

9.0 GROWTH-INDUCING AND CUMULATIVE IMPACTS

9.1 Introduction

Both NEPA and CEQA require the analysis of cumulative, direct, and indirect impacts that may be associated with a Proposed Action/Preferred Alternative. An analysis of potential cumulative effects must examine the full range of impacting environmental consequences associated with the Proposed Action/Preferred Alternative. Federal and State regulations and guidelines also require that the potential for growth inducement as a result of the Proposed Action/Preferred Alternative also be evaluated. Each of these areas of analysis is described below. The potential for cumulative impacts are analyzed herein for each alternative, as are the potential growth-inducing effects.

Cumulative Impacts

Cumulative impacts have been analyzed in accordance with Section 15130 of the CEQA Guidelines, which require that an EIR include a discussion of the potential cumulative impacts. While the EIS/EIR focuses on the potentially significant direct impacts of a Proposed Action or project, cumulative impacts may be individually minor but collectively significant, taking place over a period of time. Cumulative impacts are defined as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impacts from several projects is the change in the environment that results from the incremental impact of the Development when added to other closely related past, present, and reasonably foreseeable or probable future developments. Relevant portions of CEQA Section 15130 are cited below:

"(a) An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in Section 15065(c). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

"(1) As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.

- "(2) When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. A lead agency shall identify facts and analysis supporting the lead agency's conclusion that the cumulative impact is less than significant.

- "(3) An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable.

- "(4) [The wording of this section was invalidated in litigation.]

- "(b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact. The following elements are necessary for an adequate discussion of significant cumulative impacts:
 - "(1) Either:
 - "(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
 - "(B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative

impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.”

The EIR/EIS employs an assessment of the long-term land use impacts that the implementation of the proposed MSHCP would have within the Plan Area. CEQA Guidelines Section 15130 b(1)B allows the use of a summary of land use projections set forth in adopted General Plans (and associated EIRs) and the buildout of these plans. Rates of growth have been assumed based upon recent trends in land conversion, as discussed below. However, changing circumstances that are potential constraints on Development, including water availability, would continue to affect Development in the Plan Area.

The basic criteria for determining the significance of cumulative impacts is similar to that outlined in the CEQA discussion above. The intent is an assessment of the aggregated effects of past, present, and reasonably foreseeable future projects or actions, regardless of who undertakes them. An important consideration in assessing cumulative effects includes an identification of resources and ecosystem components that are especially vulnerable to incremental effects, the geographic concentration of such effects, and other activities in the Plan Area having similar effects.

Issues associated with assessing cumulative effects include consideration of geographic scope, timing of future Development, definition of the affected environment, and the determination of adequate mitigation, where necessary. The Council on Environmental Quality’s (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) define cumulative impacts (40 CFR 1508.7):

"Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

“Significantly” as used in NEPA requires considerations of both context and intensity. 40 CFR 1508.27(b)(7) clarifies how considerations of intensity relate to cumulative impacts:

"Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts."

The CEQA handbook entitled “Considering Cumulative Effects Under the National Environmental Policy Act” states:

“By definition, cumulative effects must be evaluated along with the direct effects and indirect effects (those that occur later in time or farther removed in distance) of each alternative...The purpose of cumulative effects analysis...is to ensure that federal decisions consider the full range of consequences of actions.”

The cumulative impacts analysis is largely qualitative in nature but builds upon an extensive quantitative analysis of land use patterns and designations, regulatory and environmental constraints and opportunities affecting Development, and socio-economic trends. The potential cumulative impacts are evaluated to determine the degree to which they degrade a resource to unacceptable levels and the incremental contribution made by the MSHCP to the overall cumulative effect.

Growth-Inducing Impacts

State CEQA Guidelines Section 15126 outlines the areas of impact analysis, including growth-inducing impacts, if any, of the proposed project. Section 15358 also identified growth-inducing effects for analysis, as cited below,

"Indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems."

Section 15126 of the State CEQA Guidelines also provides direction on what discussions of growth-inducing impacts should be included in an environmental analysis, stating that the impacts should:

"Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Increases in the population may further tax existing community service facilities so consideration must be given to this impact. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

40 CFR 1508.8 notes that an essential part of the definition of "effect" includes the following:

"Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."

9.2 Development Context in Assessing Cumulative and Growth-Inducing Impacts

Section 4.8 of this EIR/EIS and the detailed fiscal impact analysis prepared for the proposed MSHCP provide the context for the discussion of cumulative and growth-inducing impacts. As noted above, the MSHCP impact analysis includes a detailed assessment of regional land use as embodied in the various existing General Plans implemented within the region. The following summarizes the potential impacts on land use from adoption and implementation of the proposed MSHCP and the alternatives would bring about.

Future Residential Development

Of the nine incorporated cities in the Coachella Valley, future residential Development with implementation of the proposed MSHCP would not be significantly constrained in Coachella, Indian Wells, Indio, and La Quinta. In the remaining cities, and in the unincorporated portions of the Plan Area, lands within the Conservation Areas are those primarily designated for very low or low density residential Development. *Table 9-1*, below, summarizes overall impacts to residential lands.

Acreages shown in the table do not reflect the densities allowed pursuant to General Plan land use designations on lands within the Conservation Areas, which are generally very low or rural in nature, whereas the lands outside conservation areas represent more sub-urban or urban densities.

Future Commercial Development

For most of the jurisdictions, no commercial lands occur in Conservation Areas. For Palm Desert, all undeveloped lands designated for Regional Commercial Development are in conservation areas; however, as discussed previously, only approximately 0.57 acres of these lands with Development potential occur within the City, and therefore this impact is not considered significant. In the unincorporated areas, 2.7% of Commercial Retail lands, and 10.9% of Commercial Tourist lands are assigned to conservation. As discussed in Section 4.8 of this

document, for the entire Plan Area, approximately 8,297.95 acres of lands with potential for commercial Development are located outside the Conservation Areas.

TABLE 9-1
Developable Status of Residential Lands in the Planning Area

City	Developable Lands In Conservation Area (acres)	Developable Lands Outside Conservation Area (acres)	Total Residential Lands (acres)
Cathedral City	866.73	1,060.53	1,927.26
Coachella	299.46	6,086.16	6,385.62
Desert Hot Springs *	1,374.08	4,993.89	6,367.98
Indian Wells	1.32	670.01	671.33
Indio	89.32	8,695.16	8,784.48
La Quinta	426.33	2,574.92	3,001.25
Palm Desert	133.63	1,465.34	1,598.97
Palm Springs	5,374.27	1,730.05	7,104.32
Rancho Mirage	364.20	1,294.42	1,658.62
Riverside County	152,560.73	82,734.08	235,294.81
TOTAL	161,490.08	111,304.56	272,794.64

* For Desert Hot Springs lands, this refers to lands within existing public lands within the City of Desert Hot Springs and lands within the Morongo Wash Special Provisions Area.

Potential impacts on commercial growth from the alternatives would relate to the amount of developable commercial lands available, and do not appear to be related to conservation of these lands under the proposed MSHCP. See *Tables 9-2* and *9-3*. Estimates of future growth related to buildout of developable commercial lands outside the conservation areas are discussed later in this section.

Future Industrial Development

With adoption of the proposed MSHCP, for most of the jurisdictions that provide for industrial Development, the majority of those lands that are still developable would be located outside the Conservation Areas. In the unincorporated areas of the Plan Area, approximately 47.2% of lands with potential for business park Development would be in Conservation Areas. As previously discussed, approximately 6,465 acres of potentially developable lands outside the Conservation Areas and designated for industrial uses would remain available for Development in the County. As shown in the table below, approximately 14,172.34 acres of lands with potential for industrial Development occur outside of the Conservation Areas.

TABLE 9-2
Developable Status of Commercial Lands in the Planning Area

City	Developable Lands In Conservation Area (acres)	Developable Lands Outside Conservation Area (acres)	Total Commercial Lands (acres)
Cathedral City	0.00	288.22	288.22
Coachella	0.00	3,757.45	3,757.45
Desert Hot Springs *	0.00	363.75	363.75
Indian Wells	0.00	284.88	284.88
Indio	0.00	944.18	944.18
La Quinta	0.00	730.52	730.52
Palm Desert	0.57	84.10	84.67
Palm Springs	0.00	303.40	303.40
Rancho Mirage	0.00	227.77	227.77
Riverside County	69.16	1,313.68	1,382.84
TOTAL	69.73	8,297.95	8,367.68

* For Desert Hot Springs lands, this refers to lands within existing public lands within the City of Desert Hot Springs and lands within the Morongo Wash Special Provisions Area. There are 8.69 acres of developable lands designated as C-G within the City of Desert Hot Springs (which is not a Permittee to the Plan) in Conservation Areas; however, these lands have been permitted and are therefore not included in this table.

TABLE 9-3
Developable Status of Industrial Lands in the Planning Area

City	Developable Lands In Conservation Area (acres)	Developable Lands Outside Conservation Area (acres)	Total Industrial Lands (acres)
Cathedral City	86.07	394.04	480.11
Coachella	0.00	3,317.14	3,317.14
Desert Hot Springs*	38.48	467.61	506.09
Indian Wells	N/A	N/A	N/A
Indio	0.00	548.29	548.29
La Quinta	N/A	N/A	N/A
Palm Desert	0.00	808.00	808.00
Palm Springs	108.79	2,003.58	2,112.37
Rancho Mirage	0.00	168.81	168.81
Riverside County	640.90	6,464.87	7,105.77
TOTAL	874.24	14,172.34	15,046.58

* For Desert Hot Springs lands, this refers to lands within existing public lands within the City of Desert Hot Springs and lands within the Morongo Wash Special Provisions Area.

Future Growth

Estimates provided by Coachella Valley Association of Governments show that an average of approximately 1,500 acres of land are Developed annually within the Plan Area.¹ The majority of developable lands, and therefore the majority of lands that would be expected to develop in the future, would be residential, with less industrial and commercial Development occurring annually. Based upon past development trends, it is assumed that future residential Development would represent approximately 90% of annual Development in the valley, with future commercial Development representing approximately 8%, and future industrial Development representing approximately 2%. The following summarizes projected future growth for residential, commercial and industrial Development in the Plan Area.

Future Residential Growth

As previously stated, this analysis uses an estimated annual Development rate of approximately 1,500 acres. It further assumes that approximately 90% of annual Development in the Plan Area would occur on lands designated for residential Development. Based on these assumptions, approximately 1,350 acres of residential Development would occur within the Plan Area annually. At this rate of growth, the 111,304.56 acres of potentially developable residential lands outside the Conservation Areas would buildout over a period of approximately 82 years. While annual growth rates for residential Development would vary based on national and regional economic trends, this analysis provides a conservative estimate to determine impacts related to the proposed MSHCP.

Future Commercial Growth

Approximately 8,298 acres of potentially developable commercial lands occur outside of proposed Conservation Areas in the MSHCP Plan Area. Based on an annual Development rate of 1,500 acres per year, and assuming that commercial Development would represent approximately 8% of this total, commercial Development would occur at a rate of approximately 120 acres annually across the Plan Area. At this rate of development, buildout of potentially developable commercial lands would occur over a period of approximately 69 years. As with residential Development, annual growth rates for commercial Development are averages and would vary from year to year.

¹ Jim Sullivan, Coachella Valley Association of Governments, personal communication, November 12, 2003.

Future Industrial Growth

This analysis assumes that industrial Development would represent approximately 2% of the 1,500 acres of annual development in the Plan Area. There are 14,172.34± acres with potential for industrial Development outside of proposed Conservation Areas. Therefore, based on this analysis, and an even distribution of Development, approximately 30 acres of industrial lands would develop annually over a buildout period of approximately 472 years. Given the valley's past Development patterns and comparative economic strengths, this would indicate that there is an excess of lands designated for industrial Development. It is probable that excess industrial lands are likely to convert to other land uses in the long-term, allowing for more residential and commercial lands in the long-term.

Growth Trends: Population, Housing, and Employment

Tables 9-4 through 9-6 were taken from the Southern California Association of Governments (SCAG) Regional Transportation Plan (2003). These data provide a frame of reference against which to measure the potential impacts on the proposed MSHCP. An assessment of the Development within each jurisdiction allowed with implementation of the Plan indicates that the Plan would not have a significant direct, indirect, or cumulative adverse effect on growth projections to 2025 and beyond.

