CHAPTER V

WATER DISTRIBUTION IMPACTS

A. INTRODUCTION

This chapter assesses the development-related impacts of the various distribution alternatives being considered as part of the Monterey Peninsula Water Management District's Water Allocation Program.

The six water distribution alternatives are:

Water Distribution Alternative I: No Allocation
Water Distribution Alternative II: Current Allocation
Water Distribution Alternative III: Percentage of New Growth Allocation
Water Distribution Alternative IV: Percentage of New Growth (with Adjusted Base) Allocation
Water Distribution Alternative V: Percentage of Total Buildout Allocation
Water Distribution Alternative VI: Current Consumption Plus Limited Expansion Allocation

The analysis in this chapter focuses on Distribution Alternatives II through VI under Water Supply Option III at Baseline Production/Consumption Level B. This combination of distribution alternatives, water supply option, and baseline consumption was selected for analysis because it would result in the allocation of the most water of all the possible combinations and would, therefore, support the largest amount of new development. Thus, it represents a "worst-case" scenario. Because Distribution Alternative I (No Allocation) would result in no discrete jurisdictional allotments, it is not possible to determine where development would occur within the District boundaries and, thus, what effects development might have. Distribution Alternative I is, therefore, not analyzed in the following sections. It should also be noted that Distribution Alternative VI differs from the other alternatives in that it provides only for a specific amount of water to each jurisdiction for select future needs. The philosophy for the underlying formula is that water should only be allotted for specific land uses of high societal value. Section C in Chapter II contains a discussion of the rationale behind Alternative VI.

Chapter II describes all six water distribution alternatives in detail and the assumptions upon which they are based.

The discussion of impacts in this chapter is organized in the same sequence as in Chapter IV, although the list of impact categories is not identical. Sections B through D discuss impacts on natural resources; Section E discusses impacts on recreation; Sections F and G discuss impacts on land use and housing; Sections H through J discuss impacts on public facilities and services; Sections K through O describe socioeconomic impacts; and Section P discusses air quality impacts. Section Q summarizes the impacts of each water distribution alternative.

Within each section in this chapter, the impact discussion is divided into two parts: 1) a description of the methodology used to assess the impacts and/or an analysis of the impacts; and 2) a description of the impacts, including a conclusion as to their level of significance, along with a discussion of measures that could be implemented to mitigate any negative impacts.

It should be noted that while this chapter focuses primarily on the impacts of the water distribution alternatives on and within individual jurisdictions, Chapter IV assesses the cumulative impacts of new development potential under each water supply option.

1. New Development Potential

As the basis for assessing the impacts of the five water distribution alternatives being analyzed, assumptions had to be made about how water would be used in the various jurisdictions to be allocated water under the District's Allocation Program and collectively within the boundaries of the entire Monterey Peninsula Water Management District. To develop these assumptions, each jurisdiction was asked how it might allocate water to various categories of land use depending on the amount of water that might be made available. The "Jurisdictional Water Use Preferences" section (Subsection F.3) of Chapter III describes how each jurisdiction *might* allocate its water based on current land use policies. There is no guarantee that the water will in fact be used according to these preferences.

These jurisdictional water use preferences were then used to translate the various amounts of water each jurisdiction would receive under each of the five water distribution alternatives being analyzed into new development potential. The new development potential is stated in terms of numbers of single-family dwellings, multi-family dwellings, employees, hotel rooms, and golf course employees.

As noted in Section C of Chapter II, there are 26 possible combinations of supply options, distribution alternatives, and assumed baseline production/consumption levels that would provide discrete and quantifiable amounts of additional Cal-Am water to the eight affected jurisdictions. Because analysis of the 26 scenarios for each jurisdiction would be unmanageable, the analysis in this chapter is generally based on the "worst case" (i.e., most water available for new development) scenario for each jurisdiction. Because Water Supply Option III (20,500 acre-feet) at Baseline Production/Consumption Level B (16,700 acre-feet) would provide the greatest amount of "net new water" (see Subsection C.4 in Chapter II), the "worst-case" scenario for each jurisdiction is defined as the distribution alternative under Supply Option III at Baseline Level B which results in the highest potential growth level for that jurisdiction.

Estimates of new development potential within the district, but outside of the Cal-Am service area, are based on EIP Associates' *Estimates of Housing and Employment at Buildout Within the Monterey Peninsula Water Management District* (July 1988). This development potential is assumed to remain constant under all of the distribution alternatives and, therefore, constitutes the districtwide development potential baseline.

Table V-1 summarizes the total new development potential for all jurisdictions based on the five water distribution alternatives being analyzed under Water Supply Option III at Baseline Production/Consumption Level B. This information is the basis for the assessment of impacts in this chapter. Similar tables for each combination of water supply options and baseline production/consumption levels resulting in net new water are contained in Appendix E.

TABLE V-1
TOTAL NEW DEVELOPMENT POTENTIAL
SUPPLY OPTION II AT BASELINE PRODUCTION OF 16,700 ACRE-FEET

	Single Family		Multi-Family		Employment		Hotel		Golf Course		Total
	Acre-Feet	Units	Acre-Feet	Units	Acre-Feet	Emp	Acre-Feet	Rooms	Acre-Feet	Emp	Acre-Feet
Carmel-by-the-Sea											
Alternative II	82.39	361	24.34	158	10.65	100					117.39
Alternative III	86.41	379	51.81	336	26.25	248					164.47
Alternative IV	85.48	375	43.26	281	18.92	179					147.66
Alternative V	84.99	373	40.27	261	17.61	166					142.87
Alternative VI	59.66	262									59.66
Del Rey Oaks											
*Alternative II	0.68	3	23.25	151	14.31	135	22.47	164			65.72
Alternative III	0.68	3	23.25	151	6.78	64	1.01	7			31.72
Alternative IV	0.68	3	20.38	132	4.31	41					25.38
Alternative V	0.68	3	21.37	139	5.04	48					27.10
Alternative VI	0.28	1	6.00	39							6.28
City of Monterey											
Alternative II	-35.84	-157	393.57	2,556	625.69	5,903	48.09	351			1,031.52
Alternative III	-36.11	-158	396.50	2,575	630.35	5,947	48.45	354			1,039.20
Alternative IV	-31.55	-138	346.49	2,250	550.84	5,197	42.34	309			908.12
Alternative V	-36.67	-161	402.74	2,615	640.28	6,040	49.21	359			1,055.56
Alternative VI	-12.16	-53	133.59	867	212.37	2,004	16.32	119			350.12
Pacific Grove											
Alternative II	37.35	164	239.54	1,555	90.98	858	22.40	163			390.26
Alternative III	32.41	142	185.43	1,204	79.87	753	22.16	162			319.86
Alternative IV	30.03	132	159.39	1,035	74.52	703	22.04	161			285.99
Alternative V	27.73	122	134.17	871	69.35	654	21.93	160			253.18
Alternative VI	16.51	72	45.58	296	42.71	403	17.23	126			122.03
Sand City											
Alternative II			115.36	749	70.22	662	65.20	476			250.78
Alternative III			210.46	1,367	128.10	1,209	118.95	868			457.52
Alternative IV			220.55	1,432	134.25	1,266	124.66	910			479.45
Alternative V			342.98	2,227	271.82	2,564	178.32	1,302			793.12
Alternative VI			115.06	747	70.04	661	65.04	475			250.14
Seaside											
Alternative II	28.87	127	8.45	55	209.41	1,976	75.26	549			321.99
Alternative III	28.87	127	9.29	60	212.38	2,004	75.50	551			326.03
Alternative IV	28.87	127	21.99	143	246.90	2,329	75.50	551			373.25
Alternative V	28.87	127	8.45	55	169.48	1,599	61.56	449			268.36
Alternative VI	28.87	127	8.45	55	137.40	1,296	50.55	369			225.26
Monterey County											
Alternative II	639.12	1,686	26.67	173	28.18	247	41.67	304	115.47	45	849.11
Alternative III	450.99	1,190	18.82	122	18.48	174	29.40	215	115.47	45	633.15
Alternative IV	568.26	1,499	23.71	154	23.28	220	37.05	270	115.47	45	767.77
Alternative V	240.45	634	10.03	65	9.85	93	15.68	114	115.47	45	391.48
Alternative VI	332.09	876	13.86	90	13.61	128	21.65	158	115.47	45	496.67
MPAD											
Alternative II					1.71	16					1.71
Alternative III					56.51	533					56.51
Alternative IV					40.85	385					40.85
Alternative V					96.81	913					96.81
Alternative VI					1.25	12					1.25
Cal-Am Total											
Alternative II	752.57	2,184	831.18	5,397	1,049.15	9,898	275.09	2,008	115.47	45	3,028.47
Alternative III	563.25	1,682	895.56	5,815	1,158.72	-10,931	295.47	2,157	115.47	45	3,028.47
Alternative IV	681.77	1,997	835.77	5,427	1,093.87	10,320	301.59	2,201	115.47	45	3,028.47
Alternative V	346.04	1,098	960.02	6,234	1,280.23	12,078	326.71	2,385	115.47	45	3,028.47
Alternative VI	425.24	1,285	322.54	2,094	477.37	4,504	170.79	1,247	115.47	45	1,511.40
Non-Cal-Am Total		741				8,534		150			
MPWMD Total											
Alternative II	752.57	2,925	831.18	5,397	1,049.15	18,432	275.09	2,158	115.47	45	3,028.47
Alternative III	563.25	2,423	895.56	5,815	1,158.72	19,465	295.47	2,307	115.47	45	3,028.47
Alternative IV	681.77	2,738	835.77	5,427	1,093.87	18,854	301.59	2,351	115.47	45	3,028.47
Alternative V	346.04	1,839	960.02	6,234	1,280.23	20,612	326.71	2,535	115.47	45	3,028.47
Alternative VI	425.24	2,026	322.54	2,094	477.37	13,038	170.79	1,397	115.47	45	1,511.40

B. SURFACE WATER AND GROUNDWATER RESOURCES

1. Methodology and Analysis

The District's Allocation Program may affect water resources in terms of infiltration into the ground from urban irrigation or golf course irrigation, subsequent percolation to the water table, and reductions in infiltration due to impervious surfaces. Although amounts and locations of recharge to the groundwater cannot be determined without specific proposals for the distribution of new development, general estimates can be made.

The various communities to receive water overlie different groundwater subbasins (Table V-2).

TABLE V-2

JURISDICTIONS AND THEIR UNDERLYING AQUIFER/SUBBASINS

Jurisdiction	Aquifer/Subbasin
Carmel-by-the-Sea	N/A
Del Rey Oaks	Seaside Coastal Subbasin
City of Monterey	N/A
Pacific Grove	N/A
Sand City	Seaside Coastal Subbasin
Seaside	Seaside Coastal Subbasin
Monterey County	Carmel Valley Aquifer Subbasins AQ1, AQ2, AQ3, AQ4
MPAD	N/A

Source: Jones & Stokes Associates

The effects of the water distribution alternatives on recharge to the groundwater basins were analyzed by assuming that a portion of the water delivered to the various uses would be applied to vegetation. Once applied, some would run off to the stormwater system or natural channels, evaporate, be consumed by the vegetation (this quantity is a function of the type of vegetation), or infiltrate into the soil (a function of the soil type). Conversely, roads, playgrounds, roofs, storm drains, and other impervious surfaces constructed as part of urbanization would decrease the amount of infiltration. The net effect on groundwater recharge is a function of the placement of growth and the density of development. Generally, groundwater recharge is anticipated to decrease in most areas (Table V-3).

TABLE V-3

CHANGES IN GROUNDWATER RECHARGE RESULTING FROM DISTRIBUTION ALTERNATIVES

Distribution Alternative	Carmel Valley Aquifer Subbasins AQ1	AQ2	AQ3	AQ4	Seaside Coastal Subbasin
I	=	=	-	-	=
II	=	=	-	-	=
III	=	=	-	-	=
IV	=	=	-	-	=
V	=	=	=	-	=

\- Decrease in groundwater recharge
= No change in groundwater recharge

Source: Jones & Stokes Associates

The potential recharge to aquifer subbasins resulting from Water Supply Option II or III primarily affects Carmel Valley Aquifer Subbasins AQ3 and AQ4. Most of the water allocated under the five distribution alternatives being analyzed would be applied outside of the boundaries of the Carmel Valley Aquifer and therefore would have no effect on the aquifer.

Surface water resources of the Carmel River would be affected by the allocation of water mainly through a decrease in the time runoff takes to reach the river and an increase in the volume of runoff.

2. Impacts and Mitigation Measures

Impacts: The impacts of any of the five distribution alternatives on the Carmel Valley Aquifer, Seaside Coastal Subbasin, and the Carmel River are considered less-than-significant.

Mitigation Measures: None required.

C. VEGETATION

1. Methodology and Analysis

Although information is available concerning how much growth each jurisdiction might experience under the five distribution alternatives being analyzed, no information is available concerning where within each jurisdiction the growth would occur. The impacts of the allocation alternatives cannot, therefore, be quantitatively assessed.

The various upland vegetation communities found within the District's boundaries and the jurisdictions containing this vegetation are described in Chapter III.

Species common to the closed-cone conifer forest could be affected by development in the unincorporated areas on the Monterey Peninsula. The dominant vegetation here is Monterey pine and patches of Monterey cypress (U. S. Soil Conservation Service 1978).

