

Mojave Water Agency
Water Supply Reliability and Groundwater Replenishment Program

CHAPTER 6: CUMULATIVE IMPACTS

6.1 Environmental Setting

Under CEQA, an EIR is required to assess the "cumulative impact" of a project when the project's incremental effect is cumulatively considerable. A cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other closely related past, present, and reasonably foreseeable future probable projects causing related impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. Cumulative impacts are thus "additive." The question addressed in a cumulative impacts analysis is: Does the proposed project contribute to an adverse trend in impacts that, when the proposed project's impacts are added to the probable impacts of other past, present, and future actions, could cause significant adverse impacts?

Section 15130(b) (1) of the CEQA Guidelines describes elements necessary for an adequate discussion of 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 of 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.

Cumulative impacts of a large suite of potential water resources projects were evaluated by MWA as documented in the 2004 Regional Water Management Plan PEIR. This PEIR documented the cumulative impacts analysis for the County of San Bernardino General Plan and for the general plans of local jurisdictions in which the Proposed Project would have potential effects. The potential for water resources projects to contribute to cumulative impacts was evaluated in the context of these general plans, which take into account past, present, and projected development in the MWA service area within the reasonably foreseeable future. Potential cumulative effects were analyzed for:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hydrology and Water Quality
- Hazards
- Land Use
- Mineral Resources
- Noise
- Population and Housing
- Public Services and Utilities
- Recreation and Open Space
- Transportation and Traffic

The analysis of cumulative effects of the Proposed Project is based on, and elaborates on, the analysis in the 2004 Regional Water Management Plan PEIR. In several cases, the conclusions of this EIR are not consistent with those of the 2004 Regional Water Management Plan PEIR, primarily because analysis on a site-specific basis and at a higher level of detail suggests that the generally valid conclusions of the 2004 Regional Water Management Plan PEIR related to cumulative impacts are not applicable. The project-specific analysis therefore supercedes the analysis in the 2004 Regional Water Management Plan PEIR for (only) the specific facilities and operations described in this project-level EIR.

The various general plans outline general trends in development and the impacts related to development. These general trends are discussed in the 2004 Regional Water Management Plan and are the context in which project-level effects are evaluated below.

6.2 Mechanisms for Effect and Effects

6.2.1 Aesthetics

Some elements of the Proposed Project involve conversion of habitat and open space to recharge basins and conveyance facilities. Other elements involve placement of facilities within an urban matrix. The visual-aesthetic effects of the Proposed Project take place within a context of urban and suburban development which, in many locations, may have a cumulative effect of changing a natural viewscape to an urban viewscape. As noted in the 2004 Regional Water Management Plan PEIR, most of the potential projects would not contribute to the on-going change of the regional character. This conclusion is reinforced by MWA's proposed mitigations for various facilities, which would integrate proposed project facilities into the largely urban and suburban settings in which they would be constructed.

Site-specific evaluation, however, suggests that one element of the Proposed Project could contribute to the general trend of conversion of open-space aesthetic characteristics to urban aesthetic characteristics, with potential significant loss of viewshed. At Antelope Wash, south of the California Aqueduct, the potential 100-acre recharge basin would affect an area of aesthetic value which could, in the future, be within the viewshed of many people as the City of Hesperia expands development to the south. Relocation of the upstream Antelope Wash recharge basin to a downstream area as described in Chapter 4, page 4-31 would substantially lower the potential for cumulative impacts to aesthetic values. The loss of about 8 acres of desert wash habitat at Unnamed Wash would be a minor contribution to the long-term loss of habitat in the hills around Summit Valley as a result of future development. MWA's proposed mitigations for these habitat-related impacts will mitigate project-specific impacts. Their contribution to overall cumulative impacts associated with loss of scenic views would be less than significant, although the cumulative trend itself would result in significant loss of scenic views.

6.2.2 Air Quality

As noted in the 2004 Regional Water Management Plan PEIR, construction of proposed project facilities may have significant impacts to air quality related to emissions from construction equipment and fugitive dust. These impacts would occur within the context of additional growth, construction, and economic expansion in the MWA service area. Project-level impacts would be short term and there is potential for operations of recharge basins to have long-term minor beneficial effects in terms of fugitive dust emissions in the MWA service area, because recharge facilities have some potential to trap blowing dust. The Proposed Project would thus have a less-than-significant potential for cumulative effects related to air quality. The relocation of upstream Antelope Wash recharge to a downstream site could reduce construction area and emissions during construction. Adoption of this mitigation measure could further reduce potential for cumulative air quality impacts.

