

Summary of GHG Emissions of Aspen's Primary & Second Homes

Rick Heede
Climate Mitigation Services
2-Jul-07

This worksheet computes emissions of greenhouse gases by type of housing units (condos, duplexes, multi-family, and single-family homes). The calculations are linked to average sq ft per type of housing, number of units in each category, and energy and emissions per sq ft of heated floor area.

CMS adjusts the calculated average emissions rate per sq ft (based on Aspen's overall residential sector). Although condos share interior walls (which reduces heat loss), are often older buildings, their energy and emissions intensity is higher than average on a per sq ft basis because they are also smaller. Overall, CMS estimates that condos use 25 percent more energy (and emissions) per sq ft per year than average. Single-family homes, on the other hand, are estimated to use 14.4 percent less energy than average.

Table 1 Emissions under average CO2-e intensities

	Average emissions lb CO2-e/sf-yr	Average heated SF SF	Number of units #	Heated sf by type SF	Emissions per unit tons CO2-e	Total GHG if average tons CO2-e
Condos	23.17	1,038	3,265	3,390,650	12.03	39,273
Duplex/Triplex	23.17	2,165	447	967,192	25.08	11,203
Multi-units	23.17	7,276	48	346,653	84.28	4,015
Single-Family Homes	23.17	3,906	2,099	8,197,336	45.24	94,948
Total	23.17	2,202	5,858	12,901,831	25.51	149,440

Table 2 Emissions under adjusted CO2-e intensities

Intensity adjustment factor	Adjusted emissions lb CO2-e/sf-yr	Average heated SF SF	Number of units #	Heated sf by type SF	Emissions per unit tons CO2-e	Total GHG if average tons CO2-e
1.25	28.96	1,038	3,265	3,390,650	15.04	49,092
1.20	27.80	2,165	447	967,192	30.10	13,443
1.40	32.43	7,276	48	346,653	117.99	5,621
0.85609	19.83	3,906	2,099	8,197,336	38.73	81,284
1.00	23.17	2,202	5,858	12,901,831	25.51	149,440

Below, CMS computes emissions from Aspen's primary and second homes, by type of housing, using average energy and emissions intensities (23.17 lb CO2-e per sq ft of heated floor area per year).

Table 3 Emissions in Primary Homes under average CO2-e intensities

Intensity adjustment factor	Adjusted intensity lb CO2-e/sf-yr	Average heated SF SF	Number of units #	Total heated SF by type SF	Emissions per unit tons CO2-e	Total GHG if average tons CO2-e
none	23.17	985	1,311	1,291,642	11.41	14,961
none	23.17	2,205	197	434,389	25.54	5,031
none	23.17	8,060	28	227,806	93.36	2,639
none	23.17	3,272	940	3,076,918	37.90	35,639
none	23.17	2,031	2,477	5,030,755	23.52	58,270

Table 4 Emissions in Second Homes under average CO2-e intensities

Intensity adjustment factor	Adjusted intensity lb CO2-e/sf-yr	Average heated SF SF	Number of units #	Total heated SF by type SF	Emissions per unit tons CO2-e	Total GHG if average tons CO2-e
none	23.17	1,074	1,954	2,099,009	12.44	24,312
none	23.17	2,134	250	532,803	24.72	6,171
none	23.17	6,133	19	118,847	71.04	1,377
none	23.17	4,421	1,158	5,120,418	51.21	59,309
none	23.17	2,328	3,381	7,871,076	26.97	91,169

Then, in order to reflect the differing emissions intensity rates between condos and single-family homes, CMS adjusts the intensity rates: increasing the intensity rate for condos, for example, and decreasing the rate for single-family homes. These rate do not make adjustments for occupancy factors or all-electric condos or age of buildings or whether any particular residency is a customer of City Electric or Holy Cross Energy, which have differing carbon intensities per kWh consumed.