Chaparral species could also be affected by development on inland hills. Development in Del Rey Oaks, Monterey, Carmel-by-the-Sea, Seaside, and along the Carmel Valley could have an impact on this vegetation.

Coastal scrub species could be affected by development in Pacific Grove, coastal areas of the Pebble Beach area, Carmel-by-the-Sea, and Carmel Highlands.

Coastal dune species could be affected by development on upper beaches and coastal foredunes of Sand City, Monterey, Pacific Grove, the Pebble Beach area, Carmel-by-the-Sea, and Carmel Highlands.

Species common to the hardwood forest could be affected by development on north-facing hillsides and slopes, especially along the Carmel Valley.

Special-status plant species found within the vegetation communities discussed above could also be affected by development.

2. Impacts and Mitigation Measures

Impacts: Without more specific information as to where growth would occur in the affected jurisdictions, the significance of any impacts on vegetation cannot be determined. Additional environmental review, as required by CEQA, would be necessary when the location of new development is determined by the responsible jurisdictions.

Mitigation: None required.

D. WILDLIFE

1. Methodology and Analysis

Although information is available concerning how much growth each jurisdiction might experience under the five distribution alternatives being analyzed, no information is available concerning where within each jurisdiction growth would occur. The impacts of the allocation alternatives cannot, therefore, be quantitatively assessed.

Wildlife species common to upland habitats are described in Chapter III. These species could potentially be affected by development within the District's boundaries, depending on where growth occurs.

Special-status wildlife species could be affected by development disrupting or displacing their habitats.

2. Impacts and Mitigation Measures

Impacts: Without more specific information as to where growth would occur in the affected jurisdictions, the significance of any impacts on wildlife cannot be determined. Additional environmental review, as required by CEQA, would be necessary when the location of new development is determined by the responsible jurisdictions.

Mitigation: None required.

E. RECREATION

1. Methodology and Analysis

The direct impacts of the distribution alternatives on recreation would be limited to golf course development, although development of additional housing would indirectly affect recreation by creating an increased demand for park and recreation services, along with a probable increase in the supply of local park and recreation facilities.

As of January 1988, the only jurisdiction which had expressed a preference for future golf course development was Monterey County. The course for which the County had intended this "future" water (The Links at Spanish Bay) has since opened and is now drawing water. While theoretically, for purposes of this EIR, the course should be considered a future use, as a practical matter it is an existing use. The significance for this EIR is that no additional water is necessary for golf course development, and that the 115.47 acre-feet of water that the County set aside for the golf course is now not available for allocation to other uses.

2. Impacts and Mitigation Measures

Impacts: Recreation would not be affected by the distribution alternatives, except indirectly through growth creating additional demands on existing recreational facilities. The impacts of any of the five distribution alternatives are considered less-than-significant.

Mitigation Measures: None required.

F. LAND USE

1. Methodology and Analysis

The effects on land use of the various water distribution alternatives would differ significantly from jurisdiction to jurisdiction depending on the amount of development that could be supported by additional water. Since all of the development scenarios assessed in this EIR are based on currently applicable general plans, zoning, and land use policies in each jurisdiction, however, in no case would *planned* land uses be altered by the distribution alternatives. In no case would any direct land-use related impacts result from the District's Allocation Program; in those cases where the program might lead indirectly to land use-related impacts, the impacts are discussed in separate sections of this chapter. Following are brief jurisdiction-by-jurisdiction summaries of the total development that would be supported by Distribution Alternatives II through VI under Supply Option III at Baseline Production/Consumption Level B.

Carmel-by-the-Sea

Because there is very little developable land remaining within Carmel-by-the-Sea, the effects of any of the distribution alternatives on land use would be minimal. Under most supply/distribution scenarios, most of the new growth in Carmel-by-the-Sea would be residential, with most of this being single-family.

New development would range from a low of 262 single-family units under Alternative VI to a total of 773 residential units (379 single-family and 394 multi-family) and 391 new jobs under Alternative III. There would be no new hotels or golf courses.

Del Rey Oaks

Del Rey Oaks has even less land available for development than Carmel-by-the-Sea. Clearly the highest level of growth would occur under Alternative II, but even in this case the city would see the development of only 154 additional housing units (151 of these multi-family) and 266 new jobs (131 of which would result from new hotel development). The least growth would take place under Alternative IV, with new development limited to only 40 housing units.

City of Monterey

Growth within Monterey would be significant under all of the distribution alternatives, except Alternative VI. This growth would be evenly distributed among development categories, except single-family, where the City assumes single-family units would be replaced with multi-family units as property owners develop their land to its full zoned potential. The least growth could be accommodated under Alternative VI, with a total of 867 new housing units and 2,099 new jobs. Growth under Alternative V would be the greatest, with 6,197 new units and 7,249 new jobs.

Pacific Grove

Like Carmel-by-the-Sea and Del Rey Oaks, Pacific Grove has relatively little vacant developable land left within the city limits. Most of Pacific Grove's growth would, therefore, result from replacement or intensification of existing uses. The city would realize its greatest growth under Alternative II, with 182 new single-family units, 1,850 multi-family units, and 1,078 new employees. Pacific Grove would grow the least under Alternative VI, with 72 new single-family units, 296 multi-family units, and 504 employees.

Sand City

Under all of the supply/distribution scenarios, Sand City would experience the greatest amount growth relative to its current size of any jurisdiction within the District. By far the greatest growth would occur with Alternative V, under which an additional 4,706 residential units (all multi-family) and 3,718 new jobs would develop. Alternative VI would support the least amount of new development, with 747 new multi-family units and 1,041 new jobs.

Seaside

Seaside would experience relatively little growth under any of the distribution alternatives. The least growth would occur under Alternative VI, with 127 new single-family units, 55 new multi-family units, and 1,591 new employees. Alternative IV would result in the highest level of growth, with 127 new single-family units, 219 new multi-family units, and 3,071 new jobs.

It should be noted that Seaside also draws water from its own municipal system. Seaside Municipal is, however, very near its production capacity, and could accommodate very little growth.

Monterey County

The unincorporated portion of Monterey County within the Cal-Am service area would be affected significantly differently under the various distribution alternatives. The county would see its greatest growth under Alternative II, with the development of 2,036 new single-family units, 209 multi-family units, and 637 new jobs (including 294 in new hotel development and 45 in golf course development). Alternative VI would support the least amount of new growth, with 966 new housing units (876 single-family and 90 multi-family) and 300 new jobs.

Monterey Peninsula Airport District

Because MPAD has only employment-generating land uses, all growth would take place in the employment category. Employment growth would range from 12 under Alternative VI to 940 new employees under Alternative V.

Non-Cal-Am Area

As discussed above, this EIR assumes that the area within MPWMD but outside of the Cal-Am service area would realize the same level of growth under all of the distribution alternatives. The non-Cal-Am area has the potential for 741 new housing units, all of them single-family, and 8,054 new jobs.

2. Impacts and Mitigation Measures

Impacts: None of the distribution alternatives being analyzed would alter planned land uses. However, the amount of new development that could occur in each jurisdiction would vary depending on the amount of water it received under each of the distribution alternatives. It is assumed that any new development that would be allowed by additional water is a beneficial impact. For the purposes of CEQA, however, the land use impacts of any of the five distribution alternatives are considered less-than-significant.

Mitigation Measures: None required.

G. HOUSING AND POPULATION GROWTH

1. Methodology and Analysis

CEQA generally requires that EIRs address project or program effects on housing and population, and specifically that they analyze how a proposal will affect existing housing, whether or not it will create a demand for additional housing, and whether or not it will induce substantial growth or concentration of population. Increasing the amount of water available to any of the affected jurisdictions would facilitate housing and population growth already planned by the jurisdiction. Increasing the amount of water for new employment-generating uses could also increase the demand for housing. To the extent that no new water or only a limited amount of new water is available to a jurisdiction, the costs of existing housing could be affected by limitations on the ability of the jurisdiction to allow for the development of new housing. In any case, the impacts of the Allocation Program on housing and population would result only in economic or social effects, which according to CEQA shall not be treated as significant effects on the environment, unless the economic or social effects in turn cause physical changes in the environment. Any such potential physical changes are addressed separately in this EIR. Accordingly, the direct housing- and population-related environmental impacts of the Allocation Program are, for the purposes of this analysis, are considered to be less-than-significant.

It should be noted that in cases where jurisdictions identified preferences for future development (see "Jurisdictional Water Use Preferences" section (Subsection F.3) in Chapter III), housing was generally set as a first priority.

Table V-4 shows the baseline assumptions for existing single-family and multi-family units along with future new housing capacity and total buildout capacity for each jurisdiction. The figures in Table V-4, which were taken from EIP Associates' *Estimates of Housing and Employment at Buildout within the Monterey Peninsula Water Management District* (July 1988), are based on currently applicable general plans, zoning, and land use policies.

Table V-5 summarizes the housing unit development potential for each jurisdiction based on the five water distribution alternatives being analyzed under Water Supply Option III at Baseline Production/Consumption Level B. This information is the basis for the assessment of potential housing development impacts in this section.

TABLE V-4

EXISTING HOUSING STOCK AND POPULATION AND ESTIMATED BUILDOUT POTENTIAL

	EXISTING HOUSING AND POPULATION				FUTURE HOUSING AND POPULATION				BUILDOUT HOUSING AND POPULATION			
	Single Family	Multi-Family	Total Housing	Pop[1]	Single Family	Multi-Family	Total Housing	Pop[1]	Single Family	Multi-Family	Total Housing	Pop[1]
Carmel-by-the-Sea	2,593	619	3,212	5,767	379	506	885	1,589	2,972	1,125	4,097	7,356
Del Rey Oaks	573	9	582	1,520	3	151	154	402	576	160	736	1,923
Monterey	6,381	6,721	13,102	28,877	-313	5,089	4,776	10,526	6,068	11,810	17,878	39,403
Pacific Grove	5,244	2,769	8,013	16,367	232	2,661	2,893	5,909	5,476	5,430	10,906	22,276
Sand City	74	23	97	200	0	2,617	2,617	5,395	74	2,640	2,714	5,595
Seaside	4,901	2,516	7,417	21,808	295	614	909	2,673	5,196	3,130	8,326	24,481
Monterey County	8,190	1,955	10,145	24,094	2,717	279	2,996	7,116	10,907	2,234	13,141	31,210
MPAD	0	0	0	0	0	0	0	0	0	0	0	0
Non-Cal-Am[2]	1,488	206	1,694	4,458	741		741	1,760	2,229	206	2,435	6,218
Total	**29,444**	**14,818**	**44,262**	**103,091**	**4,054**	**11,917**	**15,971**	**35,371**	**33,498**	**26,735**	**60,233**	**138,463**

[1]Assumes a 5 percent vacancy rate and the following estimates of population per unit.

Carmel-by-the-Sea	1.89
Del Rey Oaks	2.75
City of Monterey	2.32
Pacific Grove	2.15
Sand City	2.17
Seaside	3.10
Monterey County	2.50

[2]Includes development both in Seaside and in unincorporated Monterey County

Source: EIP Associates, Estimates of Housing and Employment at Buildout within the Monterey Peninsula Water Management District, July 1988

TABLE V-5
HOUSING UNIT DEVELOPMENT POTENTIAL
Supply Option III at Baseline Production of 16,700 Acre-Feet

	Single-Family Units	Multi-Family Units	Total Units	Population
Carmel-by-the-Sea				
Alternative II	373	263	636	1,141
Alternative III	379	394	773	1,388
Alternative IV	379	358	737	1,323
Alternative V	379	348	727	1,305
Alternative VI	262		262	470
Del Rey Oaks				
*Alternative II	3	151	154	402
Alternative III	3	151	154	402
Alternative IV	3	151	154	402
Alternative V	3	151	154	402
Alternative VI	1	39	40	105
City of Monterey				
Alternative II	-181	2,935	2,755	6,071
Alternative III	-182	2,966	2,784	6,135
Alternative IV	-165	2,683	2,518	5,549
Alternative V	-184	2,996	2,812	6,197
Alternative VI	-53	867	814	1,794
Pacific Grove				
Alternative II	182	1,850	2,032	4,150
Alternative III	157	1,439	1,596	3,259
Alternative IV	147	1,289	1,436	2,934
Alternative V	139	1,149	1,287	2,629
Alternative VI	72	296	368	752
Sand City				
Alternative II		774	774	1,596
Alternative III		1,559	1,559	3,213
Alternative IV		1,598	1,598	3,295
Alternative V		2,283	2,283	4,706
Alternative VI		747	747	1,540
Seaside				
Alternative II	127	158	284	836
Alternative III	127	147	274	805
Alternative IV	127	219	346	1,016
Alternative V	127	62	188	554
Alternative VI	127	55	181	534
Monterey County				
Alternative II	2,036	209	2,246	5,333
Alternative III	1,419	146	1,565	3,717
Alternative IV	1,701	175	1,875	4,454
Alternative V	958	98	1,057	2,510
Alternative VI	876	90	966	2,295
MPAD				
Alternative II				
Alternative III				
Alternative IV				
Alternative V				
Alternative VI				
Cal-Am Total				
Alternative II	2,540	6,339	8,880	19,529
Alternative III	1,902	6,802	8,704	18,919
Alternative IV	2,192	6,472	8,664	18,972
Alternative V	1,421	7,087	8,508	18,303
Alternative VI	1,285	2,094	3,379	7,490
Non-Cal-Am Total	741		741	1,760
MPWMD Total				
Alternative II	3,281	6,339	9,621	21,289
Alternative III	2,643	6,802	9,445	20,679
Alternative IV	2,933	6,472	9,405	20,732
Alternative V	2,162	7,087	9,249	20,063
Alternative VI	2,026	2,094	4,120	9,250

Carmel-by-the-Sea

As Table V-4 indicates, Carmel-by-the-Sea's existing housing stock consists of 2,593 single-family and 619 multi-family units. Assuming 1.89 residents per unit and a 5 percent vacancy rate, these units support an existing population of 5,767. Full buildout would result in an additional 379 single-family, 506 multi-family units, and 1,589 residents. Table V-5 shows that under all of the distribution alternatives at Supply Option III except Alternative VI, Carmel-by-the-Sea would realize almost all of its single-family development potential, and between 50 and 80 percent of its multi-family potential. Under Alternative VI, Carmel-by-the-Sea could develop only about 260 new single-family units and no multi-family units. Translating this housing development potential into population growth potential would result in a range from an additional 470 residents under Alternative VI to 1,388 new residents under Alternative III.

