4.17 WATER SUPPLY

This section evaluates the potential impacts to the regional water supply associated with implementation of the 2050 RTP/SCS. The information presented was compiled from multiple sources, including the San Diego County Water Authority (SDCWA) and Metropolitan Water District (MWD) planning documents, and City of San Diego Water Department and Caltrans staff. Information was compiled from data in the Metropolitan Water District (MWD) 2010 Integrated Water Resources Plan Update (MWD 2010) and 2009 Annual Report, the San Diego County Water Authority (SDCWA) 2005 Urban Water Management Plan (UWMP) (SDCWA 2007), the SDCWA Draft 2010 UWMP (SDCWA 2010), 2003 Regional Water Facilities Master Plan (SDCWA 2002), and urban water management plans of local water districts and agencies. Ongoing water planning efforts by the State Department of Water Resources were also reviewed.

4.17.1 EXISTING CONDITIONS

There are a multitude of independent districts and agencies that share the responsibility for the planning and management of the potable water delivery system throughout the San Diego region. The following section describes the water supply in the region by examining potable water supply and distribution in four categories: (1) MWD; (2) SDCWA and SDCWA Member Water Districts; (3) Special Districts and San Diego County-Operated Water Systems outside the SDCWA service area (groundwater dependent users); and (4) Borrego Valley Aquifer. Borrego Valley Aquifer is included in this discussion because this water supply source has a well-documented groundwater overdraft condition. An overdraft condition occurs when, year after year, groundwater extraction exceeds the amount of groundwater that is recharged back into the aquifer.

Water Supply Agencies

Metropolitan Water District

MWD is a public agency formed in 1928 for the purpose of developing, storing, and distributing water to the residents of Southern California. MWD’s mission is to “to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way” (MWD 2011). MWD currently receives imported water from two sources: (1) Colorado River water via the Colorado River Aqueduct and (2) the State Water Project (SWP) via the California Aqueduct from the Bay/Delta area in Northern California, which is owned and operated by the California Department of Water Resources.

MWD’s service area is nearly 5,200 square miles and includes portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. Although only 13 percent of the land area of these six counties is within MWD’s service area, nearly 90 percent of the populations of those counties resides within MWD’s boundaries. MWD is composed of 26 cities and water agencies, including 14 cities, 11 municipal water districts, and one county water authority SDCWA. MWD’s member agencies serve residents in 152 cities and 89 unincorporated communities. In 2009, MWD delivered on average more than 6,000 acre-feet (AF) per day of treated and untreated water to its member agencies serving 19 million people. (An acre-foot is 325,851.4 U.S. gallons, or roughly enough to supply two single-family households of four people for a year.) (MWD 2011).

MWD is a water wholesaler with no retail customers. Currently, member agencies receive treated and untreated water from MWD at various delivery points. To aid in planning future water needs, member agencies advise the agency of how much water they anticipate needing during the next 5 years. In
addition, MWD works with its member agencies to forecast future water demand and develop emergency supply strategies to ensure a secure, long-term water supply.

**San Diego County Water Authority**

SDCWA was formed in 1944 and became a member of MWD in 1946 to obtain a water supply from the Colorado River to San Diego County. The mission of SDCWA is to provide a “safe and reliable supply of water to its member agencies serving the San Diego region” (SDCWA 2007). SDCWA has 24 member agencies, which include six cities, five water districts, three irrigation districts, eight municipal water districts, one public utility district, and one federal agency (military base). Its service area encompasses approximately 1,438 square miles and a population of approximately 3 million people (SDCWA 2007).

SDCWA is MWD’s largest member agency, purchasing up to 30 percent of MWD’s supplies annually. MWD imports its water from the SWP and the Colorado River. SDCWA has recognized that the San Diego region must diversify its water supplies, decreasing the percentage of imported water in the region's total supply mix. Currently, SDCWA is actively locating, evaluating, and developing new water sources, while striving to protect and enhance the region's sensitive ecosystem during construction and maintenance of vital water supply projects (SDCWA 2007). In 2003, SDCWA began receiving water transfers from the Imperial Irrigation District (IID) that are delivered by an exchange of water supplies (“wheeling”) with MWD. SDCWA also develops emergency supply strategies to ensure a secure, long-term water supply for its member agencies.

**Water Systems Outside the SDCWA Service Area**

The rural, eastern portion of the San Diego region is outside of SDCWA’s service area. Water service within this eastern area is provided by either on-site private wells, by small community water systems, or private water companies (derived from local groundwater supply) (SDCWA 2007). Approximately 65 percent of the unincorporated County of San Diego’s jurisdiction is totally dependent on groundwater resources, which provides the only source of water for over 41,000 residents (County of San Diego 2010). Table 4.17-1 provides a list of water systems within the San Diego region that are operated by special districts or the County of San Diego that rely on local groundwater supply.

**Table 4.17-1**

<table>
<thead>
<tr>
<th>District</th>
<th>Community Served</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrego Water District</td>
<td>Anza Borrego and Borrego Springs</td>
<td>local groundwater supply and sole source aquifer</td>
</tr>
<tr>
<td>Campo Water and Sewer Maintenance District</td>
<td>Campo</td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Canebrake County Water District</td>
<td></td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Cuyamaca Water District</td>
<td>Cuyamaca</td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Descanso Community Service District</td>
<td>Descanso</td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Jacumba Community Services District</td>
<td></td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Julian Community Service District</td>
<td>Julian</td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Majestic Pines Community Service District</td>
<td>Julian</td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Mootamai Municipal Water District</td>
<td>Pala-Pauma</td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Pauma Municipal Water District</td>
<td>Pala-Pauma</td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Pine Hills Mutual Water Company</td>
<td>Julian/Pine Hills</td>
<td>local groundwater supply</td>
</tr>
<tr>
<td>Pine Valley Mutual Water Company</td>
<td>Pine Valley</td>
<td>local groundwater supply</td>
</tr>
</tbody>
</table>
Tribal Nations within the San Diego region are also located on lands east of SDCWA’s service area and are dependent on local sources of water. However, two of the Tribal Nations, the Viejas and Sycuan Bands of the Kumeyaay Indians, are coordinating with SDCWA to explore the potential for water supply delivery to reservation lands. Also, the Barona Band of Mission Indians has approached the City of San Diego (City) to explore means of delivering City water supplies to the reservation via a proposed agreement that would transfer supplies from a Colorado River Tribal Nation to San Vicente Reservoir (SDCWA 2007).

Much of the unincorporated areas located within the County of San Diego’s jurisdiction are reliant on 14 separate groundwater-dependent districts or private wells to provide water and are not affiliated with SDCWA. Each of these districts relies on groundwater as the only source for their water supply. Several of these districts are not required to produce UWMPs because they either do not serve over 3,000 customers or do not distribute over 3,000 AF of water annually.

**Borrego Valley Aquifer**

The Borrego Valley aquifer has a well-documented groundwater overdraft condition, where year after year groundwater extraction exceeds the amount of groundwater that is recharged back into the aquifer. Groundwater extraction exceeds 20,000 AF per year, whereas average groundwater recharge is estimated at approximately 5,000 AF per year (County of San Diego 2009). The aquifer holds a large amount of groundwater in storage, estimated to be approximately 1.6 million AF of usable groundwater. Water levels have been declining for decades as a result of the overdraft condition, and groundwater production at current rates is not sustainable. While the majority of residences and commercial entities in Borrego Valley receive their water from the Borrego Water District (BWD), some private property owners within the BWD service area use private wells that rely on groundwater extracted from the Borrego Valley Aquifer. The vast majority of the water supplied to agricultural users within Borrego Valley comes from privately owned wells within the BWD service area (County of San Diego 2009).

Groundwater management in Borrego Valley currently is regulated through the BWD and the County Groundwater Ordinance (as well as application of CEQA for land use discretionary applications). In the case of the Borrego Valley Aquifer, the basin has not been adjudicated. Therefore, individual well users are not regulated in the amount of groundwater they can extract (County of San Diego 2010).

**Available Water Supplies**

**Overview**

In 1991, 95 percent of SDCWA’s water supply was purchased from MWD, with the remaining 5 percent from local groundwater and surface water. In 2010, reliance on water imported from MWD had decreased to 50 percent, and SDCWA forecast that, by 2020, MWD water will further decrease to 29 percent. Other sources of supply to SDCWA in 2010 were:

- Transfer from IID
All American and Coachella canal lining
- Dry-year water transfers
- Conservation
- Local surface water
- Recycled water
- Groundwater

The Water transfer from IID is the subject of a long-term (45 to 75 years) water conservation and transfer agreement with IID. Under a 2003 agreement, SDCWA received 70,000 AF of highly reliable water in 2010, with volume increases of up to 200,000 AF annually by 2021 (SDCWA 2010:4-2).

SDCWA also has a separate, 110-year agreement to receive water conserved by lining parts of the Coachella and All-American canals. These projects provide 80,200 AF of water to the region annually (SDCWA 2010:4-4).

By 2020, desalinated seawater may be added to the mix. Poseidon Resources has a desalination plant under construction in Carlsbad. The new plant is designed to produce 50 million gallons a day (56,000 AF per year) of desalinated water, enough to supply potable water to 300,000 residents of the San Diego region. A draft contract to purchase water from the plant is under consideration by SDCWA (SDCWA 2010:4-6).

SDCWA is also exploring other opportunities for desalination. These include evaluating the costs and feasibility of several potential desalinated seawater projects, including a plant located at Marine Corps Base Camp Pendleton. In April 2010, SDCWA and the Marine Corps signed a Memorandum of Understanding to allow access to the site for further planning and technical evaluation. The Camp Pendleton seawater desalination studies will be used in the development of SDCWA’s 2012 Regional Water Facilities Master Plan (SDCWA 2011a). SDCWA, in coordination with MWD, the Southern Nevada Water Authority, Central Arizona Water Conservation District, and the Republic of Mexico, is evaluating a possible desalination plant project in Mexico, near Rosarito Beach. Water from such a plant could be delivered directly to the San Diego region through construction of a new pipeline, or it could be exchanged for some of Mexico’s 1.5 million AF annual apportionment of Colorado River water (SDCWA 2011b).

Table 4.17-2 shows proportions of resources for 1991, 2009, and forecast 2020 SDCWA water supply.

Table 4.17-2
SDCWA Water Supply Sources (Percentages)

<table>
<thead>
<tr>
<th>Sources</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1991</td>
</tr>
<tr>
<td>Imported from MWD</td>
<td>95</td>
</tr>
<tr>
<td>IID Transfers</td>
<td>-</td>
</tr>
<tr>
<td>Canal Lining Transfers</td>
<td>-</td>
</tr>
<tr>
<td>Surface Water</td>
<td>4</td>
</tr>
<tr>
<td>Groundwater</td>
<td>1</td>
</tr>
<tr>
<td>Recycled Water</td>
<td>-</td>
</tr>
<tr>
<td>Conservation</td>
<td>-</td>
</tr>
<tr>
<td>Seawater Desalination</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: SDCWA 2010
Groundwater Supplies

Agencies within the SDCWA's service area used approximately 17,844 AF of groundwater in fiscal year (FY) 2005, which is lower than the average due to an extended period of low rainfall, which resulted in limited natural recharge into the basins. Groundwater production used to meet potable demands has been below average at about 17,000 AF per year in recent years (SDCWA 2007). Within the past 5 years, water supply agencies within SDCWA’s service area have produced an annual average of approximately 18,300 AF of groundwater (SDCWA 2010). Many private well owners also draw on groundwater to help meet their domestic water needs, which helps to offset demand for imported water. The amount of groundwater pumped by private wells is significant, but to date has not been accurately quantified.