Sum of Primary and Second Homes	149,440
% Primary	39.0%
% Second	61.0%

Table 5 Emissions in Primary Homes under adjusted CO2-e intensities

Intensity adjustment factor	Adjusted intensity lb CO2-e/sf-yr	Average heated SF SF	Number of units #	Total heated SF by type SF	Emissions per unit tons CO2-e	Total GHG if adjusted tons CO2-e
1.25	28.96	985	1,311	1,291,642	14.26	18,701
1.20	27.80	2,205	197	434,389	30.65	6,038
1.40	32.43	8,060	28	227,806	130.70	3,694
0.86	19.83	3,272	940	3,076,918	32.44	30,511
1.00	23.17	2,031	2,477	5,030,755	23.80	58,943

Table 6 Emissions in Second Homes under adjusted CO2-e intensities

Intensity adjustment factor	Adjusted intensity lb CO2-e/sf-yr	Average heated SF SF	Number of units #	Total heated SF by type SF	Emissions per unit tons CO2-e	Total GHG if adjusted tons CO2-e
1.25	28.96	1,074	1,954	2,099,009	15.55	30,391
1.20	27.80	2,134	250	532,803	29.66	7,406
1.40	32.43	6,133	19	118,847	99.45	1,927
0.86	19.83	4,421	1,158	5,120,418	43.84	50,774
1.00	23.17	2,328	3,381	7,871,076	26.77	90,497

135.1%	
114.6%	
Sum of Primary and Second Homes	149,440
% Primary	39.4%
% Second	60.6%

Lastly, CMS estimates emissions by housing sector based on occupancy. CMS assumes that the average resident spends 330 days per year at home, whereas CMS data on second homeowners suggests average occupancy of 88 days per year. CMS could have used Northwest Colorado Council of Governments' survey of Pitkin County residences datum of average occupancy of 63 days per year. This would have increased the disparity that the average second home emits 5.3 times as much CO2-e per day of occupancy than the average primary home; single-family second homes emit 6.3 times as much CO2-e as primary single-family homes.

12.48%

Table 7 Emissions in Primary Homes per day of occupancy under adjusted CO2-e intensities

Total GHG if adjusted tons CO2-e	Number of units #	Occupancy rate days per year	Total days occup.yr unit days	Emissions per occ. day lb CO2-e/unit/day	Emissions per occ. day sample average	Total GHG Primary HH tons CO2-e
18,701	1,311	assumed 330	432,730	86.43	161	18,701
6,038	197	330	65,008	185.75	161	6,038
3,694	28	330	9,327	792.10	161	3,694
30,511	940	330	310,344	196.62	161	30,511
58,943	2,477	330	817,410	144.22	161	58,943

Table 8 Emissions in Second Homes per day of occupancy under adjusted CO2-e intensities

Total GHG if adjusted tons CO2-e	Number of units #	Occupancy rate days per year	Total days occup.yr unit days	Emissions per occ. day lb CO2-e/unit/day	Emissions per occ. day sample average	Total GHG Primary HH tons CO2-e
30,391	1,954	sample average 88.33	172,588	352.18	1,966	30,391
7,406	250	88.33	22,052	671.66	1,966	7,406
1,927	19	88.33	1,712	2,251.71	1,966	1,927
50,774	1,158	88.33	102,304	992.61	1,966	50,774
90,497	3,381	88.33	298,655	606.03	1,966	90,497

tons per yr 26.32

NWCOG: 63 days/yr
tons per yr 110.60

Table 9 Primary Second Factor of Second/Primary

	Primary Emissions per occ. day lb CO2-e/unit/day calculated	Second Emissions per occ. day lb CO2-e/unit/day calculated	Factor of Second/Primary Emissions per occ. day lb CO2-e/unit/day calculated
Condos	86	352	4.07
Duplex/Triplex	186	672	3.62
Multi-units	792	2,252	2.84
Single-Family Homes	197	993	5.05
Average	144	606	4.20