TABLE 9-4
Coachella Valley MSHCP Population Growth Trends

City	2000	2010	2025	% Change 2000-2025
Cathedral City	38,070	45,219	56,753	49%
Coachella	22,127	24,894	32,512	47%
Desert Hot Springs	16,064	19,180	24,874	55%
Indian Wells	3,394	4,003	5,076	50%
Indio	46,606	56,330	71,689	54%
La Quinta	21,490	29,697	48,820	127%
Palm Desert	37,087	43,543	52,033	40%
Palm Springs	45,332	51,514	55,233	22%
Rancho Mirage	11,671	14,985	21,930	88%
Unincorporated County	90,953	128,917	211,241	132%
County Total	332,794	418,282	580,161	74%

TABLE 9-5
Coachella Valley MSHCP Household Growth Trends

City	2000	2010	2025	% Change 2000-2025
Cathedral City	12,582	14,211	17,249	37%
Coachella	5,077	6,401	8,299	63%
Desert Hot Springs	5,570	6,565	9,187	65%
Indian Wells	1,476	1,681	2,154	46%
Indio	12,705	14,814	19,204	51%
La Quinta	6,772	9,256	14,661	116%
Palm Desert	15,762	17,924	21,882	39%
Palm Springs	19,936	22,055	25,123	26%
Rancho Mirage	5,557	7,290	10,550	90%
Unincorporated County	29,683	43,817	78,900	165%
County Total	117,120	146,024	209,234	79%

TABLE 9-6
Coachella Valley MSHCP Employment Growth Trends

City	2000	2010	2025	% Change 2000-2025
Cathedral City	12,797	17,932	22,556	76%
Coachella	6,408	9,347	11,840	85%
Desert Hot Springs	4,944	6,283	7,530	52%
Indian Wells	2,709	3,034	3,433	27%
Indio	16,183	19,746	23,253	44%
La Quinta	6,850	10,343	13,212	93%
Palm Desert	30,750	34,310	37,276	21%
Palm Springs	31,877	36,336	40,364	27%
Rancho Mirage	8,916	10,383	11,946	34%
Unincorporated County	9,418	16,317	21,887	132%
County Total	130,852	164,031	193,297	48%

9.3 Cumulative Impacts to Land Use Compatibility

MSHCP

Proposed Action/Preferred Alternative

The cumulative impacts on land use and land use compatibility are well described in the contextual discussion provided above. This regional and multi-jurisdictional planning would serve to implement relevant policies and programs of the various Permittees' General Plans and other regulatory/management plans, allowing an ecosystem-based protection of open space and biological resources for the entire region.

The Proposed Action/Preferred Alternative proposes to conserve some of the most physically constrained lands in the Plan Area. Major washes draining large watersheds pass through and contribute to the Essential Ecological Processes. The preservation of these washes and floodplains would preclude the need for expensive infrastructure, limit Development in these constrained areas, and conserve open space lands that complement adjoining and nearby communities. Major portions of the proposed MSHCP Reserve System set forth in this Alternative would also consist of lands located along and in proximity to major active earthquake faults and associated geotechnical hazards and constraints. Other lands in Conservation Areas overlie non-potable groundwater resources, which also limit Development potential. Finally, large portions of the proposed MSHCP Reserve System consist of lands occurring on steep slopes and are highly constrained.

The extent of open space to be protected as the MSHCP Reserve System under the Proposed Action/Preferred Alternative has a limited and essentially insignificant immediate and long-term effect on the stock of residential, commercial and industrial lands that would remain available for Development. At current rates of land conversion, residential, commercial and industrial Development could continue for another 82, 69, and 472 years, respectively. While the full buildout of remaining lands is not anticipated, opportunities for future Development in all land use segments do not appear to be significantly adversely affected by the proposed MSHCP.

Public Lands Alternative

Under the Public Lands Alternative, all Existing Conservation Lands under local, State and Federal agency ownership, as well as Private Conservation Lands, would be conserved. No significant incremental or cumulative impacts to local and regional land use or land use compatibility would result for private land holders. However, additional management prescriptions would be needed on public lands in order to achieve at least some of the Goals and

Objectives of the Plan. Potentially significant indirect cumulative impacts could occur, however, as currently unlisted species require greater protection, thereby bringing private land owners into conflict with increased State and Federal regulation required to protect current and future listed species. The lack of a holistic and coordinated conservation effort, as is reflected in the Proposed Action/Preferred Alternative, could result in regulatory actions that divide communities, especially along washes and other Ecological Process areas and habitats. In the mid- to long-term, cumulative impacts to land use and land use compatibility could be significant.

Core Habitat with Ecological Processes

Land use and land use compatibility in the Plan Area are currently affected by a variety of substantial constraints. These include areas of high wind and blowing sand, several active earthquake faults associated with the San Andreas Fault Zone, and major flooding from washes draining the surrounding mountains. As noted in Section 4.2.3 of this EIR/EIS, the Enhanced Conservation Alternative would result in a wide range of significant direct and indirect land use and land compatibility impacts. The Core Habitat With Ecological Processes Alternative greatly increases the area of conservation and extends the areas of land use conflict into urban and urbanizing areas, including those south of I-10. Conflicts with existing windfarm development would also occur. Cumulative impacts would be most significant in the Desert Hot Springs and Cathedral City areas north of I-10 and the Rancho Mirage and Palm Desert areas south of I-10.

Enhanced Conservation Alternative

Some existing Development would be included in the Conservation Areas as Existing Uses that would not be affected by the Plan. Limitations on flood control improvements could be substantially greater than for the Proposed Action/Preferred Alternative or other project alternatives. Constraints on road construction could further impact land use and compatibility in this area, which is already isolated from the rest of the urban pattern in the Plan Area, thereby further limiting opportunities for urban and economic development. This Alternative would add to other existing land use constraints, including those associated with limited accessibility, and seismic and flooding conditions.

Substantial cumulative land use impacts could result from possible restrictions on existing Whitewater River ground water recharge facilities, upon which large areas of the Plan Area are dependent for a sustainable source of potable water. The potential use limitations on these facilities, whether in the near or mid-term, could have significant direct and indirect adverse cumulative impacts on land use from Palm Springs to La Quinta. Similar cumulative impacts could result in the Indio and Coachella area, and could reduce access to established sources of sand and gravel, potentially affect a variety of approved but not yet constructed developments

north of I-10, and could substantially limit land use efficiencies associated with such development areas as the McNaughton Ranch in Coachella.

The Alternative would also increase potential conflicts with local land use plans, policies and regulations, which are coordinated through community General Plans and zoning ordinances. Substantial disruption to capital improvements and plans could cause major discontinuities, adversely effect infrastructure economics and land use efficiencies, which have developed over several decades. The Alternative would also divide established communities south of I-10 by establishing Conservation Areas between existing land uses and major transportation arteries.

No Action/No Project Alternative

The No Action/No Project Alternative does not directly contribute to existing or potential conflicts with Federal, State, local or tribal land use policies or controls. The absence of a plan also does not contribute to or incrementally divide and existing community or an applicable habitat or natural community conservation plan. Neither does it provide a mechanism by which potential future conflicts that may arise from continued development in sensitive wildlife habitat could be mitigated in a coordinated and holistic manner. In addition to the continued piecemeal means by which land use/species protection conflicts are addressed, over time circumstances may worsen and the extent and pattern of Development may ultimately inhibit the ability to assemble a viable reserve for the long-term conservation of the proposed Covered Species.

Santa Rosa and San Jacinto Mountains Trails Plan

All Trails Plan Alternatives

No land use incompatibilities have been identified in association with the Proposed Trails Plan or other Trails Plan Alternatives. Cumulative impacts to surrounding existing or planned land uses are also not anticipated because the Proposed Trails Plan and other Trails Plan Alternatives do not incrementally contribute to projects or actions that could separate existing communities, nor do they conflict with existing habitat or natural community conservation plans.

9.4 Cumulative Impacts to Transportation, Traffic, and Circulation

MSHCP

Proposed Action/Preferred Alternative

A wide range of freeways, highways, and major roadways comprising the Coachella Valley circulation network, as well as the Union Pacific Railroad lines and regional airports, were assessed to determine the potential effects of the proposed MSHCP.

Transportation corridors reviewed included those already traversing or immediately adjacent to portions of the planned Reserve System. Potential impacts of the proposed MSHCP on the numerous links of the proposed covered roadways, including those in need of near-term and long-term expansion, were also assessed. Implementation of the Proposed Action/Preferred Alternative would result in significant cumulative impacts to circulation and transportation if such implementation precluded the needed improvement to transportation facilities.

To avoid this impact, the Proposed Action/Preferred Alternative would provide for the improvement of the “Covered Roadways” discussed in Section 4.3 and listed in Appendix K of this EIR/EIS, and in the Plan, and as currently identified by the roadway agencies. The covered roadways were also assessed in consultation with the Wildlife Agencies. The proposed Plan would facilitate the improvement of such roadways, both in and out of the Conservation Areas, by avoiding the often time-consuming requirement for each individual project to demonstrate compliance with the State and Federal Endangered Species Acts. The incorporation of the roadway system plan into the overall planning and design of the integrated MSHCP/NCCP provides for and facilitates the Development of needed transportation system improvements, and is, therefore, an example of mitigation being incorporated into the project design.

The Proposed Action/Preferred Alternative would not require any amendments to the General Plans of the County and cities, in that it includes as Covered Activities all the needed arterial highways identified by the roadway agencies as necessary to accommodate planned future growth. Since the long-term roadway network would essentially be the same with or without implementation of the proposed MSHCP, such implementation would not adversely impact the planned improvements to any needed link or cause a reduction in level of service.

Furthermore, the implementation of the proposed MSHCP would result in the long-term reduction of traffic that would otherwise be generated by outlying Development located closest to biologically sensitive areas. *Table 9-7* provides one meaningful measure of the cumulative positive effects of the proposed Plan's implementation, a reduction of approximately 304,000

average daily trips. Given that average trip lengths that would be generated by the Development of these lands, which are further removed from commercial, professional and institutional services, the resulting potential reduction in miles traveled is substantial.

TABLE 9-7
CV MSHCP/Preferred Alternative
Trip Generation Potential by Land Use Type

Land Use	Units	Average Daily Rate	Daily Trip-ends
Single-Family Detached Housing	21,377 DU	9.57	204,578
Apartment	424 DU	6.63	2,811
Shopping Center	751,328 SF	42.92	32,247
Warehousing	12,948,140 SF	4.96	64,223
Total			303,859

Source: Institute of Transportation Engineers (ITE), "Trip Generation," Sixth Edition, 1997, Land Use Categories 150, 210, 220, and 820. DU = Dwelling Unit SF = Square Feet

Another modest but nonetheless positive aspect of the Proposed Action/Preferred Alternative would be the greater land use efficiencies that may be induced as a consequence of the proposed Plan. As the cost of roadway and other infrastructure continue to rise, so too would the importance of maximizing value and optimizing the efficiency of delivery of access and services. It is conceivable that some Development in Conservation Areas inconsistent with the Conservation Goals and Objectives in the proposed Plan would shift to urban areas already planned for more intense Development.

While the roadway agencies would need to monitor this effect as part of their ongoing monitoring of traffic in their jurisdiction, this potential shifting of Development intensities is not expected to be significant. In fact, any resulting intensification of land use may have the indirect benefit of encouraging the use of mass transit, and is consistent with "Smart Growth" policies endorsed by many urban planners.

In summary, based upon the extensive inter-agency coordination associated with the proposed MSHCP, no significant cumulative impacts to existing or planned Federal, State, regional or local roadways, rail lines and airports, are expected to result from the proposed Plan's implementation. Neither are significant cumulative impacts to regional accessibility expected to result from the proposed Plan. Therefore, the cumulative impacts of the proposed Plan are less than significant, and no additional mitigation beyond that incorporated into the Plan is required.

Public Lands Alternative

Potential contributions of this Alternative to cumulative impacts to transportation, traffic and circulation are insignificant. This Alternative does not involve the acquisition of Additional Conservation Lands and does not, in and of itself, contribute to incremental or cumulative impacts to transportation systems. It should be noted that this Alternative does not preclude conflicts between future transportation projects and wildlife conservation issues. Nonetheless, potential cumulative impacts associated with this Alternative are less than significant.

Core Habitat With Ecological Processes Alternative

The potential for this Alternative for significant contributions to incremental or cumulative impacts are essentially the same as for the Proposed Action/Preferred Alternative. The Alternative would not provide Take Authorization the construction of the northerly extension of Rio del Sol through the Indio Hills, however, as discussed in Section 4.3, this impact is considered less than significant. It should also be noted that implementation of the Proposed Action/Preferred Alternative would not preclude the County from seeking approval of the Rio del Sol extension through the MSHCP Plan amendment process. The Plan amendment process would provide the County with an opportunity to present a detailed assessment of the effects of the Rio del Sol extension to the CVCC, including the resource agencies.