Groundwater production in SDCWA's service area is limited by a number of elements, including lack of storage capacity in local aquifers, availability of groundwater recharge, and degraded water quality. Narrow river valleys filled with shallow sand and gravel deposits are characteristic of the most productive groundwater basins in the San Diego region. Outside of the principal alluvial aquifers and farther inland, groundwater occurs in fractured crystalline bedrock and semi-consolidated sedimentary deposits where yield and storage are limited and the aquifers are best suited for lower-yielding domestic water supply wells.

Although groundwater supplies are less plentiful in the San Diego region than in some other areas of California, such as the Los Angeles Basin in Southern California and the Central Valley in Northern California, SDCWA believes that sufficient undeveloped supplies exist that could help meet a greater portion of the region's future water supply and storage needs. Several agencies within SDCWA's service area have documented potential projects that could provide an additional 21,400 AF per year of groundwater production in the near future (SDCWA 2007).

Imported Water Supplies

SDCWA receives imported water from both the Colorado River and the Bay/Delta through MWD. Imported water enters the SDCWA system from the north by way of two aqueduct systems, the First and Second San Diego Aqueducts. The water is stored in surface reservoirs throughout the western part of the San Diego region. Some reservoirs are supplied with imported water; others store water from local drainage basins but feed reservoirs that also hold imported water. The reservoirs in the SDCWA water supply system are listed in Table 4.17-3 and shown in Figure 4.17-1.

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Operator</th>
<th>Usable Capacity (AF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrett Lake</td>
<td>City of San Diego</td>
<td>34,207</td>
</tr>
<tr>
<td>Lake Cuyamaca</td>
<td>Helix Water District</td>
<td>8,190</td>
</tr>
<tr>
<td>Dixon Reservoir</td>
<td>City of Escondido</td>
<td>2,545</td>
</tr>
<tr>
<td>El Capitan Reservoir</td>
<td>City of San Diego</td>
<td>109,992</td>
</tr>
<tr>
<td>Lake Henshaw</td>
<td>Vista Irrigation District</td>
<td>53,994</td>
</tr>
<tr>
<td>Lake Hodges</td>
<td>City of San Diego1</td>
<td>28,422</td>
</tr>
<tr>
<td>Lake Jennings</td>
<td>Helix Water District</td>
<td>9,790</td>
</tr>
<tr>
<td>Loveland Reservoir</td>
<td>Sweetwater Authority</td>
<td>25,225</td>
</tr>
<tr>
<td>Lower Otay Lake</td>
<td>City of San Diego</td>
<td>46,026</td>
</tr>
<tr>
<td>Miramar Lake</td>
<td>City of San Diego</td>
<td>5,774</td>
</tr>
<tr>
<td>Morena Reservoir</td>
<td>City of San Diego</td>
<td>50,020</td>
</tr>
<tr>
<td>Lake Murray</td>
<td>City of San Diego</td>
<td>4,292</td>
</tr>
<tr>
<td>Olivenhain Reservoir</td>
<td>Olivenhain Municipal Water District</td>
<td>24,332</td>
</tr>
</tbody>
</table>
### Reservoir Usable Capacity (AF)

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Operator</th>
<th>Usable Capacity (AF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Poway</td>
<td>City of Poway</td>
<td>2,550</td>
</tr>
<tr>
<td>Lake Ramona</td>
<td>Ramona Municipal Water District</td>
<td>11,800</td>
</tr>
<tr>
<td>San Dieguito Reservoir</td>
<td>City of San Diego</td>
<td>717</td>
</tr>
<tr>
<td>San Vicente Reservoir</td>
<td>City of San Diego</td>
<td>88,971</td>
</tr>
<tr>
<td>Sutherland Reservoir</td>
<td>City of San Diego</td>
<td>29,396</td>
</tr>
<tr>
<td>Sweetwater Reservoir</td>
<td>Sweetwater Authority</td>
<td>26,800</td>
</tr>
<tr>
<td>Turner Lake</td>
<td>Valley Center Municipal Water District</td>
<td>1,670</td>
</tr>
<tr>
<td>Lake Wohlford</td>
<td>City of Escondido</td>
<td>2,905</td>
</tr>
</tbody>
</table>

Source: SDCWA 2009b

1 Water in Lake Hodges and San Dieguito Reservoir is owned jointly by the Santa Fe Irrigation District and the San Dieguito Water District, who pay the City of San Diego to operate the two reservoirs.

2 San Vicente Reservoir’s usable storage capacity prior to the dam raise was 88,971 acre-feet (AF). It will be drawn down to approximately 38,680 AF until 2012 to facilitate the dam raise portion of the Emergency Storage Project.

### Recycled Water

Recycled water plays an increasingly important role in water conservation. Each gallon of recycled water used reduces the overall demand for potable water. An important use of recycled water is for landscape irrigation, including landscaping associated with transportation facilities such as freeways, highways, and rail corridors. Recycled water may also be used for flushing toilets and urinals; while this use currently is not associated with transportation and transit uses, it could be employed in the future in some transportation facilities, such as highway rest area restrooms.

The City of San Diego operates two water recycling plants, the South Bay Water Reclamation Plant and the North City Water Reclamation Plant. The South Bay plant has the capability to produce 15 million gallons per day (gpd) and the North City plant was designed to produce 30 million gpd. The volume of recycled water from each, used primarily for landscape irrigation, is based on the anticipated demand. Wastewater in excess of the recycled demand is treated to a secondary level and sent either to the Point Loma or the South Bay ocean outfalls for disposal. In calendar year 2010, the North City plant produced 6,947 AF of recycled water, and the South Bay plant produced 4,369 AF (Amarillas 2010).

Caltrans, the region’s highest volume recycled water user, irrigates 3,420 acres, 698 of them with recycled water. At construction sites, Caltrans uses recycled water for concrete mixing, dust control, and equipment washdown. Use for landscaping irrigation is limited principally by availability of conveyance lines; Caltrans is implementing an aggressive retrofit program to convert irrigation from potable water to recycled water wherever possible (Caltrans 2010).

Caltrans installs and maintains its own trunk lines to bring recycled water to state routes and interstates. A Caltrans 6-inch main conveys recycled water from Miramar Road to Friars Road on I-15, irrigating 70 acres of landscaping, but the main also is used to supply recycled water during construction of managed lanes on I-15. Caltrans is also extending a recycled main to irrigate 84 acres of landscaping on SR-52 between I-15 and I-805, and other similar recycled water distribution projects are in design (Caltrans 2010).

SDCWA’s outreach to encourage voluntary water conservation has emphasized not only increased awareness of the challenges of ensuring an adequate water supply but also increased water user knowledge of how to take actions that would result in greater water use efficiency. Urban water use in service areas of SDCWA’s member agencies decreased from 185 gallons per person per day in FY 2007 to 178 gallons per person per day in FY 2008, a drop of 4 percent. FY 2009 saw a further drop to 164 gallons per person per day (SDCWA 2009a), and for FY 2010, usage continued to decrease to 143 gallons
Figure 4.17-1
Regional Water Supply Infrastructure
June 2011

Aqueduct

Reservoir used as water storage

SOURCE: SANDAG 2011
4.17 Water Supply

per person per day (Williams 2011 pers. comm.). These numbers indicate increasing effectiveness of conservation; the percentage decrease from 2007 to 2008 was 4 percent; from 2008 to 2009, 8 percent; and from 2009 to 1010, 13 percent.

Water Treatment Facilities

SDCWA receives both treated and untreated water from MWD. Treated water provided by MWD is filtered at the Robert A. Skinner Treatment Plant in Hemet (Riverside County) and transported to the region for use via the first and second aqueducts operated by SDCWA (water facilities master plan). Untreated water received by SDCWA is treated prior to use by the public at one of the 12 water treatment facilities owned and operated by SDCWA or one of its member agencies. These water treatment facilities are listed in Table 4.17-4. Water treatment plants also filter local water supplies when such supply is available.

<table>
<thead>
<tr>
<th>Water Treatment Plant</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert A. Weese Filtration Plant</td>
<td>City of Oceanside</td>
</tr>
<tr>
<td>Twin Oaks Valley WTP</td>
<td>San Diego County Water Authority</td>
</tr>
<tr>
<td>Escondido-Vista WTP</td>
<td>City of Escondido and Vista Irrigation District</td>
</tr>
<tr>
<td>David C. McCollom WTP</td>
<td>Olivenhain Municipal Water District</td>
</tr>
<tr>
<td>John C. Bargar WTP</td>
<td>Ramona Municipal Water District</td>
</tr>
<tr>
<td>Lester J. Berglund WTP</td>
<td>City of Poway</td>
</tr>
<tr>
<td>R. E. Badger Filtration Plant</td>
<td>Santa Fe Irrigation District</td>
</tr>
<tr>
<td>Miramar WTP</td>
<td>City of San Diego</td>
</tr>
<tr>
<td>R. M. Levy WTP</td>
<td>Helix Water District</td>
</tr>
<tr>
<td>Alvarado WTP</td>
<td>City of San Diego</td>
</tr>
<tr>
<td>Robert A. Perdue WTP</td>
<td>Sweetwater Authority</td>
</tr>
<tr>
<td>Otay WTP</td>
<td>City of San Diego</td>
</tr>
</tbody>
</table>

Source: SDCWA 2009b

4.17.2 REGULATORY SETTING

Federal Laws and Regulations

Safe Drinking Water Act (SDWA)

Passed in 1974 and amended in 1986 and 1996, the SDWA gives the EPA the authority to set drinking water standards. Drinking water standards apply to public water systems, which provide water for human consumption through at least 15 service connections, or regularly serve at least 25 individuals. There are two categories of drinking water standards, the National Primary Drinking Water Regulations (NPDWR) and the National Secondary Drinking Water Regulations (NSDWR). The NPDWR are legally enforceable standards that apply to public water systems. NPDWR standards protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water.

State Laws and Regulations

California Administrative Code, Title 22

Under Title 22, the state Department of Health establishes statewide effluent bacteriological and treatment reliability standards for recycled water uses. The standards are based on the potential for human contact
with recycled water. The Regional Water Quality Control Board (RWQCB) has established and enforces requirements for the application and use of recycled water. Permits are required from RWQCB for any recycling operation. Applicants for a permit are required to demonstrate that the proposed recycled water operation is in compliance with Title 22 and will not exceed the ground and surface water quality objectives in the regional basin management plan. In the San Diego region, the basin management plan is the Water Quality Control Plan for the San Diego Basin 9 (Basin Plan) prepared and administered by the San Diego RWQCB.

**The Water Conservation Act of 2009 (Senate Bill X7 7 (2009))**

These sections of the code, enacted as SB X7-7—The Water Conservation Act of 2009, sets water conservation targets and efficiency improvements for urban and agricultural water suppliers. The legislation establishes a statewide target to reduce urban per capita water use by 20 percent by 2020. Urban retail water suppliers are required, individually or on a regional basis, to develop an urban water use target by December 31, 2010, to meet their target by 2020, and to meet an interim target (half of their 2020 target) by 2015. Urban water suppliers cannot impose conservation requirements on process water (water used in production of a product) and are required to employ two critical efficient water management practices—water measurement and pricing. Urban retail water suppliers must include in a water management plan, to be completed by July 2011, the baseline daily per capita water use, water use target, interim water use target, and compliance daily per capita water use.

**California Urban Water Management Planning Act**

This part of the Water Code Act states that each urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 AF of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years by preparing a UWMP and updating it every 5 years. The Act describes the contents of UWMPs, and requires each agency’s UWMP to assess the reliability of the agency’s water resources over a 20-year planning horizon.

