BAY-DELTA HEARINGS

406

SIGNIFICANT ENVIRONMENTAL IMPACTS OF REDUCED SWP DELIVERIES TO THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA SERVICE AREA

JUNE 1992

INTERIM HEARING

STATE WATER CONTRACTORS

WRINT SWC EXHIBIT NUMBER 17

INTERIM HEARING

WRINT SWC Exhibit No. 17

SIGNIFICANT ENVIRONMENTAL IMPACTS OF REDUCED SWP DELIVERIES TO THE METROPOLITAN WATER DISTRICT SERVICE AREA

June 1992

STATE WATER CONTRACTORS
George R. Baumli
Capital Mall, Suite 725
Sacramento, California 95814
(916) 446-7357

WRINT SWC Exhibit No. 17

SIGNIFICANT ENVIRONMENTAL IMPACTS OF REDUCED SWP DELIVERIES TO THE METROPOLITAN WATER DISTRICT SERVICE AREA

June 1992

TABLE OF CONTENTS

SIGNIFICANT ENVIRONMENTAL IMPACTS OF REDUCED SWP DELIVERIES TO THE METROPOLITAN WATER DISTRICT SERVICE AREA

INTRODUCTION

This document provides an overview of potentially significant environmental impacts that could occur within the service area of Metropolitan Water District of Southern California ("Metropolitan") due to reduced supplies of water from the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Estuary). This reduction could occur as a result of interim actions described in the Notice of Public Hearing issued May 8, 1992 by the State Water Resources Control Board ("Board").

The Board has not yet developed proposed interim actions. Instead, the Board has identified several key issues that will be discussed during public hearings. At least one of the issues identified by the Board would involve requirements that could affect the diversions for the State Water Project (SWP). The requirements could result in reduction of water supplies and significant adverse environmental impacts in the Metropolitan service area.

The Board has stated in the Notice that the interim actions (i.e., actions which may include amending water right permits) is a discretionary action exempt from the environmental review requirements of the California Environmental Quality Act (CEQA). Under CEQA, there is a presumption that categorically exempt actions do not ordinarily result in a significant impact on the environment. However, a categorical exemption will not

qualify under CEQA if there is a reasonable possibility that the proposed action could have a significant impact on the environment. According to court cases, any significant impact will remove a project from the categorical exemption. Furthermore, there is clearly a reasonable possibility that reduced supplies of Delta water to Metropolitan's service area would result in significant effects under the definition of significance in CEQA, as described in detail below.

REASONABLE AND BENEFICIAL USE OF WATER SUPPLIES

In light of the importance of water supplies to Southern California, Metropolitan has implemented a number of aggressive water management programs to encourage the most effective use of local water sources and ensure efficient use of imported SWP and Colorado River water. Actions to ensure that water supplies are used reasonably and beneficially include water conservation, water reclamation and reuse, and groundwater supply and management programs. The combined benefits of the conservation, water reclamation, and groundwater programs are projected to be approximately 1,600,000 acre-feet by 2010. These benefits represent the full implementation of the Best Management Practices for conservation and the use of advanced, state-of-the-art treatment technologies to maximize wastewater reclamation and groundwater management programs. Because water supplies are so

carefully managed, there is little opportunity for any further reduction in supplies since it would invariably cause significant impacts.

Water Conservation

As detailed in WRINT SWC Exhibit No. 10, the implementation of Metropolitan's conservation programs is currently saving about 230,000 acre-feet per year and is projected to result in a savings of over 830,000 acre-feet of water by the year 2010. This savings in 2010 represents full implementation of the Best Management Practices according to the December 9, 1991 Memorandum of Understanding Regarding Urban Water Conservation which was signed by 117 signatories statewide.

Water Reclamation and Reuse

Through the continued support of Metropolitan's Local Projects Program, described in WRINT Exhibit No. 10, the annual yield from wastewater reclamation and reuse projects in Metropolitan's service area is expected to increase from 245,000 acre-feet in 1990 to approximately 675,000 acre-feet by 2010. However, full implementation of Metropolitan's water reclamation program is contingent on the availability of source waters with relatively low salinity, or total dissolved solids (TDS) concentration. Without the blending of sufficient supplies of

low-TDS SWP water with relatively high-TDS Colorado River water and certain local well waters, many of the existing and potential water reclamation projects in the Metropolitan service area may be unable to meet the minimum water quality requirements necessary for protection of groundwater basins.

Groundwater Supplies and Management Programs

Local groundwater supplies are a key element in meeting the water demands in the Metropolitan service area. Metropolitan has a variety of groundwater replenishment programs to assist in the management of local groundwater basins to meet demands, maintain water quality, avoid overdraft, and remediate contamination. These programs are described in WRINT SWC Exhibit 3 and 10.

Metropolitan's groundwater programs requires groundwater replenishment for maintaining the integrity of the local water supplies. Since 1974, the average annual replenishment (direct and in-lieu) of groundwater basins by Metropolitan has been 275,000 acre-feet, with a range of about 125,000 to 442,000 acre-feet. This replenishment supply, in addition to the local surface runoff and recharge of reclaimed wastewater, has maintained an annual groundwater production in the service area of about 1.4 million acre-feet per year. If groundwater replenishment had not been available since 1974, the groundwater storage in the local basins would have been severely

depleted (a potential decrease of 5 million acre-feet, see Figure 1).

Metropolitan is also assisting in the recovery of local groundwater supplies which have not been usable due to localized contamination. In about the year 2000, Metropolitan's Groundwater Recovery Program is expected to produce 200,000 acre-feet per year, of which approximately 100,000 acre-feet will be recovered local supply, or new yield. This program is discussed in WRINT SWC Exhibit No. 10. In order to meet Metropolitan's goal, approximately 100,000 acre-feet per year of additional replenishment from imported and reclaimed water sources will be required to sustain production levels and avoid basin overdraft.

Seawater intrusion barrier programs have also been implemented to protect the coastal groundwater basins within Metropolitan's service area from degradation. Most coastal basins in the service area exhibit varying degrees of water quality degradation due to seawater intrusion. There are several major seawater barrier projects in the Metropolitan service area in which imported water is injected into the groundwater basin to protect it from intrusion. For these programs, the delivery of 36,000 acre-feet of imported water ensures the annual combined production of 510,000 acre-feet per year from the West, Central, and Orange County groundwater basins.