Enhanced Conservation Alternative

The Enhanced Conservation Alternative has the potential to be a major and significant contributor to cumulative impacts to regional transportation systems. This Alternative would not only conflict with the full range of roadways discussed in Section 4.3, but would have wide indirect impacts by forcing traffic onto other roadways, which have been designed and constructed for traffic volumes that assume the construction of the roadways that would be precluded by this Alternative. In addition to creating major conflicts with highways and arterial roadways, this Alternative would also have a direct impact on land uses that have been assigned based upon the assumed construction of these roadways. The significant cumulative impacts to transportation that would result from this alternative would, therefore, also have significant cumulative impacts on land use, the extension of public services and facilities and the provision of emergency services.

Santa Rosa and San Jacinto Mountains Trails Plan

All Trails Plan Alternatives

No direct or indirect impacts to transportation systems or regional circulation have been identified in association with the Proposed Trails Plan or other Trails Plan Alternatives. Cumulative impacts to regional transportation are also not anticipated.

9.5 Cumulative Impacts to Mineral, Energy, and Timber Resources

MSHCP

Proposed Action/Preferred Alternative and All Other Alternatives

Mineral Resources

As discussed in Section 4.4 of this EIR/EIS, mineral resources within the proposed Plan Area are limited to sand and gravels associated with fluvial areas and elevated deposits of alluvial materials associated primarily with the Indio Hills and The Little San Bernardino Mountains. As of 2001, permitted mineral reserves in the Valley were estimated at 236.8 million tons (based on Riverside County and BLM permit files) on both public and private land.

Significant expansion of an existing mine in the Indio Hills also near Indio (private land),² and permitting of a number of smaller operations in Thousand Palms and west Berdoo Canyon (private and public land) have expanded permitted reserves to approximately 272 million tons. Total aggregate production during 2001 in the Coachella Valley was approximately 2 million tons, of which approximately 661,000 tons were mined on BLM land. Based upon permitted reserves, at current rates of consumption these permitted reserves could last approximately 130 years.

Approximately 6,052 acres of MRZ-2 lands could be directly affected by the proposed Plan. Because Development is limited in Conservation Areas, it is a foreseeable impact of the proposed Plan that the majority of these acres would not be developed under the MSHCP. The actual impact of this Alternative on the availability of the sand and gravel resource, however, is not significant because the volume of material which is already permitted for mineral extraction in the Plan Area is sufficient to meet demand for approximately 130 years at current rates of

² "Final Subsequent Environmental Impact Report for Riverside County Surface Mining Permit No. 176, Amd. No. 1." Permit approved and SEIR certified March 2002. Prepared by Terra Nova Planning & Research, Inc. March 2002. This approval expanded mining to increase permitted aggregate extraction by approximately 46.8 million tons beyond levels identified in 1985.

consumption, and land conserved under the Plan does not physically affect the mineral resource. The California Department of Conservation's regulations state that recreational open space uses are compatible with mining and, thus, do not threaten future potential to extract mineral (California Code of Regulations, Title 14, section 3675).

Existing extraction and processing operations are subject to discretionary permit approval, including surface mining permits and reclamation plans found to be consistent with local, State and Federal regulations. Existing extraction and processing operations in the Conservation Areas are not affected by the Plan. Future expansion of these operations, as well as proposals for new mineral extraction, that would involve Take of a Listed species would require Take Authorization and would be subject to compliance with the MSHCP.

It is important to note that because sand and gravel is a low-value, high bulk-weight commodity, a major part of its cost to the consumer is for transportation, which is one of the major constraints on the marketing area for this product. Therefore, mineral resources occurring in the Plan Area are essentially of local value and would not be relied upon by regional or State-wide users. The locally permitted supply appears adequate to meet conceivable buildout needs of the resource market. Therefore, the effects of conservation on potential sand and gravel resources are, on a cumulative basis, considered to be less than significant.

Energy Resources

The Plan Area is host to substantial windfarm development that has occurred over the past two decades. Most of the identified viable wind resource areas in the Plan Area have already been developed. While limited new windfarm Development is expected, existing projects are pursuing on-going retrofitting of turbines on existing sites. Windfarm retrofits have been an important means of increasing production while reducing impacts.

The ground disturbance associated with installation of wind turbines and solar energy systems in Conservation Areas, consistent with the Conservation Goals and Objectives, is a Covered Activity under the Plan.

No solar or thermal energy resources have been developed to any meaningful degree in the Plan Area at the present time. Such development is expected to be limited locally to the integration of solar thermal and photovoltaic systems with new and existing development, typically as roof-mounted systems. Given the significant current and probable future opportunities for the application of these solar technologies, the proposed Plan is not expected to have a significant cumulative impact on access to or Development of this resource.

Timber Resources

There are no existing or planned timber harvesting areas in the Plan Area; thus there are no significant cumulative impacts to this resource. Additionally, the proposed Plan would have no effect on any commercially viable timber resource in any area outside but adjacent to the Plan Area.

Santa Rosa and San Jacinto Mountains Trails Plan

No direct or indirect impacts to mineral, energy or timber resources have been identified in association with the Proposed Trails Plan or other Trails Plan Alternatives. Cumulative impacts to these resource values are also not anticipated.

9.6 Cumulative Impacts to Agricultural Lands and Activities

MSHCP

Proposed Action/Preferred Alternative

Agriculture remains the third largest employment sector in the region and represents a mainstay of the broader Riverside County economy. Its agricultural production was valued at approximately \$1.2 billion and represented 4.2% of the State's total production.³ The number of farms in Riverside County decreased by about 21.3% from 1987 to 1997, while acreage being farmed increased by 3.6% during the same period, and the number of cropland acres harvested increased by 12.6%.

The County's leading agricultural products are fruit and nut crops, livestock products, and vegetable products.⁴ Major Coachella Valley products include dates, grapes, citrus, and a variety of other fruits and vegetables. Large packinghouses and transportation/distribution centers are major employers in this vicinity. Coachella and Indio, in particular, are key transportation hubs that are situated near Union Pacific Railroad lines and facilities, Desert Resorts Airport, and junction of Interstate-10 and State Route 86, all of which facilitate the transport of agricultural products nationwide.

³ Resource Directory 1999 and 2000, California Department of Food and Agriculture.

⁴ Summary of County Agricultural Commissioners' Reports, Gross Values by Commodity Groups, California 1995-2000, as compiled and tabulated by the Southern California Association of Governments (SCAG). Does not include all crops/products produced.

Approximately 7.5% (84,900 acres)⁵ of the Plan Area is under agriculture and is focused around the cultivation of dates, grapes, citrus, and other fruit and vegetable crops. The Proposed Action/Preferred Alternative results in the inclusion in permanent conservation of approximately 1,200 acres (1.4%) of alkali and marginal farmland near the Salton Sea.

These lands carry a heavy load of mineral salts from decades of on-going evaporation of irrigation water, and have high ground water due to their proximity to the Salton Sea making it difficult to flush salts out of these soils. About one-half are in cultivation. The lands in this area are designated as "Farmland of Local Importance" by the California Department of Conservation.⁶ The Proposed Action/Preferred Alternative also includes identified agricultural lands already within the boundaries of the Coachella Valley Preserve of the Coachella Valley fringe-toed lizard, immediately west of Washington Street and north of I-10. Other agricultural soils in this area have been converted into or planned for Development. No other active or cultivatable land would be adversely affected by the implementation of the Proposed Action/Alternative. It should be noted that agricultural lands in the Plan Area are currently impacted by conversion to non-agricultural uses, which will continue to have an incremental cumulative impact on these lands. Nonetheless, given the limited impact on marginal farmlands, the Plan would not have a significant cumulative effect on agricultural lands or activities.

Public Lands Alternative

No new areas would be acquired for Plan purposes under this Alternative. Therefore, the Alternative would not involve agricultural lands and would not significantly conflict with designated or actively cultivated important farmland. Nor would this Alternative affect lands under Williamson Act contract.

Core Habitat with Ecological Processes Alternative

This Alternative would entail less overall acquisition than the Proposed Action/Preferred Alternative; however, the same agricultural lands would be affected. The incremental or cumulative impacts of this Alternative would be, therefore, less than significant and the same as those under the Preferred Alternative.

⁵ "Draft Coachella Valley Multiple Species Habitat Conservation Plan" GIS Database. Coachella Valley Association of Governments and US Bureau of Land Management. December, 2003.

⁶ Farmland Mapping and Monitoring Program, Division of Land Resources Protection, California Department of Conservation, 2001.

Enhanced Conservation Alternative

The proposed Conservation Areas would be expanded under this Alternative. This Alternative would include 700± more acres of agricultural lands in the Conservation Areas when compared to the Proposed Action/Preferred Alternative. If the subject 700± acres were acquired from a willing seller for conservation, the loss of these Unique Farmlands would be a significant impact on this resource.

No Action/No Project Alternative

The No Action/ No Project Alternative would entail no adoption or implementation of a multiple species habitat conservation plan. Based upon the essential "grandfathered" status of existing agricultural activity in the Plan Area, this alternative would not affect nor would it have an adverse cumulative impact on agriculture or agricultural lands.

Santa Rosa and San Jacinto Mountains Trails Plan

All Trails Plan Alternatives

No direct or indirect impacts to agricultural resources have been identified in association with the Proposed Trails Plan or other Trails Plan Alternatives. Cumulative impacts to these resource values are also not anticipated.

9.7 Cumulative Impacts to Hydrology and Water Quality

Introduction

The following discussions analyze the potential cumulative impacts to flooding and hydrology and to water resources and quality that could result from implementation of the various MSHCP and Trails Plan Alternatives. While Section 9.7.1 focuses primarily on flooding and hydrology, while Section 9.7.2 focuses on water resources and water quality issues.

9.7.1 Cumulative Impacts to Flooding and Hydrology

MSHCP

Proposed Action/Preferred Alternative

As has been discussed elsewhere in this document, an essential goal of the proposed MSHCP is the preservation of existing hydraulic systems, which facilitate the transport sand and other

sediments onto alluvial fans and floodplains that lie within the high-wind corridor of the western Coachella Valley. Just as important, these hydraulic systems expose at the ground surface existing alluvial sand deposits along floodplains and on alluvial fans, facilitating wind erosion for sand transport. These major drainages include the San Gorgonio River and White Water Rivers and associated tributaries, Mission Creek and Morongo Washes, Long Canyon Wash and other drainages in the Little San Bernardino and Mountains and Indio Hills. These drainages are necessarily sand (soft) bottom and include broad floodplains where opportunity for percolation of storm flows is important. Many of these areas have been selected and developed for large-scale ground water recharge activities, including the CVWD Whitewater recharge basins and the DWA/CVWD Mission Creek recharge basins. Rather than interfere with natural ground water recharge, regional drainage management would assure an optimum percolation area.

Based upon consultations with the two regional flood control agencies (RCFCWCD and CVWD), the continued functioning of these drainages as characterized in the proposed MSHCP would serve to limit the potential for inappropriate Development within major floodplains. While not quantified, the long-term savings in flood control infrastructure and flood insurance are expected to be substantial and could constitute a beneficial impact of the Plan.

Major drainages, the maintenance of the current functions of which are essential to the viability of portions of the proposed MSHCP, currently are designed to transport large volumes of sediment.⁷ The Proposed Action/Preferred Alternative does not result any significant change to existing or planned flood control projects or facilities, nor would it result in increasing or contributing to the danger of inundation by mud or debris flows. The Proposed Project/Preferred Alternative recognizes major flood control facilities and also makes provision for the on-going, long-term operations and maintenance they require.

The Proposed Action/Preferred Alternative would not conflict with but rather would complement requirements of Federal agencies and their local agents to act to reduce risk of flood loss and minimize impacts human safety, health and welfare, and to restore the natural and beneficial values of floodplains. No significant cumulative impacts to regional hydrology or flood control plans and facilities would be expected to result from the implementation of the Proposed Action/Preferred Alternative.

⁷ Drainage areas are to discharge points in the northern Coachella Valley. Sediment transport is based upon the flood-frequency method for modern era. Yields higher values than alternative (Renard) method. Data on 100-year storm discharge provided by Riverside County Flood Control & Water Conservation District, 2003.

Public Lands Alternative

The Public Lands Alternative would involve no new acquisition of lands for Conservation and would not be expected to significantly contribute to cumulative impacts on federal flood control projects or actions necessary to reduce risk of flood loss, restore the natural and beneficial values of floodplains, or protect human life and property. Neither would the Alternative make a significant cumulative contribution to inundation from mud or debris flows, given that it does not alter existing or planned flood control nor affect existing or planned land use patterns. The Alternative would not contribute to the degradation of water quality or incrementally contribute to the Development of structures in floodplains, or alter any drainage patterns. While this Alternative would not have any significant cumulative adverse impacts, it would also have fewer beneficial impacts than the Preferred Alternative.