Summary of GHG Emissions of Aspen's Primary & Second Homes

Rick Heede
Climate Mitigation Services
2-Jul-07

Table 10 Primary Homes					
Floor area	total emissions	Emissions	Occupancy	Emissions/day	
sf	tons CO2-e	lb CO2-e/sf-yr	days per year	lb CO2-e/day	
Calculations linked to Profiles.xls worksheet on "Primary vs Second Intensities"					
Average	2,750	26.5	21.3	330	161

Table 11 Second Homes					
Floor area	total emissions	Emissions	Occupancy	Emissions/day	
sf	tons CO2-e	lb CO2-e/sf-yr	days per year	lb CO2-e/day	
Calculations linked to Profiles.xls worksheet on "Primary vs Second Intensities"					
Average	5,829	67.5	21.4	88	1,966

Table 12 Primary Homes			
# of units	Average heated sf	Total heated sf	

Table 12b Second Homes			
# of units	Average heated sf	Total heated sf	

Table 12c Primary & Second Homes				
# of units	Average heated sf	Total heated sf		

	# of units	Average heated sf	Total heated sf	# of units	Average heated sf	Total heated sf	# of units	Average heated sf	Total heated sf	units %	heated SF %
Condos	1,311	985	1,291,642	1,954	1,074	2,099,009	3,265	1,038	3,390,650	55.74%	26.28%
Duplex/Triplex	197	2,205	434,389	250	2,134	532,803	447	2,165	967,192	7.62%	7.50%
Multi-units	28	8,060	227,806	19	6,133	118,847	48	7,276	346,653	0.81%	2.69%
Single-Family Homes	940	3,272	3,076,918	1,158	4,421	5,120,418	2,099	3,906	8,197,336	35.82%	63.54%
Total	2,477	2,031	5,030,755	3,381	2,328	7,871,076	5,858	2,202	12,901,831	100.00%	100.00%
	42.28%		38.99%	57.72%	14.6%	61.01%					

Table 13 Sum, all housing types:					
Primary homes			Second homes		
Sum, Aspen zip	1,311	197	28	940	42.3%
Sum, non-Aspen zip	1,954	250	19	1,158	57.7%
Percent of units:	52.94%	7.95%	1.14%	37.97%	57.79%
Sum of Primary and Second homes 5,858					
Percent of all units:	22.4%	3.4%	0.5%	16.1%	33.4%
					4.3%
					0.3%
					19.8%

From "Counts 2 - by type"
Sum, heated sq ft, by building type

Table 14	
Total residential emissions, Aspen UGB 2004	
149,442 Tons CO2-e	
1,956,154 Million Btu	
Average residential emissions, per unit	
51,021 lb CO2-e	
334 million Btu	
Average residential emissions, per sq ft	
23.17 lb CO2-e/sqft	
0.152 million Btu/sqft	
Average electricity, per sq ft-yr	
108,441,661 total kWh	
18,512 average per unit	
8.41 average per sq ft	

Table 15				
Emissions by housing type IF ave emissions				
Condos	Duplex/Triplx	Apts, Multis	Single Fam	
tons	tons	tons	tons	
39,273	11,203	4,015	94,948	
Sum all residential units				149,440

Table 17				
Average kWh consumption by housing type				
Condos	Duplex/Triplx	Apts, Multis	Single Fam	
kWh	kWh	kWh	kWh	
8,728	18,201	61,155	32,831	
Average kWh consumption all units				18,512

Table 16				
Average heated floor area by housing type				
Condos	Duplex/Triplx	Apts, Multis	Single Family	
sq ft	sq ft	sq ft	sq ft	
1,038	2,165	7,276	3,906	
Average sq ft of all residential units				2,202

Table 18				
Emissions per unit by housing type IF average				
Condos	Duplex/Triplx	Apts, Multis	Single Family	
lb CO2-e	lb CO2-e	lb CO2-e	lb CO2-e	
24,056	50,165	168,554	90,487	
tons CO2-e	tons CO2-e	tons CO2-e	tons CO2-e	
12.03	25.08	84.28	45.24	
Ave per household emissions, tons				25.51

Emissions Primary & Second Home

Cell: H15

Comment: Rick Heede
Linked to "Counts 2 - by Type"

Cell: M15

Comment: Rick Heede:
CMS adjusts carbon intensities as follows: Condos are adjusted upwards by 25 percent, Duplex/Triplex upwards by 20 percent, Multi-units upwards by 40 percent, and single-family homes downwards by 14.4 percent.