Water Supply

With reductions in dependable supplies from the Colorado River and the Los Angles Aqueduct, and with full implementation of conservation, water reclamation, and groundwater management programs, Metropolitan's requirement for SWP supplies is still substantial, as discussed in WRINT SWC Exhibit 8. In addition to these reductions, growing water demands within the region will further increase Metropolitan's future need for SWP water.

SWP supplies imported to the Metropolitan service area maximize the beneficial use of all water supplies available to the region. While the majority of SWP supplies delivered to Metropolitan are directly consumed by the municipal and industrial sector, SWP supplies are also utilized in the programs previously described to replenish groundwater basins, blend poor quality well water to maintain groundwater production and meet drinking water quality standards, and to form barriers against seawater intrusion of local aquifers. Therefore, a reduction in SWP supplies to the service area would result not only in reduced supplies for direct use, but also in reduced ability to utilize local supplies. Because of this, an acre-foot reduction in supplies causes greater than an acre-foot reduction in supplies for Metropolitan's service area.

Water Quality Issues

Protection of the quality of local water supplies is a fundamental management objective of Metropolitan. Each of the groundwater basins in the Metropolitan service area contains some type of contamination. Based on a recent compilation of data from nearly 3,000 municipal groundwater wells in the Metropolitan service area, approximately 40 percent of these wells exceed at least one drinking water Maximum Contaminant Level (MCL) standard.

The three most common groundwater quality problems in the region are high concentrations of TDS, nitrate, and volatile organic compounds (VOCs). Areas of TDS and other mineral contamination occur in coastal areas due to seawater intrusion, and along with nitrate, in areas of historical agricultural and dairy activities, and from wastewater disposal. VOCs and other types of organic contamination have resulted throughout the region from a wide variety of industrial activities.

Groundwater resources in the region could be further stressed with the adoption of additional and more stringent State and federal drinking water quality standards being implemented throughout the 1990s. As more of the chemical contaminants become regulated, less groundwater could be available for local use.

As a result of historic contamination problems and increasingly stringent water quality regulations, blending of

high-quality local and SWP water in the potable water systems is needed to ensure that drinking water quality standards are met. In addition, replenishment of groundwater basins with supplies that meet basin plan water quality objectives is essential to the long-term improvement of local water quality.

To protect further degradation of the region's groundwater supplies, groundwater managers have imposed limits on constituent levels in replenishment water from reclaimed and imported water sources. Of particular concern is TDS concentration, which is limited on a basin-by-basin basis to prevent further build-up of TDS levels. Normal urban use generally adds about 300 milligrams per liter (mg/l) of TDS to the potable water supply. Therefore, the salinity content of the source water must be low enough so that when the TDS contribution due to urban use is added, the TDS concentration of the return flow to the basin is still below the basin water quality objectives.

In many basins, meeting the water quality objectives requires supplemental imported water of a sufficiently low TDS concentration to blend with local sources. However, many basins have water quality objectives that preclude the use of reclaimed Colorado River water for groundwater recharge. This is due to the river's high TDS concentration of 600 to 750 mg/l which exceeds the recommended drinking water MCL of 500 mg/l established by the California Department of Health Services. When this water is used for urban needs and reclaimed, these TDS

concentrations increase to 900 to 1050 mg/l, thereby exceeding basin water quality objectives.

In contrast, TDS levels in SWP supplies are substantially lower than the 500 mg/l recommended MCL, enabling Metropolitan to blend SWP and Colorado River water supplies to achieve acceptable TDS levels to meet drinking water quality standards, treatment and reclamation discharge limitations, and basin plan objectives.

BOARD ACTIONS THAT COULD CAUSE IMPACTS

There are various specific actions that the Board describes in its Notice of Public Hearing, including within-Delta actions (e.g., increased management of reverse flows) and restriction on the amount and seasonality of exports from the Bay-Delta. Within Southern California, the reduction in diversions from the Bay-Delta would cause a reduction in the amount of water available to meet community needs, bringing about adverse urban environmental effects, groundwater depletion, and in the longer term, possibly the need to develop replacement water supplies.

The immediate and direct effect of reduced supplies to the Metropolitan service area would be a reduction in the amount of water available for direct use, for blending with local and Colorado River water supplies, and for groundwater replenishment.

Water quality of return flows and wastewater discharge would be reduced, as well as the ability to develop additional reclaimed water supplies. Finally, there would be reduced storage and greater fluctuations in local reservoirs. As a result, a range of direct and potentially significant environmental effects could occur, including adverse impacts on the region's groundwater resources, degradation of groundwater quality, adverse impacts to natural habitat, adverse aesthetic and recreational impacts, and conflicts with adopted groundwater basin plans and adjudications.

In addition to the various direct environmental impacts which could occur as a result of the Board's actions, there are also potential impacts which could occur as a consequence of the responses of Metropolitan, local purveyors, and local governments to curtailed supplies. These responses could include:

- Groundwater overdrafting
- Construction of bedrock wells
- Construction of desalination plants
- Tankering of imported water
- Local regulations resulting in loss of landscaping or other impacts to urban environments
- Water transfers to offset losses

The time to implement these potential responses would vary according to the nature of the action. For example, increased pumping and installation of new wells for additional

groundwater extractions could occur immediately, while construction of desalination plants would require years. Regardless of the timing of these potential responses, they would involve impacts to the physical environment, and in some cases, these impacts would be potentially significant.

Only potential direct effects of reduced SWP deliveries to Metropolitan that would be considered significant under CEQA are addressed in this exhibit. Additional potential environmental impacts due to the responses of Metropolitan, local purveyors, and local governments to curtailed supplies are *not* discussed further as the extent of these impacts can not be reasonably predicted at this time.