Del Rey Oaks

Del Rey Oak's existing housing stock consists of 573 single-family and 9 multi-family units. Assuming an average of 2.75 residents per unit and a 5 percent vacancy rate, these existing units support a population of 1,520. Full buildout would result in only 3 additional single-family, 151 multi-family units, and 402 new residents. Del Rey Oaks is a residential community with very few opportunities for further development of housing, under any circumstances. As Table V-5 shows, Del Rey Oaks would realize all of its residential development and population growth potential at Supply Option III under all distribution alternatives except Alternative VI, under which it could support growth of 40 new units and 105 new residents.

City of Monterey

Monterey's existing housing stock consists of 6,381 single-family and 6,721 multi-family units. These units support a population of 28,877, assuming 2.32 persons per unit and a 5 percent vacancy rate. Full buildout would result in the loss of 313 single-family and the addition of 5,089 multi-family units for a total population increase of 10,526 residents. As Table V-5 indicates, under Supply Option III, housing growth within Monterey would range from 814 units under Alternative VI to 2,812 units under Alternative V, with very little variation among Alternatives II through V. This housing growth would support a population increase of between about 1,800 and 6,200 new residents. All of the expected net residential growth would be in multi-family units because the City assumes that a portion of its single-family housing stock will be replaced with multi-family units as property owners develop their land to its full zoned potential.

Pacific Grove

Pacific Grove's existing housing stock consists of 5,244 single-family and 2,769 multi-family units. With an assumed population per unit of 2.15 and a 5 percent vacancy rate, these units support an existing population of 16,367. Full buildout would result in an additional 232 single-family and 2,661 multi-family units, with an additional population of 5,909 units. Only 129 of these units would be developed on currently vacant land, with the balance resulting from construction of additional units on existing developed parcels. Depending on the distribution alternative assumed, housing development potential would vary significantly under Supply Option III. The greatest amount of residential growth in Pacific Grove would be under Alternative II, with 182 new single-family units and 1,850 multi-family units, and the least would be under Alternative VI, with only 72 new single-family units and 296 multi-family units. Population growth would accordingly range from a low of 752 to a high of 4,150 new residents.

Sand City

Sand City's existing housing stock and population are very limited, with only 74 single-family, 23 multi-family units, and 200 residents (assuming an average household size of 2.17 and a 5 percent vacancy rate). Full buildout would result in an additional 2,617 multi-family units and new 5,395 residents. By far the greatest amount of residential growth in Sand City under Supply Option III would occur under Alternative V, with an additional 2,283 multi-family residential units and 4,706 new residents. The least amount of residential and population growth would occur under Alternative VI (747 new units and 1,540 new residents), with Alternative II allowing only slightly more.

It should be noted that the growth potential estimates assumed for Sand City in this EIR (as derived from EIP Associates's *Estimates of Housing and Employment at Buildout within the Monterey Peninsula Water Management District*) far exceed forecasts developed by the Association of Monterey Bay Area Governments (AMBAG) in January 1988. For instance, EIP estimated that Sand City could accommodate an additional 5,400 residents while AMBAG estimates that the city will grow by only 875 residents by the Year 2005. While both sets of development potential estimates are based on Sand City's current general plan, EIP estimated only full buildout, while AMBAG's estimate is temporal (through 2005) and is based additionally on other factors, such as historical growth rate.

Seaside

That portion of Seaside's existing housing stock supported by Cal-Am water consists of 4,901 single-family and 2,516 multi-family units. Assuming 3.095 residents per unit and a vacancy rate of 5 percent, these units could accommodate 21,808 residents. Seaside also has 620 single-family and 150 multi-family units (2,264 residents) that rely on water supplied by the Seaside Municipal System. Neither of these estimates includes Fort Ord, which does not fall under the jurisdiction of the Monterey Peninsula Water Management District. Full buildout would result in an additional 295 single-family, 614 multi-family units, and 2,673 residents, all within the Cal-Am service area. Seaside would experience relatively little housing stock growth under any of the distribution alternatives under Supply Option III. Under all of the distribution alternatives, the city could grow by a total of 127 new single-family units. Multi-family growth would, however, vary relatively significantly, with a low of 55 new units under Alternative VI and a high of 219 new units under Alternative IV. This housing unit growth would result in an additional population potential of between 534 and 1,016 new residents.

Unincorporated Monterey County

The existing housing stock in the unincorporated portion of Monterey County within the Cal-Am service area consists of 8,190 single-family and 1,955 multi-family units. With an assumed population per unit of 2.5 and a vacancy rate of 5 percent, these units support an existing population of 24,094. Full buildout would result in an additional 2,717 single-family units, 279 multi-family units, and 7,116 new residents. The county's stock would be affected significantly differently under the various distribution alternatives. The county would see its greatest residential growth under Alternative II, with the potential development of 2,036 new single-family units and 209 multi-family units. The lowest level of growth could be realized under Alternative VI, with 876 new single-family units and 90 new multi-family units. New residential development potential within the unincorporated Cal-Am service area under Supply Option III could result in population growth ranging from 2,295 to 5,333 new residents.

Monterey Peninsula Airport District

Since MPAD has no existing housing and has none planned, there would be no housing-related impacts under any scenario.

Non-Cal-Am Area

As Table V-4 indicates, the area within MPWMD but outside of the Cal-Am service area has a total of 1,694 housing units, most of which (1,488) are single-family units. These units support a estimated population of 4,458. The non-Cal-Am area also has the potential for another 741 housing units, all of them single-family. Assuming a five percent vacancy rate and average of 2.5 residents per unit, these 741 units could accommodate 1,760 new residents. As discussed above, this EIR assumes that all of the these units will be developed, regardless of the distribution alternative selected by the District Board.

MPWMD Area Total

The total existing housing stock within the Monterey Peninsula Water Management District consists of 29,444 single-family and 14,818 multi-family units. This development supports a population of approximately 103,000. Full buildout of existing plans would result in an additional 4,054 single-family units, 11,917 multi-family units, and 35,370 new residents. The largest amount of new single-family development could occur under Alternative II, with an additional 3,281 units. Alternative V would result in the most multi-family units, with 7,087. The largest total housing stock and population growth (9,621 new units and 21,289 new residents) would occur under Alternative II.

2. Impacts and Mitigation Measures

Impacts: None of the distribution alternatives being analyzed would alter planned residential land uses. The amount of new housing development that could occur in each jurisdiction would vary depending on the amount of water it received under each of the distribution alternatives. It is assumed that any new housing development that would be allowed by additional water would constitute a beneficial impact on the housing market. On the other hand, constraints on the development of new housing could be interpreted as a negative impact on the housing market because of the effects that such constraints might have on the affordability of housing. If opportunities for new housing development were limited or eliminated, the cost of existing housing would probably increase, thereby decreasing the stock of affordable units. In no case, however, do the housing- and population-related impacts identified here constitute significant impacts on the environment for the purposes of CEQA.

Mitigation Measures: None required.

H. TRAFFIC

1. Methodology and Analysis

The assessment of traffic impacts is based on the estimated development potential for each of the eight jurisdictions under each of the five distribution alternatives being analyzed. Trip generation is determined by applying the trip rates to the various land use scenarios. Table V-6 shows the average daily traffic that would be generated by each of the jurisdictions under each of the distribution alternatives. Table V-6 and the analysis that follows assume a worst-case scenario in that they are based on Water Supply Option III at Baseline Production/Consumption Level B, which would allow the most new development of all the water supply options.

TABLE V-6

AVERAGE DAILY TRIP GENERATION FOR DISTRIBUTION ALTERNATIVES
Assuming Supply Option III at Baseline Production/Consumption Level B

Jurisdiction	Distribution Alternative II	III	IV	V	VI
Carmel-by-the-Sea	7,123	10,270	9,140	8,826	2,620
Del Rey Oaks	3,508	1,795	1,366	1,467	257
City of Monterey	59,471	60,108	54,360	60,722	17,580
Pacific Grove	26,826	22,416	20,789	19,283	8,710
Sand City	16,867	34,766	35,839	54,564	16,279
Seaside	39,376	38,754	42,949	33,779	22,483
Monterey County	30,904	21,829	25,979	15,030	13,823
MPAD	281	8,281	6,526	12,596	161
Non-Cal-Am	134,546	134,546	134,546	134,546	134,546
Total	**318,903**	**332,764**	**331,493**	**340,812**	**216,459**

Source: Jones & Stokes Associates

To determine the precise effect a particular water distribution scenario would have on the eight freeway segments identified in Figure V-1, a trip distribution and traffic assignment analysis would be required. This distribution analysis would determine the percentage of the average daily traffic volumes for each jurisdiction that would affect a particular freeway segment. Since these data are not available, the effect that the development potential within each jurisdiction could have on future freeway traffic conditions is analyzed qualitatively based on the percentage contribution of additional traffic volumes from each jurisdiction, the proximity of the jurisdiction to freeway segments, and the existing traffic volumes and levels of service (LOS) of freeway segments. (See Subsection G.1 in Chapter III for a description of level-of-service criteria and existing levels of service on Monterey Peninsula roadways.) This type of analysis will determine generally which local jurisdictions would have the greatest effect on area traffic and generally which freeway segments could experience deteriorating LOS levels.

This analysis assumes that the total ADT for all jurisdictions that are indirectly generated from implementation of each of the distribution alternatives would be relatively similar for Alternatives

II through V since total ADT for these alternatives ranges from 318,903 to 340,842 trips. Only Alternative VI would result in a significantly lower number of trips (216,469). Consequently, this analysis focuses on the effect traffic volumes from each local jurisdiction would have on each applicable freeway segment.

2. Impacts and Mitigation Measures

City of Monterey

The major trip generators for all of the distribution alternatives under Water Supply Option III would be new development within the Monterey, Sand City, Seaside, unincorporated Monterey County, and the non-Cal-Am area. As shown in Table V-6, the City of Monterey would generate a range of 54,360 to 60,722 trips under Alternatives II, III, IV, and V. This range of traffic volumes would amount to approximately 16-18 percent of the total traffic volumes (for all local jurisdictions) expected from these alternatives. The traffic volume generated in the City of Monterey under Alternative VI would generate only about 17,600 trips, or about eight percent of the total.

The effects of Alternatives II, III, IV, and V on indirect trip generation in Monterey would be similar regardless of the alternative chosen. The additional 54,000 to 61,000 trips estimated for these alternatives would be expected to worsen LOS on freeway segments and surface streets. The effect of Alternative II would be slightly less than the other alternatives, but for the purpose of this analysis would contribute similarly to increased freeway congestion in the area. The percentage of the additional 54,000 to 61,000 trips that would be distributed to freeways rather than surface streets is unknown; the precise effect of these alternatives on freeway segments cannot, therefore, be determined. Based on the relative size and location of Monterey, however, segments 1, 2, 3, 4, 8, and 9 apparently would be most affected. This assumption is further supported by the recent Monterey Peninsula Origin/Destination Survey (DKS Associates 1988). (See Table V-7 for a summary of the origin/destination data.)