**California Senate Bill (SB) 610**

Often referred to as SB 610 after the initial legislation, the intent of this part of the Water Code is to ensure that sufficient water supplies are available for growing communities. SB 610 requires any project subject to CEQA of a specified minimum size to require a local public water provider with more than 3,000 service connections to prepare a Water Supply Assessment (WSA) for the project. The WSA must document sources of water supply, quantify water demands, and compare future water supply and demand to show that sufficient water will be available to serve the development project. Water supply must be assessed for normal, single dry, and multiple dry years during a 20-year forecast. If supplies are found to be insufficient to serve the project, the WSA must include plans for acquiring sufficient supplies. The WSA must be included in the CEQA document for the project. Water Code Section 10915 contains special provisions for SB 610 compliance in the San Diego region. considers the comprehensive growth management strategy, approved by the voters of San Diego County in 1988 and prepared and updated by SANDAG, to comply with the statute’s requirements as long as SDCWA uses SANDAG’s most recent growth forecast for planning purposes and to implement the water element of the growth management strategy.

**California Senate Bill (SB) 221**

SB 221 applies to subdivisions of more than 500 dwelling units. Like SB 610, it is intended to ensure an adequate water supply for new development. SB 221 requires that approval of a tentative map shall
include a requirement that a sufficient water supply is available. Government Code Section 66473.7(k) contains special provisions for SB221 compliance in the San Diego region.

California Groundwater Management Act

The Groundwater Management Act (AB 3030, Water Code Water Code Sections 10750 et seq.) provides guidance for applicable local agencies to develop voluntary Groundwater Management Plans (GMP) in State-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facilities’ maintenance and water quality.

Local Plans and Policies

Both MWD and SDCWA have developed plans that address long-term water supply and demand, as well as catastrophic supply interruption and emergency storage. These plans, as they relate to the issues in this EIR, are described below.

MWD Integrated Water Resources Plan, 2010 Update

Developed in collaboration with all of MWD’s member agencies, MWD’s Integrated Water Resources Plan (IWRP) adopts an “adaptive integrated resources management strategy.” A number of uncertainties could affect future water supply: climate change, cost and use of energy, potential policy and permitting restrictions, endangered species protections, and demographic unknowns. To achieve maximum supply reliability in a cost-effective and adaptive manner, MWD will rely on three main management components to build on existing supplies:

- A core resources strategy will manage known water supply and demand conditions to stabilize MWD’s traditional imports from the Colorado River and Northern California through the Sacramento-San Joaquin Delta. MWD and its member agencies will advance water use efficiency through conservation, recycling, local supply development such as groundwater recovery, and seawater desalination.

- A cost-effective “supply buffer” will enable the region to adapt to future circumstances and foreseeable challenges. The buffer seeks to help protect the region from possible shortages caused by conditions that exceed the core resources strategy, starting with increased conservation and water-use efficiency on a regionwide basis.

- MWD will determine alternative supply options for long-range planning. If future changed conditions—such as climate change or the availability of resources—exceed what is covered by MWD’s core resources and supply buffer, these alternatives would provide a greater contribution to water reliability than MWD’s imported water sources or any other single supply [MWD 2010]).

SDCWA Urban Water Management Plan

Regional water supply planning is needed to ensure that available water supplies meet increasing demand as the region grows. In 1992, SDCWA and SANDAG entered into an agreement to ensure ongoing communication on future growth and water supply planning. This agreement called for SDCWA to use SANDAG’s most recent growth forecast for planning purposes and for water supply to be a component of the region’s overall growth management strategy. The 2050 Regional Growth Forecast is one of the first steps in developing the 2050 RTP/SCS. The 2050 Regional Growth Forecast is a locally driven study with
input from local jurisdiction staffs and elected officials on future planning and land use assumptions. The Regional Growth Forecast utilized the most recent planning assumptions considering local jurisdictions’ general plans and other planning assumptions. Based on the direction of the Board of Directors in July 2009, SANDAG staff solicited input on the forecast from each jurisdiction at city council, Board of Supervisors, and planning commission meetings. The information and comments collected during these meetings and subsequent interactions had a significant impact on formulating the region’s most likely development pattern over the next 40 years. In addition to working with local jurisdictions, SANDAG staff worked closely with local resource agencies and service providers to incorporate any resource supply information into the forecast as well. SANDAG updates its growth forecast approximately every five years. Water districts update their demand forecast and supply needs based on the most recent SANDAG forecast approximately every five years to coincide with preparation of their UWMPs.

According to SDCWA’s 2005 UWMP, total normal water demands are forecast to reach 829,030 AF annually by 2030 (the UWMP’s horizon year). That forecast represents about a 29 percent increase from the 642,152 AF of demand in FY 2005 (SDCWA 2007). The forecast is based on a total county population in excess of 3.8 million in 2030. As described in the 2010 UWMP, total normal water demands are forecast to reach 778,443 AF by 2035 (including future conservation, forecast near-term annexation demand, and accelerated forecasted growth), which represents a 20 percent increase from the average 648,030 AF of demand that occurred over the period 2005–2010 (SDCWA 2010:2-1). The 2010 update of the UWMP is based on the latest SANDAG population forecast reflected in Chapter 2 of this EIR.

SDCWA’s Draft 2010 UWMP presents strategies designed to enhance water supply reliability through diversification of water sources, compliance with SBX7-7 conservation targets, and improvement of supply and delivery infrastructure. Some of the more prominent strategies are the All-American Canal and Coachella Canal Lining Projects, development of a regional seawater desalination plant located in Carlsbad, construction of the San Vicente Dam Raise and Carryover Storage Project, and supporting the development of additional local supplies. Combined with strategies are SDCWA’s outreach efforts to raise public awareness of growing water supply and water rate challenges and increased long-term residential, commercial, and public sector water use efficiency.

**SDCWA Regional Water Facilities Master Plan**

SDCWA’s Regional Water Facilities Master Plan (master plan) evaluates the ability of SDCWA to meet its mission of a safe and reliable water supply to its member agencies based on current plans for water supply and facility improvements, and to recommend new facilities or improvements to existing facilities needed to meet the its mission. The master plan recommends additional regional facilities and improvements to existing facilities needed through the planning horizon. The current plan was prepared in 2003 with a planning horizon of 2030. SDCWA is updating the 2003 plan with completion planned for 2012. The 2012 master plan will follow the same master planning principles as the 2003 plan and will help further define SDCWA’s capital improvement process.

The master plan encompasses a regionwide planning effort, incorporating three interrelated components: water demands, water supplies, and facilities. Facility planning begins with estimating future water demands, proceeds to the identification of water supplies and their reliability, and then defines facilities needed to treat and transport the supplies to the points of demand. This planning process is iterative in nature and employs computer simulations to model facility alternatives that supplement SDCWA’s current system.
Local Urban Water Management Plans

The Water Code requires each of SDCWA’s 24 member agencies to prepare a UWMP to support its long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. The required contents are the same as described in the preceding section. SDCWA’s member agencies’ UWMPs reflect and are coordinated with the SDCWA’s UWMP.

Recycled Water

The County Department of Environmental Health (DEH) regulates the use of recycled water through a delegation agreement with the State Department of Public Health. The purpose is to protect the public from health risks associated with cross-connections of recycled water and drinking water supplies, as well as to prevent health risks from body contact with recycled water. DEH’s Land and Water Quality Division reviews recycled water use plans and conducts site inspections to ensure drinking water supplies are not contaminated with recycled water. Spray irrigation sites are monitored to ensure the recycled water irrigation does not present a risk to the public. Recycled water sites must also pass a cross-connection control shutdown test when initially installed and every 4 years thereafter.

4.17.3 SIGNIFICANCE CRITERIA

The 2050 RTP/SCS would have a significant impact on water supply if implementation were to:

WS-1 Increase the use of existing available water supplies or water treatment and other facilities such that water supplies or facilities would be inadequate to serve existing and forecast future demand.

WS-2 Require or result in the construction of new water treatment or distribution facilities or the expansion of existing facilities to adequately meet forecast demand or capacity needs, the construction of which could cause a significant environmental effect.

4.17.4 IMPACT ANALYSIS

This section analyzes the impacts associated with the implementation of the 2050 RTP/SCS. It is organized in sections to address the two main components of the 2050 RTP/SCS: regional growth/land use change and transportation system improvements. A discussion of the forecasted population, housing, and employment increases are included below for each planning horizon of 2020, 2035, and 2050, to help facilitate understanding of forecasted growth. Analysis for each significance criterion includes a programmatic-level discussion of anticipated impacts in the planning horizon years of 2020, 2035, and 2050. Significant impacts are identified and mitigation measures are provided where appropriate.

Regional growth and development of land uses anticipated over the planning horizon of the 2050 RTP/SCS would result in an increase in dwelling units, population, and employment over existing conditions. The increase in residential and nonresidential development would result in an increase in the need for additional water supply and water pressure for fire flow (particularly for mixed-use and multi-story development), which could strain water supply sources. This increased water demand would in turn, create a need for new water supplies and facilities.

Regarding agricultural land uses, implementation of the 2050 RTP/SCS would result in growth/land uses changes and the construction of transportation network improvements that would convert Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to nonagricultural use, and decrease the viability of agriculture on some of the remaining FMMP-designated land over the planning horizon of
the 2050 RTP/SCS (see Section 4.2, Agriculture and Forest Resources of this EIR). Agricultural water demand was 43,515 AF in FY 2010 (SDCWA 2010:2-2). The conversion of agricultural lands to nonagricultural uses would reduce agricultural water demand over the planning horizon of the 2050 RTP/SCS, and agricultural water demand would decrease over time compared to 2010 levels.

Transportation network improvements included in the 2050 RTP/SCS generally involve the expansion of existing facilities such as highways and freeways, the extension of light rail lines, expansions of bus services, and improvements to existing arterials. Implementation of individual projects would require water for construction (i.e., concrete mixing and dust suppression) and irrigation of landscaping. While impacts have not been quantified, it is assumed that construction of added-capacity highway lanes or commuter and/or light rail tracks would be the greatest user of water compared to other types of transportation network improvements.

Climate change effects are likely to affect the water supply in the San Diego region. Climate change is predicted to affect the San Diego region and its water supply through hotter and drier climate, sea level rise, and water shortages (San Diego Foundation 2008). Imported water supplies will be affected by decreased snowpack from the Sierra and sea level rise increasing salinity of water in the Sacramento River Delta, both major suppliers of potable water to the region. Already, average early spring snowpack from the Sierras has fallen 10 percent in the last century. Local and imported water supplies will be affected by increased temperatures, as supplies will evaporate more rapidly. Figure 4.17-2 below shows how the water supply and demand are predicted to change through 2050.

**Figure 4.17-2. Water Supply and Demand by 2050**

Climate change is also likely to increase water demands in the San Diego region. Higher temperatures and drier conditions would increase evapotranspiration rates from vegetation and soils, thereby increasing water demands for landscape irrigation and agricultural uses.(California Natural Resources Agency 2009).

Impacts to water supply and water facilities (infrastructure) are assessed for the target years of 2020, 2035, and 2050 in the following sections.
WS-1 AVAILABLE WATER SUPPLIES OR WATER TREATMENT AND OTHER FACILITIES

2020

Regional Growth/Land Use Change

Water Supply Availability. By 2020, population within the region is forecasted to increase by 310,568 people; housing by 113,062 units; and employment by 118,535 jobs. When comparing existing land use and 2020 land use, there are no substantial differences in the land use patterns, types, or areas of development. Land use changes that would occur throughout the region within the next 10 years would not create substantial changes to the existing regional land use patterns or developed areas. Regional growth, including implementation of transportation projects in the 2050 RTP/SCS, would result in new development throughout the region. New development would be focused within existing urban areas and along transportation routes in the western third of the San Diego region. In addition, more rural areas of the region would experience new development. Some locations that would experience the most extensive land use change and development by 2020 would include areas such as eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 corridor; City of San Diego coastal and bay communities south of I-8 including Ocean Beach and the Peninsula planning areas; portions of northern Santee; areas north and south of the SR 56 corridor in the San Diego planning areas of Carmel Valley, Del Mar Mesa, Pacific Highlands Ranch, and Torrey Highlands; the San Marcos area near both the SR 78 and I-15 corridors, and within unincorporated County communities such as Fallbrook, Pala-Pauma Valley, and Valley Center along the I-15 and SR 76 corridors.