6.2.3 Biological Resources

As noted in the 2004 PEIR, various elements of the proposed project would involve loss of habitats and open space; this project-level EIR confirms these effects and concurs with the 2004 Regional Water Management Plan PEIR. The long-term habitat loss documented in the numerous general plans would result in loss of habitat availability and would reduce wildlife populations in the developing areas of MWA's service area. The 2004 Regional Water Management Plan PEIR concludes that the potential direct effects of the suite of water project facilities evaluated would be cumulatively significant. This Project EIR concurs with this evaluation, but notes that, given the siting of facilities in predominantly urban and urbanizing areas, proposed mitigation would result in conservation of resources in areas with higher long-term potential to support threatened and endangered species. Relocation of upstream Antelope Wash to a downstream site as described in Chapter 4 would reduce potential for cumulative impacts to biological resources.

6.2.4 Cultural Resources

Regional development addressed in the various general plans for the MWA service area has the potential to affect surface and buried cultural resources, particularly in areas where Native American and early European peoples would have congregated, such as near water sources. Significant cultural resources would be likely in many areas. All of the general plans evaluated in the 2004 Regional Water Management Plan PEIR conclude that potential cumulative effects on cultural resources will be less than significant (in some cases, with mitigation). This assumes that significant resources identified during planning and construction will be either avoided or treated in a manner consistent with current law and regulation. The analysis in this project-level EIR draws the same conclusion. The monitoring, excavation, and treatment of cultural resources, and the appropriate reburial of buried human remains found during excavations, will reduce project-level impacts to a level of less-than-significant. Taken in the context of other similar monitoring, excavation, and treatment activities, the cumulative effect of the project may be to contribute to overall understanding of the cultural history of peoples of the MWA service area. No significant adverse cumulative effects on cultural resources are therefore likely as a result of the Proposed Project.

6.2.5 Geology and Soils

As outlined in the 2004 Regional Water Management Plan PEIR, the primary mechanisms by which projects may affect regional geology and soils are (a) to increase potential for damage related to seismic events and (b) to reduce access to mineral resources. Potential seismic damage related to the Proposed Project is primarily related to raising groundwater levels in areas of development, and thus creating a higher risk of soil liquefaction during a seismic event. This potential is only associated with recharge of the Mojave River Floodplain Aquifer, where high rates of recharge could raise groundwater levels. Operational protocols for the Mainstem Mojave River recharge and related Mojave River Well Field would maintain groundwater levels at least 30 feet below ground level in the channel and deeper off-channel.

The potential for cumulative effects related to seismic-related liquefaction effects depends on whether there is substantial development in the floodplain of the Mainstem Mojave River. Given that flooding affects a broad area of this floodplain, substantial new development is unlikely. If a Mojave River Off-channel Recharge basin is constructed, this would reduce potential for development in the floodplain, and thus reduce potential for cumulative effects for seismic-liquefaction-related impacts.

The potential for loss of access to mineral resources is related to the total area of land developed in areas where there are substantial, commercially valuable, mineral resources. The Proposed Project would not affect access to oil and gas, as drilling for these minerals could be undertaken adjacent to the project sites. Quarrying would not be affected, as the project sites are not on lands with significant rock resources (such as limestone or granite). Recharge basins would not affect access to sand and gravel; periodic cleanout of basins is a potential source for local use.

The Proposed Project is unlikely to contribute towards trends related to development in areas with potential for seismic-liquefaction effects or to the severity of these effects. No cumulative effects are anticipated. The Proposed Project will also not contribute to the trend towards reduced access to mineral resources.

6.2.6 Hazards and Hazardous Materials

As development occurs, there is a potential for increases in hazards and exposure to hazardous materials. The City of Victorville General Plan EIR notes that cumulative impacts associated with hazards and hazardous materials may be significant and unavoidable. The Proposed Project's potential for these impacts is limited to the construction period. In the long-term, the Proposed Project will have virtually no potential for impact. It cannot therefore make a significant contribution to cumulative effect related to regional hazards and hazardous materials.