This alternative could contribute to adverse affects on existing and planned groundwater recharge facilities in the Plan Area. Portions of the existing Whitewater Recharge Basins area are Federal lands and the lack of a broader Reserve System resulting from this Alternative could jeopardize these facilities when permit renewal came up in 2015. Lands within or adjacent to portions of the planned CVWD Dike 4 and Martinez Canyon recharge basins projects are under Federal ownership. The Public Lands Alternative could result in the need for individual permits for their development. In the absence of a comprehensive conservation plan as with the Proposed Action/Preferred Alternative, securing individual permits for such projects would be more difficult. These uncertainties and the biological resource conservation issues that would remain unresolved under this Alternative mean that the potential for cumulative adverse impacts to existing and planned groundwater recharge facilities could be significant. This Alternative would not, in and of itself, interfere with natural or artificial groundwater recharge on non-public lands because no new lands are conserved.

Core Habitat with Ecological Processes Alternative

The Core Habitat with Ecological Processes Alternative provides for less conservation than the Preferred Alternative, but the potential cumulative impacts to hydrology and water quality from implementation of this Alternative are essentially the same as those for the Preferred Alternative.

Enhanced Conservation Alternative

This Alternative would result in a substantial increase in the size of the Conservation Area relative to the other Alternatives, and would somewhat increase the amount of alluvial fan and floodplain that would be placed in conservation, including within the San Gorgonio and Whitewater River washes. The addition of portions of the floodplains of the Mission Creek and

Big/Dry/Little Morongo Washes could incrementally limit the extent of flood control improvements. The expansion of the Mission/Morongos floodplain would be for the stated purposes of enhancing the function of the floodplain as a wildlife movement corridor, the extent of which could incrementally impact or preclude future flood control improvements that would affect existing and planned development.

The Enhanced Conservation Alternative does not interfere with either natural or artificial ground water recharge. This Alternative would increase conflicts with adopted local or regional flood control plans and projects, including the Desert Hot Springs Master Drainage Plan.

The Alternative would also have a substantial cumulative effect on the Mid-Valley Stormwater Channel, which has been designed and is being implemented by CVWD and affected local jurisdictions. Substantial portions of these lands have already developed and other developments have already been approved. The Alternative would also contribute incremental or cumulative impacts to the management and maintenance of the Coachella Valley Stormwater Channel, increasing the extent of conservation management to the juncture of the subject channel and the Thousand Palms Channel in Indio. As with the upper segment of this channel (Whitewater River Channel), the subject channel is the primary flood control facility in this part of the Plan Area. The Coachella Valley Stormwater Channel is also essential to the safe and efficient operation of the valley's agriculture. The Enhanced Conservation Alternative would make a significant cumulative contribution to impacts to hydrology management but would not contribute to cumulative impacts to water quality.

No Action/No Project Alternative

The No Action/No Project Alternative does not include Plan adoption and would therefore not directly contribute to incremental or cumulative impacts to hydrology and water quality or local, regional, state, or federal flood control plans. The absence of a Plan could result in the need for future hydrology and water projects to secure individual Take permits if listed species could be impacted. Over time, pressure on additional species could result in their becoming listed; further incrementally increasing problems in facilitating Development by implementing planned flood control improvements. This Alternative would not directly contribute to or incrementally interfere with artificial groundwater recharge facilities/activities. The Alternative could preclude coherent, integrated and coordinated conservation planning that could otherwise provide long-term permitting for these essential facilities. The Whitewater recharge basin permit expires in 2015 and would require new formal consultations with federal and state wildlife officials in order for it to be extended.

These facilities would also need to secure Take Authorization for this and other groundwater recharge projects by the Wildlife Agencies. In the absence of a comprehensive, conservation plan, urban development in the Plan Area would continue. Fragmented conservation efforts may not be able to avoid subsequent plant and wildlife listings that could adversely affect the viability of these recharge projects, both existing and proposed. The continuation of the status quo could contribute cumulatively to interference with artificial groundwater recharge facilities/activities.

Santa Rosa and San Jacinto Mountains Trails Plan

All Trails Plan Alternatives

No direct or indirect impacts to drainage patterns or flood control facilities or water management have been identified in association with the Proposed Trails Plan or other Trails Plan Alternatives. Cumulative impacts to flood control facilities or management are also not anticipated.

9.7.2 Cumulative Impacts to Water Resources/Quality

Introduction

Cumulative Impacts to Water Resources and Artificial Groundwater Recharge Facilities and Activities

Major groundwater subbasins serving the Coachella Valley are in a state of on-going overdraft. The Whitewater Recharge Basins located between State Highway 111 and Interstate 10 recharge the Upper Thermal Subbasin of the Whitewater River Basin. Recharge water originates from mountain runoff conveyed by the San Geronio and Whitewater Rivers, from smaller local drainages and from a turnout on the Colorado River Aqueduct owned and operated by Metropolitan water District (MWD).

Groundwater recharge facilities were recently constructed along Mission Creek, north of Pierson Boulevard and east of State Highway 62. These facilities, briefly described above and under the jurisdiction of the Desert Water Agency, encompass approximately 150 acres and would be able to recharge up to 25,000 acre-ft per year, although the current maximum delivery anticipated would be 15,000 acre feet per year. These basins are located in the vicinity of the Upper Mission Creek/Big Morongo Canyon Conservation Area.

CVWD is also planning the construction of three additional groundwater recharge basins, including one on the north side of the U.S. Bureau of Reclamation protective levee north of Avenue 38, west of Monroe Street, and south of the Indio Quarry sand and gravel mine (East

Indio Hills Conservation Area). Recharge in these facilities would be partially associated with effluent from a nearby wastewater treatment plant. Two larger recharge facilities are currently being planned along the east front of the Santa Rosa Mountains in the Lower Thermal Subbasin, adjacent to the Santa Rosa and San Jacinto Mountains Conservation Area. These include the Dike No. 4 Recharge Facilities project and the Martinez Canyon Recharge Facilities. These three planned facilities have been identified in the MSHCP as proposed Covered Activities.

Natural and artificial groundwater recharge is largely managed by the RCFCWCD, DWA, and CVWD. As public "districts" under State law, CVWD, DWA, RCFCWCD, and others have control over the approval, construction, operation and maintenance of these facilities.

As noted above, the areas of environmental concern that are associated with water resources include the potential precluded or reduced demand for potable and other water resources, and the potential for interference with groundwater recharge facilities and activities. One primary area of potential impact is that to native vegetation, especially mesquite, located within proposed Conservation Areas. The potential for impacts to these resources from public use and trails plans are assessed in Section 9.9, below.

MSHCP

Proposed Action/Preferred Alternative

An assessment of the Development potential of lands within the Conservation Areas under the MSHCP Proposed Action/Preferred Alternative was conducted. The analysis is conservative, assuming 75% of the Development potential associated with these lands. To the extent that up to 10% of private lands within individual Conservation Areas could ultimately be developed, the 75% land conversion rate remains conservative.

The annual water consumption factors are extracted from the CVWD Water Management Plan⁸ and include six different land use categories, as shown in *Table 9-8*. The demand for large lot residential Development is further tempered by the rural nature of almost all of this potential Development and the limited landscape irrigation that is likely for each residence on lots of 0.5 acre or larger.

⁸ Final PEIR for the CVWD Coachella Valley Water Management Plan and State Water Project Entitlement Transfer, prepared by Montgomery Watson Harza, 2002 and personal communication with Todd Jorgensen, Domestic Water Engineer, CVWD, 10/27/03

TABLE 9-8
Demand for Water Resources MSHCP Proposed Action/Preferred Alternative

Development Type	Annual Consumption Factor (acft/ac/yr)	Annual Consumption Factor (acft/unit/yr)	Acres	Unit	Total Annual Consumption (ac-ft/yr)
Golf Course Developments*	7.36		177		1,300.73
Large Residential Lots (0.5 ac)	-	3.68	-	12,069	44,413.92
Apartments and Condominiums	6.36		157		1,001.38
Residential (Lots < 0.5 ac)	6.09		2,155		13,124.74
Retail Shopping Areas	3.05		78		239.15
Industrial Parks and Business Parks	2.47		874		2,159.37
Total			3,442		62,239.30

* Includes lands in floodways and existing golf course development. Total acreage represents 86.04± acres of golf course development within the approved Travertine Specific Plan in the City of La Quinta and 60.2± acres in the City of Desert Hot Springs.

Source of consumption factors: Final PEIR for the CVWD Coachella Valley Water Management Plan and State Water Project Entitlement Transfer, prepared by Montgomery Watson Harza, 2002 and personal communication with Todd Jorgensen, Domestic Water Engineer, CVWD, 10/27/03.

Private Development that might be displaced from the Conservation Areas through implementation of the Proposed Action/Preferred Alternative would be a substantial beneficial impact on water resources, depending on where the Development was displaced. Attainment of the Conservation Objectives of the Plan would conserve large areas of the Subbasin's watershed and potential natural recharge areas. In addition, since Development would not occur on those lands acquired from willing sellers in the Conservation Areas for Conservation purposes, implementation of the Proposed Action/Preferred Alternative could provide a substantial beneficial impact on water resources by reducing demand for groundwater in this Subbasin, depending on to where the Development that did not occur in the Conservation Areas was displaced. A reduction of up to approximately 62,240 acre feet of annual groundwater demand would not be realized by the placement of these lands in Conservation. In this regard, the Proposed Action/Preferred Alternative could have a significant long-term beneficial impact on groundwater resources.

As a signatory to the proposed MSHCP, CVWD would conserve the lands within the Whitewater Floodplain Preserve in perpetuity. CVWD's recharge facilities provide a complementary stormwater management design that allows the CVWD to conduct essential groundwater recharge, while assuring that larger, bulked flows reach floodplain deposition areas where aeolian (wind) transport can take place. The Proposed Action/Preferred Alternative is not

expected to interfere with artificial groundwater recharge facilities/activities. The groundwater recharge facilities and their operation and maintenance are Covered Activities under the Plan.

Public Lands Alternative

This Alternative would yield no meaningful benefit to water resources or quality, would have only a limited effect on potential future urban Development and would have commensurate beneficial effects on regional groundwater. Portions of the existing Whitewater Recharge Basins area are Federal lands and the lack of a broader Reserve System resulting from this Alternative could jeopardize these facilities when permit renewal came up in 2015. Lands within or adjacent to portions of the planned CVWD Dike 4 and Martinez Canyon recharge basins projects are under federal ownership. The Public Lands Alternative could result in the need for individual permits for their development.

Core Habitat with Ecological Processes Alternative

This Alternative could result in somewhat less potential for a reduction in long-term demand for groundwater. This Alternative would not contribute cumulative impacts to water quality, however, the Alternative could limit the planned development of groundwater recharge facilities behind the Bureau of Reclamation Dike 4 and in Martinez Canyon. This cumulative impact would be a significant adverse impact on the ability of local water resource agencies to recharge the lower Whitewater River Subbasin.

Enhanced Conservation Alternative

The Enhanced Conservation Alternative could result in the greatest potential reduction in long-term demand for groundwater in the Plan Area, depending on where Development displaced from Conservation Areas occurs. This Alternative would not contribute to cumulative impacts to water quality, however, it could have a significant cumulative impact on groundwater recharge facilities behind the Bureau of Reclamation Dike 4 and in Martinez Canyon if construction of these facilities was significantly limited by implementation of this Alternative.

No Action/No Project Alternative

The No Action/No Project Alternative would have no direct cumulative impact on either water resources or quality. Existing and planned groundwater recharge facilities would continue to operate or be approved under current regulations.

Santa Rosa and San Jacinto Mountains Trails Plan

All Trails Plan Alternatives

No direct or indirect impacts to water resources or quality have been identified in association with the Proposed Trails Plan or other Trails Plan Alternatives. Cumulative impacts to these resource values are also not anticipated.

9.8 Cumulative Impacts to Biological Resources

MSHCP

Proposed Action/Preferred Alternative

The Proposed Action/Preferred Alternative was developed as a species, habitat and ecosystem-based resource management plan (Habitat Conservation Plan or HCP) under section 10(a) of the FESA and the NCCP provisions of Section 2800 of the California Fish and Game Code. As a consequence of implementing the Proposed Action/Preferred Alternative, incidental Take of Federal and State listed and other Covered Species (wildlife species) and their habitat is proposed to be permitted. In exchange, the Proposed Action/Preferred Alternative would provide a Reserve System assembled from land within the Conservation Areas. The distribution of the populations and habitat for each of the proposed Covered Species and natural communities would conserve these resources in perpetuity.

The proposed MSHCP is also assessed by the Federal issuance criteria, one of which is a finding that the impacts are “minimized and mitigated to the maximum extent practicable”. The Proposed Action/Preferred Alternative incorporates a range of minimization and avoidance measures, which are associated with general Development and "Covered Activities." The existing populations of the proposed Covered Species and their habitats, the natural communities, and Essential Ecological Processes that can be functionally integrated and practicably assembled are determined adequate for the long-term protection of these resources.

