APPENDIX K – WATER SUPPLY ASSESSMENT

WATER SUPPLY ASSESSMENT

FOR THE

VALLEY OAKS PLANNED DEVELOPMENT

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BOS Exhibit A11

1.0 EXECUTIVE SUMMARY

from the Hidden Valley Lake Community Services District (HVLCSD), which is the sole municipal water purveyor in the Hidden Valley Lake community.

Water Code [Section 10910(c)] requires the lead agency to identify any affected water supplier and confirm if demands associated with a proposed development project are included in the supplier's UWMP. If the demands are included in the UWMP, it may be incorporated by reference in the WSA. The County does not currently have an adopted UWMP; however, the County did adopt the *Lake County Groundwater Management Plan* (GWMP) together with the *Lake County Water Inventory and Analysis* and the *Lake County Water Demand Forecast*, which were all approved by the County Board of Supervisors in April 2006.[1] The Coyote Valley Groundwater basin is included within the Upper Putah Inventory, as analyzed in the GWMP. The project's water demands and supplies were generally included in the GWMP and associated documents and are incorporated by reference, where applicable in this WSA.

Based on the evaluation of potential supply and demand, the HVLCSD would have adequate available supplies to meet the project's demand as well as all other projected demands within its service area boundaries through 2030.

The WSA for the proposed project contains information derived from the following water planning and monitoring documents:

- *Appropriative Water Right License 9674 (Application 22033) for Diversion and Use of Water held by Hidden Valley Lake Community Services District* (State Water Resources Control Board, March 2002)
- *Coyote Valley Groundwater Basin 2007 Monitoring Report* (Wagner and Bonsignore, February 2008)
- *Delivery of Groundwater to Putah Creek for Summer Flow Enhancement for the Sustainability of Wildlife, Fish and Other Aquatic Species in Southeastern Lake County* (HVLCSD, September 1999)
- *Geophysical Surveys at Hidden Valley Lake Community Services District Well Field* (KOMEX, December 2002)
- *Hydrologic Report of the Effect of the Grange Road Wells on the Coyote Valley Basin* (James A. Hanson, January 1993)
- *Lake County Groundwater Management Plan* (Lake County Department of Water Resources, April 2006) [1]
- *Lake County Water Inventory and Analysis* (Lake County Department of Water Resources, April 2006) [1]

[1] Lake County Deputy Director of Public Works has asked HVLCSD to prepare an amendment to the GWMP and associated documents to address misstatements with respect to the Coyote Valley Groundwater Basin and HVLCSD water resources management and use. Such amendment is expected to be submitted to Lake County for its consideration in 2008.

- *Lake County Water Demand Forecast* (Lake County Department of Water Resources, April 2006) [2]
- *Hidden Valley Lake Community Services District's Coyote Valley Concept Infrastructure Plan Final Report* (Winzler & Kelly, December 2007)
- *Appropriative Water Right License 13527 (Application 30049A) for Diversion and Use of Water held by HVLCSD* (State Water Resources Control Board, November 2001)
- *Appropriative Water Right Permit 20770B (Application 30049B) for Diversion and Use of Water held by HVLCSD* (State Water Resources Control Board, November 2001)

[2] Lake County Deputy Director of Public Works has asked HVLCSD to prepare an amendment to the GWMP and associated documents to address misstatements with respect to the Coyote Valley Groundwater Basin and HVLCSD water resources management and use. Such amendment is expected to be submitted to Lake County for its consideration in 2008.

This technical memorandum addresses the water supply issues for the proposed Valley Oaks Planned Development. This analysis identifies the regional water supply regulatory environment; regional and local planning considerations, water purveyors, and water demands associated with buildout of the Valley Oaks project. This evaluation identifies existing available water supplies, long-term water supplies, and potential water supplies to meet the projected demands. The reader is referred to the appropriate section of the Valley Oaks Environmental Impact Report [in accordance with Section 10910(a)] for a more detailed discussion regarding the project's specific water supply related impacts.

BACKGROUND

The California Water Code requires coordination between land use lead agencies and public water purveyors. The purpose of this coordination is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet both existing demands and demands of planned development. Water Code Section 10910-10915 (inclusive) requires land use agencies: 1) to identify the responsible public water purveyor for a proposed project, and 2) to request a "Water Supply Assessment" (WSA) from the responsible purveyor. The purpose of the WSA is to demonstrate the sufficiency of the purveyor's water supplies to satisfy the water demands of a proposed development project while still meeting the current and future water supplies for existing and future customers. Water Code Sections 10910-10915 delineate the specific information that must be included in a WSA.