In the 2005 UWMPs, MWD and SDCWA determined that adequate water supplies would be available to serve existing service areas under normal water year, single dry water year, and multiple dry water year conditions through the year 2030, if Water Authority and member agency supplies are developed as planned, along with the implementation of MWD’s Integrated Water Resources Plan. According to the 2010 UWMP (SDCWA 2010:9-2 through 9-3), no water shortages are anticipated within SDCWA’s service area under normal water year and single dry water year conditions through 2035 (if MWD, SDCWA, and member agency supplies are developed as planned and the SBX7-7 retail conservation target is met). Under multiple dry water year conditions, water supplies would be adequate to meet forecast water demands in the years 2021, 2022, and 2023 (SDCWA 2010:9-4).

Some uncertainty exists for long-term water supplies in the San Diego region and California. In the Bay-Delta, restrictions on Bay-Delta pumping caused by endangered species and potential levee failures, as well as future climate change, reduce the quantity of water that the SWP delivers to MWD and in turn, SDCWA. Operational constraints on the SWP will likely continue until a long-term solution to ecological and conveyance problems in the Bay-Delta is implemented. Additionally, uncertainties exist in the availability of Colorado River water due to the recent long-term drought contribute to the long-term uncertainty in water supply.

In addition, in the case of the Borrego Valley Aquifer, the basin has not been adjudicated. Therefore, individual well users are not regulated in the amount of groundwater they can extract, and future availability of supplies is uncertain. All BWD water comes from groundwater. The BWD would experience growth under implementation of the 2050 RTP/SCS, thereby increasing the demand for potable water service. This would potentially result in the BWD having inadequate supplies. Year after year, groundwater extraction in Borrego Valley exceeds the amount of groundwater that is recharged back into the aquifer. Groundwater impacts that are already occurring would continue to worsen as groundwater usage continues from increased growth. Current impacts include dry wells, decreased well
efficiency, and increased pumping costs as water levels continue to decline. Under 2050 RTP/SCS implementation, these impacts would continue and more wells would need to be replaced as water levels drop. Under the County General Plan, up to 8,689 additional residential units would be developed in the Borrego Valley, requiring approximately 8,255 AF of groundwater per year, continuing to exacerbate the overdraft condition (County of San Diego 2010:2.16-53).

Because long-term regional water supply is uncertain, CEQA case law requires an explanation of how the long-term demand for adequate water supplies would be met with alternative water supplies. In the event that preferred (currently proposed) future water supplies and facilities projects are not available to serve forecasted 2020 growth, alternative water supply projects are identified within water planning documents. For example, within the SDCWA Regional Water Facilities Master Plan, four reasonably foreseeable alternatives were evaluated, in addition to the preferred method for obtaining future water supply (i.e., seawater desalination). The four alternatives to seawater desalination include (1) conveyance of supplies from the north or MWD with Pipeline no. 6; (2) conveyance of supplies from the east or Regional Colorado River Conveyance Facility; (3) increase in local supply above planned yield through a combination of recycled water and groundwater projects; and (4) increase in water conservation.

**Plans for Future Water Facilities and Supplies.** The forecast for population, housing, and employment growth assumed as part of the 2050 RTP/SCS are not the same as ones used by SDCWA for the 2005 UWMP, which plans for future water supplies, or the Regional Water Facilities Master Plan, which plans future water facilities. In addition, the master plan uses population forecast that extend only to 2030. Both water plans are due for updating. Nevertheless, in planning on a regional scale, the difference in population forecast is not great. Table 4.17-5 compares the population forecast used for the Regional Water Facilities Master Plan (2003) with the current Regional Growth Forecast.

<table>
<thead>
<tr>
<th>Year</th>
<th>Master Plan Population</th>
<th>Current Forecast Population</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>3,034,388</td>
<td>2,939,703</td>
<td>94,685</td>
</tr>
<tr>
<td>2010</td>
<td>3,181,349</td>
<td>3,064,155</td>
<td>117,194</td>
</tr>
<tr>
<td>2015</td>
<td>3,354,191</td>
<td>3,236,329</td>
<td>117,862</td>
</tr>
<tr>
<td>2020</td>
<td>3,535,001</td>
<td>3,405,068</td>
<td>129,933</td>
</tr>
<tr>
<td>2025</td>
<td>3,703,825</td>
<td>3,567,068</td>
<td>136,757</td>
</tr>
<tr>
<td>2030</td>
<td>3,870,001</td>
<td>3,725,243</td>
<td>144,758</td>
</tr>
</tbody>
</table>

Source: Data compiled by AECOM 2011

In 2030, the difference in the 2003 Regional Water Facilities Master Plan and the current Regional Growth Forecast is about 3.9 percent. The 2005 UWMP uses a 2030 population forecast of 3.8 million, relatively close to the current forecast of 3.7 million. The 2010 UWMP uses a 2035 population forecast of 3.9 million (SDCWA 2010:1-16). Considering the scale of regional water supplies and facilities, the forecast used in the 2003 and 2007 plans appear to be an adequate base for approximating the facilities and supplies needed up to 2030.

The Regional Water Facilities Master Plan describes the projects required between 2010 and 2030 to provide adequate infrastructure for the demand associated with the population forecast. Projects were developed as three alternatives, as follows:

- Alternative 1: Conveyance of Supplies from the north; from MWD with Pipeline 6
- Alternative 2: Conveyance of Supplies from the west; from regional seawater desalination
- Alternative 3: Conveyance of Supplies from the east; from Regional Colorado River Conveyance Facility
Some projects would be common to all alternatives, as listed in Table 4.17-6.

**Table 4.17-6**

Projects Common to All Alternatives, 2010–2030

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010–2015</td>
<td>Construct New Crossover Pipeline 2</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Pipeline from Otay Water District Flow Control Facility 14 to regulatory reservoir</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Hubbard Hill Regulatory Structure</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Restore untreated-water delivery in La Mesa-Sweetwater Extension to Sweetwater Lake</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Slaughterhouse Terminal Reservoir</td>
</tr>
<tr>
<td>2010–2015</td>
<td>North County Distribution Pipeline Flow Regulatory Structure</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Pipeline 6 (SDCWA reach)</td>
</tr>
<tr>
<td>2015–2020</td>
<td>None</td>
</tr>
<tr>
<td>2020–2025</td>
<td>None</td>
</tr>
<tr>
<td>2025–2030</td>
<td>None</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Encina (Poseidon) Desalination Plant and associated improvements</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Regional Colorado River Conveyance Facility</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Crossover WTP</td>
</tr>
</tbody>
</table>

Source: SDCWA 2007

For Alternative 1 (supply from north), the Master Plan lists a single post-2010 project to be implemented in the time period 2010–2020, construction of Pipeline 6, SDCWA reach.

Table 4.17-7 lists the projects that would need to be added to the common alternatives to implement Alternative 2 (supply from west).

**Table 4.17-7**

Alternative 2 Projects, 2010–2030

<table>
<thead>
<tr>
<th>Time Period*</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005–2010</td>
<td>Encina Desalination Plant (Initial 50 mgd) [Poseidon]</td>
</tr>
<tr>
<td></td>
<td>Pipe from plant to Maerkle Reservoir</td>
</tr>
<tr>
<td></td>
<td>Pipe from Maerkle Reservoir to Tri-Agency Pipeline</td>
</tr>
<tr>
<td></td>
<td>Pump station from plant and Maerkle Reservoir</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Pump station from Maerkle Reservoir and Tri-Agency Pipeline</td>
</tr>
<tr>
<td>2015–2020</td>
<td>None</td>
</tr>
<tr>
<td>2020–2025</td>
<td>None</td>
</tr>
<tr>
<td>2025–2030</td>
<td>None</td>
</tr>
</tbody>
</table>

Source: SDCWA 2009b

*The Poseidon plant is currently under construction, so the time periods in this table are not accurate. They are presented here as they are assigned in the Master Plan.

Table 4.17-8 lists the projects that would need to be added to the common alternatives to implement Alternative 3 (supply from east).

According to the master plan, any of these three alternatives would be capable of meeting the region’s water supply needs up to 2030. Certainly conditions have changed since 2007. Additional supply from the east has been ensured, and the source of supply from the west is under construction.
Table 4.17-8
Alternative 2 Projects, 2010–2030

<table>
<thead>
<tr>
<th>Time Period*</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010–2015</td>
<td>Regional Colorado River Conveyance Facility</td>
</tr>
<tr>
<td></td>
<td>Pipeline, pump stations, hydro-electric facilities</td>
</tr>
<tr>
<td></td>
<td>Reverse osmosis treatment plant (118 mgd for 300,000 AF)</td>
</tr>
<tr>
<td></td>
<td>Brine disposal (conveyance from Miramar and Alvarado WTPs, 39 mgd)</td>
</tr>
<tr>
<td></td>
<td>Brine disposal (capacity in South Bay International Outfall, 39 mgd)</td>
</tr>
<tr>
<td>2010–2015</td>
<td>Crossover WTP (65 mgd)</td>
</tr>
<tr>
<td></td>
<td>Untreated water connection (Pipelines 3, 5, and Crossover)</td>
</tr>
<tr>
<td></td>
<td>Treated water connection (Pipeline 4)</td>
</tr>
<tr>
<td>2015–2020</td>
<td>None</td>
</tr>
<tr>
<td>2020–2025</td>
<td>None</td>
</tr>
<tr>
<td>2025–2030</td>
<td>None</td>
</tr>
</tbody>
</table>

Source: SDCWA 2009b

Since the Regional Water Facilities Master Plan dates from 2003, the time lines and projects in it very likely will change when the updated master plan is completed (scheduled for 2012). (Some of the information is outdated, as noted in Table 4.17-7.) But the information is presented here as representing reasonable and feasible sources of water supply to meet the region’s needs, based on growth forecast similar to the 2050 RTP/SCS growth forecast up to 2030. Conservation has become progressively more efficient in saving water, up to 28 percent between 2007 and 2010 with a positive trend, showing higher gains than the year before the last 3 years. There is excess capacity in existing reclamation plants to allow increased recycled water use.

Although the 2050 RTP/SCS population forecast indicates an increase in 129,933 more people in 2020 than the 2003 Regional Water Facilities Master Plan, the trend of water use in the region has declined on a per-person basis (18 percent in 3 years from 2007 to 2010). The master plan contains three alternatives, any of which would ensure adequate supplies and facilities through 2030, and some of which have already been or are being implemented. Considering ongoing regional efforts to increase water use efficiency and sources of supply, adequate facilities appear feasible for 2020.

By 2020, population will have grown in the San Diego region, and that growth will create a demand for an increased supply of water for domestic and industrial use. The water demand will, in turn, create a need for new water supplies and facilities. Increased use of available water supplies and facilities such that water supplies or facilities would be inadequate to serve existing and forecast future demand would be considered a significant impact.

From September 2009 through August 2010, the San Diego region used 493,100 AF of water. For the same period in 2007–2008, the region used 602,300 AF of water. Per capita use varies widely depending on local climate, rainfall levels, residence characteristics and other factors. Overall, the average per capita municipal and industrial water usage in the SDCWA service area for FY 2010 is 143 gallons a day. This compares to 185 gallons per day in FY 2007 (SDCWA 2011c). Based on a 2020 population of 3,535,000 and the 2007 and 2010 water demand factors, the per capita water demand for 2020 would range from 505,505,000 to 653,975,000 gallons a day.