TABLE V-7

ORIGIN/DESTINATION DATA FOR FREEWAYS AND HIGHWAYS IN THE MONTEREY PENINSULA AREA

Jurisdiction	North of Seaside on SR 1 (%)	South of Carmel River on SR 1 (%)	East on SR 68 (%)	East on Carmel Valley Road (%)
Carmel-by-the-Sea	11.44	18.08	9.43	18.64
Monterey and Del Rey Oaks	40.71	24.58	47.61	23.56
Pacific Grove	8.85	6.84	10.55	7.49
Seaside and Sand City	15.98	2.71	7.79	5.16
Other (Pebble Beach and Carmel Valley) and external origins	23.02	47.79	24.62	45.15

Source: DKS Associates, 1988

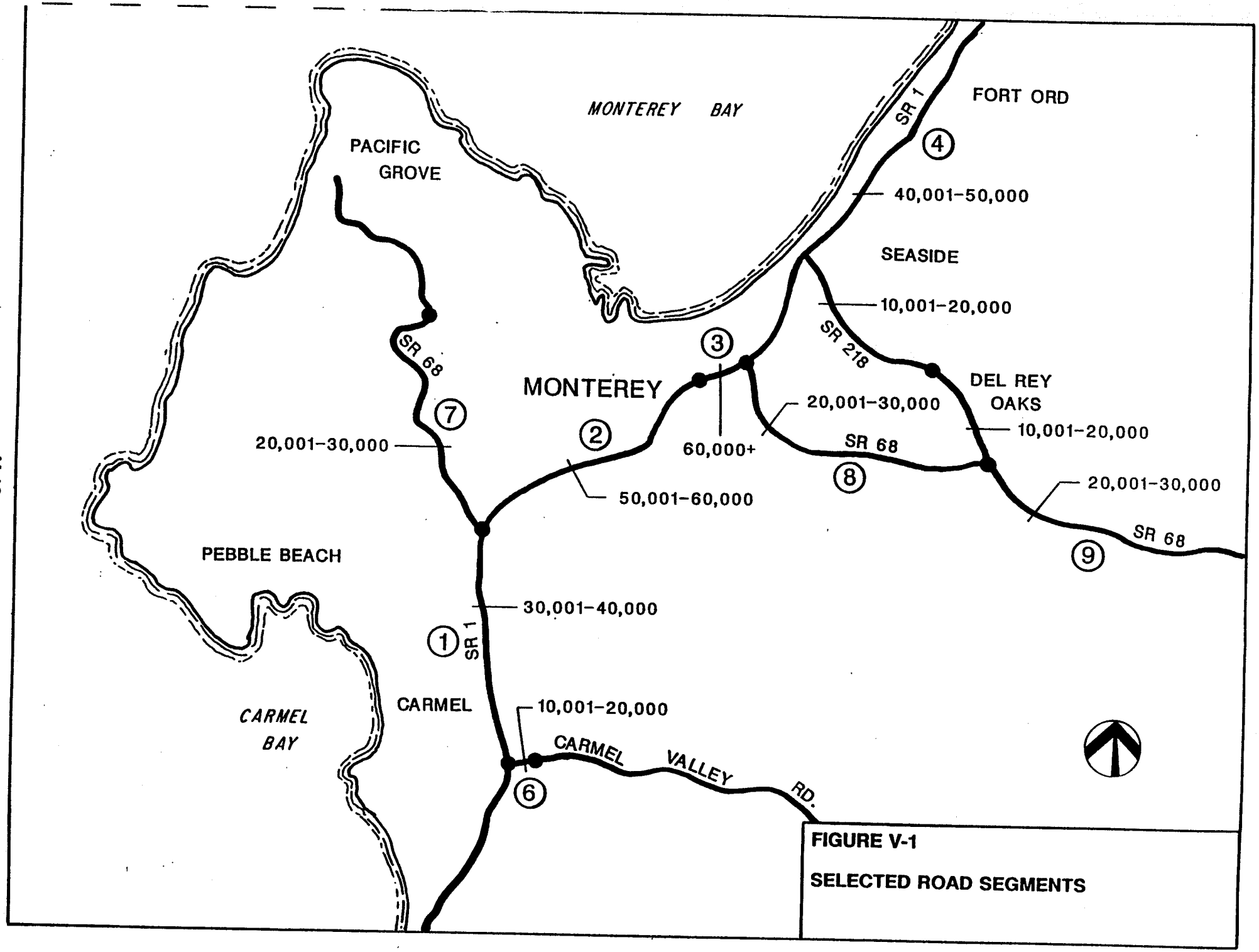

FIGURE V-1

SELECTED ROAD SEGMENTS

The DKS Associates survey shows the percentage contribution of each local jurisdiction in the Monterey Peninsula area to destinations north of the Peninsula on SR 1, south of the Peninsula area on SR 1, east of the Peninsula on SR 68, and east of the Peninsula on Carmel Valley Road. For the City of Monterey (including Del Rey Oaks), this survey indicates that of the trips with destinations north of the Peninsula on SR 1, over 40 percent of the average daily trips originate in Monterey. Similarly, of the total trips surveyed with destinations south on SR 1, approximately 25 percent originate in the Monterey-Del Rey Oaks area. Approximately 48 percent of the trips with destinations east of the Peninsula on SR 68 originate in the Monterey-Del Rey Oaks area.

While this origin/destination survey cannot replace a formal trip distribution and traffic assignment analysis, it generally indicates that a large percentage of the average daily trips on northbound SR 1 and eastbound SR 68 (segments 2, 3, 4, 8, and 9) originate in the Monterey-Del Rey Oaks area. In addition, the survey indicates that a substantial portion of the southbound SR 1 destinations and Carmel Valley Road destinations originate in the Monterey-Del Rey Oaks area. Assuming that the majority of Carmel Valley Road destinations originating in Monterey would use SR 1 to enter Carmel Valley Road, then a substantial percentage of the destinations on southbound SR 1 and Carmel Valley Road may use segment 1 on SR 1 (Figure V-1). Therefore, the segments that would be most affected by traffic volumes originating in Monterey would be segments 1, 2, 3, 4, 8, and 9 (Table V-7).

Adding traffic volumes from Monterey on segments 1, 2, and 8 (currently at LOS F) would further deteriorate the already unacceptable LOS on these segments. Traffic would continue to be congested on these segments with stop-and-go conditions and speeds of less than 30 mph. Additional traffic volumes from Monterey would also further deteriorate traffic conditions on segments 3 and 4 (currently at LOS D) and could possibly worsen traffic conditions to LOS E. Segment 9, which is currently at LOS D, could be reduced to LOS E.

Sand City

Table V-6 shows that, for Sand City, traffic generated under the five water distribution alternatives would range from 16,279 to 54,564 trips. This range of traffic volumes would vary from approximately 5 (Alternative II) to 16 percent (Alternative V) of the total traffic volumes (for all local jurisdictions) expected from these alternatives.

The additional trips generated from these alternatives would worsen LOS on freeway segments and surface streets. Based on the relative size and location of Sand City, roadway segment 4 would be most affected. This assumption is supported by the Monterey Peninsula Origin/Destination Survey (DKS Associates 1988), which indicates that of the total trips recorded for destinations north of Seaside on SR 1, approximately 16 percent of the trips originated in the Sand City-Seaside area (DKS 1988). The contribution of the Sand City-Seaside area to total trips at other destinations in the Monterey Peninsula area was relatively minor (under 10 percent for each destination point).

The additional traffic volumes from Sand City that would be generated under Alternatives II, III, IV, or VI to freeway segment 4 (currently at LOS D) would have similar effects. A portion of the total 16,279-35,800 trips would be distributed to freeway segment 4, and the remainder would be distributed among surface streets in the area. The effect of this additional ADT on freeway segment 4 could be to increase traffic congestion from its existing level (LOS D) to a higher level (at the upper end of the LOS D definition).

Alternative V would indirectly make the largest single contribution to total ADT in Sand City (54,564 trips). A portion of this traffic would be expected to affect LOS on freeway segment 4. The precise effect on Sand City traffic under Alternative V is unknown, but based on the ADT increase, traffic would be at least in the high range of LOS D. Alternative V would, therefore, have the greatest effect of the distribution alternatives on freeway segment 4.

Unincorporated Monterey County

Table V-6 shows that new development in unincorporated Monterey County would generate 30,904 trips under Alternative II, 21,829 trips under Alternative III, 25,979 trips under Alternative IV, 15,030 trips under Alternative V, and 13,923 trips under Alternative VI. Since Alternative II would make the largest ADT contribution, this alternative is the focus of this analysis. The effects of all other alternatives would be less than those of Alternative II. The additional traffic volumes under Alternative II would amount to approximately 10 percent of total traffic volumes generated for all the jurisdictions.

Based on the size and location of the unincorporated portions of Monterey County and previous traffic analyses conducted for freeway segments on the Monterey Peninsula (Planning Analysis and Development 1988), the freeway segments that would experience increased traffic volumes from development in unincorporated Monterey County would be 1, 6, 7, 8, and 9. This assumption is not directly supported by the Monterey Peninsula Origin/Destination Survey because Monterey County is only informally considered in this survey.

The effect of Alternative II on indirect trip generation in Monterey County would be to further deteriorate traffic conditions on segments 1, 6, 7, 8, and 9. The additional 30,904 trips anticipated under this alternative would worsen LOS on freeway segments and surface streets. The LOS on freeway segments 6, 7, 8, and 9 would deteriorate from their existing LOS of E, E/F, F, and D, respectively. Freeway segment 1 would also be expected to receive additional traffic volumes from Monterey County. The percentage of the total 30,904 trips that would be assigned to segment 1 is unknown, but the additional traffic combined with traffic volumes generated from the city of Monterey (previously discussed) would substantially deteriorate the LOS on this segment (currently at LOS F).

The remaining distribution alternatives would generate lower traffic volumes and would not have as great an effect on regional freeway segments as the alternatives discussed above. Alternative VI, which would generate 13,823 trips, would have the lowest impact on freeway LOS.

Pacific Grove

The ADT of Pacific Grove would increase by 26,826 trips under Alternative II, 22,416 trips under Alternative III, 20,789 trips under Alternative IV, 19,283 trips under Alternative V, and 8,710 trips under Alternative VI. Alternative II would generate the highest volumes, accounting for approximately eight percent of the total traffic volume generated for all the jurisdictions.

Based on the size and location of Pacific Grove and on previous traffic analyses conducted for freeway segments on the Monterey Peninsula (Planning Analysis and Development 1988), the freeway segment that would experience the highest ADT from development in Pacific Grove would be primarily segment 7 (SR 68, Holman Highway). This assumption is not directly supported by the Monterey Peninsula Origin/Destination Survey because Holman Highway is not considered in that survey.

The effect of Alternative II on indirect trip generation from Pacific Grove would be to further deteriorate traffic conditions on segment 7. The additional 26,826 trips estimated for this alternative would be expected to worsen the LOS on Holman Highway and surface streets in Pacific Grove. The LOS on freeway segment 7 would deteriorate from its existing LOS of E/F. Trip distribution and traffic assignment data are not available to determine the precise effect of additional Pacific Grove traffic on the segment 7 LOS, but this impact, combined with additional trips generated by Monterey County (on segment 7), could worsen LOS to the upper end of LOS E or to LOS F.

The remaining distribution alternatives would generate lower traffic volumes and would have less effects on the segments discussed above. In particular, Alternative VI would have the lowest impact on segment 7 traffic conditions.

Seaside

Development in Seaside under the five water distribution alternatives would increase traffic volumes on segment 4 (Planning Analysis and Development 1988) by a range from 22,483 to 42,949 trips for Alternatives II through VI. Alternative IV would generate the greatest traffic volumes with 42,949 trips, or approximately 13 percent of the total for this alternative. The portion of this ADT that would be distributed to freeway segment 4 is unknown, but the Seaside contribution alone could be substantial. ADT increases from Seaside, combined with the considerable ADT expected from Sand City, could worsen the existing LOS D on segment 4.

Non-Cal-Am Traffic

Although not related to the District's Water Allocation Program, growth within the MPWMD boundaries, but not served by Cal-Am, will also generate traffic on roads in the Monterey Peninsula area. The non-Cal-Am area includes five unincorporated portions of Monterey County: Hidden Hills, Laguna Seca, Monterra, Ryan Ranch, and Carmel Valley. Traffic volume generated by new development is assumed to be the same under each of the five distribution alternatives being analyzed (134,546 trips). The impacts in relative terms would be greatest for Distribution Alternative VI, because non-Cal-Am ADT constitutes the largest percentage (62 percent) for this alternative.

Development in the non-Cal-Am areas will increase traffic volumes on segments 1, 6, 8, and 9. Increased traffic will worsen LOS on all four of these links. The primary impact will be felt on segments 8 and 9, since the majority of the development is expected along these routes. Segment 8, currently operating at LOS F, and segment 9, operating at LOS E, will both experience worsened LOS from non-Cal-Am development.

Other Jurisdictions

The other jurisdictions--Carmel-by-the-Sea, Del Rey Oaks, and the Monterey Peninsula Airport District--would generate varying numbers of trips to freeway segments on the Monterey Peninsula. Development in Carmel-by-the-Sea would increase traffic volumes on segments 1 and 6 (Planning and Analysis Department 1988) by a range of 2,620 to 10,270 trips for Alternatives II through VI. Alternative III would generate the greatest traffic volumes with 10,270 trips, or approximately 3 percent of the total for this alternative. The portion of the traffic volumes that would be distributed to freeway segments 1 and 6 is unknown, but the contribution is expected to be relatively minor. Increases in ADT on segment 1 from Carmel-by-the-Sea, combined with ADT from Monterey and unincorporated Monterey County (previously discussed) could, however,

add substantially to the poor traffic conditions on freeway segment 1 (which is currently at LOS F).

Del Rey Oaks would have the lowest traffic impacts of the jurisdictions. Traffic volumes generated by Del Rey Oaks development under Alternatives II through VI would range from 267 to 3,508 trips and would be distributed primarily on segments 4, 8, and 9. Alternative III would be expected to generate the greatest traffic volumes (3,508 trips) in Del Rey Oaks, although the portion that would be distributed to freeway segments 4, 8, and 9 would be relatively minor. All other alternatives would generate lower Del Rey Oaks traffic volumes than Alternative III.

