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APPENDIX C  
Surface Area, Population, and  
Average Daily Vehicle Miles Traveled

**Appendix C: *Surface Area, Population, and Average Daily Vehicle Miles Traveled***

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## Introduction

This appendix provides information on the square mile surface area, population, and average number of vehicle miles traveled (VMT) per day in California. The trend data for population and daily VMT cover the period 1990 through 2035. Data are listed for each county within each air basin and for the State as a whole. In cases where a county is split between two or more air basins, the data reflect only that portion of the county within the respective air basin. Please note that the average daily VMT listed in the following tables has been divided by 1000.

Surface areas were calculated based on United States Census Bureau data from the 2010 Census. The surface areas shown reflect land portions of air basins only and exclude water bodies, including bays, lakes, and rivers.

The population data were derived from reports developed by the California Department of Finance, Demographic Research Unit. Split county fractions for 1990 and 2000 were derived using census 2000

and 2010 data. The population data do not reflect any adjustment for the estimated census undercount.

The estimates of daily VMT for the years 1990 through 2035 are found in ARB's motor vehicle emissions inventory model, EMFAC2011 (refer to [www.arb.ca.gov/msei/msei.htm](http://www.arb.ca.gov/msei/msei.htm)). For future calendar years, the VMT estimates in large urbanized areas are provided by Regional Transportation Planning Agencies (RTPAs) as an output of their travel demand models. For recent years (2000-2005), the VMT is calculated as the product of vehicle population from Department of Motor Vehicles (DMV) data and mileage accrual rates (annual miles traveled by type and age of vehicle) calculated from the Bureau of Automotive Repair database for the Smog Check program. For historical years (pre-2000), the VMT is calculated as the product of vehicle population backcast from DMV data and mileage accrual rates. More detailed information about the methodologies used in developing the VMT trends is available from the ARB staff at (916) 445-8699.

## California

*Surface Area = 155779 square miles*

Statewide Population and VMT Trends										
Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Population	29828496	31711849	34000835	35985582	37309382	38801063	40643643	42451760	44279354	46083482
VMT/1000*	655348	726101	813292	892024	953029	1013538	1079011	1138889	1200801	1260425

Table C-1

\* Average Daily

## Surface Area

*2010 United States Census Bureau*

County	Surface Area (Square Miles)*
Alameda	739
Alpine	738
Amador	595
Butte	1636
Calaveras	1020
Colusa	1151
Contra Costa	716
Del Norte	1006
El Dorado	1708
Fresno	5958
Glenn	1314
Humboldt	3568
Imperial	4177
Inyo	10181
Kern	8132
Kings	1389
Lake	1256
Lassen	4541
Los Angeles	4058
Madera	2137
Marin	520
Mariposa	1449
Mendocino	3506
Merced	1935
Modoc	3918
Mono	3049
Monterey	3281
Napa	748
Nevada	958

Table C-2

County	Surface Area (Square Miles)*
Orange	791
Placer	1407
Plumas	2553
Riverside	7206
Sacramento	965
San Benito	1389
San Bernardino	20057
San Diego	4207
San Francisco	47
San Joaquin	1391
San Luis Obispo	3299
San Mateo	448
Santa Barbara	2735
Santa Clara	1290
Santa Cruz	445
Shasta	3775
Sierra	953
Siskiyou	6278
Solano	822
Sonoma	1576
Stanislaus	1495
Sutter	602
Tehama	2950
Trinity	3179
Tulare	4824
Tuolumne	2221
Ventura	1843
Yolo	1015
Yuba	632

