Section 2.8
Water Supply and Groundwater

This section describes the general water supply conditions of both potable water and groundwater in the County, pertinent regulations that govern water supply and groundwater, and the potential for impacts on water supply and groundwater (as related to supply) as a result of project implementation. Other topics related to utilities and service systems, such as new or expanded facilities, wastewater treatment, stormwater drainage, and solid waste are discussed in Chapter 3 as effects found not significant during the Initial Study. Hydrological conditions and surface and groundwater water quality are addressed in Section 2.5, *Hydrology and Water Quality*.

2.8.1 Existing Conditions

Available water supply resources and the organizations responsible for obtaining and conveying them vary across the County. The following discussion organizes these differing resources/ organizations by category: (1) those areas that are served by water districts that obtain imported water as their primary supply source, and (2) areas that mainly rely on groundwater, which are further broken down into areas served by groundwater-dependent water districts and areas served by private wells. Finally, this section identifies groundwater availability and quality issues that could have an effect on public health.

2.8.1.1 Imported Water Service Areas

Most of San Diego County's potable water supply is imported from sources such as the Colorado River and the Northern California Bay-Delta. More than 50 percent of the region's water comes from the Colorado River, and about 30 percent comes from the Bay-Delta. Local supplies, including surface, ground, recycled, and conserved water, currently meet about 20 percent of the region's water demand (SDCWA 2015a).

The Metropolitan Water District (MWD) manages and coordinates the delivery of imported water supplies from the Colorado River and Bay-Delta through the State Water Project within six southern California counties—Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego. Regional water authorities or districts, which are public agencies established under the County Water Authority Act (California State Water Code, Chapter 45, Section 2), acquire wholesale water from MWD. The San Diego County Water Authority (SDCWA) is a regional water authority that is one of MWD's 26 member agencies. SDCWA receives purchased water that is further distributed to 24 member water agencies serving San Diego County.

Fifteen water districts serve the unincorporated County, importing the majority of their water from SDCWA through MWD. The location and boundaries of the SDCWA member districts are shown on Figure 2.8-1. The following identifies the water districts.

- Fallbrook Public Utility District (FPUD)
- Helix Water District (HWD)
- Lakeside Water District (LWD)
- Ramona Municipal Water District (Ramona MWD)
- Rincon del Diablo Municipal Water District (RDDMWD)
- Santa Fe Irrigation District (SFID)

- Olivenhain Municipal Water District (OMWD)
- Otay Water District (OWD)
- Padre Dam Municipal Water District (PDMWD)
- Rainbow Municipal Water District (RMWD)
- Sweetwater Authority/South Bay Irrigation District (SA/SB)
- Vallecitos Water District (VWD)
- Valley Center Municipal Water District (VCMWD)
- Vista Irrigation District (VID)
- Yuima Municipal Water District (YMWD)

These districts import most, if not all, of their water supply from SDCWA and supplement any remaining demand with local supplies, including groundwater wells. The districts that obtain 30 percent or more of their water supply from local sources are SA/SB (30 percent), VID (30 percent), and YMWD (58 percent). All of the 15 water districts serving the unincorporated County have prepared Urban Water Management Plans (UWMPs) to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands.

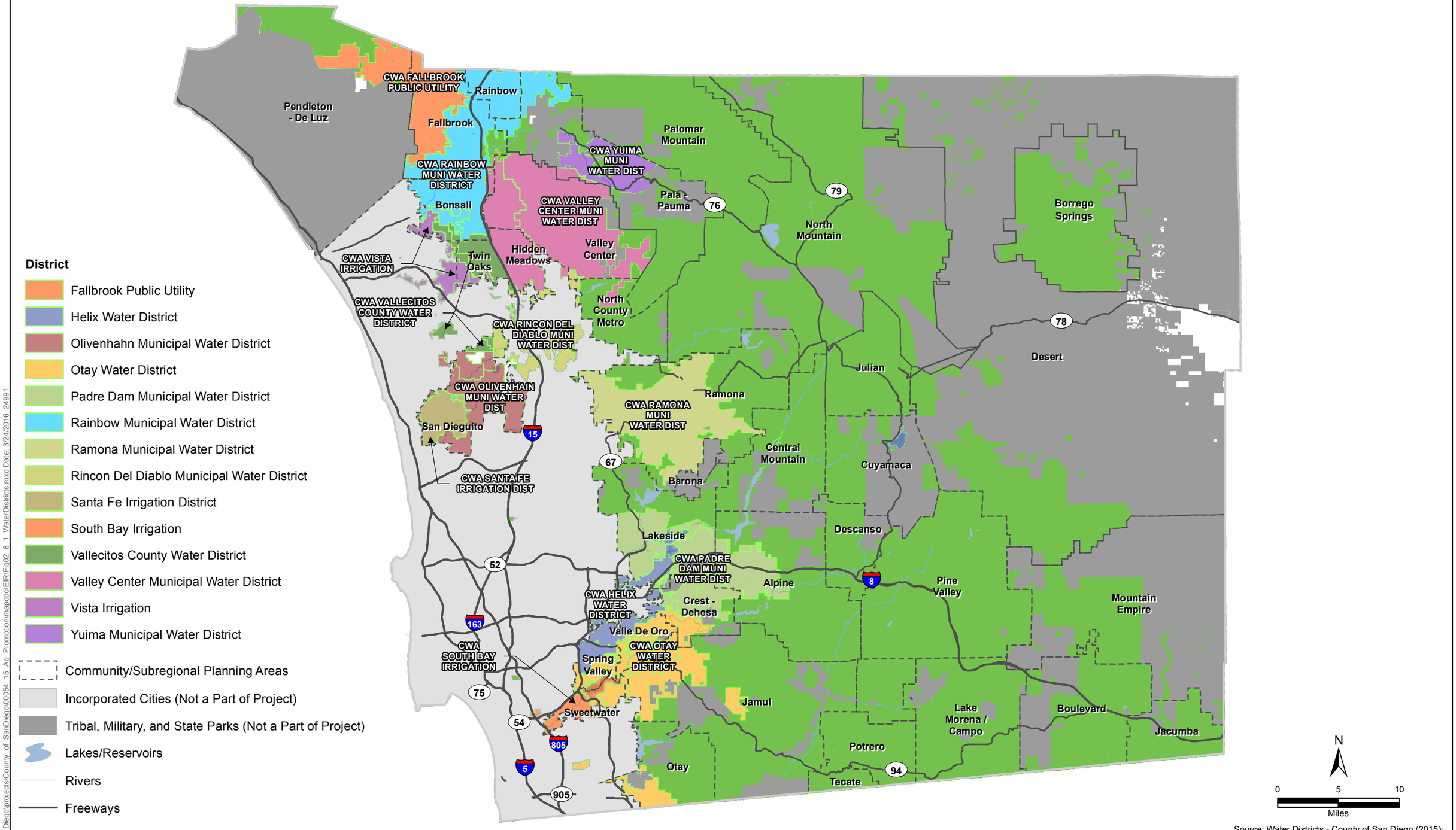
Urban Water Management Planning

The most current supply and demand projections for water districts are contained in their respective 2010 UWMPs. SDCWA member districts rely heavily on the UWMPs and Integrated Resources Plans (IRPs) of MWD and the Regional Water Facilities Master Plan of SDCWA for documentation of supplies available to meet projected demands (County of San Diego 2011).

In 2010, MWD adopted its current Regional UWMP. MWD's reliability assessment showed that MWD can maintain reliable water supplies to meet projected demand through 2035. MWD identified buffer supplies, including other State Water Project groundwater storage and transfers that could serve to supply additional water needs. MWD's IRP outlines a strategy to increase water supplies and lower demands.

SDCWA adopted its current UWMP in June 2011. SDCWA and its member agencies have made considerable progress in conserving and diversifying its supplies. SDCWA's UWMP documents existing and planned water supplies, including MWD supplies (imported Colorado River water and State Water Project water), SDCWA supplies (water transfer supplies, canal lining project water supplies, and seawater desalination supplies), and local member agency supplies (surface water reservoirs, water recycling, groundwater and groundwater recovery). SDCWA's 2010 UWMP reports that the San Diego region has conserved an average of over 15,141 acre-feet per year between 2005 and 2010. Part of this conservation came as a result of the implementation of several water conservation and transfer agreements, including the SDCWA/Imperial Irrigation District (IID) transfer agreement.

Based on SDCWA's water supply reliability assessment as contained in its current UWMP, SDCWA concludes that if the SDCWA and member agency water supplies are developed as planned, along with implementation of MWD's IRP, supplies will be adequate to serve existing and projected demands within SDCWA's service area under average, single-dry, or multiple-dry years through 2035. SDCWA's current UWMP discloses that SDCWA is at risk in the earlier years for water shortages because the Carlsbad Seawater Desalination project is not online and the IID transfer supplies have not yet fully ramped up to maximum deliveries. However, after the release of the



Source: Water Districts - County of San Diego (2015); Background Files - SanGIS (2015); BLM (2015).

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Figure 2.8-1
Water Districts
County of San Diego Agriculture Promotion Program

current UWMP, the Carlsbad Seawater Desalination project has been completed and is delivering water to the businesses and residents of San Diego County as of December 2015. After successfully completing construction, the plant has already produced more than 1.5 billion gallons of locally controlled water for San Diego County, helping to minimize the region's vulnerability to the statewide drought (Carlsbad Desalination Project 2015). The shortages projected in the UWMP for the later years are due primarily to increased water demand from regional growth. To alleviate this risk, SDCWA is pursuing development of carryover storage, and additional regional shortage management measures, consistent with the SDCWA's Water Shortage and Drought Response Plan, to fill the supply shortfall.

Urban water management planning continues to address changes in state and local conditions. Based on the 2015 guidelines, the 2015 updates to the UWMPs will likely address recent developments, including consecutive years of reduced precipitation and cutbacks in the regional imported water supply due to the severity of California's drought and applicable recent changes to the California Water Code since the 2010 UWMPs. All of the 15 individual member agencies serving the unincorporated County have completed 2010 UWMPs and are preparing 2015 updates.

In addition, UWMP projections for future water demands and water supplies are incorporated into a region-wide planning effort by the SDCWA. The 2013 Regional Water Facilities Optimization and Master Plan Update prepared by SDCWA presents both long-term options and recommendations to meet future water demands as well as the plan for implementing major capital improvements to meet demands through 2030. According to SDCWA, a combination of storage and new supplies would provide a reliable solution to alleviating risks during a dry period. Further discussion on drought conditions in the State of California is provided below.