Development in the Monterey Peninsula Airport District (MPAD) would increase traffic volumes in the Monterey Peninsula area by a range of 8,281 to 12,596 trips for Alternatives III, IV, and V. Alternatives II (161 trips) and III (281 trips) would add minor traffic volumes. Alternative V would generate the greatest traffic volumes with 12,596 trips, or approximately 4 percent of the total for this alternative. This traffic would contribute substantially to deteriorating conditions on freeway segment 8, which is already operating at LOS F.

Impacts: The previous analysis and the data in Table V-6 indicate that all of the distribution alternatives being analyzed under Water Supply Option III would provide for additional growth in the Monterey Peninsula area. Alternative VI, at 216,469 trips, would generate the least ADT of the five water distribution alternatives. Alternative V would generate the highest total traffic volumes (340,342 trips). For the level of detail in this analysis, the variation between high and low traffic volumes is relatively small for Alternatives II through V and is considered negligible. Development in Monterey, Sand City, Seaside, and the non-Cal-Am area would be the major contributors to future regional traffic congestion on major freeways, highways, and arterials. Development in other jurisdictions, including Carmel-by-the-Sea, Pacific Grove, Del Rey Oaks, unincorporated Monterey County, and the Monterey Peninsula Airport District, would contribute relatively minor additional traffic volumes, although even minor ADT contributions on already-congested freeways can have substantial impacts.

Development in the city of Monterey would add substantial traffic volumes to freeway segments 1, 2, 3, 4, and 8 that would significantly worsen traffic conditions and LOS on these routes (under all distribution alternatives). This impact would be particularly severe on segments 1, 2, and 8, which are currently operating at LOS F.

Non-Cal-Am portions of Monterey County would increase traffic volumes on segments 1, 6, 8, and 9. Increased traffic would worsen LOS on all four of these links. The primary impact would be felt on segments 8 and 9, since the majority of the development is expected along these routes. Segment 8, currently operating at LOS F, and segment 9, operating at LOS E, would both experience decreased LOS from non-Cal-Am development. Traffic volumes resulting from non-Cal-Am development would occur regardless of the water distribution alternative.

In summary, the above analysis and impact evaluation indicates that all affected jurisdictions would contribute to some degree to the deteriorating LOS on area freeway segments. These impacts are considered significant in most cases, whether a jurisdiction's contribution to regional traffic deterioration is large or small, because all of the freeway segments discussed in this analysis are currently operating at an unacceptable LOS, as defined by Monterey County.

Mitigation Measures: The following street and highway projects have been identified by the Monterey County Transportation Commission (MCTC) and the California Department of

Transportation to improve freeway conditions in the Monterey Peninsula region (Monterey County Transportation Commission 1988):

- Hatton Canyon Freeway construction would bypass the existing SR 1 from 0.3 mile south of the Carmel River to 0.1 mile south of the SR 1 and SR 68 (Holman Highway) junction with a four-lane freeway
- Carmel Valley Road would be widened from SR 1 to Carmel Rancho Boulevard and from Via Petra to Valley Greens Road
- SR 68 (Holman Highway) would be widened with a climbing lane between the junction with SR 1 and Presidio Boulevard
- SR 68 would be widened to four lanes from its junction with SR 1 to Los Laureles Grade
- SR 1 would be widened from Route 68 to Ord Village

The freeway segments that are expected to benefit from these improvements are segments 1, 6, 8, and a segment south of Carmel Valley Road on SR 1 (See Figure V-1). The freeway segments that would continue to experience deteriorating LOS are segments 2, 3, 4, 7, and 9.

The following unplanned improvements would be required to improve LOS to the C-D range on segments 2, 3, 7, and other area segments:

- SR 1 would be widened to six lanes between Carmel Hill and the Sloat undercrossing
- SR 1 would be widened to eight lanes from the Sloat undercrossing to the junction with SR 68
- SR 68 (Holman Highway) would be upgraded from a four-lane highway to a four-lane freeway
- SR 68 would be widened to six lanes from the east junction with SR 1 to SR 218

Funding for all of these improvements, however, cannot be assumed. The MPWMD does not have the authority to fund or authorize any of these freeway improvement projects. As such, these proposed traffic mitigation measures are under the purview of Caltrans rather than MPWMD.

A number of additional regional measures are available to reduce traffic volumes on the Monterey Peninsula. Again, these measures cannot be implemented by MPWMD but instead would be the responsibility of a variety of local agencies. Those measures include:

- Implement the Monterey-Salinas Short-Term Transit Plan, including:
  - maintaining existing levels of service,
  - adding evening bus service,
  - expanding service to new areas to serve new development and presently unserved areas,
  - adding new service for visitor transportation on the Monterey Peninsula and in the unincorporated areas of the county where major visitor events are held,
  - adding to the existing bus fleet,
  - constructing transit centers and park-and-ride lots, and
  - improving passenger information at bus stops.

- Develop a Long-Range Transit Program that includes provisions for:
  - an intercity bus service connecting the south county and Salinas;
  - initiation of subscription bus service for large employers, hotels and motels, special events and major trip attractors; and
  - initiation of service to newly developing areas in Monterey County.

- Implement intracity and intercity bicycle program as described in the Monterey Regional Transportation Plan (Monterey County Transportation Commission 1988).

- Implement transportation control measures as outlined in the *1989 Air Quality Management Plan* for the Monterey region (MBUAPCD & AMBAG 1989).

While these mitigation measures would improve traffic conditions, it is unknown whether or not they would reduce traffic impacts to a less-than-significant level.

I. SCHOOLS

1. Methodology and Analysis

This section assesses the impacts on the three school systems of the five water distribution alternatives being analyzed for the highest possible development level (Water Supply Option III at Baseline Production/Consumption Level B). Alternative II would have the maximum impact on local school districts by increasing total student population by 4,363 students (Table V-8). Alternative VI would have the least impact, increasing total student population by 2,148 students. The increases in students from Distribution Alternatives III, IV, and V would fall between Alternatives II and VI.

The worst case for each school district would not necessarily occur under the same distribution alternative. Although Alternative II has the largest combined impact on local school districts, Alternative V has the largest impact on the Monterey Peninsula Unified School District (MPUSD). This differential impact is due to the proportion of single-family and multi-family residential units that each alternative is projected to generate. Each single-family residence is assumed to generate 2.5 times more students than each multi-family residential unit.

The following discussion examines the impacts of each water distribution alternative on the elementary, middle, and high school student capacity of the Monterey Peninsula, Pacific Grove, and Carmel school systems. Chapter III, Subsection G.2 describes the school systems and their current enrollments and capacities.

TABLE V-8

STUDENT GENERATION FOR ALL DISTRIBUTION ALTERNATIVES
Under Supply Option III at Baseline Production/Consumption Level B

School District/ Location	Number of DU	Alternative II K-8	Alternative II 9-12	Alternative II Total	Number of DU	Alternative III K-8	Alternative III 9-12	Alternative III Total	Number of DU	Alternative IV K-8	Alternative IV 9-12	Alternative IV Total	Number of DU	Alternative V K-8	Alternative V 9-12	Alternative V Total	Number of DU	Alternative VI K-8	Alternative VI 9-12	Alternative VI Total
Monterey																				
Single-family	639	320	160	479	638	319	160	479	655	328	164	491	636	318	159	477	765	383	191	574
Multi-family	4,018	804	402	1,205	4,823	965	482	1,447	4,651	930	465	1,395	5,492	1,098	549	1,648	1,708	342	171	512
Subtotal		1,123	562	1,685		1,284	642	1,925		1,258	629	1,887		1,416	708	2,125		724	362	1,086
Pacific Grove																				
Single-family	182	91	46	137	157	79	39	118	147	74	37	110	139	70	35	104	72	36	18	54
Multi-family	1,850	370	185	555	1,439	288	144	432	1,289	258	129	387	1,149	230	115	345	296	59	30	89
Subtotal		461	231	692		366	183	549		331	166	497		299	150	449		95	48	143
Carmel																				
Single-family	2,460	1,230	615	1,845	1,849	925	462	1,387	2,131	1,066	533	1,598	1,388	694	347	1,041	1,189	595	297	892
Multi-family	472	94	47	142	540	108	54	162	533	107	53	160	446	89	45	134	90	18	9	27
Subtotal		1,324	662	1,987		1,033	516	1,549		1,171	586	1,758		783	392	1,175		613	306	919
Total		2,909	1,454	4,363		2,682	1,341	4,024		2,761	1,381	4,142		2,499	1,249	3,748		1,432	716	2,148

Source: Jones & Stokes Associates, 1989

2. Impacts and Mitigation Measures

Monterey Peninsula Unified School District

For the MPUSD, student enrollment would increase by 2,125 under Alternative V and by 1,086 under Alternative VI (see Table V-8). Alternatives II, III, and IV would have student increases that fall between these two levels.

Table III-19 shows that the MPUSD would have, under each distribution alternative, adequate elementary and middle school capacity but insufficient high school capacity. New students that would be generated by the distribution alternatives under the worst case (Alternative V) would cause student enrollment to exceed high school capacity by a maximum of 470 students, and under the best case by 124 students (Alternative VI). New student enrollment under Alternatives II, III, and IV would exceed high school capacity by 324, 404, and 391 students, respectively.

Pacific Grove Unified School District

For the Pacific Grove Unified School District (PGUSD), increases in total student enrollment would range from a low of 143 students under Alternative VI to a maximum of 692 students under Alternative II. Under each of the five distribution alternatives being analyzed, sufficient high school capacity exists in the PGUSD to absorb the increased number of students. For elementary and middle schools, however, this is not the case. Sufficient elementary and middle school capacity exists to house the new students associated with Alternatives IV, V, and VI. Alternative II would result in 127 students over capacity and Alternative III would result in 32 students over capacity.

Carmel Unified School District

For the Carmel Unified School District (CUSD), increases in enrollment would range from a low of 919 (Alternative VI) to a high of 1,987 students (Alternative II). Of the five alternatives being analyzed, only Alternative VI would generate total new students who could be accommodated by the remaining school capacity. Alternatives II, III, IV, and V would each generate substantially more students than the CUSD system could accommodate with its existing capacity.

Of the 1,987 students that Alternative II would generate, 1,325 would attend elementary and middle schools and 662 would attend high school. With an existing CUSD elementary and middle school capacity of 696 students, an excess of 633 students over existing capacity would be generated under Alternative II. In addition, Alternative II would generate 662 new high school students compared to an existing remaining capacity for only 260 students.

Impacts: Based on the previous analysis and the data presented in Tables III-19 and V-8, high schools in the MPUSD would be affected by implementation of any of the five alternatives being analyzed under Supply Option III at Baseline Production/Consumption Level B. The growth impacts of these distribution alternatives would generate student enrollments in MPUSD high schools that would exceed the remaining capacity at these facilities. Alternative V would have the greatest impact of the five alternatives being analyzed, with MPUSD high schools exceeding capacity by approximately 470 students.

Alternatives II and III would generate PGUSD student enrollments that would exceed elementary school capacity. Alternative II would have the greatest effect, resulting in 127 more students than the existing remaining school capacity.

All of the five distribution alternatives being analyzed would generate additional CUSD student enrollments that would exceed elementary school capacities. Alternative II would have the greatest effect on CUSD elementary schools, with enrollments exceeding existing capacity by 633 students. Enrollment at CUSD high schools would also exceed remaining capacity under each alternative. Alternative II would have the greatest impact on CUSD high schools, with enrollments exceeding existing remaining capacity by 402 students.

These school impacts are considered less-than-significant since school districts are authorized by State law to charge school impact fees on all new development to fund the construction of new classrooms or the installation of portable classrooms.

Mitigation Measures: None required.

J. WASTEWATER

1. Methodology and Analysis

Wastewater generation is determined by applying average flow rates to the various land use scenarios as described in the Chapter III, Section G.3. Table V-9 shows the average dry-weather wastewater generation for all the affected jurisdictions. Table V-9 and the analysis that follows assume a worst-case scenario in that they are based on Water Supply Option III at Baseline Production/Consumption Level B, which would allow the most new development of all the water supply options.

2. Impacts and Mitigation Measures

Existing Monterey Peninsula wastewater treatment facilities include those operated by the Monterey Regional Water Pollution Control Agency (MRWPCA), the Carmel Sanitary District (CSD), and the Pebble Beach Community Services District (PBCSD).

Jurisdictions within MRWPCA include all those listed in Table V-9 except Carmel-by-the-Sea, Monterey County, and non-Cal-Am areas.

TABLE V-9

AVERAGE WASTEWATER GENERATION FOR DISTRIBUTION ALTERNATIVES
Gallons Per Day under Supply Option III at Baseline Production/Consumption Level B

Jurisdiction	Distribution Alternative II	III	IV	V	VI
Carmel-by-the-Sea	135,982	168,000	159,135	156,672	55,020
Del Rey Oaks	67,098	39,398	33,639	35,283	8,400
City of Monterey	757,236	765,380	692,222	773,260	223,798
Pacific Grove	473,437	379,708	345,256	313,367	108,324
Sand City	270,873	542,923	556,026	783,713	261,455
Seaside	204,676	201,757	220,995	179,021	130,812
Monterey County	549,824	383,519	459,623	259,043	236,969
MPAD	305	8,961	7,062	13,630	174
Non-Cal-Am	309,353	309,353	309,353	309,353	309,353
Total	**2,768,781**	**2,798,997**	**2,783,310**	**2,823,340**	**1,334,304**

Notes: Wastewater generation is based on rates of 210 gallons per day per dwelling unit for residential uses and 200 gallons per day per hotel room. Wastewater generation for commercial and industrial uses is based on a generation rate of 14.5 gallons per day per employee. This rate assumes that all commercial and industrial uses would be non-water intensive uses (Metcalf & Eddy, Inc. 1979). Wastewater flows from the Monterey Peninsula Airport District have not been included in this analysis, since they are expected to be minor.