FINDINGS OF SIGNIFICANCE UNDER CEQA

Under CEQA, if a lead agency concludes it can be "fairly argued" on the basis of substantial evidence that a proposed action may have a significant impact, the agency must prepare an EIR and categorical exemptions do not apply. This standard sets a very low threshold requirement for preparing an EIR. The CEQA Guidelines define "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project..." (CEQA Guidelines 15382). The determination of significance is based on professional judgement,

using factual data to the extent possible (CEQA Guidelines 15064). The CEQA Guidelines provide some principles for this judgement, including the use of the "mandatory findings of significance" and the use of Appendix G of the Guidelines. These principles are described below.

CEQA Guidelines Section 15065 set forth mandatory findings of significance. If the lead agency determines an action could result in one or more generic effects, the effect(s) must be considered significant. To assist in this determination, Appendix G of the Guidelines consists of a specific list of 24 items which normally indicate that an impact is significant. Those which apply to possible Board actions which result in reduced SWP supplies to Metropolitan's service area are listed below and described in the following subsection:

a. Conflict with adopted environmental plans and goals of the community where it is located.

b. Have a substantial, demonstratable negative aesthetic effect.

c. Substantially affect a rare or endangered species of animal or plant or the habitat of the species.

f. Substantially degrade water quality.

h. Substantially degrade or deplete groundwater resources.

i. Interfere substantially with groundwater recharge.

n. Encourage activities which result in the use of large amounts of fuel, water, or energy.

r. Expose people or structures to major geologic hazards.

t. Substantially diminish habitat for fish, wildlife, or plants.

w. Conflict with established recreational, educational, religious, or scientific uses of the area.

x. Violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentration.

SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS

To illustrate the nature and range of the various immediate environmental impacts which could occur as a direct result of the Board's actions, including potentially significant impacts, a CEQA Initial Study Checklist has been completed (see Appendix). The attached checklist contains an assessment of the potential direct environmental impacts associated with reduced SWP deliveries to Metropolitan, and indicates which of these impacts could be considered significant.

Many of the impacts identified in the CEQA Initial Study Checklist are considered significant because they correspond to the impacts listed in CEQA Appendix G. These significant impacts are described below.

Groundwater-Related Impacts

"(h) Substantially Degrade or Deplete Groundwater Resources"

If the Board curtailed the deliveries of SWP water to Metropolitan, there could be a substantial degradation and depletion of groundwater resources in the service area due to the following direct impacts:

- Metropolitan's existing and future conjunctive use programs with member agencies could be curtailed and possibly abandoned. The benefits to the affected basins related to water quality and dependable supplies could be lost.

- There could be a reduction in annual groundwater replenishment, resulting in the drawdown of groundwater supplies in the affected basins. This drawdown could result in overdrafting of basins and the substantial depletion of groundwater storage in the region.

- Water quality in the basins could deteriorate due to: (1) a reduction in replenishment water that meets basin water quality objectives; (2) accelerated containment plume migration as drawdowns of basins occurs; (3) further degradation of contamination of basins if imported water for remediation under the Groundwater Recovery Program is curtailed; and (4) degradation of coastal basins if imported water for seawater intrusion barrier programs is reduced. These effects could

render basins unusable within a relatively few years if water quality becomes irreversibly degraded.

Based on the above considerations, the potential reduction in imported water to Metropolitan could "substantially degrade or deplete groundwater resources", a significant impact identified in Appendix G of the CEQA Guidelines.

"(i) Interfere Substantially With Groundwater Recharge"

The depletion of groundwater supplies due to a curtailment of replenishment with imported water could result in the drawdown of groundwater in the basins of the service area. In some basins, the prolonged decrease in groundwater elevations may cause a consolidation of water-bearing formations and/or changes in the chemical environment in the aquifer such that: (1) the storage capacity of the basin is reduced; and/or (2) the recharge capacity of the basin is permanently degraded by slower percolation rates.

An example of this effect is the land subsidence in the San Jacinto Valley in Riverside County (Lofgren, 1976). Groundwater levels declined throughout much of the valley, largely as a result of pumping overdraft. Artesian heads which were as much as 25 feet above the ground surface in the early 1930's declined to more than 200 feet below the ground surface by the early 1970's. Concurrent widespread land subsidence was observed in many areas. Areas of differential settlement and

earth fissures developed in numerous localities in the valley. There appears to be permanent aquifer compaction (Lofgren, 1976). Within the 0 to 1,237-foot aquifer zone, permanent compaction was estimated to be occurring at a rate of approximately 0.04 feet per year. Loss of aquifer storage capacity is a result of this permanent compaction of the aquifer.

Another example occurred within the larger SWP service area. Between 1925 and 1977, 5,200 square miles of the San Joaquin Valley floor subsided between one to thirty feet due to groundwater withdrawal. It has been estimated that sixteen million acre-feet of aquifer storage space has been permanently lost in the San Joaquin Valley due to permanent aquifer compaction (Brickson, 1992).

Based on the above considerations, the reduction in SWP supplies to the Metropolitan service area has the potential to substantially interfere with groundwater storage and recharge capacity, a significant impact under CEQA.

"(r) Expose People or Structures to Major Geologic Hazards"

The depletion of groundwater in the Metropolitan service area that could occur in the absence of replenishment programs could cause another undesirable environmental impact: land subsidence. Excessive groundwater pumpage from unconsolidated aquifer-aquitard systems will cause land subsidence, as shown in the above examples in the San Joaquin and

San Jacinto valleys. In addition to permanent compaction and its impact on recharge capabilities, land subsidence could result in costly and in some cases irreparable damages to:

- Existing wells
- Structures and roadways
- Utility lines, such as gas and water lines.

There are documented cases of land subsidence caused by groundwater withdrawal in Southern California, including portions of San Bernardino, Riverside, and Los Angeles counties. In the Temecula and Murrieta areas of Riverside County, structural damage has occurred in recent developments. In these areas, it is suspected according to some accounts that groundwater pumping may have been a contributing factor, resulting in the growth of surface fissures along two or more active fault traces (Bergman & Rockwell, 1991; Shlieman, 1991). The fault traces are considered to be zones of less structurally sound soil which are more prone to collapse from excessive groundwater pumping (Bergman, 1992).