Drought Conditions

Drought occurs as a result of lower than average annual rainfall for an extended period of time. Drought is measured by a series of hydrologic indicators, recorded data, and local climatic conditions. The severity of drought ranges from abnormally dry and moderate to severe, extreme, and exceptional. As of October 2015, most of San Diego County is categorized as having severe and extreme drought (U.S. Drought Monitor 2015). As a result of global climate change factors, drought patterns may change or intensify (see Section 2.1, *Air Quality and Greenhouse Gases*, for further discussion), and extended periods of low precipitation have an effect on local and state water supplies and storage levels.

California is currently experiencing a multi-year drought. As of November 30, 2015, statewide hydrologic conditions were as follows: precipitation, 80 percent of average to date; runoff, 35 percent of average to date; and reservoir storage, 50 percent of average for the date. Sacramento River unimpaired runoff observed through November 30, 2015, was about 0.6 million acre-feet, which is about 44 percent of average (DWR 2015a).

On April 1, 2015, Governor Edmund G. Brown, Jr. issued the fourth in a series of Executive Orders on actions necessary to address California's severe drought conditions, which directed the State Water Board to implement mandatory water reductions in urban areas to reduce potable urban water usage by 25 percent statewide. On May 5, 2015, the State Water Board adopted an emergency conservation regulation in accordance with the Governor's directive. The provisions of the emergency regulation went into effect on May 18, 2015.

However, the emergency regulation allows urban water suppliers to subtract water delivered for commercial agriculture from total potable water production if the supplier meets certain conditions. One of the conditions requires the supplier to certify in writing to the State Water Board that all water subtracted from total potable water production is being served for commercial agriculture use that meets the definition of Government Code Section 51201, Subdivision (b). Other conditions include preparation of agricultural water management plans and establishment of conservation standards. As of October 2015, certifications in San Diego County received by the State Water Boards include: Fallbrook Public Utility District, City of Oceanside, Olivenhain Municipal Water District, City of Poway, Rainbow Municipal Water District, Rancho California Water District, City of San Diego, San Dieguito Water District, Santa Fe Irrigation District, Vallecitos Water District, and Valley Center Water District (SWRCB 2015b).

Although weather conditions change and water resources have varied from year to year, the low rainfall over the past 4 years has reduced available water supplies and lowered groundwater levels. Calendar year 2014 was California's driest year in records dating to the 1800s, and water conditions 4 months into a new water year (October 1, 2014, through September 30, 2015) suggest the state's drought is pushing into its fourth consecutive year (DWR 2015d).

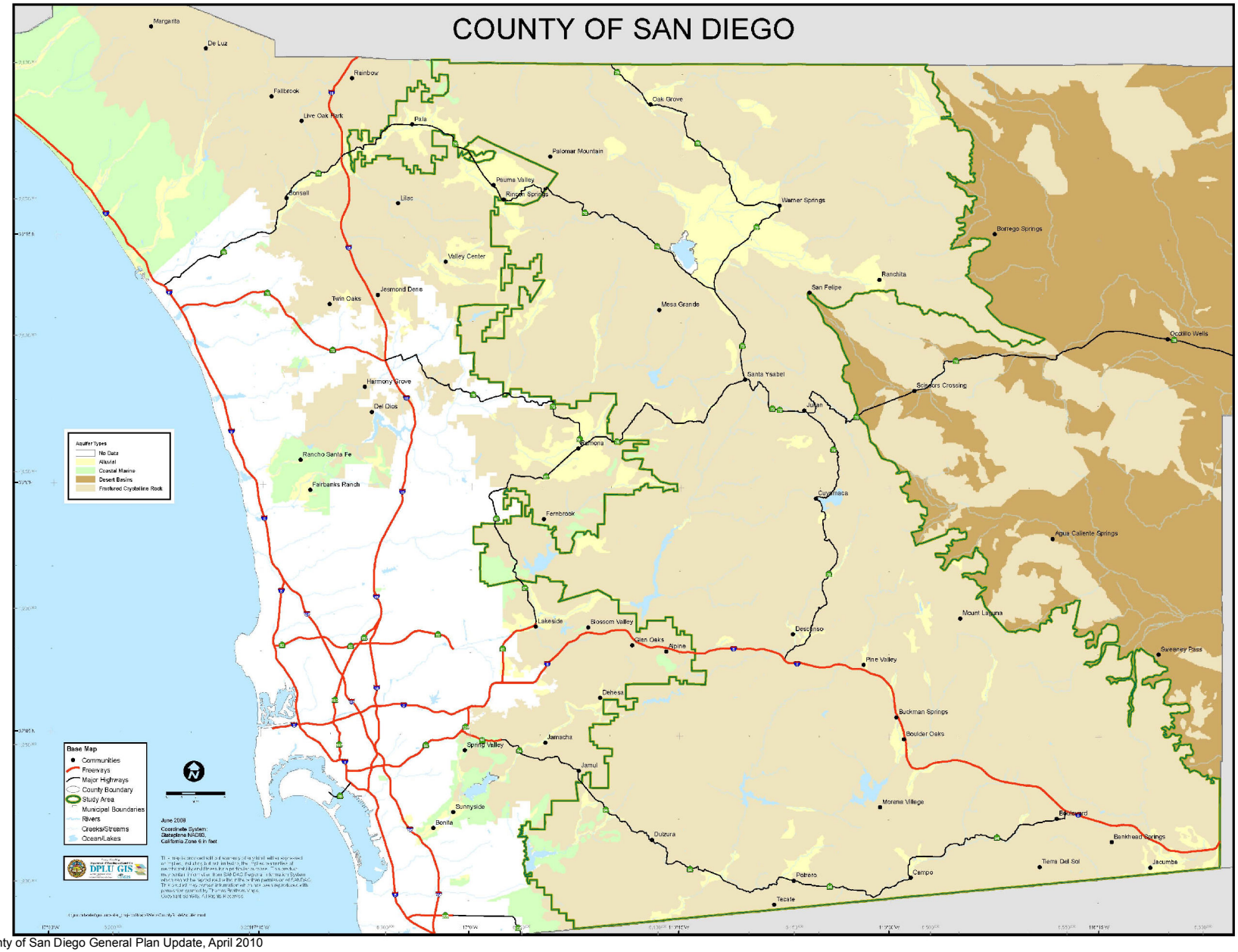
In July 2015, MWD cut water supplies to SDCWA and its other customers by 15 percent because of reduced deliveries from the State Water Project and shrinking storage reserves. Local investments in reliable water supplies such as the Carlsbad Desalination Project and independent water transfers from the Imperial Valley would allow SDCWA to offset almost all of the reduction in supplies from MWD in fiscal year 2016. SDCWA expects to have enough water supplies to meet about 99 percent of the typical demands by its member agencies for the year 2016 starting July 1. Nevertheless, SDCWA member agencies are under state orders to reduce water use by 12 to 36 percent regardless of available water supplies (SDCWA 2015b). If the projected MWD, SDCWA, and member agency supplies are developed as planned, no water shortages are anticipated within the SDCWA service area under normal water year, single dry water year, or multiple dry water year conditions through 2035 (SDCWA 2011). The 2015 UWMP updates will include a discussion of drought-response measures and strategies for mitigating potential supply shortages under a shortage contingency analysis. As such, changes in conditions including statewide drought are considered within regional and individual UWMP efforts.

2.8.1.2 Groundwater-Dependent Areas

The imported water delivered by MWD and distributed locally by SDCWA only serves a portion of the total unincorporated population. Geographically, the majority of the unincorporated area (65 percent) located roughly within and east of the Palomar and Cuyamaca mountains is reliant upon either separate groundwater-dependent districts or private wells that are unaffiliated with SDCWA. Regardless of the responsible provider, all of these areas are entirely reliant on groundwater and as such are subject to its availability. The following describes groundwater availability in the County, issues around its availability, and groundwater providers.

Groundwater Hydrology

San Diego County overlies a complex groundwater resource that varies greatly throughout the region. The County has three general categories of aquifers: alluvial and sedimentary, fractured rock, and desert basin aquifers. Figure 2.8-2 shows the distribution of these aquifer types throughout the



Source: County of San Diego General Plan Update, April 2010

Figure 2.8-2
Aquifer Types
County of San Diego Agriculture Promotion Program

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County. The characteristics of these aquifers are discussed below, as are current County groundwater hydrology issues.

Alluvial and Sedimentary

Alluvial and sedimentary aquifers account for approximately 13 percent of the unincorporated area of the County (County of San Diego 2011). Alluvial and sedimentary aquifers are typically found in river and stream valleys, around lagoons, near the coastline, and in the intermountain valleys. Sediments in these aquifers are composed of mostly consolidated (defined as sedimentary rock) or unconsolidated (defined as alluvium or colluvium) gravel, sand, silt, and clay. Because of the high hydraulic conductivity, porosity, and storage they are considered good aquifers. However, while alluvial and sedimentary aquifers usually have greater storage than fractured rock aquifers, they sometimes have low recharge rates because they are located in areas of the County that receive less precipitation. Many alluvial basins occur in low-lying areas of a watershed. Thus, surface water runoff accumulates in streams, lakes, or other surface depressions within alluvial basins and provides additional recharge sources. Wells in an alluvial or sedimentary aquifer typically yield relatively high volumes of water. Coarse-grained sediments such as sand or gravel typically produce higher volumes of water than finer-grained sediments such as silts or clays. In coarse-grained sediments, well yields may be hundreds of gallons per minute and limited by inefficiencies in the well itself, rather than by limitations in the aquifer's ability to produce water. Overall, alluvial and sedimentary aquifers are more reliable and desirable as a groundwater source than fractured rock aquifers. Accordingly, cropland overlying an alluvial or sedimentary aquifer receives a higher rating by the Local Agricultural Resource Assessment (LARA) model.

Fractured Rock

Fractured rock underlies approximately 73 percent of the unincorporated area of the County (County of San Diego 2011). Fractured rock aquifers are generally found within the foothills and mountains. Because these areas generally receive more precipitation than the lower elevations, the recharge rates are relatively high. However, the storage capacity of fractured rock aquifers is low; thus, pumping from wells can cause the water table to decline much more quickly than alluvial or sedimentary aquifers, and drought conditions also produce more dramatic effects. Wells drilled in a fractured rock aquifer typically yield relatively low volumes of water. In some instances, wells may derive water from only a few water-bearing fractures. Additionally, it is difficult to estimate potential production rates for any new wells drilled in fractured rock aquifers, and wells drilled close together may have significantly different water production rates. This is because water-producing fracture locations are difficult to identify and predict, and fractures intersected by one well may not be intersected by nearby wells. In short, if groundwater is the only available water source, a fractured rock aquifer is a less desirable source than alluvial and sedimentary aquifers. This is evidenced by the County's LARA Model for agricultural resources, which gives lower ratings to cropland that utilizes groundwater from a fractured rock aquifer.