## Population and Vehicle Miles Traveled

California Department of Finance and EMEAC2011

County	Air Basin	District	Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Alameda	San Francisco Bay Area	Bay Area AQMD	Population	1276100	1335230	1448768	1459882	1513236	1577938	1608204	1634983	1657567	1668918
Alameda	San Francisco Bay Area	Bay Area AQMD	VMT/1000	31531	33036	37198	38295	39544	41436	43151	44875	46608	48399
Alpine	Great Basin Valleys	Great Basin Unified APCD	Population	1094	1171	1203	1208	1163	1158	1172	1167	1167	1174
Alpine	Great Basin Valleys	Great Basin Unified APCD	VMT/1000	34	36	40	39	43	46	49	52	54	56
Amador	Mountain Counties	Amador County APCD	Population	30462	33395	35205	37722	37853	36949	39352	40958	42036	43150
Amador	Mountain Counties	Amador County APCD	VMT/1000	832	932	977	1008	1155	1228	1309	1379	1453	1524
Butte	Sacramento Valley	Butte County AQMD	Population	183229	197464	203446	213698	219990	224955	241521	259926	284082	305039
Butte	Sacramento Valley	Butte County AQMD	VMT/1000	3805	4167	4473	5240	5755	6606	7436	8238	9037	9850
Calaveras	Mountain Counties	Calaveras County APCD	Population	32466	38352	40658	44773	45462	45172	48312	50787	53001	55188
Calaveras	Mountain Counties	Calaveras County APCD	VMT/1000	995	1159	1202	1261	1475	1569	1672	1763	1856	1947
Colusa	Sacramento Valley	Colusa County APCD	Population	16300	17833	18880	20565	21478	22417	24886	27061	29023	31219
Colusa	Sacramento Valley	Colusa County APCD	VMT/1000	516	543	553	583	696	750	801	838	877	918
Contra Costa	San Francisco Bay Area	Bay Area AQMD	Population	806315	872804	953675	1004230	1052211	1093171	1147399	1197866	1254205	1324740
Contra Costa	San Francisco Bay Area	Bay Area AQMD	VMT/1000	19538	21892	24887	26762	27690	28866	29985	31106	32230	33371
Del Norte	North Coast	North Coast Unified AQMD	Population	24426	27862	27447	28315	28544	28678	29635	30358	30861	31328
Del Norte	North Coast	North Coast Unified AQMD	VMT/1000	580	590	562	554	636	675	719	759	800	839
El Dorado	Lake Tahoe	El Dorado County APCD	Population	29955	32837	34475	33554	30703	31259	34466	37400	39793	42192
El Dorado	Lake Tahoe	El Dorado County APCD	VMT/1000	665	772	809	739	753	801	853	899	946	993
El Dorado	Mountain Counties	El Dorado County APCD	Population	97350	112073	123813	139627	150218	152936	168629	182984	194692	206431
El Dorado	Mountain Counties	El Dorado County APCD	VMT/1000	2463	3036	3414	4162	4450	4762	4999	5120	5240	5362
Fresno	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	670250	755971	802224	871910	932377	988970	1071728	1151711	1241773	1326594
Fresno	San Joaquin Valley	San Joaquin Valley Unified APCD	VMT/1000	12713	15798	18461	20114	22860	25792	28285	31638	34705	37859
Glenn	Sacramento Valley	Glenn County APCD	Population	24827	26398	26555	27525	28143	28871	30780	32304	33552	34747
Glenn	Sacramento Valley	Glenn County APCD	VMT/1000	742	796	712	735	864	926	988	1038	1088	1141
Humboldt	North Coast	North Coast Unified AQMD	Population	119370	124979	126665	131689	134663	135681	139132	143107	145684	147118
Humboldt	North Coast	North Coast Unified AQMD	VMT/1000	3188	3212	3295	3216	3620	3850	4103	4325	4555	4779
Imperial	Salton Sea	Imperial County APCD	Population	110074	136183	143151	157657	175389	192707	222920	242916	259339	277418
Imperial	Salton Sea	Imperial County APCD	VMT/1000	4989	5264	5532	5636	7016	8912	11255	12629	14092	15291
Inyo	Great Basin Valleys	Great Basin Unified APCD	Population	18198	18371	18116	18463	18528	18710	19350	19877	20428	21285
Inyo	Great Basin Valleys	Great Basin Unified APCD	VMT/1000	619	596	635	643	729	780	832	875	918	962
Kern	Mojave Desert	Kern County APCD	Population	111407	115376	112611	123449	129979	140889	163402	185875	207263	229421
Kern	Mojave Desert	Kern County APCD	VMT/1000	2473	2775	3137	3569	4079	4584	5238	5845	6722	7628
Kern	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	436585	503592	551762	638523	711167	770861	894038	1016996	1134015	1255256
Kern	San Joaquin Valley	San Joaquin Valley Unified APCD	VMT/1000	9986	11970	14462	17345	19254	21697	24391	26998	29883	32920
Kings	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	101866	115865	129764	144601	152656	157314	176647	192147	205627	219714
Kings	San Joaquin Valley	San Joaquin Valley Unified APCD	VMT/1000	1703	2685	3032	3596	3908	4346	4751	5173	5589	6038