Land subsidence is reported to have occurred throughout the San Jacinto Basin. Data collected by Lofgren (1976) suggests that 2.34 feet of subsidence occurred between 1939 and 1959. Approximately 0.2 feet of subsidence per year was documented in the Hemet area from 1932-1933 and 1963-1964.

In the Lancaster and Edwards Air Force Base areas of Los Angeles County, land subsidence and resultant surface

fissuring has been documented since the 1970s. Subsidence of more than 4 feet in the Antelope Valley just east of Lancaster was recorded from 1955 to 1976 (Holzer, 1984). Ongoing studies of subsidence by the U.S. Geological Survey in the Edwards Air Force Base area show subsidence of 3.1 to 4 feet between 1961 and 1990 (Blodgett, USGS, 1991). In 1978, a fissure approximately 2000 feet long occurred in an area 7 miles north-northeast of Lancaster. This fissure expanded in size again in 1980. The development of this fissure was attributed to groundwater pumping, after it was noted that the local water table had declined more than 240 feet (Holzer, 1984).

Other examples include the subsidence of the San Joaquin Valley floor discussed under the previous heading. Bridges and roads cracked and sank, one canal dropped as much as eight feet, agricultural irrigation grades and slopes of natural streams were changed, and at least 1,200 wells were damaged (Brickson, 1992).

Based on the above considerations, the prolonged drawdown of groundwater in the Metropolitan service area due to the curtailment of imported water replenishment could expose people and structures to geologic hazards, a significant impact identified in Appendix G of the CEQA Guidelines.

"(n) Encourage Activities Which Result in the Use of Large Amounts of Fuel, Water, or Energy"

Reduced deliveries of imported water could result in reduced water supplies for groundwater replenishment, and therefore contribute to a lowering of groundwater levels in the region. Lowering of groundwater levels would increase pumping lifts, requiring additional electrical and fossil fuel energy within Metropolitan's service area. This energy is supplied in southern California primarily by the combustion of fossil fuels. Hence, the reduction in imported water supplies and the resulting drawdown of groundwater reserves could result in increased energy use within Metropolitan's service area. Although this increase in energy use may be offset by reduced out-of-area pumping on the SWP, the increase could nonetheless be substantial for the Southern California region if the drawdowns were prolonged and measured more than several feet.

"(x) Violate Any Ambient Air Quality Standard, Contribute Substantially to an Existing or Project Air Quality Violation, or Expose Sensitive Receptors to Substantial Pollutant Concentrations"

The increased energy use for additional groundwater pumping in the region could result in increased emissions of air pollutants, primarily NO_x, reactive hydrocarbons, and ozone. The South Coast Air Quality Management District and most air basins

in the Metropolitan service area are non-attainment areas for these pollutants, particularly ozone. Increased emissions from power plants and increased emissions from diesel-powered well pumps could contribute, possibly substantially contribute, to the current violations of air quality standards in the Southern California region. As such, this would be considered a significant impact under the provisions of CEQA.

Water Quality Impacts

"Substantially Degrade Water Quality"

Curtailed deliveries of SWP water to Metropolitan could cause immediate substantial degradation of water quality, and limit projected long-term remediation of groundwater contamination in Metropolitan's service area. The immediate and direct affects to water quality that could result include:

- Increased concentrations of regulated contaminates in the drinking water supply due to a reduction in SWP supplies available to blend with poorer-quality well waters,

- Increased concentrations of TDS, nitrate, and other contaminants in wastewater treatment, and reclamation effluent due to a reduction in SWP supplies consumed, and

- Increased levels of TDS, nitrate, and other contaminants in the groundwater basins because less low-TDS SWP water would be available to blend prior to groundwater recharge.

Production from certain wells and reclamation facilities could be curtailed due to an inability to meet drinking water MCLs and wastewater discharge requirements. The degradation in water quality of the region's groundwater and drinking water supply would be considered a significant impact under CEQA.

Habitat Impacts

"(t) Substantially Diminish Habitat for Fish, Wildlife, or Plants"

Reduced imported water supplies to the Metropolitan service area would result in a decrease in the amount of:

(1) Return flows from urban and agricultural users into natural and man-made watercourses;

(2) Discharge from wastewater treatment (reclamation) plants into spreading ponds or watercourses.

Water from these return flows and discharges percolates into the groundwater basins and provides an important recharge source. In addition, this water may create or support wetland and riparian habitats by: (1) establishing live streams, particularly immediately downstream of wastewater treatment discharge points; and (2) creating prolonged soil moisture in the upper soils in spreading basins, natural creeks, and man-made flood control channels that supports the growth of wetland and riparian plants such as cattails and willows. These types of habitat are highly valuable for wildlife because they support a wide variety and abundance of fish, insects, invertebrates, birds, amphibians, and mammals. Wetland and riparian habitats are particularly important to wildlife in Southern California due to the arid nature of most of the region.

An example of the importance of runoff from urban and agricultural areas and the discharge of treated effluent in creating and maintaining significant wetland habitat is along the Santa Ana River and at Prado Basin in Orange and Riverside counties. Prado Basin is a major flood control facility in eastern Orange County along the Santa Ana River. It impounds water during the winter for flood control. As a consequence of this temporary impoundment, extensive wetland habitat has been created in the 9000-acre basin. There is a tremendous abundance and diversity of wildlife in the basin, including migratory waterfowl, raptors, large mammals, and spring-breeding birds.

There are numerous wastewater treatment plants in the Santa Ana River watershed above Prado Basin which discharge year-round into the river and its tributaries. In addition, the watershed has changed from a predominately agricultural area to a highly urbanized area with substantial urban runoff. At this time, the summer base flow in the Santa Ana River at Prado Basin is due entirely to discharges from the upstream wastewater treatment plants. This artificial flow in the river creates wetland conditions in Prado Basin by increasing the duration and amount of surface water and increasing soil moisture available to plants through rising groundwater.