6.2.7 Land Use

In the context of the various regional and local general plans, there is a long-term trend towards conversion of open-space to development, although the various general plan EIRs indicate that cumulative land use changes are less than significant or mitigated to a level of less than significant. The Proposed Project will not contribute to this cumulative conversion, because it will not convert land permanently to development. Recharge facilities would be designed to be compatible with proposed development to the extent feasible, but would not themselves result in or indirectly affect the development trends.

6.2.8 Noise

The trend towards development is accompanied by a cumulative trend towards higher ambient noise levels due to traffic and congestion and other aspects of a generally mechanized life style. This trend is reflected in the noise standards for commercial/industrial areas versus standards for residential areas. Noise levels of 70 dBL or greater are expected in commercial and industrial areas, while noise levels of 70 dBL are considered excessive in suburbia. The Proposed Project will have temporary effects associated with noise, but permanent effects will be quite small, potentially smaller than if the properties developed for recharge and wells were developed. A well site would, for example, be quieter than a neighborhood gas station. Similarly, noise generated during operation of a recharge basin, including noise from use of construction equipment within the basin (with sound transmission blocked by external levees) would be less than if the recharge site was a normal commercial development like a shopping center. In short, the Proposed Project's noise impacts are related to short-term construction. The long-term operation of facilities is likely to generate lower noise levels than the commercial and residential lands uses projected in the various general plans for MWA's service area. MWA's facilities will thus not contribute to cumulative noise effects of growth and development.

6.2.9 Public Services and Utilities

Based on the EIRs for regional and local general plans, the development planned for MWA's service area would cause significant cumulative impacts on public services such as police, fire, schools, and hospitals and demand for utility services (gas, electric, water, cable, trash, telephone). These services are affected by growth, which increases demand for such services and complicates delivery of services by extending the area/distance which must be covered to deliver such services. This is not an unexpected cumulative trend. The Proposed Project has no mechanism by which it would contribute to this trend. It will neither cause local growth and demand for service nor reduce levels of public services.

6.2.10 Recreation

Recreation is a public service particularly sensitive to population growth. The development trends identified in the various regional and local general plans within MWA's service area suggest that there will be an increasing demand for urban-focused recreation such as local parks and open space, and also for large open-space areas. Projected development that increases population density tends to place more pressure on existing parks and open-space. Projected development that results in urban or suburban sprawl tends to require the development of new facilities. The Proposed Project does not significantly affect growth trends, either population density or urban sprawl. It will not affect the demand for recreation or the demand for new recreation facilities.

6.2.11 Traffic

Based on the EIRs for regional and local general plans, the development planned for MWA's service area would cause significant cumulative impacts on traffic and transportation facilities. The Proposed Project's impacts on traffic will be transitory and long-term maintenance traffic will constitute a miniscule fraction of total daily traffic. Project facilities will not generate significant new traffic. The Proposed Project will not contribute to the cumulative trend toward more traffic, higher peak traffic, and/or traffic congestion.

6.2.12 Water Resources (Water Quality)

Based on the EIRs for regional and local general plans, the development planned for MWA's service area would cause significant cumulative impacts on groundwater quality. The groundwater pumping, use, and then recharge following treatment tends to concentrate minerals in the recharged wastewater and result in long-term build up of these minerals. This has occurred in the past and will occur in the future. The recharge of treated wastewater will increase in response to growth.

The Proposed Project will somewhat remediate this potential for buildup of minerals in groundwater because it will bring generally higher-quality SWP water into the service area for banking. Banked water will be used in MWA's service area during dry years and MWA will

then return generally lower-quality SWP water to Metropolitan. If there is direct return of stored water from MWA to Metropolitan, the return will involve a mix of indigenous groundwater and SWP water, which in many cases will involve a net export of minerals to Metropolitan as well. With direct return of groundwater from the Mojave River Well Field there would be some benefits to MWA (net export of minerals) and some effects (net import of minerals). But this aspect of the Proposed Project represents only about 25% to 50% of the total volume of banking and exchange water. In general, the Proposed Project would enhance groundwater when compared to the no project alternative. In this context, the Proposed Project thus does not contribute to the cumulative effects of concentration of minerals in groundwater.