Current planning documents for water supply and facilities, combined with ongoing efforts to increase water use efficiency in the region, indicate that adequate supplies and facilities can be available to serve the growth forecasted by 2020. Therefore, future water supplies are likely to be available, and future facilities to serve growth are likely to be constructed.
Impacts Associated with Water Facilities. In addition, the significant environmental impacts associated with planned water supplies and facilities to serve 2020 growth have been or will be addressed and mitigated in project-specific CEQA documents. The potentially significant environmental impacts of these types of water supply projects have similarities and are summarized in Table 4.17-9. This table specifically addresses impacts of future alternative water supply projects for 2035 but is also applicable to impacts of planned water supply projects for 2020. In addition, the impacts of likely future water supplies are also considered in the San Diego County General Plan Update EIR (2010), as well as the LOSSAN Double-Tracking EIR (Caltrans 2007).

Table 4.17-9
Potential Environmental Impacts Associated with Water Supply Projects

<table>
<thead>
<tr>
<th>Environmental Issue Area</th>
<th>Potential Impact</th>
<th>Possible Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetic/Visual Impact on Landscape</td>
<td>Construction activities may alter scenic views. Addition of new visual features may block views and cause additional sources of light and glare.</td>
<td>Project applicant shall implement short-term construction equipment staging areas with appropriate screening; provide a vegetative buffer around facility; install fencing that is complementary with surrounding environment; and shield exterior light sources away from adjoining uses.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>The following may occur: temporary construction air quality impacts; emission of toxic air contaminants; and conflict with local Air Quality Management Plan.</td>
<td>Project applicant shall comply with applicable federal, state, and local air quality guidelines.</td>
</tr>
<tr>
<td>Biological Resources</td>
<td>Construction and operation activities may impact terrestrial and aquatic biological resources.</td>
<td>Project applicant shall comply with applicable federal, state, and local regulatory agencies to ensure proper safeguards are in place protecting all sensitive biological resources before, during, and after construction.</td>
</tr>
<tr>
<td>Cultural and Paleontological Resources</td>
<td>Construction and operation activities may potentially disturb undiscovered archaeological and paleontological resources.</td>
<td>Project applicant shall perform preconstruction surveys; require a professional archaeologist and/or paleontologist on-site during construction; and flag and monitor Areas of Potential Effects.</td>
</tr>
<tr>
<td>Geology and Soils</td>
<td>The following may occur: seismic-related hazards including earthquakes; and geologic related hazards including landslides and liquefaction, soil and topsoil erosion, and water and wind erosion.</td>
<td>Project applicant shall comply with standards set forth in the Uniform Building Code (most current edition) to assume seismic safety. A detailed site-specific geotechnical study must be prepared. Compliance with the recommendations set forth in site-specific geologic and/or geotechnical studies will be made a condition of the site development permit for subsequent projects.</td>
</tr>
<tr>
<td>Greenhouse Gas Emissions</td>
<td>Project may increase the emission of greenhouse gases.</td>
<td>Project shall implement and comply with all state and local initiatives to reduce the emission of greenhouse gases.</td>
</tr>
<tr>
<td>Hazards and Hazardous Materials</td>
<td>Project may create hazards due to the storage, transportation, and/or handling of hazardous materials, thereby increasing the risk of exposure to hazards and hazardous materials.</td>
<td>All hazardous materials shall be handled, and stored, transported, and disposed in accordance with all applicable federal, state, and local codes and regulations.</td>
</tr>
</tbody>
</table>
Based on the above analysis, implementation of the 2050 RTP/SCS would result in less than significant impacts related to the adequacy of water supplies and facilities to service the anticipated growth in 2020.

**Transportation Network Improvements**

The transportation network improvements that would be implemented between 2010 and 2020 generally include widening and/or installation of HOV lanes and Managed Lanes along portions of I-5, I-15, I-805, SR 78, and SR 94; completion of SR 905 and SR 11; and HOV connector projects along I-805. Some key transit network improvements in place by 2020 would include increases in existing COASTER service, including extension of COASTER service to the San Diego Convention Center and Petco Park. BRT downtown express services from inland and south bay locations would be expanded as well as new BRT routes from the south bay area and along I-15. Rapid bus service would add new routes and streetcar routes would be established. Local bus service would be improved to 15 minutes in key corridors. Double-tracking of the LOSSAN rail corridor would occur to accommodate increased frequency in COASTER and other rail services that utilize this rail line. In addition, the new Mid-Coast Trolley line from Old Town to University Town Center would be constructed and the Trolley Green Line would be extended to downtown San Diego.

The 2030 San Diego Regional Transportation Plan Final EIR (2007) presents a methodology for assessing regional water supply impacts of transportation network improvements. As described therein, impacts to the regional water supply related to transportation improvements can be estimated based upon a set of
assumptions and subsequent calculations derived from a case study project and from professional project experience related to highway project design and construction practices. For the purpose of quantifying water usage, it was assumed that construction of added-capacity highway lanes would, by far, be the greatest user of water. Therefore, impact assessment is focused on water usage related to construction of these highway lanes. Potential impacts were divided into two major areas: (1) water usage required for production of concrete for highway lane construction; and (2) water usage required for dust suppression associated with construction of these highway lanes.

The highway construction case study that was used, in part, in developing assumptions was the I-5 and Lomas Santa Fe interchange construction project. For the 2050 RTP/SCS project, the duration for construction was 2 years for each acre of ground disturbance/construction area. The reasonableness of this duration was confirmed in consultation with Caltrans officials and AECOM construction monitoring staff. An industry standard of 11 pounds of water per cubic foot of concrete was assumed for the purpose of estimating the quantity of water to be used in mixing concrete for added-capacity highway lane construction (State of California 1999). A number of assumptions were used to calculate potential impacts related to water supply usage for mixing concrete and for dust suppression related to the construction of added-capacity highway lanes.

Based on this methodology, concrete mixing would require an estimated 3.15 AF per year of water for concrete mixing associated with highway lane construction. In addition, dust suppression for added-capacity highway lane construction would require an estimated 28.55 AF per year of water for dust suppression. In 2020, the normal water year forecast supply is 674,124 AF per year (SDCWA 2010:9-2). In total, these activities would require a total of 31.7 AF per year of water (or less than 0.01 percent of the SDCWA total water supply).

Existing and planned water supplies would be adequate to serve forecasted 2020 RTP transportation projects because the demands of these projects are relatively low compared to the forecasted water supply. For the same reason, new treatment facilities would not be required to provide water for irrigated landscaping for transportation network improvements by 2020. New distribution pipelines may be needed to extend recycled water service to new projects where such service is not available. Such facilities, if needed, are a part of Caltrans engineering plans for the planned highway or freeway improvements. They are not generally considered as separate projects, and their impacts are not assessed independently, because they are always in the right-of-way and in the area that would be disturbed by construction of other elements of the project. Therefore, implementation of the 2050 RTP/SCS transportation network improvements would result in less than significant impacts related to the adequacy of water supplies and facilities in 2020.

**Conclusion**

By 2020, existing water supplies and facilities would be adequate to provide water for 2050 RTP/SCS regional growth/land use changes and transportation network improvements. Therefore, these impacts would be less than significant. However, existing water supplies and facilities would not be adequate to provide water supplies for Borrego Valley forecasted growth in 2020; therefore, this water supply impact is significant.

**2035**

**Regional Growth/Land Use Change**

By 2035, the population of the region is expected to increase by 801,699 people; housing by 268,094 units; and employment by 312,292 jobs over existing 2010 conditions. As shown in Figure 4.11-4, regional land use and development changes are evident by 2035. Some locations that would experience
the most extensive land use change and development by 2035 would include continued growth in eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 and SR 125 corridors; northeast of the SR 94 corridor in the unincorporated County planning areas of Jamul/Dulzura, Tecate, and Potrero; eastern Poway along the SR 67 corridor; the County planning area of Ramona along the SR 67 and SR 78 corridors; County planning areas of Lakeside and Alpine and the Crest, Granite Hills, Dehesa, Harbison Canyon subregion; and multiple north County planning areas along the I-15 and SR 76 corridors such as Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, and Hidden Valley.

The increased density can be seen when comparing the existing housing density to the 2035 housing density, as shown in Figures 4.13-2 and 4.13-8, respectively. Areas of increased residential density by 2035 would be apparent in some coastal cities such as Oceanside and Encinitas, and City of San Diego coastal communities. Also, increased density would occur in more inland areas along I-8 corridor through Mission Valley, College Area, and into the City of La Mesa, as well as eastern Chula Vista along the SR 125 corridor. In the northern portion of the region, land use changes to accommodate growth in 2035 in the form of spaced rural residential development would occur along the I-15 corridor north of Escondido toward the northern county line and in more eastern areas along I-8, SR 67, SR 78, and SR 94.

The SR 78 corridor, from Escondido to I-5, would also experience growth and resulting land use density increases of both residential and commercial/office by 2035. As shown in Figure 4.11-4, single-family residential development would increase substantially along this corridor as well as additional commercial and industrial growth. The majority of this growth would be centered around the cities of Vista, San Marcos, and Escondido. The pattern of more dense growth along this segment of the SR 78 corridor is also apparent when comparing the existing housing density to 2035 housing density.

By 2035, some regional growth would be accommodated in the more eastern, rural areas of the region. Development in these areas would be centered mostly along highway corridors, such as SR 78, SR 67, I-8 east of El Cajon, and SR 94, and generally within San Diego County community planning areas. The unincorporated portions of San Diego County are currently undergoing population growth and expansion of residential land use as indicated by a population increase of 14 percent from 2000 to 2010 as shown in Table 4.11-2. When comparing the existing land uses and 2035 land uses in Figures 4.11-1 and 4.11-4, the 2035 land use pattern would generally involve additional residential development in areas that were previously undeveloped open space or at some time in agricultural use (as discussed in Section 4.2).

The 2050 Regional Growth Forecast predicts population growth of 491,130 people in the County between 2020 and 2035. Neither the 2003 Regional Water Facilities Master Plan nor the 2005 UWMP uses population forecast beyond 2035 and those forecast are not the current ones in the 2050 Regional Growth Forecast. Water supplies and facilities planning does extend to 2030, and although the adequacy of supplies and facilities could extend to 2035, the adequacy of water supplies and facilities to serve the added population in 2035 is uncertain.

From September 2009 through August 2010, the San Diego region used 493,100 AF of water. For the same period in 2007–2008, the region used 602,300 AF of water. Per capita use varies widely depending on local climate, rainfall levels, residence characteristics and other factors. Overall, the average per capita municipal and industrial water usage in the SDCWA service area for FY 2010 is 143 gallons a day. This compares to 185 gallons per day in FY 2007 (SDCWA 2011c). Based on a 2035 population of 4,026,131 and the 2007 and 2010 water demand factors, the per capita water demand for 2035 would range from 575,736,733 to 744,834,235 gallons a day.

Demand for water in SDCWA's service area falls into two classes of service: municipal and industrial (M&I), and agricultural demand. M&I uses currently constitute approximately 80 to 85 percent of
regional water consumption. The remaining 15 to 20 percent of demand has historically been attributable to agricultural water use, primarily for irrigation of nurseries, groves, and crops. By 2035, total normal water demands are forecasted to reach 778,443 AF (including future conservation, demand associated with forecasted near-term annexations, and accelerated forecasted growth) (SDCWA 2011:2-1).