In addition to the amount of habitat that is proposed to be conserved, the Plan focuses on protecting Essential fluvial and aeolian transport systems that have historically been impacted. The Proposed Action and Preferred Alternative incorporates private land acquisitions, creates large blocks capable of sustaining ecological systems, landform diversity, all trophic levels and populations large enough to be viable in the face of fluctuations caused by extremes in desert environment.

The Proposed Action/Preferred Alternative is expected to result in and contribute cumulative impacts, both positive and negative. The beneficial cumulative impacts include the establishment of large, unfragmented habitat blocks, and the ecological processes that would provide for the proposed Covered Species long-term survival and recovery. The Plan also proposes species-specific Avoidance, Minimization, and Mitigation Measures, and Land Use Adjacency Guidelines to avoid or minimize impacts from Development in or adjacent to Conservation Areas.

While the proposed Plan also allows Take, it should be noted that some of the land outside of the Conservation Areas is constrained by physical conditions, isolation and a lack of cost-effective infrastructure, which could limit even very low densities of Development and thereby reduce the potential Take that might occur in these areas. Nonetheless, Development outside Conservation Areas facilitated by the Plan could put incremental pressure on the lands within the Reserve System.

To address these issues, the proposed Plan also incorporates Land Use Adjacency Guidelines (see Section 4.5 of the MSHCP) to avoid or minimize indirect effects from Development adjacent to or within the Conservation Areas. Such indirect effects are commonly referred to as Edge Effects, and may include noise, lighting, drainage, intrusion of people, and the introduction of non-native plants and nonnative predators such as dogs and cats. Edge effects would also be addressed through reserve management activities such as fencing. The Land Use Adjacency Guidelines shall be implemented as applicable by the Permittees in their review of individual public and private Development projects adjacent to or within the Conservation Areas to minimize Edge Effects.

The Proposed Action/Preferred Alternative also includes comprehensive Monitoring and Management Programs. The primary purpose of the Monitoring and Management Programs is to determine whether the proposed Plan is achieving its Conservation Goals and Objectives to ensure that the Covered Species and natural communities are protected in perpetuity; specify the primary components of MSHCP Reserve System management; and determine how effective Adaptive Management strategies are to address changes in habitat condition, natural communities, and/or species status. The Management and Monitoring Programs focus on identifying changes in identified natural communities and Covered Species condition (numbers, distribution, etc.) and what factors may be causing the identified changes.

The Monitoring Program would provide scientifically reliable data on the status of Covered Species; spatial and temporal dynamics (amplitude and magnitude) of ecosystem components for the Covered plant and animal Species and natural communities; the threats to these species and natural communities; and the results of research and the management of Covered Species. The

Management Program would incorporate Adaptive Management, which includes an integrated multidisciplinary approach to addressing management practices, evaluating management actions, and assessing threats using appropriate experimental approaches at species, community, and landscape levels.

The Proposed Action/Preferred Alternative proposes to protect the mesquite hummocks located within and west of Willow Hole. This largely continuous community extends well west of Palm Drive and lies along the Banning Branch of the San Andreas Fault Zone in the western part of the valley south of Desert Hot Springs.

The subject resource area is located at the southeast corner and low elevation portion of the Mission Creek Subbasin. The Mission Creek Subbasin is a well-defined water-bearing aquifer bounded on the south by the Banning Fault, on the north by the Mission Creek Fault, on the north by non-water bearing rock of the San Bernardino Mountains, and on the east by the Indio Hills. Water quality in the subject portion of the subbasin is non-potable and is compromised by overflow from the Desert Hot Springs Subbasin, which is high in total dissolved solids and exceeds drinking standards for several chemical components. Neither Mission Springs nor Coachella Valley Water Districts have production wells in this portion of the subbasin, production wells being located farther west away from the influences of the Desert Hot Springs Subbasin.

Mission Creek recharge ponds constructed in the northwest portion of the subbasin benefit all areas where extraction occurs and would occur in the future. In 2002, 4,733 acre feet were delivered and recharged into the aquifer reducing the net overdraft for that year to about 4,346 AF. The annual rate of recharge varies but is estimated by the USGS to be about 5,000 acre feet (AF).

The overall gradient of subsurface flows is from northwest to southeast, with the low point of the basin being located along the Banning Fault and at Willow Hole, where groundwater rises to or near the surface. It is estimated that 2,000 to 5,360 acre feet per year currently flow across the Banning Fault out of the Mission Creek Subbasin and into the adjoining Garnet Hill Subbasin. In calculating annual recharge and outflow it is conservatively assumed that natural recharge roughly equals natural subbasin outflows. The Mission Creek recharge facility is designed to recharge up to 25,000 acre-ft of Colorado River water in any one year. It is anticipated that between 5,000 and 10,000 acre-feet per year would be delivered to the spreading facility, and in wetter years, up to 15,000 acre-feet may be spread.⁹

⁹ Ibid.

The Desert Hot Springs Subbasin¹⁰ is bounded by the Little San Bernardino Mountains on the northeast, the Indio Hills and Mission Creek fault on the southwest, and the Mecca Hills on the southeast. The subbasin covers about 104 square miles but is only sparsely developed. The coalescing alluvial fan deposits underlying the Dillon Road Piedmont Slope are the water-bearing materials of the Desert Hot Springs Subbasin. Groundwater in this subbasin is characterized by high concentrations of fluoride, total dissolved solids, sodium sulfates and other undesirable minerals, which have limited its use for agricultural and domestic water purposes.¹¹

The Coachella Valley Water District does not extract groundwater from the Desert Hot Springs Subbasin, given its high concentration of undesirable minerals. Instead, domestic water for the Sky Valley and Indio Hills communities is extracted by CVWD from the Mission Creek Subbasin to the west,¹² as discussed above. The poor quality of groundwater in the Desert Hot Springs Subbasin is expected to assure natural rates of recharge exceeding current and future pumpage.

Approximately 154 water wells have been drilled in the subbasin, and half of these are active and pump water for domestic use or for commercial spas. Depth to water ranges from 12 feet below ground surface near the Mission Creek fault to over 300 feet in the southeast portion of the subarea. Groundwater movement ranges from the complex associated with extensive faulting and associated diking, to unconfined and relatively "free flowing".

Land use designations recently adopted by Riverside County apply rural and open space land use designations on the vast majority of lands overlying the Desert Hot Springs Subbasin, with allowable densities generally ranging from 1 dwelling unit per five acres to 1 unit per 20 acres. Significant portions of these lands are also within Conservation Areas and may be acquired from willing sellers through Plan implementation, which could further limit the Development and water demand potential of this area.

The above evaluation of the potential impacts of domestic water infrastructure, groundwater pumpage and maintenance indicates that these facilities and current and anticipated future groundwater pumpage within the area of potential influence of mesquite habitat would not result in significant adverse impacts on those portions of the mesquite plant community in the Willow Hole Conservation Area. Potential conflicts between groundwater mining and preservation of these natural communities (mesquite) dependent upon stable and dependable groundwater resource are expected to be less than significant for CEQA analysis purposes.

¹⁰ "Engineer's Report on Water Supply and Replenishment Assessment," Coachella Valley Water District, April 2000.

¹¹ Steve Bigley, Coachella Valley Water District, personal communication, March 13, 2001.

¹² Ibid.

The Proposed Action/Preferred Alternative could result in a significant shift in potential future water demand away from this area and provides for a broad area of conservation that encompasses the major mesquite scarps, hummocks, with a total of approximately 1,426 acres of this groundwater-sensitive natural community to be conserved. In light of the local and regional water management strategies being implemented, Development which is a Covered Activity under the Proposed Action/Preferred Alternative is not expected have a significant cumulative effect on groundwater resources supporting sensitive natural communities. Potential impacts to groundwater are further limited in this area by the intrusion of groundwater from the Desert Hot Springs subbasin that limits the use of groundwater in the Edom Hill Conservation Area. This alternative would preserve the majority of the mesquite hummocks along the Banning and Mission Creek Faults, as well as in the vicinity of Salt Creek and the BLM ACEC.

As discussed in Section 8 of the Plan, the Monitoring Program will include the use of appropriate methods and technologies (which may change over time) to monitor groundwater levels in the Willow Hole, East Indio Hills, and Thousand Palms Conservation Areas where a substantial lowering of the water table could have a significant adverse impact on mesquite hummocks and associated Covered Species. Should monitoring detect a substantial lowering of the water table or a decline in mesquite health, the following actions will be taken: 1) evaluate the results of the monitoring, 2) prepare a damage assessment report, 3) develop Feasible measures to ameliorate the effects of substantial lowering of the water table on mesquite hummocks and associated Covered Species, and 4) implement measures through Adaptive Management.

Public Lands Alternative

This Alternative would potentially result in substantial cumulative impacts to the efficacy of an ecosystem-based resource management plan limited to these lands. In several geographic areas, the Alternative would lack the character of a coordinated, contiguous and coherent Reserve System as set forth in the Proposed Action/Preferred Alternative. The consistent application of mitigation and minimization measures would be limited to public lands and piecemeal measures would likely result from the review and processing of individual Development projects on private lands. Substantial cumulative impacts to essential Ecological Processes would also be expected under this Alternative, with private land use proposals arguing for greater containment and control of drainages and resulting in greater obstruction of aeolian sand transport. There would be no application of Land Use Adjacency Guidelines on private lands, which would allow incremental cumulative impacts of private land development on conserved public lands. The efficacy of Monitoring and Management Programs would be incrementally compromised, as well. Finally, there would be no coherent means of coordinating continuing development with drawdown on important areas of fault-controlled groundwater, and potential impacts would necessarily be addressed on a case by case basis. In this regard, impacts along the Banning Fault

east and west of Palm Drive would be especially affected, while impacts along areas of fault-controlled groundwater associated with the Desert Hot Springs Subbasin would be less affected given the low quality of this water resource.

Core Habitat and Ecological Processes Alternative

This Alternative would result in fewer cumulative impacts than the Public Lands Alternative, but greater cumulative impacts than those from the Proposed Action/Preferred Alternative. Less land and fewer and smaller contiguous holdings would be included in Conservation Areas under this Alternative. The application of effective mitigation and minimization measures would be less effective and cumulative impacts from Development-related edge effects would be expected to be greater. The ecosystem basis of the Plan would be preserved to a substantial degree, but the efficacy of the Reserve System would be reduced. Potential adverse impacts would be mitigated or minimized to a substantial extent, and Essential Ecological Process, including fluvial and aeolian transport, would be preserved, although less robust and therefore effective ecological systems would be preserved. The proposed Plan's Land Use Adjacency Guidelines would remain in effect, however, more limited regulatory actions would also result in limited and potentially significant cumulative impacts to the potentially affected Conservation Areas and protected species. Monitoring and Management programs would be essentially unaffected, although these activities would occur over a smaller Reserve System.

This Alternative would have potentially significant cumulative effects upon mesquite hummock communities and fault-controlled groundwater resources, unless other mechanisms were instituted to alleviate overdraft. To the extent that Core Habitat and Ecological Processes are protected under this alternative, the groundwater management provisions of the Plan would serve to mitigate potential cumulative impacts. Section 8 of the Plan, the Monitoring Program will include the use of appropriate methods and technologies (which may change over time) to monitor groundwater levels in the Willow Hole, East Indio Hills, and Thousand Palms Conservation Areas where a substantial lowering of the water table could have a significant adverse impact on mesquite hummocks and associated Covered Species. Should monitoring detect a substantial lowering of the water table or a decline in mesquite health, the following actions will be taken: 1) evaluate the results of the monitoring, 2) prepare a damage assessment report, 3) develop Feasible measures to ameliorate the effects of substantial lowering of the water table on mesquite hummocks and associated Covered Species, and 4) implement measures through Adaptive Management.

Enhanced Conservation Alternative

This Alternative would result in the fewest cumulative impacts and would be superior to those of the Proposed Action/Preferred Alternative in this regard. The Conservation Areas would be larger than under the Proposed Action/Preferred Alternative. The ecosystem basis of the Plan would be preserved, as would the efficacy of the Reserve System as set forth in the Proposed Action/Proposed Alternative. However, several areas of added Conservation would result in highly fragmented Conservation Areas interspersed with urban land uses and major transportation links, undermining the effectiveness of Conservation in these areas. Potential adverse impacts would be mitigated or minimized to the greatest extent practicable, and Essential Ecological Processes, including fluvial and aeolian transport, would be preserved and possibly be expanded. The proposed Plan's Land Use Adjacency Guidelines would remain in effect. However, land use regulatory actions would have limited effectiveness in such areas as the Big Dune and elsewhere. Potentially significant cumulative impacts could affect expanded Conservation Areas associated with this Alternative and undermine the species protection efforts they are meant to provide.