Table C-3

## Population and Vehicle Miles Traveled

### California Department of Finance and EMEAC2011

County	Air Basin	District	Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Lake	Lake County	Lake County AQMD	Population	50962	56630	58479	63107	64599	65392	71228	78832	84394	91482
Lake	Lake County	Lake County AQMD	VMT/1000	1300	1500	1567	1570	1779	1890	2014	2123	2236	2348
Lassen	Northeast Plateau	Lassen County APCD	Population	27693	28891	33871	34528	35136	34132	35934	37714	38828	40086
Lassen	Northeast Plateau	Lassen County APCD	VMT/1000	576	669	668	663	801	850	906	956	1007	1057
Los Angeles	Mojave Desert	Antelope Valley AQMD	Population	231253	262112	299681	342737	378044	387904	401767	412440	421349	427888
Los Angeles	Mojave Desert	Antelope Valley AQMD	VMT/1000	9220	9220	10087	9380	14074	15655	17336	19562	22040	24176
Los Angeles	South Coast	South Coast AQMD	Population	8629028	8839010	9244302	9466820	9446862	9693240	10039674	10306369	10528986	10692396
Los Angeles	South Coast	South Coast AQMD	VMT/1000	169536	175937	189248	210149	213634	218866	225373	229755	234832	238460
Madera	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	88506	109941	124265	139868	151328	161556	185056	208914	229277	254408
Madera	San Joaquin Valley	San Joaquin Valley Unified APCD	VMT/1000	2152	2550	3389	4452	5369	6098	7342	8536	8924	9334
Marin	San Francisco Bay Area	Bay Area AQMD	Population	229887	238409	247424	246686	252731	255006	251361	251899	253026	255475
Marin	San Francisco Bay Area	Bay Area AQMD	VMT/1000	5167	5524	6221	6367	6468	6611	6744	6879	7015	7153
Mariposa	Mountain Counties	Mariposa County APCD	Population	14422	16450	17056	18057	18193	18115	20463	22008	22186	22459
Mariposa	Mountain Counties	Mariposa County APCD	VMT/1000	443	486	472	482	559	593	632	667	703	737
Mendocino	North Coast	Mendocino County AQMD	Population	80574	83753	86506	88016	87924	89401	91498	93306	94812	96666
Mendocino	North Coast	Mendocino County AQMD	VMT/1000	2277	2414	2508	2486	2790	2976	3174	3341	3513	3685
Merced	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	179400	199020	211109	240600	255937	273156	301376	333223	366352	401569
Merced	San Joaquin Valley	San Joaquin Valley Unified APCD	VMT/1000	4324	5303	6322	7586	8295	9525	10761	12494	14295	16153
Modoc	Northeast Plateau	Modoc County APCD	Population	9685	9983	9510	9588	9648	9526	9965	10254	10347	10510
Modoc	Northeast Plateau	Modoc County APCD	VMT/1000	204	216	208	206	251	267	284	300	316	331
Mono	Great Basin Valleys	Great Basin Unified APCD	Population	10078	11400	12855	13799	14240	14643	15037	15635	16261	16962
Mono	Great Basin Valleys	Great Basin Unified APCD	VMT/1000	386	353	364	362	411	440	470	493	517	542
Monterey	North Central Coast	Monterey Bay Unified APCD	Population	356797	360350	402854	407974	416259	431493	436107	456236	475957	495051
Monterey	North Central Coast	Monterey Bay Unified APCD	VMT/1000	8447	8984	10499	11523	12249	12810	13345	14038	14729	15429
Napa	San Francisco Bay Area	Bay Area AQMD	Population	111017	117269	124601	130740	136811	140855	145660	151537	158649	165347
Napa	San Francisco Bay Area	Bay Area AQMD	VMT/1000	3160	3945	4486	4991	5089	5229	5358	5487	5618	5752
Nevada	Mountain Counties	Northern Sierra AQMD	Population	79019	87059	91872	97802	98639	98596	104343	109325	114022	119921
Nevada	Mountain Counties	Northern Sierra AQMD	VMT/1000	2073	2287	2538	2604	2923	3121	3332	3503	3679	3858
Orange	South Coast	South Coast AQMD	Population	2411976	2604532	2853893	2957151	3017327	3141834	3198279	3251694	3286100	3311811
Orange	South Coast	South Coast AQMD	VMT/1000	50560	56971	65585	72032	74950	77987	80848	82631	84889	86501
Placer	Lake Tahoe	Placer County APCD	Population	9375	10853	12310	12326	10492	11129	11733	12432	13255	14049
Placer	Lake Tahoe	Placer County APCD	VMT/1000	283	347	380	341	357	380	404	426	448	471
Placer	Mountain Counties	Placer County APCD	Population	20499	21790	22379	25098	25101	26625	28069	29742	31711	33611
Placer	Mountain Counties	Placer County APCD	VMT/1000	694	846	1219	1481	1491	1603	1671	1669	1666	1675
Placer	Sacramento Valley	Placer County APCD	Population	145031	178912	217042	275206	314681	333782	351881	372853	397539	421357
Placer	Sacramento Valley	Placer County APCD	VMT/1000	3121	4011	5510	7502	8555	9685	10694	11527	12359	13193