Project area water supplies would be provided from a variety of sources as described in SDCWA’s Draft 2010 UWMP (2011). SDCWA supplies would involve water from the IID Water Conservation and Transfer Agreement, the All-American Canal and Coachella Canal Lining Projects, and the Carlsbad Seawater Desalination Project. In 2035, these projects are anticipated to provide 200,000 AF, 80,200 AF, and 56,000 AF per year, respectively, SDCWA member agencies are also a source of water supplies in the region. Member agency surface water is expected to provide 47,289 AF, and groundwater could provide up to 28,360 AF per year in 2035. In addition, MWD would provide 323,030 AF in 2035. Normal year water supplies from SDCWA supplies, member agency supplies, and MWD supplies would total 784,877 AF (SDCWA 2011:9-2). In summary, if MWD, SDCWA, and member agency supplies are developed as planned, along with achievement of the SBX7-7 retail conservation target, no shortages are anticipated within the SDCWA’s service area in a normal year through 2035 (SDCWA 2011:9-2).

Some uncertainty exists for long-term water supplies in the San Diego region and California. In the Bay-Delta, restrictions on Bay-Delta pumping caused by endangered species and potential levee failures, as well as future climate change, reduce the quantity of water that the SWP delivers to MWD and, in turn, SDCWA. Studies have shown that the water supply from imported sources is likely to decline significantly in the future (San Diego Foundation 2008) while demand is expected to increase due to climate change. Supply will decrease due to decreased snowpack and freshwater supply from Northern California, and decreased Colorado River supplies, while increased extreme heat days will place add irrigation and landscape water demand. Operational constraints on the SWP will likely continue until a long-term solution to ecological and conveyance problems in the Bay-Delta are implemented. Additionally, uncertainties in the availability of Colorado River water exist due to the recent long-term drought and contribute to the long-term uncertainty in water supply. Additional SDCWA supply uncertainties are noted in the SDCWA Draft 210 UWMP.

In addition, in the case of the Borrego Valley Aquifer, the basin has not been adjudicated. Therefore, individual well users are not regulated in the amount of groundwater they can extract, and future availability of supplies is uncertain. All BWD water comes from groundwater. The BWD would experience growth under implementation of the 2050 RTP/SCS, thereby increasing the demand for potable water service. This would potentially result in the BWD having inadequate supplies. Year after year, groundwater extraction in Borrego Valley exceeds the amount of groundwater that is recharged back into the aquifer. Groundwater impacts that are already occurring would continue to worsen as groundwater usage continues from increased growth. Current impacts include dry wells, decreased well efficiency, and increased pumping costs as water levels continue to decline. Under 2050 RTP/SCS implementation, these impacts would continue and more wells would need to be replaced as water levels drop. Under the County General Plan, up to 8,689 additional residential units would be developed in the Borrego Valley, requiring approximately 8,255 AF of groundwater per year, continuing to exacerbate the overdraft condition (County of San Diego 2010:2.16-53).

Because long-term regional water supply is uncertain, CEQA case law requires an explanation of how the long-term water demand would be met with alternative water supplies. In the event that preferred (currently proposed) future water supplies and facilities projects are not available to serve forecasted 2035 growth, alternative water supply projects are identified within water planning documents. For example, within the SDCWA Regional Water Facilities Master Plan, four reasonably foreseeable alternatives were evaluated, in addition to the preferred method for obtaining future water supply (i.e., seawater desalination). The four alternatives to seawater desalination include (1) conveyance of supplies from the
north or MWD with Pipeline no. 6; (2) conveyance of supplies from the east or Regional Colorado River Conveyance Facility; (3) increase in local supply above planned yield through a combination of recycled water and groundwater projects; and (4) increase in water conservation.

The potentially significant environmental impacts of these types of water supply projects have similarities and are thus summarized in Table 4.17-9. Detailed construction- and operation-related environmental impacts associated with alternative water sources would be determined by future environmental analysis on a project-by-project basis, and appropriate mitigation measures would also be identified to reduce any significant environmental impacts at the time the project is proposed. In addition, the impacts of likely future water supplies are also considered in the San Diego County General Plan Update EIR (2010), as well as the LOSSAN Double-Tracking EIR.

Because of the uncertainty of providing adequate water supplies and facilities to serve the 2050 RTP/SCS forecasted growth, and the adverse impacts associated with curtailing development if adequate water supplies and facilities are not available, impacts associated with adequate water supplies and facilities in 2035 are considered significant.

**Transportation Network Improvements**

Some key highway improvements in place by 2035 would include continued widening along portions of I-5; additional HOV and Managed Lanes along portions of I-5, I-805, and SR 52; widening of portions of SR 125 and SR 67; and additional freeway and HOV connector improvements. Some important transit projects operational by 2035 would include continued increases in COASTER service, increases in SPRINT service, increases in downtown area streetcar service, and substantial increases in rapid bus service throughout the region. The Trolley Blue Line would be extended from UTC to Mira Mesa via Sorrento Mesa and Carroll Canyon, the Orange Line would be extended to Lindbergh Field, and a new line from Pacific Beach to El Cajon via Kearny Mesa, Mission Valley, and San Diego State University would be established. Double-tracking along the SPRINT rail line through the cities of Oceanside, Vista, San Marco, and Escondido would take place by 2035 as well as continued double-tracking along the LOSSAN corridor.

For the same reasons as discussed above under the 2020 scenario, it is unlikely that new water supplies or treatment facilities would be required to provide water for landscape irrigation for 2035 RTP projects. Most of these projects would be in transportation corridors where landscaping already requires irrigation although under predicted climate change scenarios, the San Diego region will become drier, possibly requiring additional watering of transportation network construction sites and landscapes. The same factors and conditions surrounding the effects of new treatment and distribution facilities in 2020 would be present in 2035. Therefore, implementation of the 2050 RTP/SCS would result in a less than significant impact related to the adequacy of water supplies and facilities in 2035.

**Conclusion**

In 2035, although existing water supplies and facilities would be adequate to serve water demands from transportation network improvements, they would not be adequate to serve water demands from growth/land use changes. Therefore, this impact is significant.

**2050**

**Regional Growth/Land Use Change**

By 2050, the population of the region is forecast to increase by 1,160,435 people; housing by 379,664 units; and employment by 501,958 jobs over existing conditions. As shown in Figure 4.11-5, new growth
and land use changes in 2050 per the 2050 RTP/SCS are apparent throughout the region. Areas of substantial land use change and development, beyond that described in 2035, would include significant industrial development in the County’s Otay planning area and San Diego Otay Mesa community surrounding the East Otay Mesa POE; throughout County planning areas located along the international border including Tecate, Potrero, Campo/Lake Morena, Boulevard, and Jacumba; throughout the Ramona and Julian planning areas in the unincorporated County; throughout other northeastern County planning areas including North Mountain, Desert, and Borrego Springs; and continued development throughout County planning areas located north and east of Escondido extending to the northern border with Riverside County including Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, Hidden Valley, Twin Oaks Valley, and North County Metro.

Increased population density from 2010 through 2050 can be seen when comparing Figures 4.13-1, and 4.13-10, respectively. Increased density is most apparent in City of San Diego communities near the downtown area near I-5 and I-805 and along the I-8 corridor to the east.

Urban centers in the western third of the San Diego region would have most available land developed with single- and multi-family uses, commercial and office uses, and industrial uses. Consistent with the goals of the 2050 RTP/SCS, the dense growth within existing urban centers with high accessibility to transit options allows for the creation of communities that are more sustainable, walkable, transit-oriented, and compact. Substantial dense growth within the urban centers corresponds with major transportation corridors such as I-5, I-8, I-15, and I-805 and these are also alignments that would have extensive transit opportunities.

Similar to the description in the 2035 analysis, growth would continue in more eastern locations of the region, such as east of I-15 in the northern area, east of SR 67 through the middle portion of the region, and east of SR 94 in the southern area. However, by 2050, spaced rural residential development would have expanded beyond areas along existing transportation corridors and established rural communities and into areas with very minimal development at present. As shown in Figure 4.11-5, some of these areas include northeast of Escondido to SR 76, areas east of Camp Pendleton, and areas north and south of the SR 78 corridor. Large pockets of land currently used for agricultural purposes would be developed with spaced rural residential uses (as discussed in Section 4.2).

As shown in Figure 4.11-5, by 2050, a substantial pocket of industrial development would be located along the planned SR 905 corridor in conjunction with the new Otay Mesa East POE at the international border with Mexico. This is a newly developing area that is planned for mainly industrial use and is highly dependent upon the planned construction of SR 11, SR 905, and the Otay Mesa East POE.

Some uncertainty exists for long-term water supplies in the San Diego region and California. In the Bay-Delta, restrictions on Bay-Delta pumping caused by endangered species and potential levee failures, as well as future climate change, reduce the quantity of water that the SWP delivers to MWD and, in turn, SDCWA. In addition, by 2050, temperatures are expected to increase by 1.5 to 4.5 °F by 2050 in the San Diego region, resulting in increased water demand for landscaping and other sources. It is predicted that 80 percent of water supply in the region will be from imported water (San Diego Foundation 2008); however the availability of imported supplies will decline. According to the Focus 2050 report, given the increased demand and reduced supply expected as a result of climate change, there will be a gap of water resources in the region by 2050. Operational constraints on the SWP will likely continue until a long-term solution to ecological and conveyance problems in the Bay-Delta are implemented. Additionally, uncertainties exist in the availability of Colorado River water due to the recent long-term drought and contribute to the long-term uncertainty in water supply. Additional SDCWA supply uncertainties are noted in the SDCWA Draft 210 UWMP.
In addition, in the case of the Borrego Valley Aquifer, the basin has not been adjudicated. Therefore, individual well users are not regulated in the amount of groundwater they can extract, and future availability of supplies is uncertain. All BWD water comes from groundwater. The BWD would experience growth under implementation of the 2050 RTP/SCS, thereby increasing the demand for potable water service. This would potentially result in the BWD having inadequate supplies. Year after year, groundwater extraction in Borrego Valley exceeds the amount of groundwater that is recharged back into the aquifer. Groundwater impacts that are already occurring would continue to worsen as groundwater usage continues from increased growth. Current impacts include dry wells, decreased well efficiency, and increased pumping costs as water levels continue to decline. Under 2050 RTP/SCS implementation, these impacts would continue and more wells would need to be replaced as water levels drop. Additional development beyond that anticipated in the 2010 County General Plan would require additional groundwater, continuing to exacerbate the overdraft condition (County of San Diego 2010:2.16-53).

The current planning horizon for current regional water facilities and supplies plans in the region is 15–20 years short of the planning horizon of the 2050 Regional Growth Forecast. The growth forecast anticipates an added population of 514,866 between 2030, the planning horizon for current water supplies and facilities, and 2050. Much greater uncertainty than is the case for 2035 is associated with conditions in 2050.

From September 2009 through August 2010, the San Diego region used 493,100 AF of water. For the same period in 2007–2008, the region used 602,300 AF of water. Per capita use varies widely depending on local climate, rainfall levels, residence characteristics and other factors. Overall, the average per capita municipal and industrial water usage in the SDCWA service area for FY 2010 is 143 gallons a day. This compares to 185 gallons per day in FY 2007 (SDCWA 2011c). Based on a 2050 population of 4,384,867 and the 2007 and 2010 water demand factors, the per capita water demand for 2050 would range from 627,035,981 to 811,200,395 gallons a day.

Because long-term water supply is uncertain, CEQA case law requires an analysis of how long-term demand would be met with alternative water supplies. In the event that preferred water supply projects do not come to fruition, alternative water supply projects are identified within water planning documents (as described above). Both construction- and operation-related environmental impacts associated with alternative water sources would be determined by future environmental analysis on a project-by-project basis, and appropriate mitigation measures would also be identified to reduce any significant environmental impacts at the time the project is proposed. The environmental issues surrounding these types of projects have similarities and are therefore summarized in Table 4.17-9. In addition, the impacts of likely future water supplies are also considered in the San Diego County General Plan Update EIR (2010), as well as the LOSSAN Double Tracking EIR.