PROPOSED DEVELOPMENT PROJECT

The Valley Oaks project (proposed project) would include residential, commercial, parks, and open space development on the approximate 150 acre parcel. The residential component would feature approximately 380 single-family dwelling units on approximately 83 acres, approximately 53 senior living/multi-family residential units, a residential care facility and approximately 55 medium density residential units. The commercial component would include five separate villages ranging from approximately two acres to approximately eleven acres in size and include retail, hotel, theatre, and general office land uses. The project would also include linear parks, neighborhood parks, and other passive and active open space uses (see **Figure 1.0-1**).

The proposed project would result in the realignment of the existing Coyote Creek corridor via an upper and lower bypass channel. The purpose of the realignment is to avoid removal of mature oak trees and to avoid replacing the arch pipe under Hartmann Road near the confluence of Coyote Creek and Gallagher Creek. The realigned corridor would serve as a drainage channel to convey flows from the proposed project and the Hidden Valley Lake development immediately north and would also serve as a linear on-site water feature. Coyote Creek would be realigned from the northwestern portion of the project site and would run diagonally, generally parallel with SR 29. The realigned channel would require a new crossing at Hartmann Road and ultimately discharge into Putah Creek, which is located south of the project site and Hartmann Road. The proposed channel would be a naturally lined channel with native bedrock and cobble lining underlain with geotextiles to minimize erosion and to provide a park-like, naturally vegetated corridor.

OVERVIEW OF THE VALLEY OAKS PROJECT AREA

Section 10910(b) of the Water Code requires the identification of the responsible public water system for a particular development project. The proposed project would obtain water service