Table C-3 (Cont)

# Population and Vehicle Miles Traveled

## California Department of Finance and EMEAC2011

County	Air Basin	District	Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Plumas	Mountain Counties	Northern Sierra AQMD	Population	19779	20823	20653	20859	19911	19843	20731	20741	20526	20401
Plumas	Mountain Counties	Northern Sierra AQMD	VMT/1000	467	495	538	534	615	654	697	735	773	811
Riverside	Mojave Desert	Mojave Desert AQMD	Population	14022	15443	16507	20987	24319	26089	28772	31333	33796	36213
Riverside	Mojave Desert	Mojave Desert AQMD	VMT/1000	604	774	936	966	1062	1481	1955	2172	2405	2626
Riverside	Mojave Desert	South Coast AQMD	Population	4515	6756	9344	5913	246	264	291	317	342	367
Riverside	Mojave Desert	South Coast AQMD	VMT/1000	763	998	1181	1165	1208	1329	1415	1582	1751	1968
Riverside	Salton Sea	South Coast AQMD	Population	244070	285964	325937	390216	425404	456372	503294	548094	591184	633471
Riverside	Salton Sea	South Coast AQMD	VMT/1000	9323	11629	9878	11754	13650	15817	18516	21267	24067	26915
Riverside	South Coast	South Coast AQMD	Population	925658	1070642	1205483	1517608	1741917	1868723	2060854	2244300	2420741	2593892
Riverside	South Coast	South Coast AQMD	VMT/1000	15274	19274	25748	33535	37948	42071	47367	51544	55936	59950
Sacramento	Sacramento Valley	Sacramento Metropolitan AQMD	Population	1046870	1120733	1230501	1358168	1420434	1477479	1543522	1617175	1708114	1817718
Sacramento	Sacramento Valley	Sacramento Metropolitan AQMD	VMT/1000	25777	29421	30990	33458	36016	39038	41780	44142	46490	48870
San Benito	North Central Coast	Monterey Bay Unified APCD	Population	36911	44347	53635	55153	55350	57512	60278	64658	69215	73398
San Benito	North Central Coast	Monterey Bay Unified APCD	VMT/1000	1195	1420	1676	1897	2032	2157	2263	2336	2408	2490
San Bernardino	Mojave Desert	Mojave Desert AQMD	Population	315216	349668	382176	458687	509443	534593	568045	606965	656494	702737
San Bernardino	Mojave Desert	Mojave Desert AQMD	VMT/1000	13236	16065	18684	21833	25553	28213	31397	34999	38808	42802
San Bernardino	South Coast	South Coast AQMD	Population	1116932	1231108	1337014	1484047	1529080	1604568	1704972	1821790	1970451	2109249
San Bernardino	South Coast	South Coast AQMD	VMT/1000	22120	26630	31103	35964	39088	42089	46051	49069	52162	55373