Cell: P15

Comment: Rick Heede
Linked to "Counts 2 - by Type"

Cell: E33

Comment: Rick Heede:
CMS adjusts carbon intensities as follows: Condos are adjusted upwards by 25 percent, Duplex/Triplex upwards by 20 percent, Multi-units upwards by 40 percent, and single-family homes downwards by 15 percent.

Cell: H33

Comment: Rick Heede
Linked to "Counts 2 - by Type"

Cell: M33

Comment: Rick Heede:
CMS adjusts carbon intensities as follows: Condos are adjusted upwards by 25 percent, Duplex/Triplex upwards by 20 percent, Multi-units upwards by 40 percent, and single-family homes downwards by 15 percent.

Cell: P33

Comment: Rick Heede
Linked to "Counts 2 - by Type"

Cell: E52

Comment: Rick Heede:
CMS adjusts carbon intensities as follows: Condos are adjusted upwards by 25 percent, Duplex/Triplex upwards by 20 percent, Multi-units upwards by 40 percent, and single-family homes downwards by 15 percent.

Cell: H52

Comment: Rick Heede
Linked to "Counts 2 - by Type"

Cell: M52

Comment: Rick Heede:
CMS adjusts carbon intensities as follows: Condos are adjusted upwards by 25 percent, Duplex/Triplex upwards by 20 percent, Multi-units upwards by 40 percent, and single-family homes downwards by 15 percent.

Cell: P52

Comment: Rick Heede
Linked to "Counts 2 - by Type"

Cell: J119

Comment: Rick Heede:
Venturoni, Linda (2007) Transitions in Mountain Communities, Resort Economies and their Secondary Effects, Northwest Colorado Council of Governments, survey question #48 in the Pitkin County section shows 50 percent of second homeowners own condos and 40 percent own single-family homes (vs 20 percent and 56 percent for local residents, respectively, no account is made of local residents renting their homes). The result of the CMS analysis of the Tax Assessor's database differs substantially, as shown below.

Aspen residential sector average consumption, 2004

Sopris Foundation: Aspen Second Homes & Emissions Study (ASHES)

Rick Heede
Climate Mitigation Services

23-Jan-07

Calla: FYI, 30Jan07

Table 1		Electricity					
2004		Electricity consumption		Electricity emissions		Electricity Btu	
	Electricity kWh	Attributed to Res'l kWh	Total Aspen UGB tons CO2-e	Attributed to Res'l tons CO2-e	Total Aspen UGB Billion Btu	Attributed to Res'l Billion Btu	
City of Aspen Electric Dept.							
Residential: single-family house	15,908,246		10,059		162		
Residential: multi-family 2-4 ho	1,634,361		1,033		17		
Residential: multi-family 5+ ho	4,493,457		2,841		46		
Residential: Total	22,036,064	22,036,064	13,934	13,934	225	225	
Commercial	36,412,851		23,025		371		
Industrial			-		-		
Municipal	4,315,683	863,137	2,729	546	44	9	
Other (irrigation pumps)	108,011	43,204	68	27	1	0	1. Allocate electricity incl Housing under Muni, and 0.4 of irrigation pumps
Total, Aspen Electric Dept.	62,872,609	22,942,405	39,756	14,507	641	234	
Holy Cross Energy							
Residential	76,900,263	76,900,263	69,017	69,017	784	784	2. Residential electricity equals 53.12 percent of total
Commercial	59,817,370	5,981,737	53,685	5,369	610	61	
Industrial			-		-		3. Apply this percentage to natural gas consumption, gas emissions, and gas Btu.
Municipal	4,566,226	2,617,256	4,098	2,349	47	27	
Total, Holy Cross Energy	141,283,859	85,499,256	126,801	76,735	1,441	872	4. All propane to residential
Aspen Elec + Holy Cross	204,156,468	108,441,661	166,557	91,242	2,082	1,106	
Percent Res'l of total	53.12%	discrepancy (?)	54.78%	Percent Residential	53.12%		