Monitoring and Management programs would be essentially unaffected and would be somewhat expanded. Section 8 of the Plan, the Monitoring Program will include the use of appropriate methods and technologies (which may change over time) to monitor groundwater levels in the Willow Hole, East Indio Hills, and Thousand Palms Conservation Areas where a substantial lowering of the water table could have a significant adverse impact on mesquite hummocks and associated Covered Species. Should monitoring detect a substantial lowering of the water table or a decline in mesquite health, the following actions will be taken: 1) evaluate the results of the monitoring, 2) prepare a damage assessment report, 3) develop Feasible measures to ameliorate the effects of substantial lowering of the water table on mesquite hummocks and associated Covered Species, and 4) implement measures through Adaptive Management. Therefore, this Alternative would have no significant adverse cumulative effect upon mesquite communities or fault-controlled groundwater resources, and could result in a reduced demand for groundwater in certain areas.

No Action/No Project Alternative

Prior to Development in the Plan Area, mesquite hummocks were more widespread and in addition to mesquite stands supported by fault-controlled groundwater, included areas of perched water in the lower valley associated with the numerous stands of ancient Lake Cahuilla. With the advent of agriculture at the beginning of the 20th Century, areas of mesquite on the valley floor have been removed or have been lost due to a drop in groundwater levels.

The No Action/No Project Alternative would result in the greatest potential for on-going, adverse cumulative impacts to sensitive biological resources. No ecosystem-based management plan could be effectively established, as all intervention on private lands would necessarily be on a piecemeal basis. No Reserve Systems, beyond those already established or being established for the Coachella Valley fringe-toed lizard and the Peninsular bighorn sheep, would be created and incremental impacts to species and natural communities would continue. While mitigation and minimization measures could be adopted on a case by case basis, they would be difficult to effectively coordinate under this Alternative and their efficacy at limiting cumulative effects would be greatly limited. Essential Ecological Processes would also be compromised over time, with continuing pressure for large-scale containment of major drainages and obstruction of aeolian sand movement in sand transport areas. There would be no coordinated application of Land Use Adjacency Guidelines, although individual jurisdictions could negotiate such regulatory efforts with adjoining public land managers.

Santa Rosa and San Jacinto Mountains Trails Plan

The potential cumulative impacts from the various Alternatives associated with the Trails Plan are discussed categorically below. The proposed Covered Species that may be impacted by the Trails Plan Alternatives is the Peninsular bighorn sheep. The Development potential for private lands in the mountainous sheep habitat is limited by terrain, a lack of available utilities and road access, and environmental considerations, including impacts to bighorn sheep. The BLM received a non-jeopardy biological opinion and “may affect, not likely to adversely affect” concurrence from the U.S. Fish and Wildlife Service for the California Desert Conservation Area Plan Amendment for the Coachella Valley (2002) and the Santa Rosa and San Jacinto Mountains National Monument Management Plan (2004), respectively.

Assumptions

The assumptions of this analysis, both temporal and spatial, are described below.

Time Frame

The cumulative impact analysis for this plan would use 1970 as a baseline year. Since 1970 information on human population growth, human development, trail use, and landscape changes have been well documented. Much research has been initiated in regards to the area’s wildlife as well. This has expanded current ecological and biological understanding on the various species, including population estimates, disease, and predation studies.

For example, in the mid-1970s the CDFG began conducting annual helicopter surveys of bighorn sheep in the Santa Rosa and San Jacinto Mountains in an effort to better estimate sheep populations. In addition to these efforts, radio-collaring efforts and intensive on the ground monitoring via radio telemetry were initiated in the 1990s in the Santa Rosa Mountains. The increasing availability of information better allows one to understand and interpret the many impacts that affect the species included in this biological evaluation and, in turn, may significantly improve management efforts.

Setting

To effectively analyze the cumulative impacts of the Trails Plan, the historic and present setting must be realized. The following section describes the factors that have led to the listing of the special species in the planning area, regional trail use in the planning area, and the land involved (acreage).

Factors Contributing to Cumulative Impacts to Peninsular Bighorn Sheep

Multiple factors contribute to the decline and listing of a species. The process is cumulative and often cannot be attributed to a single reason. For example, human activity, including expanded Development that reduces Essential Habitat, may push bighorn sheep into a smaller habitat area and create other stressors. As a result, sheep predation by mountain lions may increase and the sheep population may suffer.

The extent and severity of each factor that has contributed to the decline of Peninsular bighorn sheep are not known. Therefore, the Proposed Trails Plan takes an Adaptive Management approach that provides for on-going research, and adjusting management based on monitoring and research outcomes through the life of the Plan.

Natural Causes: Disease and Predation

In the Santa Rosa Mountains, many years of high lamb mortality from an apparent disease epizootic contributed to a population decline from inadequate recruitment (DeForge and Scott 1982, Wehausen *et al.* 1987, DeForge *et al.* 1995). Although diseases do not currently appear to be limiting population growth throughout the range, they can be precipitated by chronic levels of disturbance (Geist 1971, Hamilton *et al.* 1982, Spraker *et al.* 1984, King and Workman 1986, Festa-Bianchet 1988, Desert Bighorn Council 1992).

Mountain lion predation is an apparent limiting factor for some ewe groups in the Peninsular Ranges; 69% of 61 mortalities of radio-collared sheep from 1992 to 1998 between Highway 74 in the Santa Rosa Mountains and Mexican border were attributed to mountain lions (Hayes *et al.*

2000). The relatively low survivorship of adults (USFWS 2000) and associated population declines have recently affected the recovery of most ewe groups (USFWS 2000).

Human Development and Habitat Loss

Habitat loss is a leading cause of current species extinctions and endangerment (Burgman *et al.* 1993). It represents a particularly serious threat to Peninsular bighorn sheep because they live in a narrow band of lower elevation habitat that represents some of the most desirable real estate in the California desert and is being developed at a rapid pace. At least 7,490 hectares (18,500 acres or about 30 square miles) of suitable habitat has been lost to urbanization and agriculture within the range of the three ewe groups that occur along the urban interface between Palm Springs and La Quinta (USFWS 2000).

Within the narrow band of habitat, bighorn sheep need to be able to move daily, seasonally and annually to make use of sparse and sometimes sporadically available resources. If these resources are eliminated or reduced in value, the survival of ewe groups may be threatened (USFWS 2000). In addition to the obvious loss of habitat, other impacts may occur from encroachment of human settlements into sheep habitat. These include fences, in which at least one sheep was fatally entangled, ingestion of the poisonous non-native plants, and infection with a trichostrongyle parasite possibly acquired from feeding on irrigated landscapes (USFWS 2000). A fence constructed by the City of Rancho Mirage to preclude bighorn sheep access to residential areas and Highway 111, on the other hand, has reduced mortality in the developed part of the City.

As the Coachella Valley's population increases with additional new housing Developments outside Essential bighorn sheep Habitat, additional indirect effects related to trail use is anticipated. It should be noted that the potential for future development in Essential sheep Habitat is very low. The proposed Plan provides a land use program and Monitoring, Research and Management Program that assures cumulative impacts to bighorn sheep and Essential Habitat would be less than significant for CEQA analysis purposes.

Habitat Fragmentation and Modification

Habitat fragmentation is a major threat to bighorn sheep (Schwartz *et al.* 1986, Bleich *et al.* 1996) and Peninsular bighorn sheep are particularly vulnerable because of the narrow elevational band of suitable habitat, behavior (habitat use and ewe home range fidelity), and population structure. Fragmentation poses a particularly severe threat to species with a metapopulation structure because overall survival depends on interaction among subpopulations. Encroaching urban development and anthropogenic disturbances have the dual effect of restricting animals to a smaller area and severing connections between ewe groups. The Peninsular bighorn sheep

population is discrete because highways such as Interstate 10 have isolated it from other populations.

Movements by rams through downtown Palm Springs (Tevis 1959, Desert Sun, 9/12/1995, DeForge *et al.* 1997) may provide insight into past bighorn movement patterns. Former long-distance movements across the valley floor to the north and east of the Coachella Valley, though never documented, likely occurred as they currently still do between other mountain ranges in the desert southwest (Bleich *et al.* 1996, J. Wehausen, pers. comm.). The potential for such movements now has been eliminated by high density urban development, major freeways, fences, agriculture, and canals (USFWS 2000).

Beyond physical barriers to movement, fragmentation also can result from less obvious forms of habitat modification. Increased traffic on roads apparently make bighorn sheep, especially ewes, hesitant to cross these roads (Rubin *et al.* 1998). Animals that do cross suffer an additional risk of mortality (Turner 1976, McQuivey 1978, Cunningham and deVos 1992, DeForge and Ostermann 1998b, Bighorn Institute 1999), with the result that a group whose range is bisected by the road can have reduced viability in the long term (Cunningham and deVos 1992). Human disturbance along roads and trails may cause sheep to avoid those areas (Papouchis *et al.* 1999), potentially affecting bighorn sheep movement and habitat use, thereby “fragmenting” bighorn sheep distribution although the habitat appears to be intact (USFWS 2000).

Drought

Prolonged drought is a natural factor that can have negative impacts on a range of species. Riparian species such as the least Bell’s vireo, southwestern willow-flycatcher, and desert slender salamander must have available water. When there is a drought and water sources are limited, their survivorship is threatened. In desert bighorn sheep populations, limiting water sources can affect forage quality (Rosenzweig *et al.* 1968, Hansen 1980a, Monson 1980, Douglas and Leslie 1986, Wehausen *et al.* 1987, USFWS 2000). During drought years, the competition for forage, as well as water, limits population growth through density dependent regulation (Caughley 1977, Gotelli 1995). In addition, increased density potentially renders animals more susceptible to diseases or parasites (Anderson and May 1979, May and Anderson 1979) (USFWS 2000).

Non-Native Plants

In the Peninsular Ranges, the presence of tamarisk (*Tamarix* spp.), also known as salt-cedar, represents a serious threat to bighorn sheep. This exotic plant was introduced as an ornamental and windbreak but is now a major weed problem (Lovich *et al.* 1994). It consumes large amounts of water and has rapid reproductive and dispersal rates (Sanchez 1975, Lovich *et al.* 1994), enabling it to outcompete native plant species in canyon bottoms and washes. It has the

following negative effects on bighorn sheep: (1) it reduces or eliminates standing water that bighorn sheep depend on; (2) it outcompetes plant species that bighorn sheep feed on; and (3) it occurs in thick, often impenetrable stands that block access of bighorn sheep to water sources and provide cover for predators (USFWS 2000).

Fire Suppression

Bighorn sheep rely on vigilance and vision to detect and avoid predators (USFWS 2000). Long-term fire suppression results in taller and denser stands of vegetation, thereby reducing openness and visibility and in turn making bighorn sheep more susceptible to predation (Sierra Nevada Bighorn Sheep Interagency Advisory Group 1997). Fire suppression can influence the distribution and habitat use patterns of bighorn sheep by causing avoidance of areas with low visibility (Risenhoover and Bailey 1985, Wakelyn 1987, Etchberger *et al.* 1989, Etchberger *et al.* 1990, Krausman 1993, Krausman *et al.* 1996). In addition, Graf (1980) suggested that fire suppression reduces forage conditions in some bighorn sheep ranges. In the Peninsular Ranges, changes in vegetation succession are evident in some portions of bighorn sheep range, primarily in higher elevation chaparral and pinyon-juniper habitats. These successional changes have apparently influenced the pattern of vegetation associations along the eastern slopes of the Peninsular Ranges more than fire frequency. A number of researchers have pointed out that fire is an important tool in the management of bighorn sheep habitat (Graf 1980, Smith and Krausman 1988, Krausman *et al.* 1996, Sierra Nevada Bighorn Sheep Interagency Advisory Group 1997) (USFWS 2000).

Livestock Grazing and Water Diversion

Livestock grazing and water diversion also indirectly affect use of resources by bighorn sheep. Domestic livestock and feral animals can reduce the availability and quality of resources (water and forage) required by bighorn sheep (USFWS 2000), and can function as potential vectors for diseases such as bluetongue virus. In portions of the range, water has been pumped from aquifers and diverted away from springs for use by ranches and private residences, reducing and eliminating the water sources upon which bighorn sheep depend (USFWS 2000). Disease was a major factor in the decline of the sheep population and with grazing and water diversion may have contributed to the species decline.

Human Disturbance and Trail Use

Human disturbance from trail use may have a cumulative impact on sheep. While most disturbance events have a minor impact on sheep, many disturbances over the course of an animal's lifetime may have a larger effect than any single disturbance. However, the magnitude of such cumulative impacts is unknown because the frequency and severity of such disturbance events are unknown. Also, the degree to which habitat use is affected or a population-level effect results is uncertain in the Peninsular Ranges. Sheep use of some heavily disturbed areas, such as

the Murray Hill-Palm Canyon Area is low, but so is use of the very lightly disturbed area west of Chino Canyon despite apparent habitat suitability. On the other hand sheep make extensive use of the heavily hiked Art Smith Trail and Bear Creek Trail areas. In addition, no spatial analysis of the distribution of sheep locations relative to trail locations has been conducted to see if a positive or negative association with trails exists.