The reduction in the delivery of imported water to the region could result in lower levels of runoff and wastewater discharge. Natural and man-made wetland habitats reliant on this runoff could be adversely affected because: (1) live streams may be precluded; (2) insufficient runoff could be available to saturate the upper soils to support wetland vegetation; and (3) significant wetland habitat dependent on this runoff could be degraded and possibly destroyed as groundwater elevations dropped. Based on these considerations, it appears that the reduction in imported water could adversely affect habitat for fish, wildlife, and plants.

"(c) Substantially Affect a Rare or Endangered Species or Animal or Plant or the Habitat of Species"

A wide variety of threatened, endangered, or otherwise sensitive wildlife species are restricted to wetland and riparian habitats in southern California. The more well-known of these species include the least Bell's vireo, willow flycatcher, tri-colored blackbird, yellow-billed cuckoo, and western pond turtle. These species utilize both natural and man-made habitats if the required vegetation and aquatic conditions are present. For example, Prado Basin (see above) supports one of the largest and most productive populations of least Bell's vireos in southern California.

The reduction in imported water supplies to the Metropolitan service area could reduce runoff and wastewater discharges that support wetland habitats, as described above. Any degradation of these habitats is likely to adversely affect a threatened or endangered species due to the relatively high probability of their residing in wetland habitats. This potential degradation of wetland habitat and any resident endangered species would be considered a significant impact under CEQA.

Conflicts with Adopted Plans

"(a) Conflict with Adopted Environmental Plans and Goals of the Community"

Basin Plans. There are three Regional Water Quality Control Boards in the Metropolitan service area: Los Angeles, Santa Ana, and San Diego. The Basin Plans for these regions contain several common water quality objectives that are designed to protect the beneficial uses of groundwater and surface water. The overriding water quality objective for the three regions is the non-degradation of existing water quality, such that wherever the existing quality of water is better than the established Plan objectives, the existing quality shall be maintained. The Plans also contain various specific water quality objectives for items such as taste, odor, bacteria, TDS, nitrate, and other chemical constituents. These objectives are often directly related to state drinking water standards.

The Basin Plans also depend on and support various water resource management efforts and programs. For example, the Los Angeles Basin Plan calls for an increase in SWP water and a decrease in Colorado River water to avoid additional water quality degradation in the basin, specifically to meet TDS limits. The Plan also supports the increase in water reclamation. The Santa Ana Basin Plan contains a Groundwater Management element with specific goals to reduce groundwater quality degradation by various efforts, including use of

additional imported SWP water for recharge of degraded basins, minimizing recharge with poor quality reclaimed water, reducing agricultural cycling of high-salinity water from the Colorado River, additional dilution of wastewater discharges to minimize health effects, and specific groundwater remediation and management objectives for the Chino basin.

As noted above, the reduction in SWP water supplies in the Metropolitan service area could result in the degradation of groundwater supplies and quality. As such, export reductions from the Bay-Delta could represent a conflict with the regional basin plans which are approved environmental plans under the provisions of CEQA.

Adjudicated Basins. At this time, the following basins in the service area are adjudicated and under the management of a court-appointed watermaster: Raymond Basin, Central Basin, West Coast Basin, Main San Gabriel Basin, Upper Los Angeles River System, and Chino Basin. All of these basins have groundwater replenishment programs using imported water, either directly through spreading or through participation in Metropolitan's in-lieu programs. The curtailment of these replenishment programs could jeopardize the integrity of these basins, and could also represent a conflict with an approved plan developed by the court.

Aesthetic Impacts

"(b) Have a Substantial, Demonstratable Negative Aesthetic Effect"

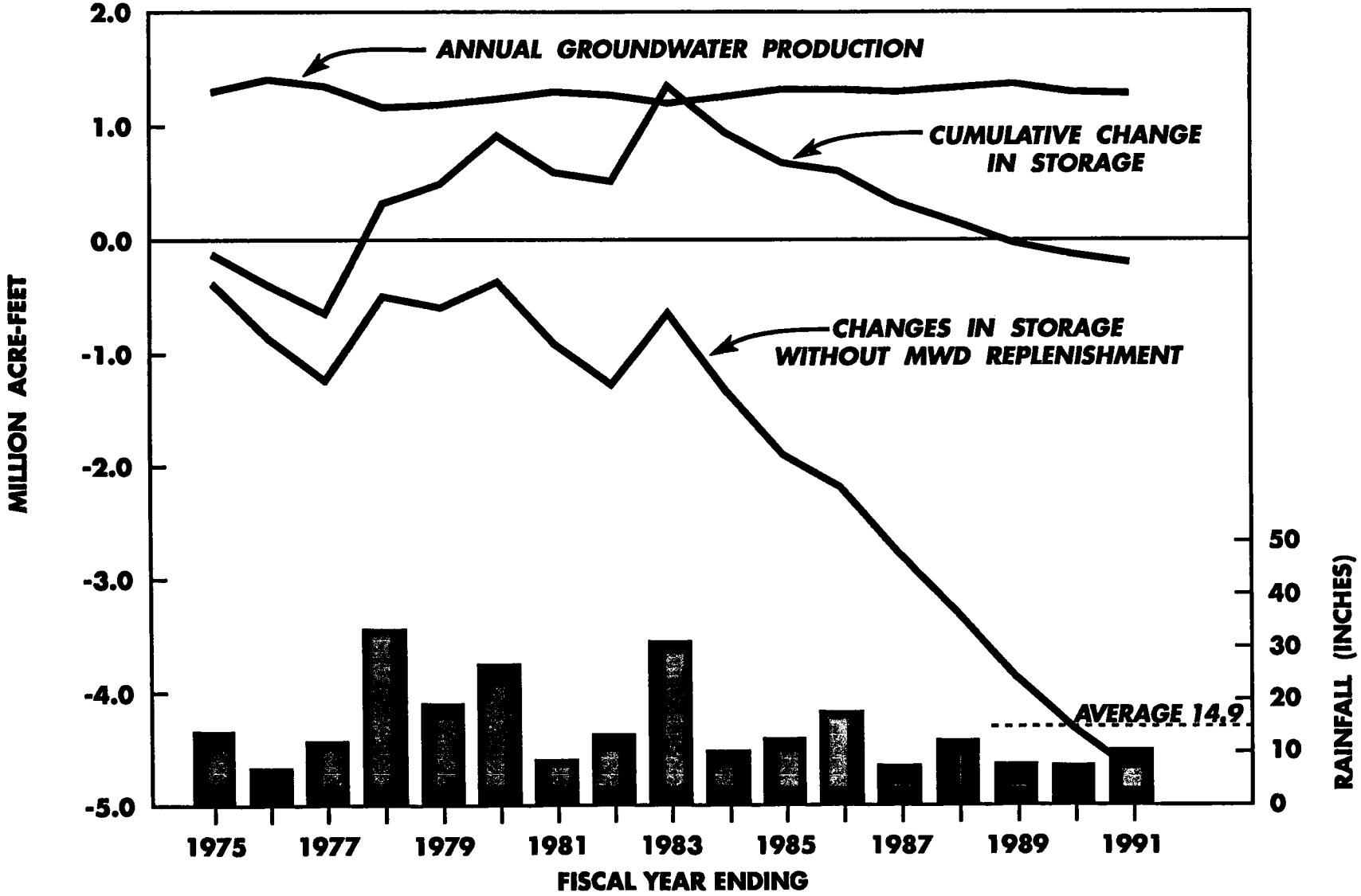
A reduction in imported water supplies could result in reduced water available for use. Among the first water uses to be reduced during water shortages is irrigation for landscaping in urban areas, including landscaping for commercial/industrial facilities, public works and highways, and private residences. During the 1987-92 drought in Southern California, there was a well-documented loss of ornamental trees and landscaping in Santa Barbara County that resulted in wide-ranging economic and social effects. The degradation and/or loss of urban greenery could result in substantial changes in the visual setting and landscape features of a community or an individual public facility (e.g., school or park). If there is prolonged reduction in irrigation for urban greenery, adverse visual impacts would be expected to occur due to loss of individual specimen trees, reduction in foliage, and unsightly plant material. This could be considered a significant adverse aesthetic effect if the losses are widespread.