Table 2		Natural Gas					
2004		Gas consumption		Gas emissions		Gas Btu	
	Total Consumption Mcf (thousand cf)	Attributed to Res'l Mcf (thousand cf)	Total Aspen UGB tons CO2-e	Attributed to Res'l tons CO2-e	Total Aspen UGB Billion Btu	Attributed to Res'l Billion Btu	
Kinder Morgan Inc.							
	1,160 cf/million Btu						
Residential	726,372	726,372	41,372	41,372	626	626	
Commercial	726,372	238,250	41,372	13,570	626	179	
Municipal (included above)			-		-		
Total, Kinder Morgan	1,452,744		82,744	54,942	1,252	805	
AM Gas, Inc.							
	1,160						
Residential			-		-		
Commercial	363,186		20,686	-	313	-	
Total, AM Gas	363,186		20,686	-	313	-	
Kinder Morgan + AM Gas	1,815,930	964,622	103,430	54,942	1,565	805	
Percent Residential	53.12%	Percent Residential	53.12%				

Table 3		Propane					
2004		Propane consumption		Propane emissions		Propane Btu	
	Total Consumption gallons	Attributed to Res'l gallons	Total Aspen UGB tons CO2-e	Attributed to Res'l tons CO2-e	Total Aspen UGB Billion Btu	Attributed to Res'l Billion Btu	
AmeriGas	250,137	245,134	1,662	1,629	23	22	
Ferrellgas	250,137	245,134	1,662	1,629	23	22	
AmeriGas + Ferrellgas	500,274	490,269	3,325	3,258	46	45	

Table 4		All residential energy and emissions						
2004		Energy consumption (commodity)	Emissions tons CO2-e	Energy consumption million btu	Energy consumption Average/household	Emissions tons CO2-e/yr	Emissions lb CO2-e/yr	Energy consumption Average/household million btu/yr
Electricity (kWh)	108,441,661	91,242	1,106,105	18,512 kWh/yr	15.6	31,151	189	
Natural Gas (thousand cf)	964,622	54,942	805,271	1,647 hundred cf/yr	9.4	18,758	137	
Propane (gallons)	490,269	3,258	44,778	84 gallons/yr	0.6	1,112	8	
Total energy	na	149,442	1,956,154	na	25.5	51,021	334	

Number of housing units (condos + single family res'l) 5,858

Household Ave

Cell: G14

Comment: Rick Heede:

Electricity is valued at primary: 10,200 Btu per kWh on average (thermal generation). At end-use, electricity is 3,412 Btu/kWh.

Cell: D30

Comment: Rick Heede:

Holy Cross data for 2004, from Lee Cassin "AspenDataCassinMay05.xls" shows consumption by the City's housing complexes in Holy Cross territory: 2.617 million kWh in 2004.

Cell: I31

Comment: Rick Heede:

KincerMorgan could merely guess at a 50:50 split between residential and commercial consumption; they do not track or study the demand. CMS thus applies the fraction of electricity consumption attributed to residential sector to natural gas consumption.

Cell: E35

Comment: Rick Heede:

CMS has checked every (?) sum and calculation and I am puzzled why this fraction differs from the other two columns.

Cell: F86

Comment: Rick Heede:

Total residential households -- including condos, apartments (multi-units), and single-family households -- within the modified UGB boundary also used for the Aspen emissions boundary. Data provided by Bridgette Kelly of Pitkin GIS, Nov06.