The long-term cumulative effects of recreation disturbance on fitness, reproductive success, survivorship, and recruitment dynamics of bighorn sheep are not well known. The Trails Plan and MSHCP utilize an Adaptive Management approach to trails use and management, with an emphasis on monitoring and research that will help ensure that impacts to sheep are avoided or minimized.

A reasonably foreseeable development that may be affected by trail use is the proposed construction of a new sheep (ram) pen at the Bighorn Institute. BLM has been notified of the Bighorn Institute's intention to construct a new pen as depicted in the Bighorn Institute's 1983 Plan of Development. The pen construction would require appropriate permits or approvals from local and State agencies.

This new pen, if constructed, would lie approximately 500 meters downhill, across steep and rugged terrain, from the Visitor Center Loop Trail to Deep Canyon Preferred Alternative segment of the proposed Palm Desert to La Quinta Connector Trail. Behavioral response based on distance between bighorn sheep and the source of disturbance has been generally documented. Bighorn sheep flight and cardiac responses seem to be stimulated by a human disturbance at about 50 to 100 meters (Holl and Bleich 1983, MacArthur et al. 1982, Miller and Smith 1985). Papouchis et al. (2000) found that the average response distance for wild sheep approached by humans on foot was 200 meters. The exception is helicopter disturbance where the distance is above 400 meters (Bleich et al. 1994).

The distance at which sheep become aware of the disturbance can also affect how far they move away from the disturbance (Miller and Smith 1985). Distance alone is a poor predictor of behavioral response to disturbance. Responses are variable and group size and gender composition are also important factors (Miller and Smith 1985). Captive and wild bighorn ewes seek an area where they and their lambs isolate themselves from view of humans and other sheep (Guy Wagner, pers. comm.). Bighorn frequently react much more strongly to perceived dangers that are above them, or come between them and escape terrain (MacArthur et al. 1982). Hamilton et al. (1982) found that sheep avoided using areas while humans were present but were not permanently displaced by hikers.

At its closest distance, approximately 500 meters separates the proposed trail from the potential new ram pen.¹³ Hikers would be within the line-of-sight and at a higher elevation than the pen, of which approximately 20% would be visible. The limited extent of pen visibility from this trail, plus the distance and intervening terrain, would be expected to minimize the effect of trail use on the rams within the potential new pen. On the other hand, because the trail would be at a higher elevation than all or portions of the pen, there may be some, albeit limited, effect even at that distance. Initially, captive sheep could experience disturbance, and they may initially avoid the exposed portion of the new pen. As has been evidenced elsewhere in the Plan Area, these sheep may become habituated to the occasional presence of humans on the trail since the direction and distance of the appearance of trail users would be a constant and predictable occurrence.^{14 15}

It should be noted that the subject Palm Desert to La Quinta Connector Trail would not be constructed until after further research is conducted on its potential effects on wild and captive sheep. The Palm Desert to La Quinta Connector Trail between the Visitor Center Loop Trail and *The Living Desert* will continue to be considered a Covered Activity unless research results indicate that the proposed segment would adversely affect bighorn sheep. If impacts to native and/or captive breeding populations could result as determined through the research program and Feasible mitigation measures cannot be implemented to reduce this impact to less than significant levels, then all or a portion of the preferred alignment of the connector trail may not be constructed. At the end of the research program, the best available science will be used to make the determination as to the potential for impacts. The connector trail will also be subject to subsequent CEQA and/or NEPA analysis.

Regional Trail Use

The Coachella Valley is surrounded by County, State, and Federal parks and protected lands outside essential bighorn sheep habitat, which in turn are home to a system of pedestrian and equestrian trails. The trails provide a variety of recreational opportunities for the area's tourists. Nearly one hundred trails occur in and surround the Coachella Valley, giving visitors access to desert and mountain wilderness. Many people utilize this trail system for recreational activities such as hiking, backpacking, wildlife viewing, and horseback riding (in chapter 3 of the Santa Rosa and San Jacinto Mountains National Monument Management Plan and Environmental Impact Statement). The use of trails outside the Santa Rosa and San Jacinto Mountains does not contribute to cumulative impacts to Peninsular bighorn sheep.

¹³ "Future Ram Pen" in Site Plan for Desert Bighorn Research Institute by Christian Associates August 4, 1983

¹⁴ "Draft and Final Environmental Impact Report for MCO Properties, Inc." Prepared by Terra Nova Planning & Research, Inc. June 2000. Also see associated Biological Assessment in Technical Appendices prepared by Lawrence F. LaPre, Ph.D. Tierra Madre Consultants, Inc. January 2000.

¹⁵ "Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California", prepared by the US Fish and Wildlife Service. Adopted October 2000. Also see Papouchis et al. 1999.

Unauthorized Cross-Country Travel

Despite the best efforts to ensure compliance with the Trails Plan or program, some impacts occurring as an indirect effect of trail access may increase the level of cumulative impacts to sheep. Anytime an agency allows someone access to a trail, a possibility exists that the individual may choose to violate the proposed seasonal ban on cross-country travel and enter sensitive areas, thus raising the cumulative impact level to sheep.

The Plan provides for an enforcement program, public education and outreach program, and trail use monitoring to limit the impacts of unauthorized cross-country travel. Given the rugged nature of the terrain in most areas, such impacts are likely to be minor and overall less than significant for CEQA analysis purposes.

Helicopter Use

Stockwell and Bateman (1990) found that helicopter use within 250 to 450 meters led to a decrease in foraging efficiency in winter and could increase cumulative impacts to the bighorn sheep. Helicopter disturbance to sheep during research typically occurs once or twice a year, during annual aerial censuses and collar-replacement captures. These types of helicopter use increase the level of cumulative impact to sheep. Helicopter use could be necessary for search and rescue efforts or in the case of an emergency on a trail. Such a rescue helicopter operation could disturb the sheep if it flies near them, though rescue events are likely to be a rarity. There is a very low probability of a helicopter rescue along this and other trails in the Santa Rosa Mountains, and this could cause a disturbance reaction in Peninsular bighorn sheep in the vicinity. Because of the expected rarity of such an event, it would not be a significant cumulative effect for CEQA analysis purposes.

Conclusion

With the exception of the No Action Alternative, the Trails Plan alternatives have been developed in a manner that closely monitors access to certain trails throughout the year, provides for closure during the hot summer season on certain trails, requires a mandatory self-issue permit system throughout the year for an additional set of trails, and institutes a research program to address impacts to bighorn sheep. The Management and Monitoring program would focus on demographic trends and resource protection that supports sheep recovery. This program and associated research would describe the context for those data, identify changes in conditions, trail use levels and patterns, and changes in sheep habitat utilization as a consequence of trail use. In addition the program would identify management actions and would test the efficacy of management actions. Where those actions are shown to be insufficient, alternative management tools would be developed and implemented. Thresholds are included in the trails management program to preclude significant adverse impacts to sheep populations. Ultimately, the program

would be adapted on an on-going basis to assure that cumulative impacts to sheep are less than significant for CEQA analysis purposes.

9.9 Cumulative Impacts to Cultural Resources and Native American Concerns

MSHCP

All Plan Alternatives

The Proposed Action / Preferred Alternative, as well as the other action Alternatives analyzed, would involve detailed Management and Monitoring Programs within Conservation Areas. Within portions of these areas, these Plan alternatives would provide guidelines and criteria (per Sections 7.3 and 7.4 and Appendix III of the MSHCP) to facilitate and regulate the development of conditionally compatible public uses. These uses include the future planning and development of trails and trailheads, as well as interpretive facilities and information kiosks outside of those associated with the Trails Plan.

Disturbance of lands and the development of these or other facilities have the potential to affect significant cultural resources. Implementation of the Proposed Action and Preferred Alternative would require the development and approval of trail and facility plans, which would be subject to subsequent environmental review. Literature reviews, field surveys and, where avoidance of adverse effect to cultural resources is not possible, data recovery or mitigation of effect may be required before these facilities can be constructed. Through on-going resource documentation and recordation, impact avoidance and data recovery, the proposed MSHCP would preclude significant adverse cumulative impacts to cultural resources from implementation of the Plan and its public use component. Please see Appendix F for correspondence and a list of Native American Tribes who were consulted during the preparation of the MSHCP and EIR/EIS.

Santa Rosa and San Jacinto Mountains Trails Plan

All Trails Plan Alternatives

The potential direct, indirect, and cumulative impacts to cultural resources from implementation of the Proposed Trails Plan have been carefully assessed over the course of developing the Plan. Nonetheless, there would be a continuing need for further research into the effects of recreational activities on prehistoric trails and other cultural resources. Trail closures would require further resource assessments to determine whether the closure would adversely affect sensitive resources. Mountain biking and equestrian use may result in impacts to trails such as increased

erosion or other alteration of trail tread or location. Increased public visitation may lead to an increase in artifact collection from archaeological sites. Increased public visitation may, on the other hand, make it more difficult for site looters to have undisturbed access to archaeological sites.

Research into the effects of recreation and public visitation on culturally significant trails, associated cultural sites, and areas identified as sensitive through Native American consultation would be further addressed in the Cultural Resources Management Plan for the Santa Rosa and San Jacinto Mountains National Monument. Collection of baseline data on the condition of cultural resources within the National Monument, site monitoring, and evaluation of the impacts of visitors have been planned. In addition, the proposed National Monument Strategic Recreation Management Plan would address the compatibility of all types of recreational uses within the National Monument and establish a monitoring program to assess levels of use and to determine the need for altering management to protect and preserve resource values.

Prescribed subsequent surveys, data recovery and recordation would allow the cultural resources in the area of influence of sensitive trails to be fully document and protected. The Trails Plan would also provide opportunities for educating the public to the sensitivity and importance of these resources, which are of a common interest. Impacts to resources identified during trails monitoring program activities would be immediately addressed through trail use regulation, additional resource protection measures, or trail closure. With the variety of management options available to limit or preclude impacts to sensitive cultural resources, the Trails Plan is not expected to have a significant adverse cumulative impact on cultural resources in the Plan Area. Please see Appendix F for correspondence and a list of Native American Tribes who were consulted during the preparation of the Trails Plan and EIR/EIS.

9.10 Cumulative Impacts to Parks Trails and Recreation

MSHCP

The Proposed Action/Preferred Alternative and all other alternatives excepting the No Action/No Project Alternative, provide a detailed Management and Monitoring Program within the Reserve System. The Plan provides guidelines and criteria (per Sections 7.3 and 7.4 and Appendix III of the MSHCP) to facilitate and regulate the development of conditionally compatible public uses, including education, scientific research, emergency response, and planned public trail access. Allowable uses also include State Park facilities and other recreational uses that are proposed Covered Activities under the MSHCP. A primary objective of the proposed Plan is to provide expanded and enhanced recreational and educational opportunities, while providing adequate protection for the biological resources. It is the intent of the proposed MSHCP to give the public

an opportunity to experience and appreciate the natural environment in the MSHCP Reserve System, consistent with siting and design guidelines for public access facilities, thereby increasing awareness and appreciation by local residents and visitors for the natural resources within the Reserve System, and to convey the importance of practicing environmental stewardship.

The proposed MSHCP provides for passive recreation activities that do not impact Reserve Lands or cause minimal disturbance to biological resources. Passive recreation includes hiking, bird watching, painting and photography, and under specified locations identified in the Plan, mountain biking, horseback riding, picnicking, scientific research, and hunting. On BLM lands in the Plan Area, these uses and their management have already been instituted through the recent amendment to the California Desert Conservation Plan.

Santa Rosa and San Jacinto Mountains Trails Plan

Proposed Trails Plan

The Proposed Trails Plan would provide year-round use of 38 of the 40 trails or trail segments addressed in Section 2.5.7, or about 95 of 115 miles (83%) of trails that spread across the lower elevations of the Santa Rosa and San Jacinto Mountains. These trails extend from the Snow Creek area west of Palm Springs to Martinez Canyon south of La Quinta, and would assure the availability of a wide range of mountain hiking, biking, and horseback riding experiences. As part of the monitoring and research program to determine the effects of recreational trail use on Peninsular bighorn sheep, some of these trails may be subject to manipulations of use levels, including increases, decreases, or prohibitions of use altogether. The initial focus of the research program, however, would be limited to 11 trails or trail segments, or about 38 miles (33% of total trail mileage addressed by the Trails Plan). It is anticipated that manipulations of trail use levels, if necessary as part of the research design, would most likely occur on these 11 trails or trail segments. It is also likely that trail use manipulations would not be imposed on all 11 trails at the same time.

