
yr - year

Sources:

SCAQMD. 2011. CalEEMod User's Guide. Online: <http://caleemod.com/>. Accessed March 30, 2011.

Table 5a
Summary of Operational CAP Emissions
Great Park Neighborhoods
Heritage Fields
Irvine, California

Category ¹	Annual Emissions Associated with Project ²											
	VOC		CO		SO ₂		NO _x		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project
	tons/yr											
Area	56	78	54	104	0	0	0.61	1.20	0.52	1.0	0.52	1.0
Natural Gas Use	1.3	1.8	6.6	8.5	0.06	0.10	11	16	0.88	1.3	0.88	1.3
Traffic	49	52	393	417	1.5	1.6	69	68	13	14	8.5	8.9
Total	107	132	453	529	1.6	1.7	81	85	14	16	9.9	11.1

Category ¹	Daily Maximum Emissions Associated with Project ²											
	VOC		CO		SO ₂		NO _x		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project	2011 Approved Project (GPN)	2012 Modified Project
	lb/day											
Area	315	442	294	571	0.01	0.03	3.4	6.5	7.5	14	7.4	14
Natural Gas Use	7.0	10	36	47	0.36	0.55	61	87	4.8	6.9	4.8	6.9
Traffic	303	326	2,399	2,569	9.6	10	425	435	79	84	52	55
Total	625	779	2,729	3,187	10	11	489	529	91	105	64	76
Mass Daily Threshold	55		550		150		55		150		55	
Exceed Threshold	YES	YES	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES

Notes:

1. All operational categories presented in the previous operational tables and are relevant to standards.
2. Emissions estimated using CalEEMod or methodologies described in the text.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator Model
CAP - criteria air pollutants
GPN - Great Park Neighborhoods
NO_x - nitrogen oxides
PM - particulate matter
VOC - volatile organic compounds
yr - year

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Table 5b
Summary of Operational CAP Emissions
Great Park Neighborhoods
Heritage Fields
Irvine, California

Category ¹	Annual Emissions Associated with Project ²											
	VOC		CO		SO ₂		NO _x		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion
	tons/yr											
Area	56	82	54	117	0	0	0.61	1.3	0.52	1.1	0.52	1.1
Natural Gas Use	1.3	2.0	6.6	8.9	0.06	0.11	11	17	0.88	1.4	0.88	1.4
Traffic	49	52	393	417	1.5	1.6	69	68	13	14	8.5	8.9
Total	107	136	453	543	1.6	1.7	81	87	14	16	9.9	11

Category ¹	Daily Maximum Emissions Associated with Project ²											
	VOC		CO		SO ₂		NO _x		PM ₁₀		PM _{2.5}	
	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion	2011 Approved Project (GPN)	2012 Modified Project Optional Conversion
	lb/day											
Area	315	464	294	643	0.01	0.04	3.4	7.4	7.5	16	7.4	16
Natural Gas Use	7.0	11	36	49	0.36	0.59	61	93	4.8	7.5	4.8	7.5
Traffic	303	326	2,399	2,569	9.6	10	425	435	79	84	52	55
Total	625	801	2,729	3,261	10	11	489	536	91	108	64	79
Mass Daily Threshold	55		550		150		55		150		55	
Exceed Threshold	YES	YES	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES

Notes:

1. All operational categories presented in the previous operational tables and are relevant to standards.
2. Emissions estimated using CalEEMod or methodologies described in the text.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODel
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