CMS deleted all commercial properties from this database (with assessed of actual tax rates below 29 percent), and all un-improved parcels (i.e., land).

Cell: B95

Comment: Rick Heede:

CMS here assumes 67 percent of all KM and AM Gas is sold to residential customers. In our 2005 worksheets we had taken KM's statement that fifty-fifty resl / coml, but this includes their transmission of AM Gas, which is all coml.

Aspen residential sector average consumption

Background Calculations for Sopris Foundation ASHES report

Rick Heede
Climate Mitigation Services
17-Feb-07

Table 1 All residential energy and emissions							
2004	Energy consumption	Emissions	Energy consumption	Energy consumption	Emissions	Emissions	Energy consumption
	(commodity)	tons CO2-e	million btu	Average/household	Average/household	Average/household	Average/household
				tons CO2-e/yr	lb CO2-e/yr	lb CO2-e/yr	million btu/yr
Electricity (kWh)	108,441,661	91,242	1,106,105	18,439 kWh/yr	15.5	31,029	188
Natural Gas (thousand cf)	964,622	54,942	805,271	1,640 hundred cf/yr	9.3	18,684	137
Propane (gallons)	490,269	3,258	44,778	83 gallons/yr	0.6	1,108	8
Total energy	na	149,442	1,956,154	na	25.4	51,021	334

Number of housing units (condos + single family res'l) **5,858**

Emissions by housing type IF ave emissions			
Condos	Duplex/Triplx	Apts, Multis	Single Fam
tons	tons	tons	tons
39,273	11,203	4,015	94,948
Sum all residential units			149,440

Average heated floor area by housing type			
Condos	Duplex/Triplx	Apts, Multis	Single Family
sq ft	sq ft	sq ft	sq ft
1,038	2,165	7,276	3,906
Average sq ft of all residential units			2,202

Average kWh consumption by housing type			
Condos	Duplex/Triplx	Apts, Multis	Single Fam
kWh	kWh	kWh	kWh
8,728	18,201	61,155	32,831
Average kWh consumption all units			18,512

Emissions per unit by housing type IF average			
Condos	Duplex/Triplx	Apts, Multis	Single Family
lb CO2-e	lb CO2-e	lb CO2-e	lb CO2-e
24,056	50,165	168,554	90,487
tons CO2-e	tons CO2-e	tons CO2-e	tons CO2-e
12.03	25.08	84.28	45.24
Ave per household emissions, tons			25.51

840,875 tons CO2 (total Aspen 2004)
37,360 tons CO2-e (25% resl savings)
4.44% percent of total

Total residential emissions, Aspen UGB 2004	
149,442	Tons CO2-e
1,956,154	Million Btu

Average residential emissions, per unit	
51,021	lb CO2-e
334	million Btu

Average residential emissions, per sq ft	
23.17	lb CO2-e/sqft
0.152	million Btu/sqft

Ave electric, /sq ft-yr, housing type & HCE vs City	
108,441,661	total kWh
18,512	average kWh/unit-yr
8.41	average kWh/sqft-yr
8,728	ave kWh/condo
32,831	ave kWh/SingleFam
12.86	ave lb CO2-e/sqft-yr
28,319	ave lb CO2-e/housing unit
8,730	ave lb CO2-e/Condo (HCE)
58,931	ave lb CO2-e/SingleFam (HCE)
11,038	ave lb CO2-e/Condo (City)
41,519	ave lb CO2-e/SingleFam (City)
15.09	ave lb CO2-e/sqft (HCE)
10.63	ave lb CO2-e/sqft (City)

preliminary
preliminary
preliminary
preliminary
preliminary
preliminary
preliminary
preliminary
preliminary
preliminary

ave per housing type
(in blue) is highly prelim

\$ 46,900,000 Aspen buildings
\$ 24,913,280 Aspen resl
\$ 4,253 ave home
\$ 6,228,320 25% savings