Desert Basins

Desert basins account for approximately 14 percent of the unincorporated area of the County (County of San Diego 2011). Desert basins are found in the extreme eastern area of the County. In general, desert basin aquifers are characterized by extremely limited groundwater recharge but typically have large storage capacities. Desert basin aquifers within the County are composed of unconsolidated sediments that typically have storage capacities ranging from 5 to 30 percent of the

total aquifer volume. The storage of an individual basin is a function of the size of the basin, depth of the saturated sediments, and the type of sediments comprising the basin. Precipitation in this area is typically only a few inches per year in the valley of the basins. Runoff and stream flow from the highlands typically recharge along the margins of the basins. Desert basin aquifers are generally characterized by extremely limited recharge and large storage capacities. The LARA model gives lower ratings to cropland that utilizes groundwater from a desert basin. Desert basins aquifers are the least desirable sources of groundwater.

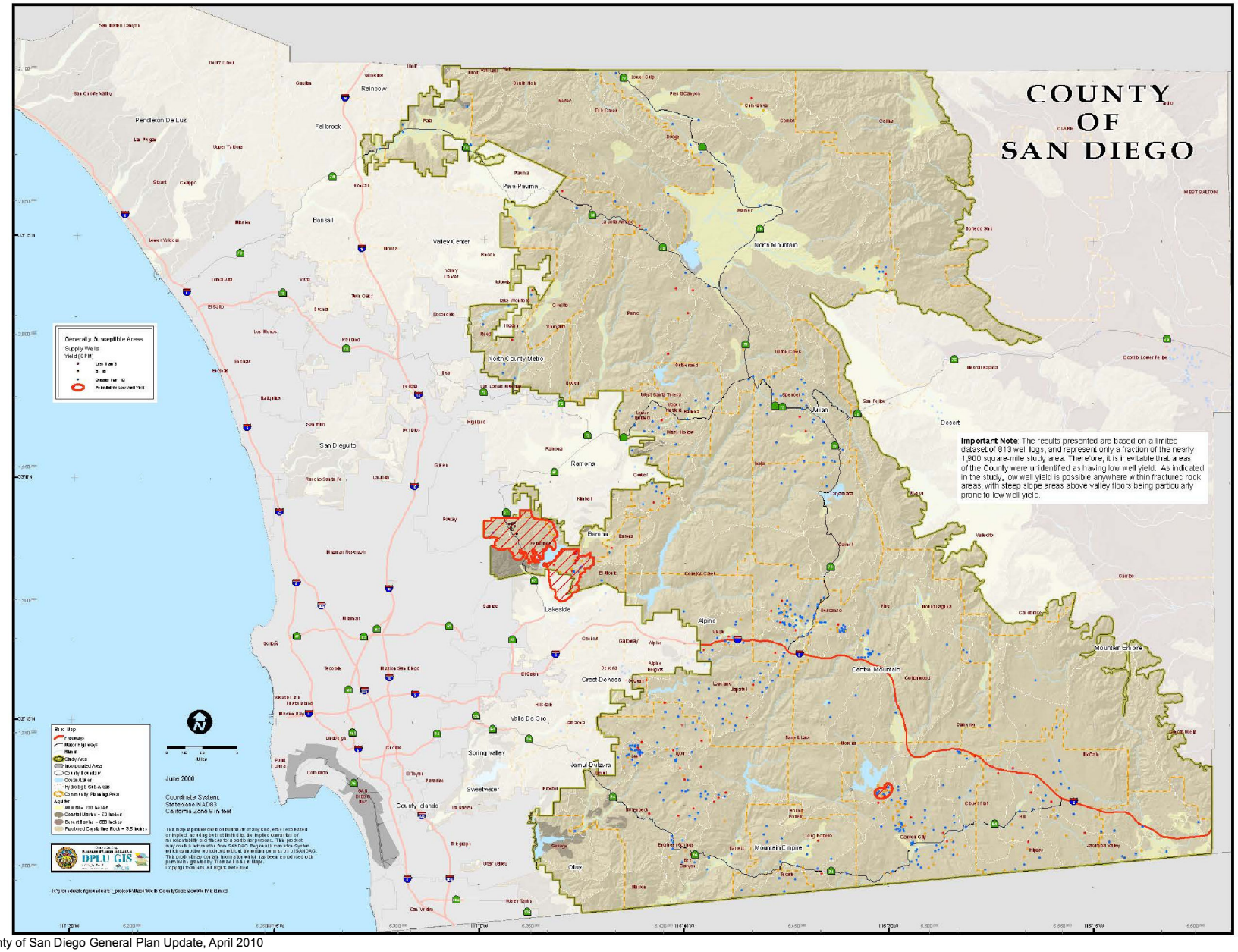
Groundwater Availability Issues

Aquifers with limited groundwater in storage (e.g., fractured rock aquifers) and/or limited groundwater recharge (e.g., desert areas) may experience shortages from large groundwater users, such as water companies or districts, agriculture, or other large operations. Areas with large quantity groundwater uses underlain by fractured rock aquifers with little to no residuum are particularly susceptible to localized groundwater problems. In 1991, the County adopted the San Diego County Groundwater Ordinance, which contains residential density controls with minimum parcel sizes based on mean annual precipitation. Areas that were developed prior to the implementation of the Groundwater Ordinance may have been developed at densities higher than would be currently allowed, which in some cases has led to localized groundwater problems. Areas where projects are not subject to County regulations, such as the Barona golf course and casino on the Barona reservation, may also result in development that is not supplied with adequate groundwater resources. In all of these cases, it is possible that groundwater shortages occur because the groundwater demand in these areas could exceed the natural recharge of the aquifers, especially in drought years. The following summarizes the existing groundwater hydrology issues facing the groundwater-dependent portion of the unincorporated County, by examining three categories: well yield, large quantity/clustered groundwater users, and Borrego Valley.

Well Yield

Areas within the unincorporated County with the potential for low well yield are shown in Figure 2.8-3. There are a number of factors that determine the long-term yield for a well in fractured rock aquifers, including the number of fractures intersected, aperture (fracture opening sizes), spacing, orientation, and interconnectivity of fractures, the amount of recharge, the amount of groundwater in storage in the surrounding aquifer, other nearby groundwater extraction, and the installation techniques for a well. Additionally, while low well yields are possible anywhere within fractured rock aquifer areas, steep slope areas above the valley floor are particularly prone to having lower well yield. This is largely due to storage values in steep slope areas often being substantially lower than valley areas, and having a smaller tributary watershed than wells located in valley areas. The County of San Diego's General Plan Update, Appendix D: Groundwater Study (County of San Diego 2011) reports that the median well yield in fractured rock aquifers was approximately 15 gallons per minute (gpm). However, actual data varied substantially. For example, in 86 wells (approximately 11 percent of wells reviewed), well yield was reported as less than 3 gpm. These wells may struggle to meet the demands of a single-family residence. Several wells also reported a well yield greater than 100 gpm.

Wells in an alluvial or sedimentary aquifer typically yield relatively high volumes of water. Coarse-grained sediments such as sand or gravel typically produce higher volumes of water than finer-grained sediments such as silts or clays. In coarse-grained sediments, well yields may be hundreds of gallons per minute and be limited by inefficiencies in the well itself, rather than by limitations in



Source: County of San Diego General Plan Update, April 2010

Figure 2.8-3
Areas of Low Well Yield
County of San Diego Agriculture Promotion Program

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the aquifer's ability to produce water. The groundwater study (DPLU 2009f) reported that the median well yield for alluvial and sedimentary aquifers was approximately 36 gpm. The highest well yields were reported in Warner Valley, Jacumba Valley, and the Pala-Pauma Valley Subregion. Several wells averaged greater than 500 gpm and one well in Warner Valley reported averaging 1,500 gpm.

Desert basin wells typically yield relatively high volumes of water due to the coarse-grained nature of the alluvial sediments. Because desert basin wells may be capable of yields in excess of 1,000 gpm, and recharge rates can be extremely low, it is easy to pump more water from the basin than will be naturally recharged. Excessive pumping that exceeds the rate of recharge results in a groundwater overdraft situation, which is not sustainable for long-term groundwater use. Such a condition currently exists in the Borrego Valley area of the unincorporated County.

The groundwater study (DPLU 2009f) reported that all steep slope areas in the backcountry have the potential for low well yield, which could result in a rapid decline of the water table and groundwater availability. This is largely due to storage values in steep slope areas often being substantially lower than valley areas, and having a smaller tributary watershed than wells located in valley areas. Ramona Trails Drive in the Ramona Community Planning Area (CPA) is a good example of a steep slope area with low yielding wells. In addition, the groundwater study identified three specific areas in Lakeside (Old Barona Road, State Route 67, and Wildcat Canyon Road) and Morena Village as having a high frequency of wells with low well yield. Well networks in Lakeside have examples of wells with extreme variations of water levels, with declines of 500 feet recorded and recovery of the water table by as much as 450 feet in a single wet season. Periodic trucking of imported water may be needed in these areas to meet the needs of a typical single-family residence.

Large Quantity/Clustered Groundwater Users

Because production wells for residential and agricultural water uses are not metered or regulated for water quantity by the County, future localized groundwater problems are possible anywhere in the County from large quantity groundwater users. In addition, areas that were developed prior to the implementation of the Groundwater Ordinance (Section 2.8.2.3, *Local Regulations*) may have been developed at densities higher than would be currently allowed. This has resulted in the clustering of groundwater demand from dense development, making these areas susceptible to localized groundwater problems. Areas of potential impact from large quantity and clustered groundwater users are shown on Figure 2.8-4.

Private residential users of groundwater are estimated to have a consumptive use of approximately 0.5 acre-feet per year per residence. However, there have been isolated reports of single-family homes that use far greater quantities. Additionally, due to the low storage capacity of fractured rock aquifers, excessive use of groundwater by a single user in a fractured rock aquifer can cause localized impacts for neighboring properties.

In addition, several unincorporated communities and areas were developed with lot sizes smaller than 4 acres, which has resulted in clustering of groundwater users in these areas. These areas are also potentially susceptible to localized groundwater problems, especially if underlain by fractured rock aquifers with little to no residuum or alluvium. As shown on Figure 2.8-4, the following areas have been identified as having the highest potential for localized groundwater problems (especially during extended drought periods) from the existing pumpage of large amounts of groundwater relative to what the given aquifer can support: Ballena Valley (Ramona CPA), Guatay (Central

Mountain Subregion), Julian Town Center (Julian CPA), and Morena Village (Mountain Empire Subregion).