Three trails totaling about 10 miles (9% of total trail mileage) would be closed during the “hot season” from June 15 through September 30. Portions of two trails addressed by the Trails Plan occur on lands managed by the California Department of Fish and Game; use of these trail segments is subject to decisions made by the State. Rerouting of the Art Smith Trail and development of the Hopalong Cassidy perimeter trail, including disposition of the northern Schey Trail located about one-half mile south of Cat Creek and connecting with the Art Smith Trail, have been addressed separate from the Trails Plan.

While 88% of trails addressed by the Proposed Trails Plan, or 83% of total trail mileage, would be available for year-round use, it is important to understand the context of this proposal relative to availability of trails during the predominant trail use season when most use is concentrated, which generally occurs from January through April. Considering availability of trails during this period, 38 of the 40 trails addressed by the Trails Plan (95%), or 105 of 115 miles of trails (91%), would be available without restriction as regards levels of use (restrictions on entry with dogs, however, would be imposed; extent of potential trail use restrictions in conjunction with the proposed focused research program is unknown at this time). As shown in Table 5 of Appendix I (“Actual and Potential Use of Trails Subject to the Santa Rosa and San Jacinto Mountains Trails Plan”), approximately 89% of trail use on selected trails for the January through June period from 2001 to 2003 was observed during the first four months of the year (870 users on average per year), while 11% of use was observed during the months of May and June (110 users on average per year). Adjusted to account for different intensities of observation (i.e., 404 hours of observation on average per month for the January through April period versus 347 hours on average per month for May and June), the percentages of trail use for these two periods would be approximately 86% and 14%, respectively. For comparison purposes, an even distribution of trail use would have been 67% during the first four months and 33% during the latter two months. These 38 trails would continue to be available for use without restriction until mid-June when the hot season closure of three trails becomes effective.

Although trail use data are lacking for the second halves of the three years during which trail use was recorded (2001-2003), it is reasonable to assume that use continued to decline into the hot summer months of July through September, consistent with an observed decline of use in the months of May and June with the approach of high temperatures. As the year continues into its last quarter, anecdotal information suggests that trail use increases as the weather cools. During this period, no restrictions on the use of existing trails are proposed.

It is reasonable to conclude, therefore, that the cumulative impacts of this alternative on opportunities for recreational use of existing trails in the Santa Rosa and San Jacinto Mountains would be marginally affected upon implementation of the Proposed Trails Plan, even though the extent to which trail use restrictions would be imposed in conjunction with the focused research program is currently unknown. However, given that the focus of the research program would be on 11 trails and trail use restrictions would not likely be simultaneously imposed on all 11 trails, there would remain ample opportunities for recreational trail use throughout the Conservation Area should such restrictions occur.

Alternative B

This Alternative is the most restrictive of those considered; however, in light of the substantial array of trail and recreational opportunities elsewhere in the Plan Area during periods when mountain trails use restrictions are in place, potential cumulative impacts to opportunities for recreation are considered to be less than significant.

No Action Alternative

This Alternative is the least restrictive of those considered and would result in no cumulative impacts to trails use or other recreational activities because no changes to recreational access would occur.

9.11 Cumulative Impacts to Air Quality

All Alternatives Associated with the MSHCP and Santa Rosa and San Jacinto Mountains Trails Plan

As discussed in Section 4.9.4 of this EIR/EIS, the MSHCP and Trails Plan would not result in adverse impacts to local or regional air quality. In the long-term, the MSHCP would directly reduce the potential emissions of pollutants that would be associated with development and vehicle miles traveled. This consequence should be viewed as a positive long-term direct benefit of the proposed Plan. An important secondary effect would be the modest but not negligible inducement the proposed Plan would have on encouraging more efficient land use policies and development in already urbanized portions of the Plan Area. In addition to lower per capita stationary emissions, more efficient land use also results in fewer and shorter average vehicle trips and a commensurate reduction in the emission of pollutants.

9.12 Cumulative Impacts to Noise

All Alternatives Associated with the MSHCP and Santa Rosa and San Jacinto Mountains Trails Plan

As discussed in Section 4.9.5 of this EIR/EIS, the MSHCP and Trails Plan would not result in adverse impacts to local or regional noise environment. In the long-term, the proposed MSHCP could directly reduce the potential noise impacts that would be associated with urban development and traffic that could be shifted and which could be reduced by enhanced land use efficiencies encouraged by the Plan. This consequence should be viewed as a positive long-term direct benefit. An important secondary effect would be the modest but not negligible inducement

the proposed Plan would have on encouraging more efficient land use policies and development in already urbanized portions of the Plan Area.

Alternatively, traffic-related noise levels along major arterial roadways passing through or near Conservation Areas will continue to increase, albeit at lower rates and with lower long-term traffic levels. Nonetheless, these roadways serve to link existing communities, which are expected to continue to grow over the coming decades. The proposed Plans result in an overall lowering of potential long-term noise impacts and should be viewed as a beneficial consequence of the MSHCP.

9.13 Cumulative Impacts to Visual/Scenic Resources

All MSHCP and Santa Rosa and San Jacinto Mountains Trails Plan Alternatives

With the exception of the No Action/No Project Alternative, the various MSHCP alternatives would have significant immediate and long-term beneficial effects on the visual/scenic resources within the Plan Area. Depending on the Alternative, large areas of potentially developable lands would be added to existing public lands, which would expand and enhance the range of scenic vistas and views that can be enjoyed from throughout the Plan Area.

The alignments and corridors for new mountain and perimeter trails proposed as Covered Activities have been reviewed and their potential to impact visual/scenic resources assessed. Mitigation measures are included in Section 4.9.6 of this EIR/EIS and Section 5.6.4 of the Plan to assure that the construction of proposed new trails minimizes impacts to sensitive visual resources. The overall public access component of the proposed Plan also is expected to minimize unregulated trail development in the Plan Area. Overall, the action alternatives would serve to protect and make accessible a range of scenic resources in the Plan Area, and are expected to have a positive cumulative effect on these resources.

9.14 Cumulative Impacts to Utilities/Public Services and Facilities

All MSHCP and Santa Rosa and San Jacinto Mountains Trails Plan Alternatives

The Proposed Action/Preferred Alternative and other MSHCP action alternatives provide for and recognize proposed Covered Activities such as the construction of new utilities and public facilities of several service providers, as well as the long-term maintenance and operation of their facilities. The proposed Plan also makes provision for the extension of the authorizations of the Permittees to consider and process public utility projects within Conservation Areas in a manner demonstrated to be consistent with the Conservation Goals and Objectives of the Plan.

Alternatively, the proposed Plan would serve to reduce the long-term demand for public utilities and services, which may be considered especially beneficial in consideration of the inefficient and very low density type of Development that is permitted in much of the Reserve System to be established by the Plan. The Trails Plan would have no direct, indirect, or cumulative impact on public utilities, facilities or services.

9.15 Cumulative Impacts to Socioeconomic Resources: Population, Housing, and Employment

All MSHCP and Santa Rosa and San Jacinto Mountains Trails Plan Alternatives

Estimates provided by Coachella Valley Association of Governments show that an average of approximately 1,500 acres of lands is developed annually within the Plan Area.¹⁶ The analysis indicates that current and future residential development will represent approximately 90% of annual development in the valley, commercial development will represent approximately 8%, and industrial development will represent approximately 2%. Based on these assumptions, approximately 1,350 acres of residential development would occur over the Plan Area annually. At this rate of growth, the 111,086.76 acres of potentially developable residential lands outside the Conservation Areas would buildout over a period of approximately 82 years.

There are approximately 8,297.95 acres of potentially developable commercial lands outside Conservation Areas in the MSHCP Plan Area. Commercial Development would represent approximately 8% of this total, commercial development would occur at a rate of approximately 120 acres annually across the Plan Area. At this rate of Development, buildout of potentially developable commercial lands would occur over a period of approximately 69 years.

Industrial development would represent approximately 2% of the 1,500 acres of annual development in the Plan Area. There are 14,010.73± acres of lands with potential for industrial Development outside the Conservation Areas. Therefore, based on this analysis, and an even distribution of Development, approximately 30 acres of industrial lands would develop annually over a buildout period of approximately 467 years.

As is evident from the above and the detailed discussion in Section 4.8, implementation of the Proposed Action and Preferred Alternative would not have a significant adverse immediate or cumulative impact on socio-economic resources, population, housing, or employment opportunities.

¹⁶ Jim Sullivan, Coachella Valley Association of Governments, personal communication, November 12, 2003.

The Trails Plan Alternatives would not have a significant cumulative impact on socio-economic resources in the Plan Area.

9.16 Cumulative Impacts to Environmental Justice and Children

All MSHCP and Santa Rosa and San Jacinto Mountains Trails Plan Alternatives

Neither the proposed MSHCP nor any of the Trails Plan alternatives are expected to result in any adverse or disproportionate impacts to minorities or minority populations. The proposed MSHCP specifically addresses the Conservation of open space and largely uninhabited lands, and does not target any lands owned by minorities or neighborhoods or other communities inhabited by substantial minority populations. Neither are the MSHCP or the Trails Plan expected to significantly impact low income populations. Plan implementation under the Proposed Action/Preferred Alternative or other action alternatives would not directly or cumulatively significantly affect the amount of land available within each jurisdiction for affordable housing, and therefore should not impact the jurisdictions' ability to provide affordable housing (also see Section 4.8).

Implementation of the Plans would not result in any adverse direct, indirect or cumulative impacts to concentrated Native American populations. The data indicate that individual Native Americans (and Alaskan Natives) living in the MSHCP Plan Area account for an extremely small percentage of the regional population and are generally well-dispersed geographically. Implementation of the proposed Plan or any of the Alternatives is not expected to disproportionately affect these individuals. The proposed MSHCP Conservation Areas would contain known and potentially occurring Native American cultural and archaeological resources. However, implementation of the Proposed Action/Preferred Alternative is not expected to adversely impact the protection and/or preservation of these sites (also see Section 4.9.2 of this EIR/EIS).

Neither the proposed MSHCP nor the Trails Plan proposes conservation at or affecting schools, day care centers, or other properties dedicated for use by children. By restricting future development on some parcels, the Proposed Action/Preferred Alternative is expected to contribute to long-term reductions in air, noise, water, and other sources of pollution, which may have net positive impacts on children in the region. The net result would be positive long-term cumulative effects on the region's children.

Implementation of the Proposed Action/Preferred Alternative is not expected to result in disproportionately high and/or adverse human health or environmental effects on children or any minority, low income, Indian, or other special population. Nor is the proposed Plan expected to

result in the disruption of any physical or social structure in the community, as it targets largely uninhabited open spaces for conservation. Where restrictions on urban Development may be imposed, they would be based on the biological habitat value of the land in question and would apply to all landowners and developers, regardless of racial, ethnic, or other cultural characteristics. The Plan does not propose any development or land disturbance that constitutes a potential pollution or health hazard. Rather, it is directed at biological and open space conservation, and the restriction of Development projects that may compromise these sensitive resources. Over the long-term, the provisions of the proposed Plan are expected to result in a cumulative enhancement of the regional environment, benefiting all populations in the Coachella Valley.

9.17 Growth-Inducing Impacts

All MSHCP and Santa Rosa and San Jacinto Mountains Trails Plan Alternatives

Growth-inducing effects include those which may induce a change in the pattern of land use, population densities, and rates of urban and economic growth. The Proposed Action/Preferred Alternative clearly has the potential to maintain the physical and environmental underpinnings of the local resort and second home economy. However, the positive economic effects associated with the region's environmental assets, including open space and wildlife and habitats, are already felt and the proposed Plan would serve to preserve these essential assets in perpetuity. Therefore, while the Proposed Action/Preferred Alternative would not significantly induce economic growth, it would serve to preserve it. The Plan would also encourage greater land use efficiencies, which would allow continued growth but with fewer of many of the adverse effects typically associated with it.

The Proposed Action/Preferred Alternative is expected to have a very limited and less than significant growth-inducing effect on population growth, and may have a modest positive impact on residential development densities and land use efficiencies, as would the other Plan action alternatives. While substantial residential lands in the Conservation Areas under the Proposed Action/Preferred Alternative and other action alternatives, their average development densities, pursuant to current general plan land use designations, are very low and Plan implementation is not expected translate into a significant increase in development densities, or intensity elsewhere in the Plan Area. This would serve to enhance land use efficiencies and better optimize the use of existing community facilities and services. These positive effects would also result in a reduction in miles traveled per trip, increase opportunities for non-motorized travel, reduce per capita demand for water and energy resources, and reduce per capita emission of air pollutants.

Neither will the Trails Plan alternatives result in any growth-inducing impacts.