6.2.13 Water Resources (Hydrology)

Surface flow in the MWA service area is infrequent and tends to be flashy, reflecting short-term runoff from high-intensity low duration flows. Even general flooding associated with major Pacific storm systems tends to be of low duration, with peak flows lasting only several days. Planned development would increase surface flows because developed areas do not absorb rainfall, and thus runoff is increased. In addition, improved storm drains tend to increase the speed with which local runoff is conveyed to the river. Development thus has the cumulative effect of increasing peak flood flows, particularly floods generated by short-term local runoff. Flood generated by snow melt and runoff in the local mountains are not affected by development in the basin below.

Proposed recharge facilities may affect local runoff by collecting precipitation and preventing its runoff. This will run counter to the trend towards more rapid runoff of water from urban and suburban landscapes. No cumulative effects on runoff and local flooding are thus likely to occur as a result of proposed facilities.

As noted in Chapter 5 (Section 5-14) and in the rationale for the Proposed Project in Chapters 2 and 3, groundwater levels have generally been declining within MWA's service area for decades. The Proposed Project banking and exchange program will reverse this decline to some extent. There is a reasonable potential for the exchange element of the Proposed Project, for example to allow MWA to import as about 100,000 acre-feet of supply it would otherwise be unable to receive and recharge due to both facility constraints and financial constraints. This would help to reverse groundwater declines. The Proposed Project will thus not contribute to the long-term decline in groundwater levels or to the problems associated with them such as land subsidence and increasing energy costs to extract water.

The 2004 Regional Water Management Plan PEIR does not address potential for project elements to affect Mainstem Mojave River flooding. Projected development in the various general plans for MWA's service area will affect peak runoff, particularly during periods of high local precipitation. The Instream Mojave River Recharge element of the Proposed Project could contribute to this cumulative increase in surface flow to the Mainstem Mojave River. As noted in Section 5-14, this increase will generally affect only the first storm. If there has been recent recharge and space in the groundwater basin immediately below the channel is filled with

recharged water, then less of the first storm of the season will percolate into the groundwater and there will be more surface flow. However, once there is continuous flow in the river channel, the rate of recharge remains relatively stable at 150 to 300 cfs. River conditions during very high and damaging flows, which require saturation of the upper watershed and thus do not generally occur as the first storm of the season, are not likely to be affected by recharge operations. Thus the Proposed Project does not contribute to the long-term trend towards higher flood runoff and higher peak flood flows in the Mainstem Mojave River.

6.2.14. Growth

The various regional and local general plans address the issue of cumulative impacts associated with planned growth and address potential mitigations. The effect of water on growth is constrained in MWA's service area by the Mojave Basin Area Judgment. Under the Judgment, MWA's function is to provide replacement water to local producers whose extractions from groundwater exceed defined production allowances. MWA's function is thus to provide portions of the available 75,800 acre-feet of SWP supply to ensure a regional water balance.

At present, and for the last 30 years, MWA delivers less water than it has available through its SWP contract. It will continue to have surplus supply for approximately 15-20 years. The volume of supply delivered to producers will be determined by the producer, based on already projected demand. The availability of additional supply as a result of enhanced facilities and deliveries of banking and exchange supply, will thus occur within the context of planned growth and will not contribute to the growth effects defined in the various regional and local general plans. MWA notes that the effect of the banking and exchange project is likely to be that demand may be accommodated for a greater period, thus deferring efforts to develop new supplies. The Proposed Project therefore does not have a mechanism by which it may affect planned growth.

6.2.15 Energy Use and Conservation

Although construction will involve use of up to 920,000 gallons of diesel fuel, energy savings associated with pumping supplies from the Mojave River Well Field and from basins where recharge has raised groundwater levels suggest that the Proposed Project's net effect on regional energy use is at least neutral and potentially beneficial. No cumulative effects to energy use will occur over the term of the Proposed Project.

6.2.16 Significance of Impacts, Mitigation, and Significance after Mitigation

After mitigation, significant impacts of the Proposed Project are related to air quality during construction. As noted above, these impacts are transitory and would not contribute to long-term cumulative effects. Some reduction in wind-borne dust is probable as a result of recharge facilities and their operations. No cumulative effects are therefore likely as a result of Proposed Project construction.