Table 5. Emissions factors (CO2-e/kWh consumed)			
	2004	Aspen Muni	Holy Cross Energy
CO2 (incl T&D losse		1.259	1.770
Methane (as CO2-e		0.006	0.025
Total CO2-e/kWh		1.265	1.795

Table 3. Carbon factors		
10.077	lb CO2/hundred cf (ccf)	
11.392	lb CO2-e/ccf	
0.1008	lb CO2 per cubic foot	
1,160	cubic feet / million Btu	
862	Btu per cubic foot	
346,653	tons CO2 per billion Btu	
693,306	lb CO2 per million Btu	

Average natural gas, per sq ft-yr & by Housing Type	
9,646,219	CCF
1,647	average CCF/unit-yr
0.748	average CCF/sqft-yr
18,758	ave lb CO2-e/unit-yr
8.52	ave lb CO2-e/sqft-yr
8,844	ave lb CO2-e/Condo
33,268	ave lb CO2-e/SingleFam

ave per housing type
(in blue) is highly prelim

the minor discrepancy between total HH and gas + elec
is due to not (yet) adding per HH use and emissions from propane

Cell: D62

Comment: Rick Heede:

Preliminary, since we are awaiting energy consumption data for various housing types, in City and HCE service territories, and by occupancy.

Cell: C64

Comment: Rick Heede:

This averages all housing types and averages HCE and City electric carbon intensity.

Cell: J69

Comment: Rick Heede:

These factors are for easy visibility and are derived from the factors calculated in the main worksheet.

The main factors are 19.7 percent lower than at sea level, eg, 10.077 lb CO₂/ccf vs 12.0593 lb CO₂/ccf at sea level.

Cell: I70

Comment: Rick Heede:

Derived from Btu content of Kinder Morgan natural gas supply in 2004 with KMI's altitude adjustment plus carbon content per billion Btu. See comment under "Emissions Factor" for details.

Cell: I71

Comment: Rick Heede:

This factor is used to generate results for individual homes and commercial buildings. (It takes the carbon emissions factor and adds the CO₂-equivalent of the fugitive methane developed in Table 1 above. As such it adds to CO₂ the methane factor shown in Table 2: Methane emissions rate as CO₂-e, which in 2004 = 13.05 percent of CO₂.)

Aspen Second Homes Emissions Study

Rick Heede (Climate Mitigation Services), & Piper Foster (Sopris Foundation)

20Jun07: sorted Column Z

24Jun07: Sorted by Parcel # (Column D).

check:

Second

Procedure: eliminated all "land" entries, commercial units (2)

Last modified:
21-Jun-07

Notes 16Dec06
Deleted three Churches 21Jan07

	Million sqft	Million sqft	
Sum, Struct & Heated sqft	15.756	12.902	81.88%

Total entries (25Jun07): 5,858

	Sum of heated sf in Sort by Columns G and W - 25Jun07	Parcel #	Acct #	Model	Abstract Code	Structural Area 2	Heated Area 2		Land Acres	Land SqFt	Name	Subname
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												
91												
92												
93												
94												
95												
96												
97												
98												
99												
100												
101												
102												
103												
104												
105												
106												
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
118												
119												
120												
121												
122												
123												
124												
125												
126												
127												

Aspen Second Homes Emissions Study

Rick Heede (Climate Mitigation Services), & Piper Foster (Sopris Foundation)

Last modified:

21-Jun-2007

9 percent "assessed" to "actual" ratio); added "x" in Affordable Housing Column Q; may enter LLC in Column P; see notes for sorts by zipcode, city, etc.

Z1Dec06 = \$36,610

Total entries (25Jun07): 5,858

Ass'd & Actual, \$million \$ 841.3 \$ 10,166.2

Table with columns: Owner Name, non-res, reside nt, rental or CK, LLC etc, Afford., Address 1, Address 2, City, State, Zip code, Assessor Actual Address, Assessed Value, Actual Value, Assessed of Actual Value. It lists 127 property entries with their respective details.