Because of the uncertainty of providing adequate water supplies and facilities to serve the 2050 RTP/SCS forecasted growth, and the adverse impacts associated with curtailing development if adequate water supplies and facilities are not available, impacts associated with adequate water supplies and facilities in 2050 are considered significant.

Transportation Network Improvements

By 2050, most of the highway, transit, and active transportation (bicycle and pedestrian) improvements, along with other infrastructure projects, would be in place and operational in accordance with the 2050 RTP/SCS. Some key highway improvements that would be in place by 2050 would include widening portions of SR 52, SR 56, SR 76, SR 94, SR 125, and I-5; additional HOV lanes and Managed Lanes along segments of I-8, I-805, I-5, I-15, SR 94, SR 125, and SR 54; and freeway and HOV connector
improvements. Important transit improvements in place by 2050 would include the extension of Trolley lines and increased Trolley service frequency. The Trolley Green Line would be extended to Downtown-Bayside; a new line connecting San Diego State University to Downtown San Diego via El Cajon Boulevard/Mid-City would be constructed; and a line from University Town Center to H Street Trolley Station in the South Bay via Kearny Mesa, Mission Valley, Mid-City, and National City would be established.

Water demand associated with 2050 transportation network improvements would be higher than in 2035, and as mentioned above, the availability of long-term reliable water supplies in 2050 uncertain. In addition, under predicted climate change scenarios, the San Diego region will become drier, possibly requiring additional watering of transportation network construction sites and landscapes. The analysis of water supply alternatives in the above discussion of 2050 growth/land use changes also applies to meeting the water demands of 2050 transportation network improvements. Because of the uncertainty of providing adequate water supplies and facilities to serve the 2050 RTP/SCS transportation network facilities, impacts associated with adequate water supplies and facilities in 2050 are considered significant.

Conclusion

Existing water supplies and facilities would not be adequate to serve water demands from both growth/land use changes and from transportation network improvements. Therefore, this impact is significant.

**WS-2 CONSTRUCTION OF NEW WATER TREATMENT OR DISTRIBUTION FACILITIES OR THE EXPANSION OF EXISTING FACILITIES 2020**

**Regional Growth/Land Use Change**

By 2020, population within the region is expected to increase by 310,568 people; housing by 113,062 units; and employment by 118,535 jobs. When comparing existing land use and 2020 land use, there are no substantial differences in the land use patterns, types, or areas of development. Land use changes that would occur throughout the region within the next 10 years would not create substantial changes to the existing regional land use patterns or developed areas. Some locations that would experience the most extensive land use change and development by 2020 would include areas such as eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 corridor; City of San Diego coastal and bay communities south of I-8 including Ocean Beach and the Peninsula planning areas; portions of northern Santee; areas north and south of the SR 56 corridor in the San Diego planning areas of Carmel Valley, Del Mar Mesa, Pacific Highlands Ranch, and Torrey Highlands; the San Marcos area near both the SR 78 and I-15 corridors; and within unincorporated County communities such as Fallbrook, Pala-Pauma Valley, and Valley Center along the I-15 and SR 76 corridors.

The SCS seeks to pattern growth in sustainable communities with higher densities near existing development, “with more focus on urban infill and redevelopment and accessibility to jobs, housing, education, and recreation opportunities” (SANDAG 2010). Getting treated water to the new development will be the responsibility of local water agencies. New facilities and expansion of existing facilities to distribute water to areas of increased growth will be needed, but details on the size, location, and characteristics of those facilities are not known.

The significant environmental impacts associated with new or expanded water treatment and distribution facilities to serve 2020 growth will be addressed and mitigated in project-specific CEQA documents.
prepared by water agencies. The potentially significant environmental impacts of these types of projects have similarities and are summarized in Table 4.17-9. This table specifically addresses impacts of future alternative water supply projects for 2035 but is also applicable to impacts of new or expanded water treatment and distribution facilities.

The BWD would experience growth under implementation of the 2050 RTP/SCS, thereby increasing the demand for potable water service. Under 2050 RTP/SCS implementation, more wells would need to be replaced as water levels drop. Under the County General Plan, up to 8,689 additional residential units would be developed in the Borrego Valley, requiring approximately 8,255 AF of groundwater per year, continuing to exacerbate the overdraft condition (County of San Diego 2010:2.16-53).

Construction of new or expanded water treatment and distribution facilities would result in short-term construction-related impacts to air quality, noise, traffic, and hydrology and other environmental issues. Construction-related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency, including adherence to existing regulations and best management practices. However, the timing, location, and detailed project-specific details are unknown and specific environmental effects of constructing new or expanded water treatment and distribution facilities cannot be determined at the Program EIR level of analysis. Therefore, this is a significant impact.

**Transportation Network Improvements**

The transportation network improvements that would be implemented between 2010 and 2020 generally include widening and/or installation of HOV lanes and Managed Lanes along portions of I-5, I-15, I-805, SR 78, and SR 94; completion of SR 905 and SR 11; and HOV connector projects along I-805. Some key transit network improvements in place by 2020 would include increases in existing COASTER service, including extension of COASTER service to the San Diego Convention Center and Petco Park. BRT downtown express services from inland and south bay locations would be expanded as well as new BRT routes from the south bay area and along I-15. Rapid bus service would add new routes and streetcar routes would be established. Local bus service would be improved to 15 minutes in key corridors. Double-tracking of the LOSSAN rail corridor would occur to accommodate increased frequency in COASTER and other rail services that utilize this rail line. In addition, the new Mid-Coast Trolley line from Old Town to University Town Center would be constructed and the Trolley Green Line would be extended to downtown San Diego.

New treatment facilities would not be required to provide water for irrigated landscaping on proposed 2020 RTP transportation projects, because the water demands of these projects are relatively minor. New distribution pipelines may be needed to extend recycled water service to new projects where such service is not available. Such facilities, if needed, are a part of Caltrans engineering plans for the proposed highway or freeway improvements. They would not independently cause significant impacts because they are located in the right-of-way that would be disturbed by construction of other elements of the transportation project. Therefore, implementation of the 2050 RTP/SCS transportation network improvements would result in less than significant impacts related to construction of new water treatment and distribution facilities in 2020.

**Conclusion**

In the year 2020, regional growth, but not transportation network improvements, would result in construction of expanded or new water treatment or distribution facilities, the construction of which could cause significant environmental effects. Therefore, this impact is significant.
Regional Growth/Land Use Change

By 2035, the population of the region is expected to increase by 801,699 people; housing by 268,094 units; and employment by 312,292 jobs over existing 2010 conditions. As shown in Figure 4.11-4, regional land use and development changes are evident by 2035. Some locations that would experience the most extensive land use change and development by 2035 would include continued growth in eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 and SR 125 corridors; northeast of the SR 94 corridor in the unincorporated County planning areas of Jamul/Dulzura, Tecate, and Potrero; eastern Poway along the SR 67 corridor; the County planning area of Ramona along the SR 67 and SR 78 corridors; County planning areas of Lakeside and Alpine and the Crest, Granite Hills, Dehesa, Harbison Canyon subregion; and multiple north County planning areas along the I-15 and SR 76 corridors such as Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, and Hidden Valley.

The increased density can be seen when comparing the existing housing density to the 2035 housing density, as shown in Figures 4.13-2 and 4.13-8, respectively. Areas of increased residential density by 2035 would be apparent in some coastal cities such as Oceanside and Encinitas, and City of San Diego coastal communities. Also, increased density would occur in more inland areas along I-8 corridor through Mission Valley, College Area, and into the City of La Mesa, as well as eastern Chula Vista along the SR 125 corridor. In the northern portion of the region, land use changes to accommodate growth in 2035 in the form of spaced rural residential development would occur along the I-15 corridor north of Escondido toward the northern county line and in more eastern areas along I-8, SR 67, SR 78, and SR 94.

The SR 78 corridor, from Escondido to I-5, would also experience growth and resulting land use density increases of both residential and commercial/office by 2035. As shown in Figure 4.11-4, single-family residential development would increase substantially along this corridor as well as additional commercial and industrial growth. The majority of this growth would be centered around the cities of Vista, San Marcos, and Escondido. The pattern of more dense growth along this segment of the SR 78 corridor is also apparent when comparing the existing housing density to 2035 housing density.

By 2035, some regional growth would be accommodated in the more eastern, rural areas of the region. Development in these areas would be centered mostly along highway corridors, such as SR 78, SR 67, I-8 east of El Cajon, and SR 94, and generally within San Diego County community planning areas. The unincorporated portions of San Diego County are currently undergoing population growth and expansion of residential land use as indicated by a population increase of 14 percent from 2000 to 2010 as shown in Table 4.11-2. When comparing the existing land uses and 2035 land uses in Figures 4.11-1 and 4.11-4, the 2035 land use pattern would generally involve additional residential development in areas that were previously undeveloped open space or at some time in agricultural use (as discussed in Section 4.2).

The BWD would experience growth under implementation of the 2050 RTP/SCS, thereby increasing the demand for potable water service. Under 2050 RTP/SCS implementation, more wells would need to be replaced as water levels drop. Under the County General Plan, up to 8,689 additional residential units would be developed in the Borrego Valley, requiring approximately 8,255 AF of groundwater per year, continuing to exacerbate the overdraft condition (County of San Diego 2010:2.16-53).

Construction of new or expanded water treatment and distribution facilities would result in short-term construction-related impacts to air quality, noise, traffic, and hydrology and other environmental issues. Construction-related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency, including adherence to existing regulations and best
management practices. However, the timing, location, and detailed project-specific details are unknown and specific environmental effects of constructing new or expanded water treatment and distribution facilities cannot be determined at the Program EIR level of analysis. Therefore, this is a significant impact.

**Transportation Network Improvements**

Some key highway improvements in place by 2035 would include continued widening along portions of I-5; additional HOV and Managed Lanes along portions of I-5, I-805, and SR 52; widening of portions of SR 125 and SR 67; and additional freeway and HOV connector improvements. Some important transit projects operational by 2035 would include continued increases in COASTER service, increases in SPRINTER services, increases in downtown area streetcar service, and substantial increases in rapid bus service throughout the region. The Trolley Blue Line would be extended from UTC to Mira Mesa via Sorrento Mesa and Carroll Canyon; the Orange Line would be extended to Lindbergh Field; and a new line from Pacific Beach to El Cajon via Kearny Mesa, Mission Valley, and San Diego State University would be established. Double-tracking along the SPRINTER rail line through the cities of Oceanside, Vista, San Marco, and Escondido would take place by 2035 as well as continued double-tracking along the LOSSAN corridor.

It is highly unlikely that new treatment facilities would be required to provide water for landscape irrigation for 2035 RTP projects. Most of these projects would be in transportation corridors where landscaping already requires irrigation. The same factors and conditions surrounding the effects of new treatment and distribution facilities in 2020 would be present in 2035. Therefore, implementation of the 2050 RTP/SCS would result in less than significant impacts related to the effects of construction of new treatment and distribution facilities in 2035.

**Conclusion**

In the year 2035, regional growth, but not transportation network improvements, would result in construction of expanded or new water treatment or distribution facilities, the construction of which could cause significant environmental effects. Therefore, this impact is significant.