Recreational Impacts

"(w) Conflict with Established Recreational, Educational, Religious, or Scientific Uses"

The surface water storage facilities in Southern California provide an important recreational resource for the residents. The reservoirs operated by DWR provide opportunities for swimming, boating, fishing, picnicking, and sightseeing. Reservoirs operated by Metropolitan and local purveyors, with the exception of Lake Mathews where public use is prohibited, provide these same opportunities, excluding swimming. Extensive recreational facilities have been constructed at many of these reservoirs, including Lake Casitas, Lake Skinner, Castaic Lake, Lake Perris, and Pyramid Lake. A reduction and/or seasonal restrictions in imported water to Metropolitan could result in lower reservoir levels and greater fluctuations in water surface elevations, particularly during the summer when recreational demands are the highest. Lower water levels and greater fluctuations of water levels in these reservoirs could adversely affect, and possibly preclude, recreational activities and certain fish habitat. For example, boat launching facilities may become unusable, or boating hazards may become more numerous with lower water surface elevations. This effect could be considered significant under CEQA.

GROUNDWATER PRODUCTION TRENDS IN METROPOLITAN'S SERVICE AREA



* LOS ANGELES CIVIC CENTER WEATHER STATION
JUNE 18, 1992

WRINT SWC Exhibit No. 17

SIGNIFICANT ENVIRONMENTAL IMPACTS OF REDUCED SWP DELIVERIES TO THE METROPOLITAN WATER DISTRICT SERVICE AREA

June 1992

APPENDIX

INITIAL STUDY ENVIRONMENTAL CHECKLIST

INITIAL STUDY
ENVIRONMENTAL CHECKLIST

INTERIM STANDARDS FOR THE BAY-DELTA

I. ENVIRONMENTAL IMPACTS

(*Explanations for all responses are provided on attached sheets.* Beneficial impacts shown in parentheses: (x))

Issue Area	Yes	Maybe	No
1. Geology, Soils, and Topography. *Will the proposal result in:*			
a. Change in topography or ground surface relief features?	___	X	___
b. Disruptions, displacements, compaction or overcovering of the soil?	___	___	X
c. Unstable earth conditions or in changes in geologic substructures?	___	X	___
d. The destruction, covering or modification of any unique geologic, paleontological or physical features?	___	___	X
e. Any increase in wind or water erosion of soils, either on or off the site?	___	X	___
f. Exposure of people or property to geologic hazards such as earthquakes, landslides, fault rupture, high seismicity, subsidence, liquefaction, expansive soils, mudslides, ground failure, or similar hazards?	X	___	___
g. Changes in deposition or erosion of beach sands, or changes in siltations, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	___	___	X
2. Water Resources. *Will the proposal result in:*			
a. Changes in currents, or the course of direction of water movements, in either marine or fresh waters?	___	X	___
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	___	___	X
c. Alterations to the course or level of flood waters?	___	___	X
d. Exposure of people or property to water related hazards such as flooding or tidal waves?	___	___	X
e. Change in the amount of surface water in any water body?	X	___	___
f. Discharge into surface waters, or any alteration of surface water quality?	X	___	___

Issue Area	Yes	Maybe	No
g. Change in the quantity of ground waters, through additions, withdrawals, change in recharge area, or through exposure of an aquifer by cuts or excavations?	X		
h. Change in groundwater quality?	X		
i. Alteration of the direction or rate of flow of ground waters?	X		
j. Reduction in the amount of water otherwise available for public water supplies?	X		
3. Air Quality. *Will the proposal result in:*			
a. Air emissions or deterioration of ambient air quality?	X		
b. The creation of objectionable odors?			X
c. Alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally?			X
4. Botanical Resources. *Will the proposal result in:*			
a. Change in the diversity of species, or number of any species of plants?	X		
b. Reduction of the numbers or habitat of any rare, endangered, or otherwise sensitive species of plants?		X	
c. Disturbance of any sensitive plant community or valuable tree specimens?	X		
d. Introduction of new species of plants into an area, or an impediment to the normal reproduction and growth of existing species?		X	
5. Fish and Wildlife. *Will the proposal result in:*			
a. Alteration or loss of fish or wildlife habitat?	X		
b. Change in the diversity of species, or numbers of any species of animals (mammals, birds, amphibians, reptiles, fish, shellfish, benthic organisms or insects)?	X		
c. Reduction of the numbers or habitat of any endangered or otherwise sensitive species?	X		
d. Introduction of new species of fish or wildlife into an area, or result in a barrier to the migration or movement of species?	X		
6. Agriculture. *Will the proposal result in:*			
a. Reduction in acreage or production of any agricultural crop?		X	
b. Disruption of agricultural activities, including cropping and grazing?		X	