Source: Planning Analysis and Development, 1988

Under Alternative II (Water Supply Option III, 16,700 acre-feet base production level), total wastewater generation for all areas would equal 2.77 MGD (Table V-9). Wastewater generated within MRWPCA boundaries, excluding non-Cal-Am development, would amount to approximately 1,773,625 gallons per day, or about 35 percent of the remaining 8.0 MGD capacity of the MRWPCA regional treatment plant. If wastewater generated by non-Cal-Am development were also sent to the MRWPCA regional treatment plant, then 75 percent of the remaining 8.0 MGD of MRWPCA capacity would be used.

Assuming that all wastewater generated in the rest of Monterey County and in Carmel-by-the-Sea is treated at the joint CSD/PBCSD treatment plant, the resulting 685,806 gallons per day would amount to approximately 85 percent of the remaining 0.8 MGD capacity at that plant without expansion, and approximately 38 percent of the remaining 1.8 MGD capacity if the plant is expanded to its design capacity of 4.0 MGD.

Under Alternatives III, IV, and V, wastewater generation would be slightly higher than under Alternative II. Under Alternative V, the greatest volume of additional wastewater would be generated. This alternative would generate approximately 2.82 MGD of additional wastewater. Wastewater generated within MRWPCA boundaries (including non-Cal-Am-generated wastewater) would amount to 2.41 MGD, or 30 percent of the remaining 8.0 MGD capacity at the MRWPCA regional treatment plant. The remaining wastewater generated under this alternative could be easily accommodated by the joint CSD/PBCSD treatment plant.

Based on the data presented in Table V-9 and the above analysis, it appears that the wastewater treatment facilities serving the Monterey Peninsula have sufficient capacity to accommodate the growth expected under all of the distribution alternatives.

Impacts: Based on the above analysis and data presented in Table V-9, Alternative V would have the greatest impact on the MRWPCA, with 51 percent of the remaining capacity at the regional treatment plant needed to accommodate associated growth. The CSD/PBCSD treatment plant would receive the greatest wastewater volume under Alternative II.

Under all alternatives, however, the impacts are considered less-than-significant because wastewater flows could be adequately handled by the existing treatment facilities.

Mitigation Measures: None required.

K. EMPLOYMENT

1. Methodology and Analysis

As an economic impact, employment generation is a topic not specifically mandated by CEQA to be addressed in an EIR. The following paragraphs, therefore, simply summarize the level of job growth likely to result from the each distribution alternative under Supply Option III (20,500 acre-feet) at Baseline Production/Consumption Level B. It should be noted that those jurisdictions stating preferences for use of future water generally made employment-generating land uses a secondary priority after residential uses (see "Jurisdictional Water Use Preferences," Subsection F.3 in Chapter III).

Table V-10 shows the baseline assumptions for existing jobs along with future new employment capacity and total employment at buildout for each jurisdiction. The figures in Table V-10, which were taken from EIP Associates' *Estimates of Housing and Employment at Buildout within the Monterey Peninsula Water Management District*, are based on currently applicable general plans, zoning, and land use policies.

TABLE V-10

EXISTING EMPLOYMENT BASE AND ESTIMATED BUILDOUT POTENTIAL

	Existing Jobs	New Jobs	Buildout Jobs
Carmel-by-the-Sea	3,555	1,409	4,964
Del Rey Oaks	498	266	764
Monterey	27,175	12,173	39,348
Pacific Grove	4,444	1,323	5,767
Sand City	1,550	4,390	5,940
Seaside	3,960	4,320	8,280
Monterey County	4,424	835	5,259
MPAD	400	1,100	1,500
Non-Cal-Am	270	8,524	8,794
TOTAL	**46,276**	**34,340**	**80,616**

Source: EIP Associates, *Estimates of Housing and Employment at Buildout within the Monterey Peninsula Water Management District*, July 1988

Table V-11 summarizes the employment development potential for all jurisdictions based on the five water distribution alternatives being analyzed under Water Supply Option III at Baseline Production/Consumption Level B. This information is the basis for the assessment of employment-related impacts in this section.

TABLE V-11
EMPLOYMENT DEVELOPMENT POTENTIAL
Supply Option III at Baseline Production of 16,700 Acre-Feet

	Employment	Hotel	Golf Course	Total Employees
Carmel-by-the-Sea				
Alternative II	167			167
Alternative III	391			391
Alternative IV	301			301
Alternative V	276			276
Alternative VI				
Del Rey Oaks				
Alternative II	135	131		266
Alternative III	75	26		101
Alternative IV	62	2		64
Alternative V	65	8		74
Alternative VI				
City of Monterey				
Alternative II	6,779	323		7,102
Alternative III	6,851	326		7,177
Alternative IV	6,196	295		6,491
Alternative V	6,920	329		7,249
Alternative VI	2,004	95		2,099
Pacific Grove				
Alternative II	946	132		1,078
Alternative III	824	130		954
Alternative IV	779	130		909
Alternative V	737	129		866
Alternative VI	403	101		504
Sand City				
Alternative II	685	393		1,078
Alternative III	1,485	776		2,261
Alternative IV	1,548	792		2,340
Alternative V	2,654	1,063		3,718
Alternative VI	661	380		1,041
Seaside				
Alternative II	2,388	441		2,829
Alternative III	2,346	441		2,787
Alternative IV	2,630	441		3,071
Alternative V	2,009	441		2,450
Alternative VI	1,296	295		1,591
Monterey County				
Alternative II	298	294	45	637
Alternative III	208	205	45	458
Alternative IV	249	245	45	539
Alternative V	140	138	45	324
Alternative VI	128	126	45	300
MPAD				
Alternative II	21			21
Alternative III	618			618
Alternative IV	487			487
Alternative V	940			940
Alternative VI	12			12
Cal-Am Total				
Alternative II	11,418	1,714	45	13,177
Alternative III	12,797	1,904	45	14,746
Alternative IV	12,251	1,904	45	14,201
Alternative V	13,742	2,109	45	15,897
Alternative VI	4,504	997	45	5,546
Non-Cal-Am Total	8,534			8,534
MPWMD Total				
Alternative II	19,952	1,714	45	21,711
Alternative III	21,331	1,904	45	23,280
Alternative IV	20,785	1,904	45	22,735
Alternative V	22,276	2,109	45	24,431
Alternative VI	13,038	997	45	14,080

2. Impacts and Mitigation Measures

Carmel-by-the-Sea

As Table V-10 shows, there are currently 3,555 jobs in Carmel-by-the-Sea, and an additional 1,409 could be expected at buildout. According to the water use preferences provided by City staff, employment-generating uses would receive water allotments only after satisfaction of single-family residential demand. Under Supply Option III, Carmel would receive enough water to satisfy this demand under all distribution alternatives except Alternative VI. New job growth would range from a low of 167 under Alternative II to a high of 391 under Alternative III. All of Carmel-by-the-Sea's new jobs would result from non-Hotel and non-Golf Course uses.

Del Rey Oaks

Commercial development in Del Rey Oaks currently supports 498 jobs, with an additional 266 expected at buildout. Clearly the highest level of growth under Supply Option III would occur under Alternative II, which would provide the city with all of the water it needs for buildout. Alternative VI would support no new job growth.

City of Monterey

There are currently 27,175 jobs in Monterey, with another 12,173 expected at buildout. The least job growth would be allowed under Alternative VI, with a total of 2,099 new jobs. Growth under Alternative V would be the greatest, with 7,249 new jobs.

Pacific Grove

4,444 jobs are currently supported by development in Pacific Grove; an additional 1,323 could be expected at buildout. The city would realize its greatest growth under Alternative II, with 1,078 new employees. Pacific Grove would grow the least under Alternative VI, with 504 new jobs.

Sand City

There are currently 1,550 jobs in Sand City, with an additional 4,390 expected at buildout. By far the greatest growth would occur with Alternative V, under which an additional 3,718 new jobs would be created. Alternative VI would result in the lowest level of employment growth (1,041 new jobs).

Seaside

Employment-generating uses supported by Cal-Am water in Seaside currently provide 3,960 jobs. At buildout the city could accommodate another 4,320. The least job growth would occur under Alternative VI, with 1,591 new employees. Alternative IV would result in the highest level of growth, with 3,071 new jobs.

Unincorporated Monterey County

There are currently 4,424 jobs in the unincorporated portion of Monterey County within the Cal-Am service area, with an additional 835 expected at buildout. The county would see its greatest growth under Alternative IV, with the development of 637 new jobs. Alternative VI would support the fewest number of new jobs (300).

Monterey Peninsula Airport District

The Monterey Peninsula Airport District currently supports 400 jobs. At buildout, MPAD would accommodate an additional 1,100 employees. Job growth within the Airport District would range from 12 under Alternative VI to 940 new employees under Alternative V.

Non-Cal-Am Area

The area within the Monterey Peninsula Water Management District and outside of the Cal-Am service area currently has 270 jobs. Under buildout an additional 8,524 jobs be generated, most of them at Monterey Research Park (Ryan Ranch). As discussed previously, this EIR assumes that all of the land uses supporting these jobs will be developed, regardless of the distribution alternative selected by the District Board.

Total Monterey Peninsula Water Management District

The highest level of total service area employment growth would occur under Alternative V with 24,431 new jobs, while the lowest level of employment growth would occur under Alternative VI, with 14,080 new jobs.

Impacts: The amount of new employment-generating development that could occur in each jurisdiction would vary depending on the amount of water it received under each of the distribution alternatives. It is assumed that any new employment-generating development that would be allowed by additional water is a beneficial impact. For purposes of CEQA, however, economic effects are not considered to have significant environmental impacts.

Mitigation Measures: None required.

L. CONSTRUCTION INDUSTRY

1. Methodology and Analysis

The primary effect of selecting one of the water distribution alternatives, other than reducing the overall level of construction activity within the boundaries of the Monterey Peninsula Water Management District as described in Chapter IV, would be to shift construction activity from one area to another. This could have the secondary effect of altering the total gross value of construction within the district by moving construction from areas of high per-unit construction value to areas with relatively lower per-unit values, or vice versa.

One measure of construction activity is the number of housing starts, or housing units constructed, within an area. Another measure is the total value of construction within an area. These two measures have been applied to the residential development supported by Supply Option III at Baseline Production/Consumption Level B to evaluate the construction effects of the distribution alternatives being analyzed. Estimates of the number of residential units that could be constructed, and the value of residential construction under the five distribution alternatives being analyzed, are presented in Table V-12. The value and level of commercial construction supported by the various water distribution alternatives were not quantified because of the difficulty in predicting the type and value of commercial development that might occur. Residential construction values were estimated by applying these development potential totals to the average value-per-unit estimates derived from the construction value data presented in Table III-22.

2. Impacts and Mitigation Measures

Total units constructed under Water Supply Option III would range from an estimated 4,270 dwelling units under Alternative VI to 9,771 dwelling units under Alternative II.

Under Distribution Alternative II, much of the residential construction within the District would occur in Monterey, Pacific Grove, and unincorporated Monterey County, as shown in Table V-12. The City of Monterey would have the greatest level of construction activity, with 2,935 multi-family units being constructed. Monterey County, however, would have the greatest cumulative construction value, estimated at approximately $257.4 million.

Under Alternatives III and IV, construction would partially shift from Monterey County and Pacific Grove to Sand City and Carmel (Table V-12). Construction in unincorporated Monterey County would decrease from approximately 2,245 units under Alternative II to 1,565 units under Alternative III and 1,876 under Alternative IV. Construction in Carmel would increase from 636 units to 773 units under Alternative III and 737 units under Alternative IV. Similarly, construction in Sand City would increase from 774 units to 1,559 units under Alternative III and 1,598 units under Alternative IV. Construction levels in Del Rey Oaks, the City of Monterey, and Seaside would remain relatively unchanged.

Under Alternative V, construction would partially shift from Pacific Grove, Seaside, and unincorporated Monterey County to the City of Monterey and Sand City.

With the exception of Seaside and unincorporated Monterey County, residential construction activity would decrease substantially from current levels in all jurisdictions under Alternative VI (Table V-12). Residential construction would be reduced by approximately 450 units in Carmel, 2,000 units in Monterey, 900 units in Pacific Grove, and 1,500 units in Sand City.

The total value of residential construction within the District would remain relatively constant for Alternatives II-V, varying from an estimated $543.8 million under Alternative V to $651.9 million under Alternative II. Total residential construction under Alternative VI would be an estimated $334.6 million (Table V-12).

Unincorporated Monterey County would have the highest estimated value of residential construction for all the water distribution alternatives because of the relatively large number of total units that would be constructed within its jurisdiction and the focus on higher valued single-family residential construction.

Alternative II, with its estimated $651.9 million in construction value, would provide the highest level of employment and income and therefore would have a positive effect on the construction industry. Alternatives III, IV, and V would provide similar levels of residential construction value.