Borrego Valley (Desert Subregion)

Borrego Valley is located in the northeast portion of the unincorporated County and is a groundwater-dependent basin without an imported water supply. The Borrego Valley Basin holds a large amount of groundwater in storage, estimated to be approximately 1.6 million acre-feet of useable groundwater. The basin is characterized by limited recharge due to an annual rainfall of approximately 6 inches. Groundwater recharge for the Borrego Valley is estimated to average approximately 5,000 acre-feet per year. Groundwater demand in the Valley is in excess of 20,000 acre-feet per year.

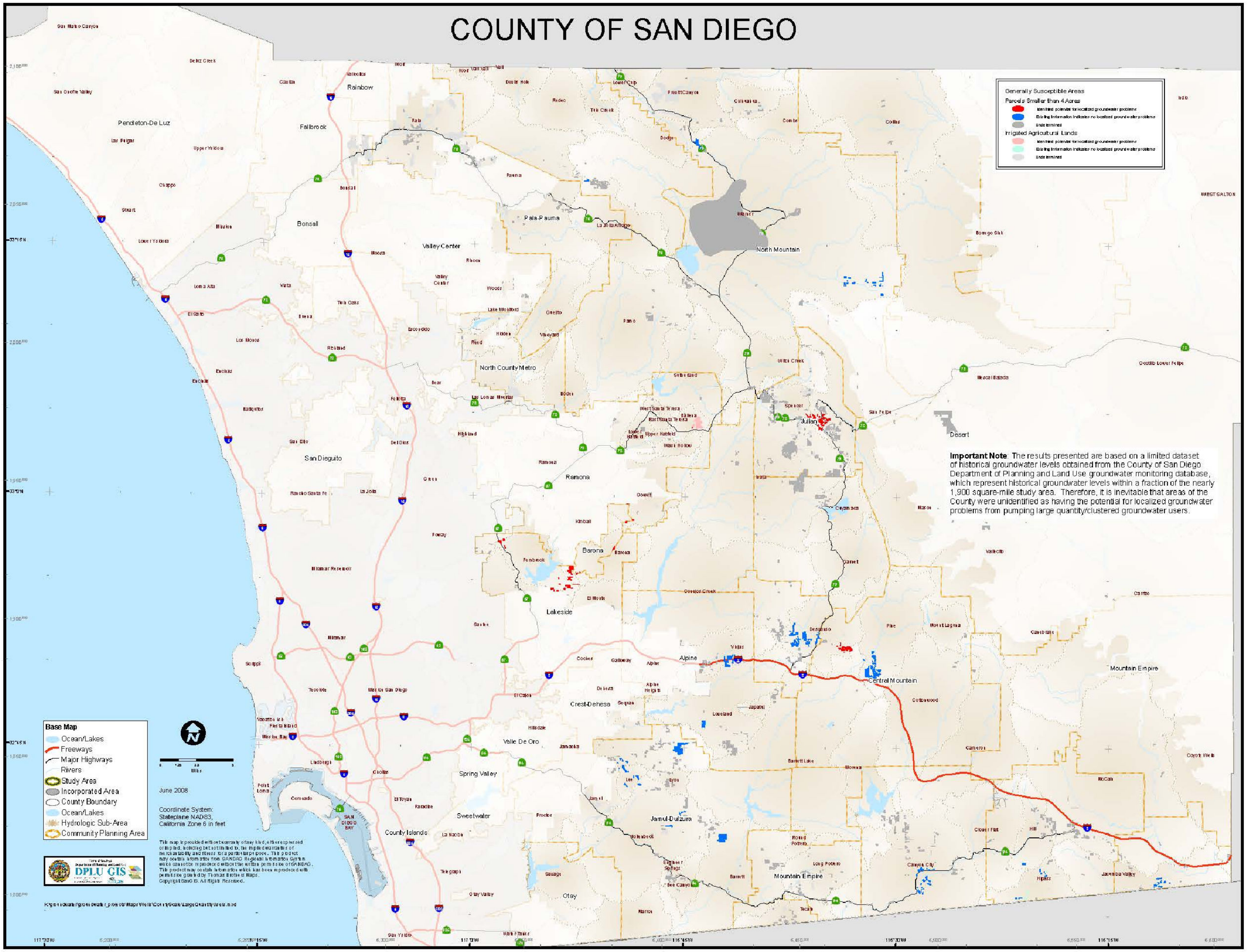
Groundwater demand has increased over the past 20 years due to water uses from over 4,000 acres of agricultural land, golf courses, and residential areas. This high groundwater demand has resulted in an overdraft condition where groundwater extraction exceeds long-term groundwater recharge. Water levels have been declining in the basin for decades as a result of the overdraft condition. Over 500,000 acre-feet of groundwater has been removed from the aquifer over the past 50 years, and groundwater production at current rates is not sustainable.

Water level declines in Borrego Valley are most significant in the agricultural area in the northern portion of the basin, which has experienced over 50 feet of water level decline since the County began collecting water level data in the 1980s. Groundwater has been and is continuing to be extracted at rates that exceed recharge, which has caused an apparent long-term overdraft condition, also known as *groundwater mining*. In the past 20 years, rates of decline have increased sharply, likely in response to new development and additional groundwater extraction.

The U.S. Geologic Survey (USGS) recently concluded a groundwater study of Borrego Valley (USGS 2015b) to refine the 1980s USGS groundwater flow model, taking advantage of contemporary flow modeling tools. The updated model was used as a predictive tool to estimate the amount of time left before the groundwater table drops below the pump intake in production wells currently being used in Borrego Valley. The study concluded that continuation of current (2010) annual pumpage would result in total depletion in groundwater storage of about 1,000,000 acre-feet by 2060. Results of the updated model simulations indicate that simulated groundwater pumpage exceeded recharge in most years, resulting in an estimated cumulative depletion in groundwater storage of about 440,000 acre-feet. Groundwater pumping resulted in simulated groundwater levels declining by more than 150 feet relative to 1945 conditions in pumping areas. In turn, the decline in groundwater levels has resulted in the decrease in natural discharge from the basin.

Groundwater Quality Issues

Quality issues in groundwater may relate to the amount of potable supply available for use. Groundwater obtained from San Diego County aquifers has traditionally been very high quality. However, naturally occurring and, more recently, human-made sources of contamination have caused the quality of groundwater to be adversely affected in localized areas. The most common human-made sources of groundwater contamination are leaking underground fuel tanks, sewer and septic systems, agricultural applications, and facilities producing animal wastes. The most common contaminants in groundwater within the County are elevated nitrate, naturally occurring radionuclides, total dissolved solids (TDS), and bacteria (County of San Diego 2011). Groundwater contaminants of concern that may result from agricultural operations may include herbicides,



Source: County of San Diego General Plan Update, April 2010

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Figure 2.8-4
Large Quantity/Clustered Groundwater Uses
County of San Diego Agriculture Promotion Program

pesticides and other complex organics, petroleum products including methyl tertiary butyl ether and volatile organic compounds, and metals. The common contaminants and how they relate to groundwater in the County are described below.

Nitrate

Nitrate impacts in the County are most common from small parcels and/or areas of shallow groundwater on septic systems or excess nitrate used in agricultural applications and feed lots. Potential nitrate problem areas include portions of the following communities: Alpine along Route 8, Cameron Corners in Campo, Crest, Escondido, Jamul, Morena Village, Rainbow, Ramona, San Marcos, and Valley Center (County of San Diego 2011). Other regional areas of potential concern within the project area are clustered residences located on parcels less than 4 acres. If the clustered residences are on individual septic systems, the smaller parcel sizes could result in localized nitrate impacts. Areas of historic intensive agricultural activities could also have localized nitrate impacts.

Radionuclides

Naturally occurring radionuclides (atoms with unstable nuclei and which may emit gamma rays or subatomic particles during the process of decay) are present to some extent in nearly all rocks and soil throughout the world and leach into groundwater from natural mineral deposits. Potential radionuclide problem areas in the unincorporated areas of the County include portions of the following communities: Campo/Lake Morena, Cuyamaca/Julian, Guatay, Jamul/Dulzura, Lake Wohlford, Potrero, Ramona (east), Route 79 (Dodge Valley) near the Riverside County border, and Warner Springs (County of San Diego 2011).

Total Dissolved Solids and Coliform Bacteria

TDS originate naturally from the dissolution of rocks and minerals, and also can result from septic systems, agricultural runoff, and stormwater runoff. Elevated bacteria levels in groundwater occur primarily from human and animal wastes. Old wells with large openings and wells with inadequate seals are most susceptible to bacteriological contamination from insects, rodents, or animals entering the wells. Neither TDS nor coliform bacteria is thought to occur over large areas of the project area at levels exceeding their respective maximum contaminant levels (MCLs). However, localized impacts from these constituents are possible.

Groundwater-Dependent Water Districts

The 14 groundwater-dependent water districts listed below serve the unincorporated areas of San Diego County without the ability to receive imported water directly from SDCWA.

- Borrego Springs Park Community Service District (BSPCSD)
- Borrego Water District (BWD)
- Campo Water and Sewer Maintenance District (CWSMD)
- Canebrake County Water District (CCWD)
- Cuyamaca Water District (CWD)
- Julian Community Services District (Julian CSD)
- Majestic Pines Community Services District (MPCSD)
- Mootamai Municipal Water District (MMWD)
- Pauma Municipal Water District (PMWD)
- Questhaven Municipal Water District (QMWD)

- Descanso Community Services District (DCSD)
- Jacumba Community Services District (JCSD)
- San Luis Rey Municipal Water District (SLRMWD)
- Wynola Water District (WWD)

Each of these districts relies on groundwater as the only source for their water supply. They are not required to produce UWMPs because they either do not serve over 3,000 customers or do not distribute over 3,000 acre-feet of water annually. However, they are public agencies with oversight by elected Boards and the State of California. These districts cover just a small fraction of the groundwater-dependent total area.

Groundwater-Dependent Users

Groundwater-dependent properties, if not served by a water district such as those listed above, are either served by onsite private wells or by groundwater provided by a small or community water system such as a small water company.

Private wells are generally not regulated for the quantity of the water they pump. Property owners that rely on their own wells for their residences, agriculture, and in some cases commercial uses are responsible for ensuring adequate water supply and appropriate water quality.

Small and community water systems with up to 199 service connections are regulated by the County of San Diego County Department of Environmental Health (DEH), Land Use Program. As of 2008, there were 174 small water systems regulated and monitored by DEH to ensure compliance with the California Safe Drinking Water Act for supplying potable water. There are a number of water uses (with widely ranging water demand) associated with these water systems including campgrounds, resorts, retreat centers, schools, residences, restaurants, and parks.