Issue Area	Yes	Maybe	No
c. Use of Williamson Act lands for non-agricultural uses?	___	___	X
7. Natural Resources. *Will the proposal result in:*			
a. Increase in the rate of extraction and use of any natural resources?	___	___	X
8. Cultural Resources. *Will the proposal result in:*			
a. Alteration or destruction of a prehistoric or historic archaeological site?	___	___	X
b. Adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?	___	___	X
c. A physical change which would affect unique ethnic cultural values?	___	___	X
d. Restrict existing religious or sacred uses within the potential impact area?	___	___	X
9. Land Use and General Plan Consistency. *Will the proposal result in:*			
a. Conflicts with existing land uses and community character?	___	___	X
b. Conflicts with future planned land uses and community character?	___	___	X
c. Inconsistency with General Plan policies?	___	X	___
10. Recreation. *Will the proposal result in:*			
a. Impact upon the quality or quantity of existing and future recreational opportunities?	X	___	___
11. Aesthetics. *Will the proposal result in:*			
a. Obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?	X	___	___
12. Light and Glare. *Will the proposal result in:*			
a. New light or glare?	___	___	X
13. Noise. *Will the proposal result in:*			
a. Increases in existing noise levels?	___	___	X
b. Exposure of people to disturbing noise levels?	___	___	X
14. Population. *Will the proposal result in:*			
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?	___	___	X
15. Housing. *Will the proposal result in:*			
a. Affect existing housing, or create a demand for additional housing?	___	___	X
16. Transportation/Circulation. *Will the proposal result in:*			

Issue Area	Yes	Maybe	No
a. Generation of additional vehicular movement and traffic volume?	___	___	X
b. Impact upon existing automobile transportation systems and circulation patterns?	___	___	X
c. Effects on existing parking facilities, or demand for new parking?	___	___	X
d. Alteration to waterborne, rail or air traffic?	___	___	X
e. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	___	___	X
17. **Public Services.** *Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:*			
a. Fire protection?	___	___	X
b. Police protection?	___	___	X
c. Schools?	___	___	X
d. Parks or other recreational facilities?	___	___	X
e. Maintenance of public facilities, including roads?	___	___	X
f. Other governmental services?	X	___	___
18. **Utilities.** *Will the proposal result in:*			
a. A need for new systems, or substantial alterations to public utilities?	___	___	X
19. **Human Health.** *Will the proposal result in:*			
a. Creation of any health hazard or potential health hazard (excluding mental health)?	___	___	X
b. Exposure of people to potential health hazards?	___	___	X
20. **Risk of Upset.** *Will the proposal result in:*			
a. A risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?	___	___	X
21. **Energy.** *Will the proposal result in:*			
a. Use of substantial amounts of fuel or energy?	X	___	___

Issue Area	Yes	Maybe	No
22. Mandatory Findings of Significance. *Will the proposal result in:*			
a. Potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	X		
b. Potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)			X
c. Impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	X		
d. Environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	X		

RESPONSES TO CHECKLIST ITEMS

INTERIM STANDARDS FOR THE BAY-DELTA

1. Geology, Soils, and Topography

1a. Reduced replenishment of groundwater basins could cause localized subsidence.

1b. No direct impacts are anticipated.

1c. Reduced replenishment of groundwater basins could cause localized subsidence and alteration of water-bearing substructures.

1d. No impacts are anticipated.

1e. Reduced water levels in reservoirs could result in exposed mudflats along the margins of the reservoirs that would be exposed to wind erosion.

1f. A prolonged increase in groundwater extractions in basins throughout the region could result in substantial drawdowns, creating a potential for land subsidence.

1g. No direct impact anticipated.

2. Water Resources

2a. Reduced imported water supplies would curtail reclamation, thereby decreasing the discharge of treated effluent to natural watercourses and reducing baseflows.

2b. No direct impact anticipated.

2c. No direct impact anticipated.

2d. No direct impact anticipated.

2e. Reductions in carryover, emergency, and seasonal storage requirements at existing reservoirs would decrease the amount of surface water in the region.

2f. Surface water quality could become degraded through the following actions that result in the discharge of waters with relatively high TDS concentrations: discharge of poorer quality water from reclamation plants as imported high quality water becomes curtailed; reduced discharge of streams from increased groundwater extractions; and reduced runoff from agricultural fields due to reduced water application.

2g. Continued groundwater extractions by private pumpers and local purveyors, and the curtailed use of conjunctive use programs by Metropolitan and local purveyors due to reductions in replenishment supplies, would exacerbate current overdraft conditions in certain basins in the region, and create overdraft condition in basins that are currently in balance. The increased overdraft will not only reduce groundwater supplies in the region, it may also cause irreversible damage to groundwater aquifers by consolidation of water-bearing formations or chemical changes that affect percolation rates.

2h. The reduction in imported water would have adverse effects on groundwater quality in the region for several reasons. One, some basins in the region have poor to very poor water quality due to high TDS and/or organic contaminants. Local purveyors use imported water from Metropolitan for blending with groundwater supplies in order to meet local demands and required water quality standards for drinking water. Reduction in imported water supplies would curtail current blending programs by Metropolitan and local purveyors and degrade groundwater quality. In addition, poor quality water would be used in greater quantities that could further degrade groundwater supplies in the region. Two, imported water is also used in several major groundwater barrier projects designed to correct sea-water intrusion problems in the coastal basins of

Los Angeles and San Diego. A reduction in imported water could jeopardize these programs, and create long-term degradation of coastal basins by intrusion of sea water. Three, various local purveyors have developed programs to remediate groundwater contamination problems by applying high quality imported water to contaminated basins. A reduction in imported water supplies could curtail these programs and preclude the opportunity to further develop local groundwater supplies.