San Diego	San Diego	San Diego County APCD	Population	2504897	2615201	2828374	2970135	3102745	3225139	3333995	3432537	3530896	3640255
San Diego	San Diego	San Diego County APCD	VMT/1000	57264	63022	72291	77498	82630	86836	90863	97179	103491	109748
San Francisco	San Francisco Bay Area	Bay Area AQMD	Population	723187	739863	778942	779655	806254	835109	852788	867354	877847	886167
San Francisco	San Francisco Bay Area	Bay Area AQMD	VMT/1000	12025	12566	13513	13052	13464	13952	14415	14888	15363	15840
San Joaquin	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	481939	522089	567753	651625	686588	725884	810845	905852	1004147	1110972
San Joaquin	San Joaquin Valley	San Joaquin Valley Unified APCD	VMT/1000	8750	10975	12883	15093	16154	18080	19900	21491	22907	24373
San Luis Obispo	South Central Coast	San Luis Obispo County APCD	Population	217808	230223	247724	259943	269713	273793	287744	299996	311349	322734
San Luis Obispo	South Central Coast	San Luis Obispo County APCD	VMT/1000	5316	5559	6315	6494	7319	7789	8297	8744	9208	9658
San Mateo	San Francisco Bay Area	Bay Area AQMD	Population	648162	675919	708384	699277	719729	747637	747563	766521	803288	833209
San Mateo	San Francisco Bay Area	Bay Area AQMD	VMT/1000	17822	20273	21895	20152	20930	21785	22613	23452	24292	25135
Santa Barbara	South Central Coast	Santa Barbara County APCD	Population	368953	383717	399874	411683	424050	435639	449505	461567	473356	483905
Santa Barbara	South Central Coast	Santa Barbara County APCD	VMT/1000	8480	8580	9616	11184	12451	13550	14620	14768	14915	15071
Santa Clara	San Francisco Bay Area	Bay Area AQMD	Population	1495296	1573477	1687415	1699521	1786429	1874604	1889898	1936386	1986545	2038645
Santa Clara	San Francisco Bay Area	Bay Area AQMD	VMT/1000	32695	36169	40641	40513	42414	44695	46876	49063	51259	53484
Santa Cruz	North Central Coast	Monterey Bay Unified APCD	Population	229329	241202	255869	254725	263260	270555	275704	283724	290121	295743
Santa Cruz	North Central Coast	Monterey Bay Unified APCD	VMT/1000	5171	5478	6072	6662	7058	7244	7424	7594	7765	7936
Shasta	Sacramento Valley	Shasta County AQMD	Population	147966	159742	164150	174254	177472	181792	199814	210320	220019	232908
Shasta	Sacramento Valley	Shasta County AQMD	VMT/1000	3458	3732	4015	4319	4849	5189	5535	5816	6105	6400

Table C-3 (Cont)