Water systems with 200 or more service connections are regulated by the California Department of Public Health Division of Drinking Water & Environmental Management. Within the San Diego region, this department regulates three companies with 200 connections or more at the state level: the Pine Hills, Pine Valley, and Rancho-Pauma Mutual Water Companies. The majority of these are state-regulated systems that purvey groundwater to residential users.

2.8.1.3 Agricultural Water Use

In 1998, DWR conducted a detailed survey of irrigated agricultural land in the County, which included review of aerial photography and extensive field visits to collect site-specific data. These data represent the most detailed information available at a countywide scale to estimate water demand from agricultural uses. General agricultural use categories include grazing and dry land farming, irrigation of pasture lands and alfalfa, orchards and vineyards (citrus, avocados, apples, grapes, etc.), and truck crops (seasonally planted crops such as lettuce or tomatoes). Some of the main water intensive agricultural production areas are within Pala/Pauma (citrus, avocados, nursery crops, and cut flowers), Julian (apples), Jamul (citrus and avocados), east of Ramona (ranches/egg ranch), and Borrego Valley (citrus and palms).

Water use for plants varies depending on weather factors such as air temperature, relative humidity, wind speed, and solar radiation; soil factors such as soil texture, structure, density, and chemistry; and plant factors such as plant type, root depth, foliar density, height, and stage of growth. Water

demand can range from less than 1 acre-feet of water per acre per year for dry land farmed areas to over 4 acre-feet of water per acre per year for irrigated alfalfa and other water-intensive plant types (County of San Diego 2011). In comparison, it is conservatively estimated that an average residence has a consumptive use of approximately 0.5 acre-feet of groundwater per year per single-family residence.

A large percentage of the County's agricultural land is involved in the active production of citrus and avocado crops, because they are suited to growing on the steep slopes that are so common in the County. Soil texture and capacity of soil to hold water, slope and soil erosion potential, drainage potential, or high water table are all factors that would affect the water use at individual operations.

An important factor in any agricultural operation within the County of San Diego is cost due to reliance on imported water. Limited water supply, conservation incentives, importation costs, and energy costs are reasons for high water costs. To illustrate and compare water costs in the County of San Diego with nearby farming counties, the cost for imported water is $20 per acre foot in Imperial County and $379 per acre foot in Ventura County, compared to $594 per acre foot in the County of San Diego. In addition, while most farmers in the County face high water costs, others are faced with a limited supply.

In areas such as Borrego Springs and Julian, farmers rely entirely on groundwater sources to irrigate crops. Water scarcity is a continuous problem for farmers in Borrego Springs given the arid climate of the region and its location outside the boundary of the SDCWA. Also, importantly, groundwater in the Borrego Springs area is subject to an annual decline where recharge does not replace extraction.

The MWD UWMP notes a significant decline in agricultural water use in recent years within its service area. This decline was due to mandatory supply allocations that resulted from drought conditions and judicial restrictions on State Water Project supply availability. Starting in year 2008, member agency customers that were voluntarily receiving discounted agricultural water, were required to implement a 30 percent cutback in agricultural demand from their fiscal year 2007 baseline. To comply with the mandatory cutback, growers implemented various actions such as tree stumping and plant stock reduction. As a result, program agricultural demand declined by 55 percent between the fiscal years of 2007 and 2010 (SDCWA 2011).

2.8.2 Regulatory Setting

Water supply and groundwater are subject to regulatory oversight at three levels: federal, state, and local.

2.8.2.1 Federal Regulations

Safe Drinking Water Act

Passed in 1974 and amended in 1986 and 1996, the Safe Drinking Water Act (SDWA) gives the federal Environmental Protection Agency (EPA) the authority to set drinking water standards. Drinking water standards apply to public water systems that 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 and the National Secondary Drinking Water Regulations. Primary regulations are legally enforceable standards that apply to public water systems, and 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. Secondary regulations are recommendations to give public water systems guidance on removing contaminants to levels that are below noticeable levels, and are not legally enforceable. Secondary contaminants are not health threats and can be grouped into three categories: aesthetic, cosmetic, and technical effects. Aesthetic effects are undesirable tastes or odors. Cosmetic effects do not damage the body but are still undesirable. Technical effects may damage water equipment or reduce effectiveness of treatment for other contaminants (EPA 2016).

2.8.2.2 State Regulations

California Environmental Quality Act and Case Law

CEQA requires an EIR to discuss whether a project's projected demand for water is anticipated to exceed existing and planned supplies. Regarding this topic, the ultimate question under CEQA is not whether an EIR identifies a likely source of water, but whether it adequately addresses the reasonably foreseeable impacts of supplying water to the project. The EIR must also disclose whether there is insufficient water to serve the projected level of development. The California Supreme Court stated in *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal. 4th 412 that an adequate water supply analysis should contain the following elements.

- An identification of the water sources needed for full buildout.
- An assessment of the environmental impacts associated with providing water for the project.
- Where there are both short-term and long-term supplies needed, an analysis of long-term supplies and their impacts in at least a programmatic level of detail.
- An assessment of the extent to which identified water sources are "certain" or "likely" to be available.
- When "some uncertainty" exists with respect to the availability of such supplies, the identification of possible alternative water sources and analysis of the environmental impacts of curtailing planned development due to inadequate supplies.

State Maximum Contaminant Levels

As part of the California Safe Drinking Water Act, the State Department of Health Services (DHS) sets primary and secondary standards for drinking water supplies. MCLs set by DHS are either as stringent or more stringent than federal MCLs.

Senate Bill x7-7 (Chapter 4, Statutes of 2009)

Senate Bill (SB) x7-7, the Water Conservation Act of 2009, requires the state to achieve a 20 percent reduction in urban per capita water use by December 31, 2020. The responsibility for this conservation falls to local water agencies, which must increase water use efficiency through promotion of water conservation standards that are consistent with the California Urban Water Conservation Council's best management practices. Each urban retail water supplier was also required to develop urban water use targets and an interim urban water use target by July 1, 2011, based on the alternative methods set out in the 2009 act. The agencies must meet those targets by the 2020 deadline.

The SDCWA is subject to the requirement of SB x7-7 and has addressed their water use targets in their latest UWMP.

Sustainable Groundwater Management Act

On September 16, 2014, Governor Edmund G. Brown, Jr. signed historic legislation to strengthen local management and monitoring of groundwater basins most critical to the state's water needs. The three bills—SB 1168 (Pavley), SB 1319 (Pavley), and Assembly Bill (AB) 1739 (Dickinson)—together comprise the Sustainable Groundwater Management Act. The bills would establish phased requirements for high- and medium-priority basins to adopt groundwater sustainability plans, depending on whether or not a basin is in critical overdraft. The act would require adoption of groundwater sustainability plans by January 31, 2020, for all high or medium-priority basins in overdraft condition and by January 31, 2022, for all other high- and medium-priority basins unless legally adjudicated or otherwise managed sustainably.

These bills affect groundwater extractors in high- or medium-priority basins and put requirements on local public agencies with water supply, water management, or land use responsibilities to form Groundwater Sustainability Agencies responsible for sustainably managing groundwater in their respective basin. Within the San Diego region, there are four non-adjudicated, medium-priority groundwater basins subject to this act: San Pasqual Valley, San Diego River Valley, Borrego Valley, and San Luis Rey Valley. There are no high-priority groundwater basins in the region. It should be noted that the SDCWA does not own or operate groundwater facilities within San Diego County.

Water Code (State)

Section 10900 et seq. of the Water Code outlines the Agricultural Water Suppliers Efficient Water Management Practices. The intent is to provide assistance and technical consultation to address additional efficiency in agricultural water use. Key provisions include the authorization of public agencies that supply agricultural water to initiate water conservation and efficiency programs. DWR is also authorized to establish the Agricultural Water Management Council and to evaluate potential water efficient practices.

Section 10910 et seq. requires that the water purveyor of a public water system prepare a water supply assessment to be included in the environmental documentation for certain projects subject to CEQA, as specified in Water Code Section 10912. These projects include, among others, those that would demand an amount of water equivalent to, or greater than, that of a commercial project employing more than 1,000 persons or having more than 250,000 square feet of floor space, and a residential project with 500 dwelling units. A water supply assessment would also be required for a project that would increase the number of connections by 10 percent for a public water system that has fewer than 5,000 service connections (Water Code Section 10912(b)). Where large-scale projects are proposed, proof of a sufficient supply of water is based on a written verification from the applicable water service provider.

Urban Water Management Planning Act

The state Urban Water Management Planning Act requires water utilities that provide water to more than 3,000 customers or supply more than 3,000 acre-feet per year to prepare and update an UWMP every 5 years (Water Code Sections 10610–10656). These plans are prepared according to guidelines released by DWR. A UWMP is required in order for a water supplier to be eligible for DWR-administered state grants, loans, and drought assistance. A UWMP provides useful information

on water demand, water supply, recycled water, water quality, reliability planning, demand management measures, best management practices, and water shortage contingency planning. The UWMP Act requires preparation of a UWMP that yields the following.

1. Accomplishes water supply planning over a 20-year period in 5-year increments.
2. Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry and multiple-dry years.
3. Implements conservation and efficient use of urban water supplies.

Agencies preparing a UWMP are required to include an urban water contingency analysis. The Department of Water Resources also offers guidance on this analysis (State of California 2008, 2015). Some of the components of the contingency analysis include the following.

- Stages of action an agency will take in response to water shortages, including achievable levels for voluntary and mandatory rationing during water supply shortages to help control consumption.
- An estimate of supply for 3 consecutive dry years (quantify the minimum water supply available during the next 3 years based on the driest 3-year historic sequence for the water supply).
- A description of how an agency will monitor and document water cutbacks.

DWR's Office of Water Use Efficiency and Transfers also published a guidebook for local agencies to be better prepared for drought conditions. In this guidebook, it was reported that educational efforts and rationing policies established in water shortage contingency plans can affect water use patterns during dry years (State of California 2008).

The UWMP process ensures that water supplies are being planned to meet future growth. UWMPs are developed to manage the uncertainties and variability of multiple supply sources and demands over the long term through preferred water resources strategy adoption and resource development target approvals for implementation. Water districts update their demand forecasts and supply needs based on the most recent San Diego Association of Government (SANDAG) forecast approximately every 5 years to coincide with preparation of their UWMPs.

Porter-Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act provides for statewide coordination of water quality regulations. The California State Water Resources Control Board was established as the statewide authority, and nine separate Regional Water Quality Control Boards were developed to oversee water quality on a day-to-day basis, which affects regional water supply and groundwater.