Implementation of any of the distribution alternatives would shift, to some degree, the distribution of construction activity within the District from existing conditions. These shifts could affect individual construction companies that focus on working in specific jurisdictions within the boundaries of the District. These firms may be forced to compete for work in areas of the District where they are not currently competing, potentially leading to short-term financial hardship for some local construction companies. Construction workers, on the other hand, are much more mobile and should be able to compete for work at construction project sites in any of the eight jurisdictions within the district. Adoption of Alternative II, III, IV, or V should not adversely affect the overall construction industry within the area covered by MPWMD, even though individual cases of construction business dislocation could occur. Adoption of Alternative VI would result in a substantial decrease in construction employment and income within the district, leading to long-term dislocation of construction businesses and employment.

TABLE V-12

ESTIMATED HOUSING AND CONSTRUCTION VALUE SUPPORTED
Supply Option III at Baseline Production Level B

Location/Description	Alternative II		Alternative III		Alternative IV		Alternative V		Alternative VI	
	Dwelling Units	Estimated Value	Dwelling Units	Estimated Value	Dwelling Units	Estimated Value	Dwelling Units	Estimated Value	Dwelling Units	Estimated Value
Carmel										
Single-family residential	373	$45,685	379	$46,420	379	$46,420	379	$46,420	262	$32,090
Multi-family residential	263	10,133	394	15,180	358	13,793	348	13,408	0	0
Subtotal	636	$55,818	773	$61,600	737	$60,213	727	$59,828	262	$32,090
Del Rey Oaks										
Single-family residential	3	$367	3	$367	3	$367	3	$367	1	$122
Multi-family residential	151	5,818	151	5,818	151	5,818	151	5,818	39	1,503
Subtotal	154	$6,185	154	$6,185	154	$6,185	154	$6,185	40	$1,625
City of Monterey										
Single-family residential	(181)	($22,169)	(182)	($22,291)	(165)	($20,209)	(184)	($22,536)	(53)	($6,491)
Multi-family residential	2,935	113,083	2,966	114,277	2,683	103,373	2,996	115,433	867	33,405
Subtotal	2,754	$90,914	2,784	$91,986	2,518	$83,164	2,812	$92,897	814	$26,913
Pacific Grove										
Single-family residential	182	$22,291	157	$19,229	147	$18,005	139	$17,025	72	$8,819
Multi-family residential	1,850	71,279	1,439	55,443	1,289	49,664	1,149	44,270	296	11,405
Subtotal	2,032	$93,570	1,596	$74,673	1,436	$67,668	1,288	$61,295	368	$20,223
Sand City										
Single-family residential	0	$0	0	$0	0	$0	0	$0	0	$0
Multi-family residential	774	29,821	1,559	60,067	1,598	61,569	2,283	87,962	747	28,781
Subtotal	774	$29,821	1,559	$60,067	1,598	$61,569	2,283	$87,962	747	$28,781

(Continued next page)

TABLE V-12
(Continued)

Location/Description	Alternative II Dwelling Units	Alternative II Estimated Value	Alternative III Dwelling Units	Alternative III Estimated Value	Alternative IV Dwelling Units	Alternative IV Estimated Value	Alternative V Dwelling Units	Alternative V Estimated Value	Alternative VI Dwelling Units	Alternative VI Estimated Value
Seaside										
Single-family residential	127	$15,555	127	$15,555	127	$15,555	127	$15,555	127	$15,555
Multi-family residential	158	6,088	147	5,664	219	8,438	62	2,389	55	2,119
Subtotal	285	$21,643	274	$21,219	346	$23,993	189	$17,944	182	$17,674
Monterey County										
Single-family residential	2,036	$249,369	1,419	$173,799	1,701	$208,338	958	$117,336	876	$107,292
Multi-family residential	209	8,053	146	5,625	175	6,743	98	3,776	90	3,468
Subtotal	2,245	$257,422	1,565	$179,424	1,876	$215,081	1,056	$121,112	966	$110,760
Monterey Peninsula Airport District										
Single-family residential	0	$0	0	$0	0	$0	0	$0	0	$0
Multi-family residential	0	0	0	0	0	0	0	0	0	0
Subtotal	0	$0	0	$0	0	$0	0	$0	0	$0
Non-Cal-Am Development Potential										
Single-family residential	741	$90,758	741	$90,758	741	$90,758	741	$90,758	741	$90,758
Multi-family residential	150	5,779	150	5,779	150	5,779	150	5,779	150	5,779
Subtotal	891	$96,537	891	$96,537	891	$96,537	891	$96,537	891	$96,537
Total	9,771	$651,910	9,596	$591,691	9,556	$614,411	9,400	$543,759	4,270	$334,604

Note: Construction values are shown in thousands of dollars. Values were estimated based on service-area wide average values for new single-family and multi-family housing constructed between 1980 and 1986 (see Table III-22).

Source: Jones & Stokes Associates, 1989

Impacts: The amount of construction activity that could occur in each jurisdiction would vary depending on the amount of water it received under each of the distribution alternatives. Because Alternatives II through V would allow for similar levels of construction within the district, albeit at levels lower than an unconstrained market would support, and because construction workers could commute to job sites wherever they are located within the district, the impacts of any of the alternatives on the construction industry in any one jurisdiction are considered less-than-significant. Adoption of Alternative VI would result in an unavoidable, significant impact on the local construction industry because it would substantially reduce overall construction levels within the district. For the purposes of CEQA, however, economic effects are not considered to have significant environmental impacts.

Mitigation Measures: No mitigation is required for Alternatives II through VI. No mitigation measures are available to reduce the local economic impacts of the loss of employment under Distribution Alternative VI to less-than-significant levels.

M. TOURISM

1. Methodology and Analysis

This section evaluates the impacts of the distribution alternatives on tourism. As mentioned in Chapter IV, a reduction in available water supply affects vegetation and recreation, and therefore could reduce the aesthetic character of the area, indirectly reducing tourism. However, of the development categories being analyzed in this EIR, only new hotel construction would have a direct impact on tourism. Table V-13 illustrates the number of hotel rooms which could be constructed in each jurisdiction under Alternatives II through VI at Water Supply Option III at Baseline Production/Consumption Level B.

TABLE V-13

ADDITIONAL HOTEL ROOMS CREATED BY FUTURE HOTEL DEVELOPMENT
Supply Option III at Baseline Production/Consumption Level B

	Distribution Alternative				
Jurisdiction	**II**	**III**	**IV**	**V**	**VI**
Carmel-by-the-Sea	0	0	0	0	0
Del Rey Oaks	204	30	0	10	0
City of Monterey	366	370	294	373	108
Pacific Grove	150	148	146	147	114
Sand City	446	786	1,027	1,078	431
Seaside	500	500	500	500	335
Monterey County	333	232	315	157	143
MPAD	0	0	0	0	0
Non-Cal-Am	0	0	0	0	0
Total	**1,999**	**2,066**	**2,282**	**2,265**	**1,131**

Source: Mintier & Associates

New hotel construction would be beneficial for the area's tourism industry because hotel rooms in this area are frequently difficult to find. According to the *California Almanac*, the Monterey-Carmel area had a 75.2-percent occupancy rate in 1986, the highest of any area surveyed. Hotel construction would provide additional capacity to accommodate tourists, which should benefit the local economy.

2. Impacts and Mitigation Measures

Under Alternative II, the additional water would support construction of a total of 1,999 hotel rooms. Carmel-by-the-Sea and the Monterey Peninsula Airport District would have no additional hotel rooms. The City of Del Rey Oaks would have enough water to supply 204 hotel rooms. The City of Monterey would have enough water for 366 additional hotel rooms. Pacific Grove could have 150 additional hotel rooms. Sand City could have 446 additional hotel rooms. Seaside could have 500 additional rooms. Monterey County could have 333 additional hotel rooms (Table V-13).

The total potential construction of hotels under Alternative III would increase to 2,066. The distribution of rooms would be similar to that in Alternative II, although Del Rey Oaks would have significantly fewer rooms, and Sand City would have more rooms.

Under Alternative IV, hotel construction could increase to 2,282 rooms, the largest of the distribution alternatives. The distribution of rooms under this alternative is similar to Alternative II, although there would be no new rooms in Del Rey Oaks, slightly less in Monterey City, and significantly more in Sand City.

Under Alternative V, hotel construction could increase to 2,265 rooms. The distribution would be very similar to that of Alternative IV.

Water distributed under Alternative VI would not be intended to be used to support any new hotel development.

2. Impacts and Mitigation Measures

Impacts: The amount of new hotel development that could occur in each jurisdiction would vary depending on the amount of water it received under each of the distribution alternatives. It is assumed that any new hotel development that would be allowed by additional water would have a beneficial impact on tourism. Under several of the distribution alternatives, some communities would have no additional water to support new hotel development. However, this would have no impact on existing levels of tourism in these communities. This analysis does not include the effect of day use tourism that is indirectly linked to the increase in hotel rooms. For the purposes of CEQA, however, social and economic effects are not considered to have significant environmental impacts.

Mitigation Measures: None required.

N. MILITARY

1. Methodology and Analysis

Military operations within the various jurisdictions would only be affected if one of the water distribution alternatives limited planned expansions of one of the military facilities. As discussed in Chapter IV, the Naval Postgraduate School is the only military facility that would possibly expand its on-site housing during the planning period. The impact on military operations is evaluated below based on the housing that would be supported under the water distribution alternatives.

2. Impacts and Mitigation Measures

The Naval Postgraduate School is located in Monterey. Under the five water distribution alternatives being analyzed, water supplied by Water Supply Option III would support the construction of housing in Monterey ranging from 867 multi-family units (Alternative VI) to 2,996 multi-family units (Alternative V).

The construction of 400 residential units at the naval facility could occur as part of the housing supported by the water distribution alternatives; the use of water by the Naval Postgraduate School for expansion of housing could, however, preempt the construction of 400 dwelling units elsewhere in Monterey. If additional water were not used at the Naval Postgraduate School, military personnel would continue to reside in off-site housing. Under either scenario, the operations of the Naval Postgraduate School would not be adversely affected.

Impacts: None of the water distribution alternatives being analyzed is expected to have an impact on military operations.

Mitigation Measures: None required

O. FISCAL IMPACTS

1. Methodology and Analysis

As discussed under the fiscal impacts section in Chapter IV, fiscal impact evaluations require specific jurisdiction-level information regarding level-of-service standards, per capita service cost relationships, capital improvement requirements, special program costs, future property values, per-capita expenditure rates, intergovernmental transfers, and development fee schedules. Because of the programmatic nature of the Allocation Program, few of these jurisdiction-level cost and revenue relationships can be estimated for use in this fiscal impact analysis.

Since development and population growth would occur within all jurisdictions under virtually every supply option/distribution alternative scenario, the existing relationships of public expenditures and revenues would change. In general, revenues generated by residential development only partially offset the costs generated by providing services to new residents. In some cases, high-value, low-density residential uses will generate enough revenue to offset costs; revenues generated by commercial uses (e.g., property tax revenues, sales tax revenues, transient occupancy tax revenues, and business license tax revenues), however, often serve to offset costs generated by residential uses under all distribution alternatives.

It should be noted that the following analysis assesses impacts based on the Supply Option III at Baseline Production/Consumption Level B because this scenario would allow for the most new water for development.

2. Impacts and Mitigation Measures

Carmel-by-the Sea

Water allocations to Carmel-by-the-Sea under all five water distribution alternatives favor residential development over commercial development, though some commercial development would occur under every alternative other than Alternative VI. This type of imbalance between residential and commercial development often results in fiscal difficulties; however, Carmel-by-the-Sea is characterized by relatively high-value residential development, resulting in high per-unit property tax revenues (Table III-25). This factor should decrease the probability that implementation of Alternatives II, III, IV, or V would result in adverse fiscal impacts. Implementation of Alternative VI, however, would likely result in incremental costs exceeding incremental revenues.

Del Rey Oaks

Water allocated to Del Rey Oaks would be used primarily to support multi-family residential development under all distribution alternatives. Under Alternative II, adequate commercial and hotel development would occur to offset residential development. Selection of one of the remaining four alternatives could, however, result in adverse fiscal effects. Multi-family development, on a per-unit basis, generally increases a community's property tax base by less than one-third the value of a single-family home, while increasing public services costs by an amount similar to a single-family unit.

City of Monterey

The City of Monterey would experience relatively substantial residential, commercial, and hotel development under each of the water distribution alternatives except Alternative VI, which would reduce the overall level of development by approximately 70 percent. Under each alternative, approximately 62 percent of the water would be allocated for commercial and hotel development and 38 percent would be allocated for multi-family residential development. As discussed previously, multi-family uses usually generate higher public costs than revenues. The commercial uses supported by the five water distribution alternatives should offset most, if not all, of the net increase in expenditures generated by the multi-family development.

Pacific Grove

Moderate single-family, multi-family, commercial, and hotel development would occur in Pacific Grove under all five distribution alternatives being analyzed, with the overall level of development reduced under Alternative VI. Water allocations for commercial and hotel uses would range from 27 percent of the water supply under Alternative II to 49 percent of the water supply under Alternative VI. The remaining water would be allocated to residential uses. Multi-family development would account for most of the residential development. The levels of commercial development supported by the distribution alternatives may not generate adequate revenue levels to offset the costs of multi-family uses, especially for Alternatives II through V.