## Population and Vehicle Miles Traveled

### California Department of Finance and EMEAC2011

County	Air Basin	District	Parameter	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
Sierra	Mountain Counties	Northern Sierra AQMD	Population	3318	3560	3618	3430	3230	3052	3034	3049	3125	3326
Sierra	Mountain Counties	Northern Sierra AQMD	VMT/1000	97	86	91	89	103	110	117	123	130	136
Siskiyou	Northeast Plateau	Siskiyou County APCD	Population	43629	44999	44382	44945	44893	44649	46369	47606	48883	50896
Siskiyou	Northeast Plateau	Siskiyou County APCD	VMT/1000	1549	1631	1417	1437	1618	1742	1862	1950	2039	2135
Solano	Sacramento Valley	Yolo/Solano AQMD	Population	98287	109170	121530	127444	129683	133254	140387	146638	154891	165185
Solano	Sacramento Valley	Yolo/solano AQMD	VMT/1000	3290	3839	4696	5558	5615	5836	6033	6205	6374	6558
Solano	San Francisco Bay Area	Bay Area AQMD	Population	244177	258531	274461	283126	283434	291240	306830	320492	338531	361028
Solano	San Francisco Bay Area	Bay Area AQMD	VMT/1000	5638	5838	6738	7583	7728	7990	8226	8462	8699	8945
Sonoma	North Coast	Northern Sonoma County APCD	Population	49347	53128	56961	54290	52066	53289	54558	55900	57482	59330
Sonoma	North Coast	Northern Sonoma County APCD	VMT/1000	1474	1590	1648	1808	1838	1897	1954	2007	2059	2114
Sonoma	San Francisco Bay Area	Bay Area AQMD	Population	340132	371220	403516	415234	432018	442168	452692	463834	476957	492291
Sonoma	San Francisco Bay Area	Bay Area AQMD	VMT/1000	7420	8864	9912	10660	10909	11234	11539	11850	12161	12476
Stanislaus	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	373650	415341	449767	498020	515205	540853	589156	634710	674859	714694
Stanislaus	San Joaquin Valley	San Joaquin Valley Unified APCD	VMT/1000	7015	8517	9921	10732	11795	12873	14220	15100	16015	16964
Sutter	Sacramento Valley	Feather River AQMD	Population	64814	74167	79202	88106	94669	98833	108939	119413	133010	151452
Sutter	Sacramento Valley	Feather River AQMD	VMT/1000	1292	1460	1662	1956	2123	2412	2651	2821	2989	3169
Tehama	Sacramento Valley	Tehama County APCD	Population	49866	54573	55832	60461	63487	64733	69340	72898	77437	83688
Tehama	Sacramento Valley	Tehama County APCD	VMT/1000	1571	1650	1674	1826	2089	2247	2399	2515	2632	2758
Trinity	North Coast	North Coast Unified AQMD	Population	13025	13477	12958	13789	13713	13524	14352	15071	15532	16262
Trinity	North Coast	North Coast Unified AQMD	VMT/1000	409	393	398	399	456	489	522	548	574	602
Tulare	San Joaquin Valley	San Joaquin Valley Unified APCD	Population	313115	350848	368805	408403	443066	473785	526718	575294	630303	682022
Tulare	San Joaquin Valley	San Joaquin Valley Unified APCD	VMT/1000	5555	6908	7974	8566	10064	11152	13003	14233	15934	17670
Tuolumne	Mountain Counties	Tuolumne County APCD	Population	48703	52220	54587	56452	55144	54222	55938	56872	57982	59863
Tuolumne	Mountain Counties	Tuolumne County APCD	VMT/1000	1441	1449	1426	1428	1605	1704	1816	1915	2018	2117
Ventura	South Central Coast	Ventura County APCD	Population	669093	705080	756902	796867	825077	851859	867535	887411	912548	940102
Ventura	South Central Coast	Ventura County APCD	VMT/1000	13027	14750	17000	19073	20264	21070	21894	22575	23309	23741
Yolo	Sacramento Valley	Yolo/Solano AQMD	Population	141773	154603	169818	187354	201311	209198	223657	237322	250414	266653
Yolo	Sacramento Valley	Yolo/solano AQMD	VMT/1000	3265	3835	4577	5379	5763	6281	6729	7083	7431	7790
Yuba	Sacramento Valley	Feather River AQMD	Population	58581	61895	60334	67712	72329	75787	84520	92785	101812	112727
Yuba	Sacramento Valley	Feather River AQMD	VMT/1000	1271	1411	1527	1783	2048	2323	2556	2726	2895	3065

Table C-3 (Cont)