2.8.2.3 Local Regulations

Water Shortage and Drought Response Plan

The SDCWA and its member agencies developed and approved the *Drought Management Plan* in May 2006. This document was later renamed the *Water Shortage and Drought Response Plan* and was updated in April 2012 with the replacement of Section 5 – Supply Allocation Methodology. The primary purpose of the document is to provide SDCWA and its member agencies with a series of potential actions to take when faced with a shortage of imported water supplies from MWD due to drought conditions. The actions will help the region minimize the impacts of shortages and ensure

an equitable allocation of supplies. Different from a treated water shortage allocation plan, the DMP focuses on issues associated with shortages due to supply cutbacks, not shortages due to facility constraints.

San Diego County Groundwater Ordinance

The County of San Diego currently manages anticipated future groundwater demand through County Code Section 67.701 et seq. (Groundwater Ordinance). This ordinance does not limit the number of wells or the amount of groundwater extraction from existing landowners. However, it does identify specific measures to mitigate potential groundwater impacts of projects requiring specified discretionary permits. Existing land uses are not subject to the Groundwater Ordinance unless a listed discretionary permit is required. Additionally, Major Use Permits or Major Use Permit Modifications that involve construction of agricultural and ranch support facilities or those involving new or expanded agricultural land uses are among the exemptions from the Groundwater Ordinance. However, the agricultural exemptions do not supersede or limit the application of any law or regulation, including CEQA.

County Code of Regulations related to Groundwater Well Water Quality

Section 67.401 of the County Code of Regulations provides restrictions and regulations for wells. The standards in the code apply to the construction and maintenance of wells to ensure that groundwater will not be polluted or contaminated. Private drinking water wells require a permit from County DEH. As part of this process, new wells are sampled for bacteriological constituents and nitrate.

For projects with poor groundwater quality, two mitigation measures have been identified by the County in addition to importing water to the project site. The first states that for projects where any constituent exceeds its primary MCL and a discretionary permit requires a potable groundwater supply, mitigation could be implemented by providing a water treatment system that reduces impacts to below the MCL. To ensure proper water treatment in accordance with the California Safe Drinking Water Act, the County requires discretionary permits that require treatment to form or merge with a water system regulated by the DEH (up to 200 service connections) or the state (greater than 200 service connections). This ensures proper treatment of constituents and does not place the responsibility of treatment on private individuals. Although the County will allow point-of-use or point-of-entry treatment for contaminants in wells on existing legal lots, it will not approve discretionary permits for private wells dependent on water treatment. The second mitigation measure states that additional wells and testing can be conducted in an attempt to find onsite potable water. Drilling and testing additional wells is expensive and time-consuming, and there are no guarantees that the new well(s) will have a potable water supply (County of San Diego 2011).

2.8.3 Analysis of Project Effects and Determination of Significance

The proposed project consists of an amendment to the Zoning Ordinance related to accessory agricultural uses in unincorporated portions of the County over which the County has land use jurisdictions (see Section 1.4, *Project Description*, for further details). Specifically, the proposed project applies to properties where active agriculture exists within the County or properties where agricultural uses are allowed.

2.8.3.1 Water Supply

Guidelines for the Determination of Significance

The following significance guideline from Appendix G of the State CEQA Guidelines applies to both the direct and cumulative impact analyses. A significant impact would result if:

- Sufficient water supplies are not available to serve the project from existing entitlements and resources, and new or expanded entitlements are needed.

Analysis

This discussion applies to new or expanded entitlements from future agricultural operations that would rely on water services from a water district with imported water. Future projects that would rely on groundwater are analyzed separately under Section 2.8.3.2, *Groundwater Supply*.

Some future agricultural operations may already have water service from a water district, while others may need to make a new connection or change their status to accommodate the accessory uses. At a minimum, uses that require a new connection from a water district must receive approval by the district, which would include an evaluation of their ability to serve the property. Uses subject to discretionary approval by the County will require a Will Serve letter by the district at the time the project is being evaluated by the County.

Under the proposed ordinance, most accessory uses operating by-right would be restricted to specific limitations as defined under the proposed zoning amendments but otherwise may not require evaluation by the County. For example, the maximum floor area for an agricultural roadside stand is 300 square feet. Agricultural stores could include individual development projects involving land clearing to support up to 1,500 square feet for small agricultural stores and up to 3,000 square feet for large agricultural stores.

A discretionary permit may be triggered by the larger accessory agricultural uses, such as agricultural microbreweries/cideries/micro-distilleries, wineries, and agricultural stores, which could require environmental review pursuant to CEQA. For smaller projects processed by the County, the CEQA evaluation would typically rely on the Will Serve letters from the appropriate water district, their existing UWMP, and any additional comments provided by the district. Large-scale projects, such as those with more than 250,000 square feet of floor space or with water demands equivalent to 500 residential units, would be subject to the water supply assessment requirements contained in Sections 10910–10914 of the State Water Code to determine whether sufficient water supply is available to meet expected project demand. However, agricultural operations described under the proposed project would not be of a size and scale that would be affected by these water supply assessment requirements.

Although some of the proposed accessory agricultural uses could undergo future environmental review pursuant to CEQA, compliance with CEQA does not guarantee that any identified potential impacts would be less than significant. It does, however, require that significant impacts be identified, feasible mitigation measures be implemented, and, if significant impacts remain after mitigation, that the project only be approved if there are no feasible alternatives to reduce impacts and there are overriding considerations to justify approval.

The proposed project would encourage activities that may result in the expansion of agriculture on agriculturally zoned lands. Using a worst-case scenario for a microbrewery as an example,

a maximum of 8,000 barrels allowed for large operations would require between 5.2 and 7.2 acre-feet[1] of water per year. Large operations with at least 2 acres of hops, barley, or other grain produced and used on site would require a minimum of 4.2 acre-feet per year for agricultural production. The main water use would involve growing hops, cleaning floors and other areas throughout the brewery, and cleaning equipment. For future projects that may involve increased retail use and associated activity, or may require new water connections, additional water supplies could be needed for non-production uses, such as toilets and sinks, to accommodate agriculture accessory uses.

SDCWA is the supplier of water for the San Diego region and the individual water agencies that have a portion of their service area within the project area. SDCWA, like other water districts, relies on the population projections and analysis conducted by local and regional land use agencies to develop information for water demand. In their 2010 UWMP, SDCWA estimated that between 2015 and 2035, the percentage of water used for agriculture in the County will decrease, while the percentage for commercial, industrial, and residential use will increase (SDCWA 2011). The 2010 UWMP also identifies a contingency analysis based on current conditions, including changes to supply estimates based on the driest 3-year historic sequence and projected water use based on land use characteristics. Because the proposed project is an extension of agricultural uses in A70, A72, S88, S90, and S92 zones, expansion of agricultural operations to allow for accessory uses would not change the growth projections or demand for resources on which water supply and availability are measured in the UWMP for the SDCWA.

While the proposed project is not expected to change demand projections, accessory agricultural uses that are promoted by the proposed project could result in actual increases in water demand from agricultural tourism, agricultural homestays, agricultural and horticultural retail uses, agricultural microbreweries/cideries/micro-distilleries, wineries, animal raising, aquaponics and fish markets, creamery/dairies, and mobile butchering (discussed individually below under *Accessory Agriculture Use Water Demands*), The URMP prepared by the SDCWA and its member agencies covers the next 20 years for water use in the County and anticipates changes in demand and circumstances that will affect supplies. However, uncertainty remains. Because the proposed project will result in increased water demand on some properties, it would contribute to the uncertainty of these plans. Additionally, the proposed project represents a policy change that has no termination date. Therefore, its effects would extend beyond the 20-year planning horizon covered by the UWMPs. As a result, the effect on individual water agencies cannot be determined, but the project could contribute to the need to identify additional water supplies.

Accessory Agriculture Use Water Demands

Agricultural tourism water use would be largely for bathroom fixtures and would depend on the number of visitors and the length of stay. Water use would require a minimum of 0.003 to 0.26 acre-feet per year for non-production uses, such as toilets and sinks.[2] Water use could also include cleaning, potable drinking, and other uses. The actual amount of water required would vary depending on the size and frequency of events, the water use involved, and the number of visitors. Existing agricultural tourism operations accommodate a range of 10–1,000 visitors per week,

[1] Using a 5-7 water:1 beer ratio based on personal communications with Tim Suydam, Senior Water Operations Manager at Stone Brewing Co. Fluctuations in water demand depend on beer type and hops used.

[2] Standard toilets use 1.6 gallons of water per flush. Assuming each visitor uses the bathroom once per visit, 10 visitors per week would require 0.003 to 0.26 acre-feet per year.

depending on the operation size, and event type and frequency. Standard toilets use 1.6 gallons per flush, while older toilets can use as much as 3.5 to 7 gallons per flush (EPA 2015).

Agricultural homestays require about 0.5 acre-feet per year[3] for a maximum of three rented bedrooms (Water Boards 2015). The location and number of rented bedrooms available are not known at this time, and impacts would vary depending on the specific site. Agricultural homestays would be allowed with a ministerial permit (e.g., Zoning Verification Permit) rather than a discretionary permit, subject to certain criteria. Operators of an agricultural homestay that would utilize up to three rooms within an existing residence on the property may not need to construct a new structure and would avoid additional connections. However, water supply impacts could result if a new residence (on a vacant lot) or a detached cabin requires new connections. Increases in water demand from additional household uses related to new visitors could also result in water supply impacts.

The project also proposes agricultural and horticultural retail uses within A70, A72, S88, S90, S92, and RR zones, including agricultural stands and agricultural stores (both small and large). Roadside sales would involve minimal water use for employee drinking and sanitation, as roadside stands are limited to 300 square feet in size and would not include production uses. Retail operations with production uses generally water their products twice a day, once in the morning and once towards the end of the day. For example, one local agricultural and horticultural retail operation estimates that their water use totaled 0.0002 acre-feet per acre per month[4] (Owens pers. com. 2015). Using this ratio, crop irrigation may require 0.0026 acre-feet per year per acre. Applying this estimated ratio, small agricultural stores would require a minimum of 0.0013 acre-feet of water per year and large agricultural stores would require a minimum of 0.0026 acre-feet of water per year. For large agricultural stores, some of the indoor space would support food preparation and indoor seating areas for patrons. Small agricultural stores would not include food service space. Visitor and general activity would increase on properties that develop, and agricultural stands or stores could increase water demand from the retail use and associated activity.