Sand City

Sand City would experience substantial levels of multi-family, commercial, and hotel development under Alternatives III through V and moderate development under Alternatives II and VI. Water allocations for commercial and hotel uses would range from 54 percent of the total water supply under Alternatives II and VI to 57 percent under Alternative V. The levels of commercial development supported by the distribution alternatives should generate adequate revenues to offset the costs of multi-family uses under all five distribution alternatives being analyzed.

Seaside

Under Alternatives II through V, Seaside would realize relatively high levels of commercial and hotel development and relatively moderate levels of single-family and multi-family development. Development levels for all uses under Alternative VI would be relatively lower, but the proportional share among uses would remain similar to the other alternatives. Water allocations for commercial and hotel uses would range from 84 percent of Seaside's total allocation under Alternative VI to 88 percent under Alternative V. Revenues generated by commercial uses should more than offset costs generated by residential uses under all distribution alternatives.

Monterey County

Water allocations to Monterey County would support substantial levels of residential development and moderate levels of commercial, hotel, and golf course development under all distribution alternatives. Water distributions under all alternatives favor single-family residential uses over commercial uses. Water allocations for commercial, hotel, and golf course uses would range from 20 percent of Monterey County's total allocation under Alternative II to 30 percent under Alternative VI. The imbalance between residential and commercial uses would normally result in negative fiscal effects; much of the residential development would, however, include high-value, low-density housing, generating high per-unit property tax revenues. Some of this

advantage could be offset by the fact that the County must provide health and welfare services to all residents of the county requiring these services. The net fiscal effects on Monterey County of Alternatives I through IV are not readily apparent, but may be adverse.

2. Impacts and Mitigation Measures

Impacts: An evaluation of the distribution of water among competing uses indicates that implementation of the distribution alternatives may result in adverse fiscal effects for four jurisdictions. Potentially affected jurisdictions include Del Rey Oaks under Alternatives III through VI, Pacific Grove under Alternatives II through V, Monterey County under all alternatives, and Carmel-by-the-Sea under Alternative VI. These potentially adverse fiscal effects should be offset, to some extent, by adjustment of fees and developer funding requirements by the affected jurisdiction. For CEQA purposes, however, economic effects are not considered to have significant environmental impacts.

Mitigation Measures: None required.

P. AIR QUALITY

1. Methodology and Analysis

The air quality impacts of the five distribution alternatives being analyzed are compared (under Water Supply Option III at Baseline Production/Consumption Level B) in this section. No project-specific air quality modeling or projections have been conducted for the water supply alternatives. Instead, air quality impacts are assumed to be a function of traffic volume. Although approximate, this approach does provide a relative comparison of the impacts of each alternative on air quality.

Based on the data presented in Figure V-2, North Central Coast Air Basin (NCCAB) emissions of PM_{10} and SOx will increase steadily from 1987 to 2005. Emissions of ROG and CO will decrease from 1987 until the mid-1990s, then gradually increase. NO_x emissions would remain at 1987 levels until the mid-1990s, when they would start a steady increase.

2. Impacts and Mitigation Measures

Table V-6 (in Section H, Traffic) shows that, under Alternative V, the jurisdictions that would generate the greatest levels of traffic-related air emissions would be Monterey, Seaside, Sand City, Pacific Grove, and development within the District boundaries not served by Cal-Am. As shown in Table V-6, these areas would combine for approximately 83 percent of the traffic in all the jurisdictions and would be expected to generate the most significant amounts and concentrations of ozone precursors and CO. The non-Cal-Am area and the City of Monterey would be the greatest contributors to a worsening of traffic-related air quality conditions, accounting for approximately 46 percent of the traffic volumes expected in all jurisdictions. Carmel-by-the-Sea, Del Rey Oaks, Monterey County, Pacific Grove, and the Monterey Peninsula Airport District would contribute a relatively small amount of total emissions.

The air pollutant contributions of jurisdictions under Alternatives II, III, and IV would be similar or slightly less than under Alternative V.

It is difficult to estimate the air quality impacts of each water supply alternative without performing detailed air quality modeling. It is clear, however, that each distribution alternative will lead to increased residential and business development, increased traffic and related congestion, and emissions of air pollutants. Increases in regional pollutant emissions from growth-related causes are expected to reduce air quality on the Monterey Peninsula. Without specific ambient air quality emissions data, it is impossible to predict the actual ozone, CO, or PM_{10} ambient air quality concentrations for local jurisdictions under the distribution alternatives.

Impacts: Since the North Central Coast Air Basin is currently a nonattainment area for ozone, and because ozone modeling has not yet been performed to determine whether future improvements are likely, ROG and NOx emissions associated with the distribution alternatives are assumed to have significant air quality impacts.

Currently, no monitoring is conducted for CO in the air basin. But based on continued decreases in LOS, CO ambient standards may be violated within the area. Therefore, traffic-related increases in CO concentrations represent a significant impact.

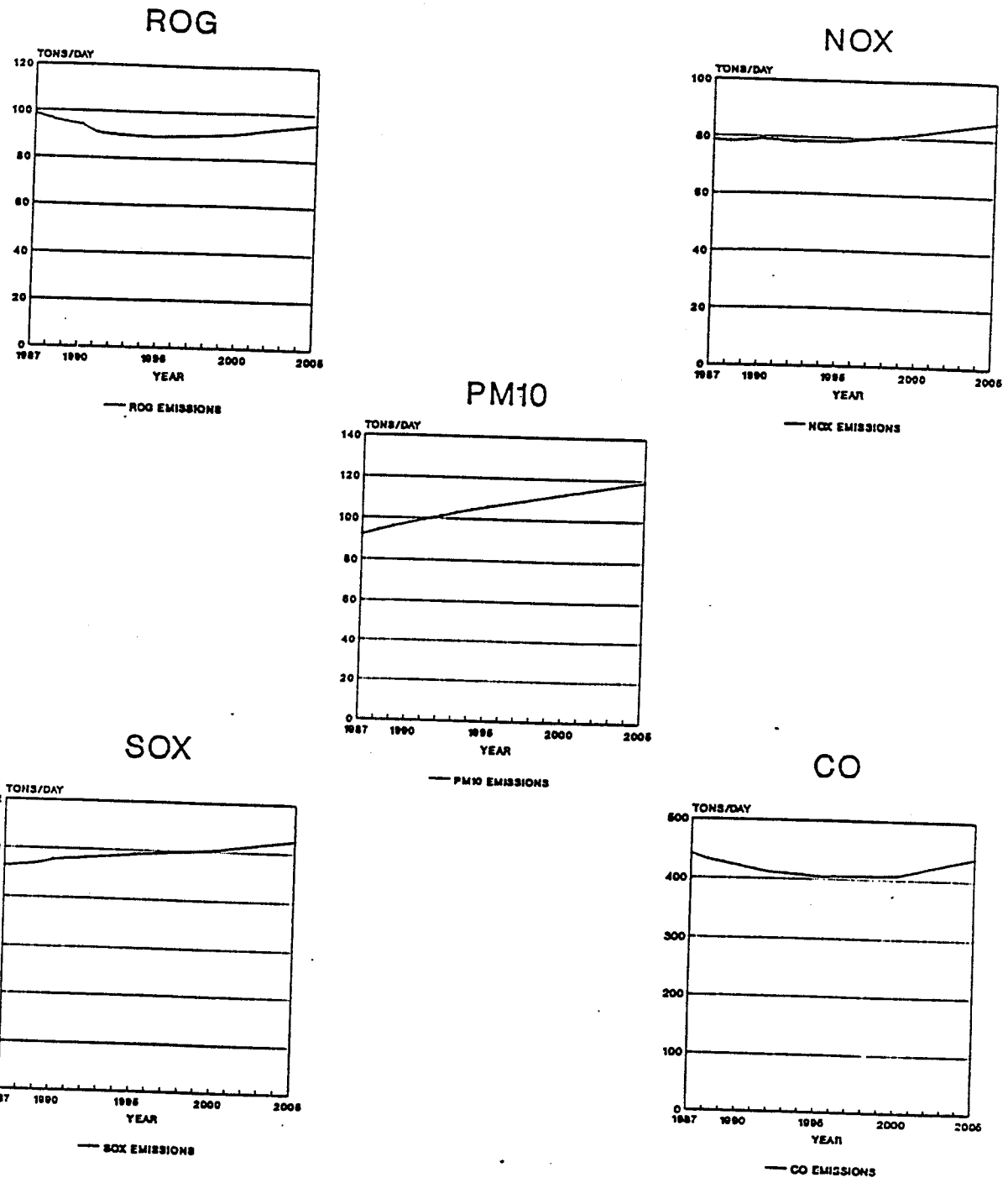

FIGURE V-2

EMISSION FORECASTS
North Central Coast Air Basin

Source: MBUAPCD and AMBAG, 1989

The NCCAB is currently in nonattainment of federal standards for PM_{10}. In addition, future emissions of PM_{10} in the NCCAB are expected to increase (Figure V-2). Because vehicles are a primary source of PM_{10} emissions and entrained road dust (MBUAPCD and AMBAG 1989), each of the distribution alternatives is assumed to have a significant impact on PM_{10} air quality.

Mitigation Measures: Planned emission control measures, including transportation control measures identified in the 1989 *Air Quality Management Plan*, should be implemented to reduce the air quality impacts of the distribution alternatives. In addition, the traffic mitigation measures described in the Chapter IV "Traffic Impacts and Mitigation" section should also be implemented. However, without detailed air quality modeling, it is impossible to ascertain whether these measures will reduce the air quality impacts of the distribution alternatives to a less-than-significant level.

Q. SUMMARY

The impacts of the six water distribution alternatives are all related directly or indirectly to new development and can generally be categorized into four groups: 1) impacts on natural resources; 2) impacts on land use and housing; 3) impacts on public facilities and services; and 4) socioeconomic impacts.

For the purposes of CEQA, economic or social impacts are not to be "treated as significant effects on the environment" (*CEQA Guidelines* §15131). Nonetheless, these impacts, both positive and negative, will be important considerations in District Board decisions concerning the Allocation Program and need to be weighed against the more traditional environmental impacts.

For each of the eight jurisdictions, Table IV-14 summarizes the impacts of Distribution Alternatives II through VI (Supply Option III at Baseline Production/Consumption Level B) *without* mitigation measures applied. The impacts are classified as:

S - Significant Adverse Impact
P - Potentially Significant Impact
L - Less than Significant Impact
N - No Environmental Impact
U - Unknown Impact

For each of the eight jurisdictions, Table IV-15 summarizes the impacts of Distribution Alternatives II through VI (Supply Option III at Baseline Production/Consumption Level B) *with* mitigation measures applied.

TABLE V-14

ENVIRONMENTAL IMPACT SUMMARY
WATER DISTRIBUTION ALTERNATIVES
(Without Mitigation Measures)

Impact Category	Carmel-by the-Sea	Del Rey Oaks	City of Monterey	Pacific Grove	Sand City	Seaside	Monterey County	MPAD
Water Resources	L	L	L	L	L	L	L	L
Vegetation	U	U	U	U	U	U	U	U
Wildlife	U	U	U	U	U	U	U	U
Recreation	L	L	L	L	L	L	L	L
Land Use	L	L	L	L	L	L	L	L
Housing and Pop.	N	N	N	N	N	N	N	N
Traffic	S	S	S	S	S	S	S	S
Schools	L	L	L	L	L	L	L	L
Wastewater	L	L	L	L	L	L	L	L
Employment	N	N	N	N	N	N	N	N
Construction Industry	N	N	N	N	N	N	N	N
Tourism	N	N	N	N	N	N	N	N
Military	N	N	N	N	N	N	N	N
Fiscal Impacts	N	N	N	N	N	N	N	N
Air Quality	S	S	S	S	S	S	S	S

Note: Impacts indicated are for Supply Option III at Baseline Production/Consumption Level B

S = Significant Adverse Impact
P = Potentially Significant Impact
L = Less Than Significant Impact
N = No Environmental Impact
U = Unknown Impact

TABLE V-15

ENVIRONMENTAL IMPACT SUMMARY
WATER DISTRIBUTION ALTERNATIVES
(With Mitigation Measures)

Impact Category	Carmel-by the-Sea	Del Rey Oaks	City of Monterey	Pacific Grove	Sand City	Seaside	Monterey County	MPAD
Water Resources	L	L	L	L	L	L	L	L
Vegetation	U	U	U	U	U	U	U	U
Wildlife	U	U	U	U	U	U	U	U
Recreation	L	L	L	L	L	L	L	L
Land Use	L	L	L	L	L	L	L	L
Housing and Pop.	N	N	N	N	N	N	N	N
Traffic	U	U	U	U	U	U	U	U
Schools	L	L	L	L	L	L	L	L
Wastewater	L	L	L	L	L	L	L	L
Employment	N	N	N	N	N	N	N	N
Construction Industry	N	N	N	N	N	N	N	N
Tourism	N	N	N	N	N	N	N	N
Military	N	N	N	N	N	N	N	N
Fiscal Impacts	N	N	N	N	N	N	N	N
Air Quality	U	U	U	U	U	U	U	U

Note: Impacts indicated are for Supply Option III at Baseline Production/Consumption Level B

S = Significant Adverse Impact
P = Potentially Significant Impact
L = Less Than Significant Impact
N = No Environmental Impact
U = Unknown Impact