**2050**

**Regional Growth/Land Use Change**

By 2050, the population of the region is forecast to increase by 1,160,435 people; housing by 379,664 units; and employment by 501,958 jobs over existing conditions. As shown in Figure 4.11-5, new growth and land use changes in 2050 per the 2050 RTP/SCS are apparent throughout the region. Areas of substantial land use change and development, beyond that described in 2035, would include significant industrial development in the County’s Otay planning area and San Diego Otay Mesa community surrounding the East Otay Mesa POE; throughout County planning areas located along the international border including Tecate, Potrero, Campo/Lake Morena, Boulevard, and Jacumba; throughout the Ramona and Julian planning areas in the unincorporated County; throughout other northeastern County planning areas including North Mountain, Desert, and Borrego Springs; and continued development throughout County planning areas located north and east of Escondido extending to the northern border with Riverside County including Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, Hidden Valley, Twin Oaks Valley, and North County Metro.

Increased population density from 2010 through 2050 can be seen when comparing Figures 4.13-1, and 4.13-10, respectively. Increased density is most apparent in City of San Diego communities near the downtown area near I-5 and I-805 and along the I-8 corridor to the east.
Urban centers in the western third of the San Diego region would have most available land developed with single- and multi-family uses, commercial and office uses, and industrial uses. Consistent with the goals of the 2050 RTP/SCS, the dense growth within existing urban centers with high accessibility to transit options allows for the creation of communities that are more sustainable, walkable, transit-oriented, and compact. Substantial dense growth within the urban centers corresponds with major transportation corridors such as I-5, I-8, I-15, and I-805 and these are also alignments that would have extensive transit opportunities.

Similar to the description in the 2035 analysis, growth would continue in more eastern locations of the region, such as east of I-15 in the northern area, east of SR 67 through the middle portion of the region, and east of SR 94 in the southern area. However, by 2050, spaced rural residential development would have expanded beyond areas along existing transportation corridors and established rural communities and into areas with very minimal development at present. As shown in Figure 4.11-5, some of these areas include northeast of Escondido to SR 76, areas east of Camp Pendleton, and areas north and south of the SR 78 corridor. Large pockets of land currently used for agricultural purposes would be developed with spaced rural residential uses (as discussed in Section 4.2).

As shown in Figure 4.11-5, by 2050, a substantial pocket of industrial development would be located along the planned SR 905 corridor in conjunction with the new Otay Mesa East POE at the international border with Mexico. This is a newly developing area that is planned for mainly industrial use and is highly dependent upon the planned construction of SR 11, SR 905, and the Otay Mesa East POE.

The BWD would experience growth under implementation of the 2050 RTP/SCS, thereby increasing the demand for potable water service. Under 2050 RTP/SCS implementation, more wells would need to be replaced as water levels drop. Under the County General Plan, additional residential units would be developed in the Borrego Valley, requiring additional groundwater per year, continuing to exacerbate the overdraft condition (County of San Diego 2010:2.16-53).

Construction of new or expanded water treatment and distribution facilities would result in short-term construction-related impacts to air quality, noise, traffic, and hydrology and other environmental issues. Construction-related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency, including adherence to existing regulations and best management practices. However, the timing, location, and detailed project-specific details are unknown and specific environmental effects of constructing new or expanded water treatment and distribution facilities cannot be determined at the Program EIR level of analysis. Therefore, this is a significant impact.

**Transportation Network Improvements**

By 2050, most of the highway, transit, and active transportation (bicycle and pedestrian) improvements, along with other infrastructure projects, would be in place and operational in accordance with the 2050 RTP/SCS. Some key highway improvements that would be in place by 2050 would include widening portions of SR 52, SR 56, SR 76, SR 94, SR 125, and I-5; additional HOV lanes and Managed Lanes along segments of I-8, I-805, I-5, I-15, SR 94, SR 125, and SR 54; and freeway and HOV connector improvements. Important transit improvements in place by 2050 would include the extension of Trolley lines and increased Trolley service frequency. The Trolley Green Line would be extended to Downtown-Bayside; a new line connecting San Diego State University to Downtown San Diego via El Cajon Boulevard/Mid-City would be constructed; and a line from University Town Center to H Street Trolley Station in the South Bay via Kearny Mesa, Mission Valley, Mid-City, and National City would be established.
Water demand associated with 2050 transportation network improvements would be higher than in 2035, and the availability of water treatment and distribution facilities to serve this water demand in 2050 is uncertain. The analysis of the need for new water treatment and distribution facilities in the above discussion of 2050 growth/land use changes also applies to transportation network improvements. Therefore, impacts associated with construction of new water treatment or distribution facilities in 2050 are considered significant.

Conclusion
In the year 2050, regional growth and transportation network improvements would both result in construction of expanded or new water treatment or distribution facilities, the construction of which could cause significant environmental effects. Therefore, this impact is significant.

4.17.5 MITIGATION MEASURES

The following mitigation measures aim to reduce significant impacts related to regional water supplies that may occur with implementation of the 2050 RTP/SCS. These mitigation measures are general and programmatic in nature, and would be refined in project-specific CEQA documents.

WS-1 AVAILABLE WATER SUPPLIES OR WATER TREATMENT FACILITIES

2020, 2035, 2050

Implementation of the 2050 RTP/SCS would result in significant impacts associated with the provision of regional water supplies and availability of water treatment facilities in 2035 and 2050, and localized significant impacts in 2020 in the Borrego Valley. Implementation of Mitigation Measures WS-A and WS-B would reduce impacts, though not to a less than significant level.

WS-A: Local governments can and should implement all feasible water conservation measures, including, but not limited to, those measures and policies regarding water efficiency, conservation, capture, and reuse identified by water suppliers and in local government general plans during the CEQA review process for individual development projects. For example, water conservation measures could include:

► Educating the public regarding water conservation, greywater use, and water storage and capture strategies.

► Requiring new construction and major renovations of all residential and nonresidential developments to meet the following standards:
  – Achieve a reduction of water use to be 40 percent less than baseline for buildings as calculated by the Energy Policy Act of 1992.
  – Reduce water consumption for outdoor landscape irrigation, consistent with the most recent local government policies.

► Comply with all prevailing state laws and local government regulations regarding indoor and outdoor water conservation and efficiency in new construction.
  – Installation of drought-tolerant landscaping, drip irrigation systems for landscaping where appropriate, and low-flow fixtures in bathrooms and kitchens.
Require efficient irrigation systems and encourage the use of native plant species and noninvasive drought-tolerant/low-water-use plants in landscaping.

Maximize stormwater filtration and/or infiltration in areas that are not subject to high groundwater by maximizing the natural drainage patterns and the retention of natural vegetation and other pervious surfaces.

Require development to minimize the use of directly connected impervious surfaces and to retain stormwater runoff caused from the development footprint at or near the site of generation.

WS-B: SANDAG shall and other implementing agencies can and should utilize reclaimed water (also known as recycled water) to the greatest extent feasible during design and construction of the projects implementing the 2050 RTP/SCS, to minimize potential impacts to the San Diego regional water supply. Recycled water can be used to fill lakes, ponds, and ornamental fountains; to irrigate parks, campgrounds, golf courses, freeway medians, community greenbelts, and school athletic fields; and to control dust at construction sites. Recycled water can also be used in certain industrial processes and for flushing toilets and urinals in nonresidential buildings. For example, local firms have dual-plumbed buildings to allow the use of recycled water for toilet and urinal flushing and for use in cooling towers. Recycled water could also be used for street sweeping purposes.

WS-2 NEW WATER TREATMENT OR DISTRIBUTION FACILITIES OR THE EXPANSION OF EXISTING FACILITIES

2020, 2035, 2050

WS-C: During the CEQA review process for individual facilities, San Diego region cities, the County of San Diego, and special districts with responsibility for the construction of new water treatment and collection facilities or the expansion of existing facilities to adequately meet forecasted capacity needs can and should apply necessary mitigation measures to reduce significant environmental impacts associated with the construction or expansion of such facilities. The environmental impacts associated with such construction or expansion should be avoided or reduced through the imposition of conditions required to be followed by those directly involved in the construction or expansion activities. Such conditions should include those necessary to avoid or reduce impacts associated with air quality, noise, traffic, biological resources, cultural resources, greenhouse gas emissions, hydrology and water quality, and others that apply to specific construction or expansion of water treatment and collection facilities projects.

Mitigation Found to Be Infeasible

To further reduce significant impacts associated with the provision of regional water supplies and availability of water treatment facilities, various possible additional mitigation measures were considered. As described below, these additional measures were found to be infeasible.

For both Impact WS-1 and Impact WS-2, measures could be taken to curtail growth in the San Diego region until water supplies and facilities are sufficient. As described in Section 4.11, Land Use, these additional measures have a number of disadvantages and were found to be infeasible. Please see the Section 4.11 for a detailed explanation of why they are infeasible.
Implement economic disincentives such as increased taxes, development fees, and similar types of economically based actions to slow growth of both regional population and employment. The resulting slower growth would serve to reduce the need for expanded or new water supplies and facilities.

This measure was considered infeasible because it would not achieve the 2050 RTP/SCS fundamental objectives. It would not achieve the objective to provide a transportation system that offers convenient travel options for people and goods, as well as reasonable travel costs, as increased taxes and other economic disincentives would elevate costs associated with travel such as increased gas prices or higher transit fees. This measure would also be in direct opposition of the project objection to provide a transportation system that supports improvement of the region’s standard of living as it would place an added economic burden on residents and businesses in the San Diego region in addition to the already difficult economic situation. It would have a negative impact on the economic prosperity and viability of the region as a center for regional distribution and the goods movement industry. Please see Section 4.11, Land Use, for additional information.

Implement a regional growth strategy that promotes very restrictive zoning policies and land use regulations intended to limit future residential and economic growth within the San Diego region. Limiting growth would serve to reduce the need for expanded or new water supplies and facilities.

Implementation of a highly restrictive regional growth strategy was considered infeasible because it would not achieve the 2050 RTP/SCS fundamental objectives. Consideration of this measure found that these types of restrictions on future residential growth could result in increased interregional commuting, higher housing costs, and reduced economic success. It would not achieve the objective to provide a transportation system that offers convenient travel options for people and goods, as well as reasonable travel costs as the need for increased interregional travel would not be convenient for San Diego residents and would increase their commute costs. This measure would not achieve the objective to provide a transportation system that supports improvement of the region’s standard of living as more residents would have to commute out of the region for employment and reduced economic success would negatively impact the overall standard of living. Increasing the need to commute out of the region would not achieve the objective to provide an environmentally sustainable transportation system as longer commutes require additional resources compared to short local commutes. As detailed in the discussion above and shown in Table 4.11-5, restricting and limiting growth as proposed by this measure would result in noncompliance with SB 375.

### 4.17.6 SIGNIFICANCE AFTER MITIGATION

**WS-1 AVAILABLE WATER SUPPLIES OR WATER TREATMENT FACILITIES**

Implementation of the 2050 RTP/SCS would result in significant impacts associated with existing water supplies and water treatment facilities that would be required to adequately meet forecast capacity needs in 2020 (localized impacts in Borrego Valley), 2035, and 2050. Implementation of Mitigation Measures WS-A and WS-B would reduce impacts associated with the availability of water supplies and the construction of water treatment facilities, but not to a less than significant level. Therefore, impacts would remain significant and unavoidable.
WS-2 NEW WATER TREATMENT OR DISTRIBUTION FACILITIES OR THE EXPANSION OF EXISTING FACILITIES

Implementation of the 2050 RTP/SCS would result in significant impacts from the construction of new water treatment facilities or the expansion of existing facilities that would be required to adequately meet forecasted capacity needs in 2020, 2035, and 2050. Implementation of Mitigation Measure WS-C would reduce impacts associated with the construction of water treatment facilities to a less than significant level through CEQA review of specific facilities, which would mitigate project-specific impacts to less than significant levels.