Implementation of the proposed agricultural microbrewery, cidery, and micro-distillery uses could include individual development projects involving between 5.2 and 7.2 acre-feet of water to produce the maximum amount of 8,000 barrels per year for large operations. Water demand for tasting rooms is estimated to require a maximum of 0.45 acre-feet per year for lots larger than 4 acres.[5] Large operations with at least 2 acres of hops produced and used on site would require a minimum of 4.2 acre-feet per year for agricultural production. Thus, an estimated total between 9.4 and 11.4 acre-feet per year of water would be required to operate a large microbrewery. Within a brewery, there are four main areas where water is used: brewhouse, cellars, packaging, and utilities. In addition, ancillary operations such as food service and restrooms contribute to water usage (Brewers Association 2014).

Wineries could use up to 1.5 acre-feet of water per year per acre (County of San Diego 2010). The proposed project would extend Packing and Processing: Small Winery, Packing and Processing:

[3] Average residential per capita water usage in California is 76.7 gallons per person per day. Assuming a conservative estimate of two persons per rented bedroom, a total of 6 persons would require 0.515 acre-feet of water per year.

[4] From personal communication with Kalim Owens from Weidner's Garden. Water demand at one of their facilities totaled 847 gallons for a 6-acre farm over 2 months.

[5] The 2006 Los Angeles CEQA Thresholds define commercial water demands to be 80 gallons per day per 1,000 gross square feet. This conservative ratio was used to calculate water demands for each lot size category.

Boutique Winery, and Packing and Processing: Wholesale Limited Winery uses as allowed by-right in the S92 zone as an agricultural use type. Based on the estimate that 6–10 gallons of water are used for every gallon of wine produced, a winery producing 0.037 acre-feet of wine per year could use an additional 0.22–0.37 acre-feet of water per year for wine production (County of San Diego 2010). The main water use within a winery itself is for washing down floors and areas throughout the winery; cleaning equipment including the receiving lines, the presses, the tanks, and the bottling lines; and washing the barrels or other storage containers at various stages of the winemaking process.

Water can also be used as a frost preventative by growers near rivers or in a valley. Existing winery operators in San Diego County have indicated that they are not using water as a frost preventative either because it is not necessary or it is not effective in higher elevations and sloped areas (County of San Diego 2010). For wineries that would operate by-right, additional water supplies would be needed for non-production uses at the winery, such as for toilets and sinks, to accommodate the tasting room component. Although vineyards generally require less water than many other crops grown within the County, irrigation requirements for future wineries that may be allowed by the proposed zoning ordinance amendment are not yet known.

The proposed project would amend the current animal schedule to allow certain animal raising projects under a less restrictive Administrative Permit. As such, it is likely that through less restrictive permitting requirements allowing onsite animals, the proposed project could cause an increase in water demand. Water demands can range from 5–10 gallons per day per head for smaller animals such as chickens, ducks, rabbits, pigs, and goats (Axe pers. comm.). Water demands for larger animals such as cows could average 49 gallons (0.00015 acre-feet[6]) per head per day (Van Ommering pers. comm.).

Aquaponics would require minimal amounts of water for initial drawing to fill the aquaponics systems and for routine maintenance. The amount of water required would depend on the number of fish and the size of the systems. An operation with 900 fish would require approximately 18,000 gallons (0.055 acre-feet) of water per year (Gorham pers. comm.). Fishermen's markets involve the retail sale of fish to the general public and would be allowed on a temporary basis, similar to farmers' markets, on developed public property zoned for commercial use, school property, or in conjunction with a farmers' market. The retail area itself would likely consist of a shade tent or structure and outdoor tables and would not require permanent structures or other site improvements. It is not anticipated that fish markets would require new connections to water, as operations would take place on existing developed sites.

Creamery/dairy operations could potentially require a water use of 78.4 acre-feet [7] for a permitted herd size of 1,400 head, such as the Van Ommering Dairy Farm (Van Ommering pers. comm.). Creamery/dairy uses would require the development of non-residential structures to support the production of butter, cream, milk, or cheese within an enclosed building, and would also require indoor space for product storage intended for wholesale and retail sales. Implementation of the proposed creamery/dairy uses might require individual development projects involving new connections to support up to a 4,000-square-foot building and associated increases in site activity related to additional visitors and new employees. Due to high water costs and related operational costs, dairy operations in San Diego County are not expected to increase significantly in number, and

[6] 1 acre-foot converts to approximately 325,851 gallons.

[7] Based on personal communications with Rob Van Ommering, each head requires 50 gallons of water per day.

water use would be limited to a few local operations. However, the specific amount of water required and location of future projects are unknown and thus may be in areas with low water supply.

Water for mobile butchering would be required for pre-process sanitation and after-process cleaning. Water use during the processing would be minimal and is estimated to be 32 gallons per head (Mobile Meat Processing 2015). The actual amount of water required would vary depending on the size and number of animals butchered. The operating capacity of a mobile butchering operation would be significantly smaller than a typical butchering operation, and would involve a motor vehicle and/or trailer travelling to agricultural properties with existing water connections.

For development of new agricultural operations or expansion of existing agricultural operations on lands not currently irrigated, there is a potential to increase demand for water. As discussed in Section 1.4, *Project Description*, some of the proposed accessory agricultural uses may be permitted with a ministerial permit or by-right, and may not require additional or subsequent environmental review pursuant to CEQA. Even for uses that would require a ministerial permit, future projects may require approval from the appropriate water district if substantial changes in existing water demand are involved. Discretionary projects may require Will Serve letters from the appropriate water district, and additional environmental review pursuant to CEQA could be required. Nevertheless, as discussed in this section,

With respect to imported water supplies, the proposed project could result in significant impacts. Also, the location and number of new or expanded water service connections that could be required from accessory agricultural uses operating by-right under the amended Zoning Ordinance are not known and could result in a demand for water where currently none exists (Impact WS-1).

Environmental Impact from Expanding Water Supplies

To evaluate the potential impacts of the methods that may be used to obtain additional water supply, this document hereby incorporates by reference the Final Supplemental EIR for the SDCWA Regional Water Facilities Master Plan dated March 2013 (SCH No. 2003021052). This document can be found on SDCWA's website at www.sdcwa.org and is summarized here as follows.

- The EIR for the SDCWA Regional Water Facilities Master Plan evaluates a program of water supply projects. The Master Plan does not describe every proposed facility in detail, but describes the types of facilities needed to meet the region's future water needs.
- The EIR for the SDCWA Regional Water Facilities Master Plan determined that multiple environmental impacts associated with the construction of water supply projects would potentially occur.
- Of all of the potential methods to ensure additional water supply, water conservation is the only approach that would not result in adverse environmental impacts.
- Other water supply projects, including desalination projects, the conveyance of supplies from the north, east, or west, or increasing local supply above planned yield have the potential to result in significant environmental impacts.
- Potentially significant environmental impacts associated with the following environmental issues may occur: land use, water resources, biological resources, transportation and traffic, noise, air quality, utilities and public services, aesthetics, geology and soils, cultural resources,

public safety and hazardous materials, paleontological resources, agricultural resources, and recreation.

2.8.3.2 Groundwater Supply

Guidelines for the Determination of Significance

The following guidelines are from Appendix G of the State CEQA Guidelines and are intended to protect groundwater supplies. A significant impact would result if:

- Sufficient water supplies are not available to serve the project from existing entitlements and resources, and new or expanded entitlements are needed.
- The project would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

Analysis

Approximately 35percent of the project area lies within the SDCWA boundary and would be able to obtain a water supply from one of the water districts that distributes water from surface reservoirs or other imported water sources subject to existing agreements with providers and would not have to rely upon groundwater supplies. Some properties within this area may also have an onsite well and use a combination of imported water and groundwater. For these areas within the SDCWA boundary, water availability would be subject to agricultural agreements already in place. Larger accessory agricultural uses, such as agricultural microbreweries, wineries, and agricultural stores would undergo future environmental review pursuant to the requirement to obtain a discretionary permit. Future discretionary projects would require Will Serve letters from the appropriate water district, and may require payment of connection fees.

Conversely, approximately 65 percent of the project area lies outside of the SDCWA boundary and relies on groundwater. Because one of the objectives of the proposed ordinance amendment is to encourage the growth of the local agriculture industry in the County and because a large portion of the project area is groundwater dependent, an increase in the number of agricultural operations in groundwater-dependent areas may cause increased demand for groundwater supplies. Groundwater demand would vary with the operational specifics of the proposed agricultural use.

The proposed project could involve the expansion of agriculture on agriculturally zoned lands. General information on water demands on the various agricultural accessory uses promoted is provided in the prior section. Of all proposed uses, microbreweries are on average the most water intensive. Based on the worst-case estimate, a minimum of 1.3 acre-feet of water would be required to produce the maximum amount of 2,000 barrels per year for small microbrewery operations and between 5.2 and 7.2 acre-feet of water would be required to produce the maximum amount of 8,000 barrels per year for large microbrewery operations. Operations with at least 2 acres of hops, barley, or other grain produced and used on site would require a minimum of 4.2 acre-feet per year for agricultural production. The main water use would involve growing hops, cleaning floors and areas throughout the operations, and cleaning equipment.

Discretionary projects subject to the Groundwater Ordinance may require detailed evaluation to address potential groundwater impacts. Prior to approval of certain discretionary applications for future projects that propose to use groundwater (listed in Section 67.711 and not subject to Sections

67.720, 67.721 or Paragraph A of the Groundwater Ordinance), a Groundwater Investigation is required. As specified in the Groundwater Ordinance, the application will not be approved unless the approving authority finds, based upon the Groundwater Investigation or other available information, either: (1) for a water intensive use, that groundwater resources are adequate to meet the groundwater demands both of the project and the groundwater basin if the basin were developed to the maximum density and intensity permitted by the General Plan; or (2) for all other projects, that groundwater resources are adequate to meet the groundwater demands of the project. Major Use Permits or Major Use Permit Modifications that involve construction of agricultural and ranch support facilities or those involving new or expanded agricultural land uses are among the exemptions from the Groundwater Ordinance. However, this exemption does not supersede or limit the application of CEQA. Therefore, for some components of the proposed project, such as those proposing to use groundwater in an amount that may pose issues to the aquifer or neighboring wells, subsequent environmental review is anticipated, as a result of the Groundwater Ordinance and/or CEQA.