2i. If current extractions of groundwater continue while imported water supplies for replenishment are reduced, groundwater elevations could be lowered and the movement of groundwater in individual basins would be altered by creating localized cones of depression and drawdowns. These changes in the groundwater elevations and movement within the coastal basins could cause further inland movement of high salinity groundwater from the ocean, particularly if sea-water intrusion programs reliant on imported water are curtailed.

2j. Decreased deliveries of imported water would result in a reduction in the amount of water available for direct use, for blending with local and Colorado River water supplies, and for groundwater replenishment. Water quality of return flows and wastewater discharge would be reduced, as well as the ability to develop additional reclaimed water supplies. Therefore, a reduction in the SWP supplies to the service area would result not only in reduced supplies for direct use, but also in reduced ability to utilize local supplies.

3. Air Quality

3a. There would be an increase in the emissions of air pollutants due to increased groundwater extractions because: (1) additional pumping would occur; and (2) pumping requirements would increase as groundwater elevations are lowered.

3b. No direct impacts are anticipated.

3c. No direct impacts are anticipated.

4. Botanical Resources

4a. Reduced replenishment supplies and continuation of current groundwater extractions could result in drawdowns of basins that could adversely affect riparian habitats rely on shallow groundwater and surface water resources. This effect could include a reduction in plant productivity and diversity as soil moisture becomes limited. Reduced discharges of reclaimed water as less imported water is available could also adversely affect riparian vegetation that have developed in response to the discharge of the effluent to natural watercourses. The reduction in reservoir storage (and concomitant reduction in surface water area) due to curtailed supplies of imported water could cause a loss and/or degradation of wetland plant productivity along the margins of the reservoirs.

4b. The potential impacts described in Item 4a could also affect sensitive plant species, if such species are present in the area of impact. This would be a site specific impact that cannot be predicted at this time.

4c. The potential impacts described in Item 4a primarily involve riparian and wetland plant communities which are considered sensitive under state and federal policies, regulations, and laws. As such, impacts to these sensitive resources could occur due to actions taken by Metropolitan and local purveyors in response to the Board's interim requirements.

4d. The reduction of riparian and wetland habitats described in Item 4a could also include the colonization of affected areas by weedy upland plant species.

5. Fish and Wildlife

5a. Fish and wildlife habitat could be altered or removed due to the potential impacts described in Item 4a.

5b. The variety and abundance of fish and wildlife populations could be adversely affected due to the habitat-disturbing impacts described in Item 4a.

5c. The potential impacts described in Items 5a and 5b could also affect sensitive fish and wildlife species that use wetland and riparian habitats for foraging, shelter, breeding, and/or nesting. if such species are present in the area of impact. This would be a site specific impact that cannot be predicted at this time.

5d. The potential impacts described in Items 5a and 5b include the possible reduction of surface water in natural watercourses, which would introduce an obstacle to the movement and/or migration of fish and aquatic species in rivers and streams in the region.

6. Agriculture

6a. The reduction in imported water may reduce irrigation uses in the region, and therefore reduce crop production.

6b. See response to Item 6a.

6c. No impact is anticipated.

7. Natural Resources

7a. No impacts are anticipated to occur to oil, gas, and mineral resources.

8. Cultural Resources

8a. No direct impacts are anticipated.

8b. See response to Item 8a.

8c. See response to Item 8a.

8d. See response to Item 8a.

9. Land Use and General Plan Consistency

9a. No direct impacts are anticipated.

9b. See response to Item 9a.

9c. Increased groundwater extractions by local purveyors and users leading to irreversible degradation of groundwater supplies may result in conflicts with local General Plan policies for land use.

10. Recreation

10a. The reduction in carryover, emergency, and seasonal storage in reservoirs in the region would result in lower water surface levels. Under these conditions, recreational uses at reservoirs could become restricted or curtailed because: (1) shallow swimming areas with beaches may become unusable; (2) boating and swimming hazards may become exposed under low water conditions; (3) fishing conditions may become degraded; and (4) the aesthetic qualities of the reservoirs may become less attractive.

11. Aesthetics

11a. The reduction in imported water supplies could result in reduced landscape irrigation in urban areas. This could result in the loss of large trees and decorative landscaping at public facilities, causing an adverse visual impact. Lowering of the water in reservoirs due to reduced storage could result in adverse visual impacts to recreationalists.

12. Light and Glare

12a. No direct impacts are anticipated.

13. Noise

13a. No direct impacts are anticipated.

13b. See response to Item 13a.

14. Population

14a. The reduction in deliveries of imported water is not expected to directly affect the population growth rate and distribution in the region. Indirect impacts cannot be predicted at this time.

15. Housing

15a. No direct impact is anticipated.

16. Transportation

16a. No direct impacts are anticipated.

16b. No direct impacts are anticipated.

16c. No direct impacts are anticipated.

16d. No direct impacts are anticipated.

16e. No direct impacts are anticipated.

17. Public Service

17a. No direct impacts are anticipated.

17b. No direct impacts are anticipated.

17c. No direct impacts are anticipated.

17d. See response to Item 10a.

17e. No direct impacts are anticipated.

17f. Reduction in the deliveries of imported water will affect the operations of special districts and agencies that distribute water and treat wastewater in the region.

18. Utilities

18a. No direct impacts are anticipated.

19. Human Health

19a. No direct impacts are anticipated.

19b. No direct impacts are anticipated.

20. Risk of Upset

20a. No impact is anticipated.

21. Energy

21a. The prolonged overdraft of groundwater basins would result in higher energy requirements for pumping.

22. Mandatory Findings of Significance

22a. See responses to Items 4 and 5.

22b. No positive environmental goals within Metropolitan's service area would be achieved in the short or long-term if imported water were to be curtailed.

22c. The reduction in imported water on the condition of groundwater supplies and quality in the region would cause regional, cumulative impacts.

22d. Indirect impacts in the region in the next 10 to 20 years cannot be predicted. However, they could result in substantial effects on the economic conditions and lifestyles in southern California.