However, the components that do not require discretionary review by the County, such as smaller structures or more confined uses that do not need a major grading permit, Administrative Permit, or other use permit, are unlikely to require subsequent analysis. The uses may rely on existing wells or may need to drill additional wells to support increased onsite demands. These situations could occur in areas where groundwater supplies are limited and/or yields of groundwater are low. Additionally, the number, location, and intensity of accessory agricultural uses that are promoted by the project are not known. **Consequently, with respect to groundwater supplies, impacts would be significant (Impact WS-2).**

For proposed accessory agricultural uses that would not require further environmental review, increases in building and parking areas, driveways, fences, or outdoor seating could occur associated with agricultural homestays, agricultural microbreweries/cideries/micro-distilleries, agricultural and horticultural retail uses, agricultural tourism, animal raising, aquaponics, creamery/dairy, mobile butchering, and wineries, which could potentially increase the demand for groundwater supplies. However, the proposed ordinance includes language limiting the square footage of related operation structures, and the amount of impervious surface areas would be restricted to those limits. A discretionary grading permit may be triggered by the larger accessory agricultural uses, such as agricultural microbreweries/cideries/micro-distilleries, wineries, and agricultural stores, which would require environmental review pursuant to CEQA. Thus, new agricultural operations would not involve operations that would interfere substantially with groundwater recharge. Furthermore, the accessory agricultural uses described under the proposed project would not involve regional diversion of water to another groundwater basin, or diversion or channelization of a stream course or waterway with impervious layers, such as concrete lining or culverts, for substantial distances (e.g., 0.25 mile). Therefore, no impact on groundwater recharge is anticipated.

2.8.4 Cumulative Impacts Analysis

The geographic scope of the cumulative impact analysis for water supply is defined by the districts and agencies that develop and rely on various supply sources for imported water supply. For groundwater-dependent areas, it is defined by the limits of the aquifers that support the San Diego County backcountry.

2.8.4.1 Water Supply

In 2010, MWD adopted its current Regional Urban Water Management Plan. MWD's reliability assessment showed that MWD can maintain reliable water supplies to meet projected demand through 2035. MWD identified buffer supplies, including other State Water Project groundwater storage and transfers that could serve to supply additional water needs. MWD also has an Integrated Resource Plan that outlines a strategy to increase water supplies and lower demands. The plan has three components that begin with baseline efforts—or, the core resource strategy—designed to maintain reliable water supplies. The second component—the uncertainty buffer—activates a suite of buffer actions that help to mitigate short-term changes. If changed conditions turn dramatic and persistent, there is a final component—foundational actions—which details strategies for securing additional water resources.

MWD supplies water to wholesalers including the SDCWA. Water supplies for the County of San Diego within the SDCWA boundaries are provided mainly by SDCWA to its member agencies. In order to project and plan for future water needs, SDCWA has entered into a Memorandum of Agreement with SANDAG to use the most recent regional growth forecast for developing the UWMP and Regional Water Facilities Master Plan (RWFMP). Because the information in the UWMP is based on regional growth forecasts by SANDAG, the basis of those forecasts is critical to supply and demand projections. SANDAG projects growth based in part on local general plans. To the extent that development occurs in accordance with the general plans used to prepare the growth forecasts, future water supply and demand for the underlying land use designations in the general plans are addressed by the SDCWA's UWMP and RWFMP.

The proposed project does not amend the County of San Diego's General Plan, as it relates to growth projections. Further, it does not alter the growth projections used by SDCWA and, therefore, conforms to the assumptions used in the UWMP and RWFMP. The proposed project is an extension of agricultural uses in A70, A72, S88, S90, and S92 zones. The streamlining of regulations for agricultural ventures would not change the underlying land use designations upon which water supply and availability are projected in the UWMP.

Some of the proposed accessory agricultural uses may be permitted with a ministerial permit or by-right, and may not require additional or subsequent environmental review per CEQA. Even for uses that would require a ministerial permit, future projects may require approval from the appropriate water district if substantial changes in existing water demand are involved. Discretionary projects may require Will Serve letters from the appropriate water districts, and additional environmental review pursuant to CEQA would be required. Although all future projects associated with the proposed project would not affect the SDCWA's UWMP and RWFMP, the proposed project consists of a zoning ordinance amendment and is not project specific; therefore, the potential demands on imported water supply of specific future agricultural projects cannot be determined at this stage, nor can appropriate project-specific mitigation measures be identified or enforced. **Therefore, with respect to imported water supplies considered at the cumulative level, the proposed project could have a cumulatively considerable contribution to a cumulative impact (Impact WS-3).**

2.8.4.2 Groundwater Supply

Approximately 65 percent of the project area lies outside the SDCWA area and is dependent on naturally occurring groundwater resources. Within the SDCWA, groundwater may also be used but

can more easily be supplemented with imported water as needed. Conversely, imported water may be supplemented with groundwater when agricultural concerns are subject to restrictions on the use of imported water and groundwater is available.

Groundwater availability is subject to many factors within San Diego County such as physical geological properties and amount of groundwater recharge and storage. Fractured rock aquifers are the prevailing aquifer type in the County. This type of aquifer has low groundwater storage capacity, and groundwater levels can fluctuate widely due to differences in annual precipitation and groundwater use. There are also extensive areas of alluvial aquifers (such as the Ramona area), which have larger groundwater storage capacity and where groundwater levels are not subject to drastic variations. However, where groundwater demand exceeds the rate of recharge, historical groundwater levels demonstrate a trend of decline.

One of the objectives of the proposed ordinance amendment is to encourage the growth of the local agriculture industry in the County, which could result in new and/or expanded agriculture operations and new accessory structures. This would cause a corresponding increase in the demand for groundwater for irrigation, alcoholic beverage production, and customer needs associated with the promoted uses.

The severity of any impacts associated with increased groundwater use, as a result of the project and in conjunction with other existing and planned uses, will be dependent upon several factors including but not limited to the following:

- Physical properties of the underlying aquifer;
- Whether irrigation demands are increased for new or expanded agriculture operations and alcoholic beverage production; and
- Cumulative demands on the aquifer from nearby agricultural or other types of land uses.

Locations of groundwater supply issues (such as declines in the groundwater table, poor groundwater recovery, low well yield, poor groundwater quality) are described in the General Plan Update Groundwater Study (published April 2010); however, localized groundwater supply problems are not limited to these areas. Such concerns are possible throughout the County where there is excessive groundwater use by a single or multiple users, or due to the unique physical geologic properties affecting the groundwater storage for a particular site. Future projects may include actions that require discretionary permits and/or groundwater investigations. For such projects, feasible mitigation measures could be included in the permit, thus making them enforceable. At the same time, there may also be future by-right projects, for which related discretionary permits are required (e.g., grading permit), but for which mitigation would not be feasible, or for which no related discretionary permit is required at all (e.g., where grading is less than 200 cubic yards, but which would affect native or fallow land). For such by-right projects, CEQA review would not be required. The proposed project consists of a zoning ordinance amendment and is not project specific; therefore, the potential demands on groundwater supplies of specific future agriculture projects cannot be determined at this stage, nor can appropriate project-specific mitigation measures be identified or enforced. Additionally, the number and location of new or expanded agricultural operations that will rely on groundwater for their primary water source is unknown, and the proposed project may cause or contribute to depletion of groundwater supplies where supplies are limited and/or yields of groundwater are low. **Consequently, with respect to groundwater supplies, cumulative impacts would be potentially significant (Impact WS-4).**

2.8.5 Significance of Impacts Prior to Mitigation

The proposed project would result in potentially significant impacts associated with water supply (**Impacts WS-1** and **WS-3, direct and cumulative)** and groundwater supply (**Impacts WS-2** and **WS-4, direct and cumulative**).

2.8.6 Mitigation Measures

The proposed project is a zoning ordinance amendment and is not project specific. The proposed zoning ordinance amendment would allow specified accessory agricultural uses by-right within A70, A72, S88, S90, and S92 zones. Some of these unidentified future agricultural operations may be required to obtain a discretionary permit, such as an Administrative Permit, which would trigger CEQA review. For such agricultural operations, feasible mitigation measures could be included in the permit, if necessary, after conducting the necessary water supply review, thus making them enforceable. Thus, for future agricultural operations subject to CEQA review, specific impacts on both imported and groundwater supply resources would be analyzed and mitigated when feasible.

There may also be future by-right agricultural operations for which related discretionary permits are required but for which mitigation would not be feasible, or future by-right agricultural operations for which no related discretionary permit is required at all (e.g., where grading volume is less than 200 cubic yards). For such by-right agricultural operations, CEQA review would not be required, and appropriate mitigation would not be possible.

As it cannot be concluded at this stage that potential impacts on either imported water supply or groundwater resources from all future agricultural operations allowed by the ordinance amendment would be avoided or mitigated, impacts would remain significant and unmitigated.

2.8.6.1 Water Supply

The proposed project would promote the development of accessory agriculture facilities, some of which would not need discretionary review. Mitigation measures (described below) have been identified that would reduce impacts related to water supply, but not below a significant level.

M-WS-1: Implement Policy I-84 requiring discretionary projects obtain water district commitment that water services are available. Prohibition of the conversion of any dryland agricultural or non-irrigated lands to crop production.

M-WS-2: Coordinate with the San Diego County Water Authority and other water agencies to coordinate land use planning with water supply planning and support continued implementation and enhancement of water conservation programs.

2.8.6.2 Groundwater Supply

The proposed project would promote the development of accessory agriculture facilities, some of which would not need discretionary review. Mitigation measures (described below) have been identified that would reduce impacts related to groundwater supply, but not below a significant level. Mitigation Measures M-HY-1, M-HY-2, M-HY-3 (Section 2.5, *Hydrology and Water Quality*), M-WS-1, and M-WS-2, as well as those described below, have been identified that would reduce impacts related to groundwater supply, but not below a significant level.

M-WS-3: Use the County Guidelines for Determining Significance for Groundwater Resources, Surface Water Quality, and Hydrology to identify and minimize adverse environmental effects on groundwater resources. Implement the Groundwater Ordinance through a Groundwater Investigation in order to ensure that groundwater resources are adequate to meet the groundwater demands of the project.

2.8.7 Conclusion

The proposed ordinance amendment could result in the addition of new agricultural operations, expansion of existing agricultural operations, and additional accessory structures at existing agricultural operations. The expansion and opening of new agricultural operations could occur by-right without the need for a discretionary permit. Significant direct and cumulative impacts could result from new or expanded agricultural operations on lands not currently irrigated or where groundwater supplies are limited and/or yields of groundwater are low (**Impacts WS-1, WS-2, WS-3,** and **WS-4**).

Some future agricultural operations, in accordance with the proposed project zoning ordinance amendment, may be required to obtain a discretionary permit, which would trigger CEQA review of the specific proposed project, and mitigation measures could be included in the permit, thus making them enforceable. However, there may also be future by-right agricultural operations, for which no related discretionary permit would be required, or future agricultural operations for which mitigation measures are infeasible. **Thus, without a mechanism to demonstrate that all impacts have been reduced to below a level of significance, impacts remain significant and unmitigated**.