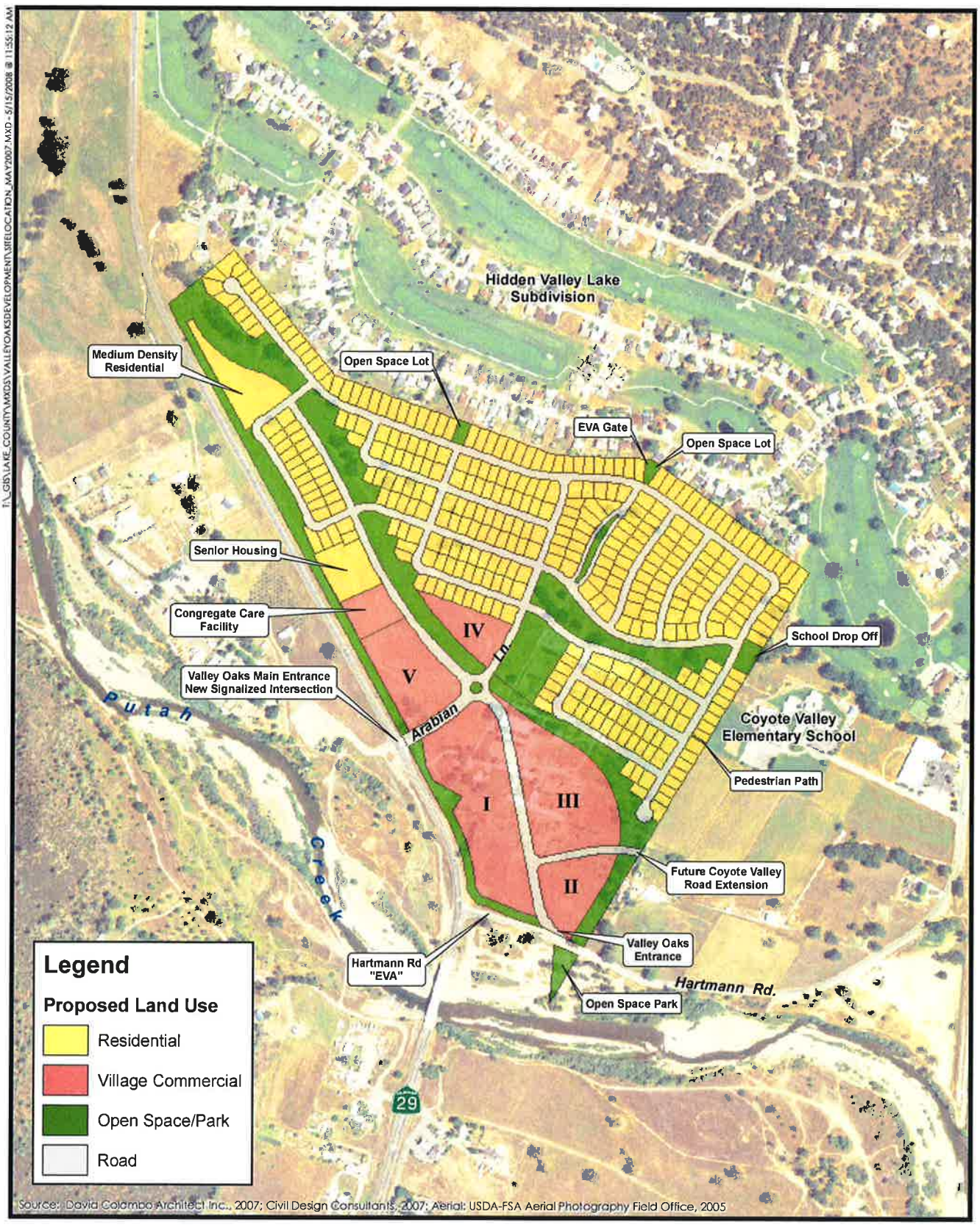

Figure 1.0-1
Site Plan

2.0 INTRODUCTION

In compliance with the California Environmental Quality Act (CEQA), Lake County is preparing an Environmental Impact Report (EIR) to evaluate and disclose the environmental effects associated with implementing the proposed Valley Oaks Planned Development project (proposed project). In support of the EIR and in accordance with Senate Bill (SB) 610 and Assembly Bill (AB) 91, and as set forth in the California Water Code Section 10910, the Hidden Valley Lake Community Services District (HVLCSD) has also prepared this water supply assessment to determine whether the projected water demands of the proposed project can be met by the proposed water supply.

PROJECT LOCATION

Lake County is located in the eastern portion of California, north of the central valley, and is bordered by Mendocino, Napa and Sonoma counties to the west and Glenn and Colusa counties to the east. The Valley Oaks project site is located within the unincorporated community of Hidden Valley Lake, approximately 4-miles north of Middletown and approximately 12-miles southeast of Clear Lake. The main regional access to the project site is provided via State Route (SR) 29, which travels in a north-south direction from SR 20 near the community of Upper Lake to Interstate 80 in the city of Vallejo and is adjacent to the project site's western boundary. **Figure 2.0-1** depicts the proposed project's regional location and **Figure 2.0-2** illustrates the proposed project site and surrounding vicinity.

PROJECT SUMMARY

The proposed project is a mixed use development consisting of residential, commercial, park and open space uses. The proposed residential uses include 380 single-family dwelling units, 53 senior living/multi-family dwelling units, a residential care facility with 49 beds, and approximately 55 medium density residential units. The proposed commercial uses would total up to 230,000 square feet. The proposed parks include a linear park, a neighborhood park and other common areas and open space totaling approximately 29 acres. Given the proposed residential unit count, the proposed project falls within the definition of projects requiring a water supply assessment (Water Code Section 10912[b]).

WATER PURVEYOR

HVLCSD provides domestic water and wastewater services to the Hidden Valley Lake area of Lake County and will provide domestic water and sewer service to the proposed project. The current HVLCSD boundaries encompass the entire Hidden Valley Lake subdivision, as well as Coyote Valley Elementary School and Hardester's grocery store (see **Figure 2.0-3**).

ORGANIZATION OF THE WATER SUPPLY ASSESSMENT

This water supply evaluation addresses the issues associated with providing water supplies to the proposed project as well as projected water demands to meet other growth within the HVLCSD service area boundaries through 2026.

This evaluation includes the following elements:

Section 1.0 **Executive Summary:** This section provides asummary of the contents of the water supply assessment.

Section 2.0 **Introduction:** This section includes a brief description of the proposed project, HVLCSD and its service area, and the organization of the water supply assessment.

Section 3.0 **Regulatory Framework**: This section describes the relevant legislation, water purveyors, agencies, related water supply and infrastructure plans, and all applicable agreements.

Section 4.0 **Water Supply Assessment:** This section describes the water resources within the service area boundaries of HVLCSD, the existing and projected water demands of HVLCSD, including those of the proposed project, and a discussion of the water supplies available to meet those needs.

Section 5.0 **References:** This section includes a comprehensive listing of all sources used in preparation of the water supply assessment.

Section 6.0 **Appendices:** This section includes the following items:

- Appendix A – Statement of Water Diversion and Use Nos. 14734, 14735, and 14736
- Appendix B – Ordinance #43, An Ordinance Adopting Amended Water Use Fees for Extended Operations of Water Services
- Appendix C – Groundwater Monitoring Plan, Water Surface Elevations

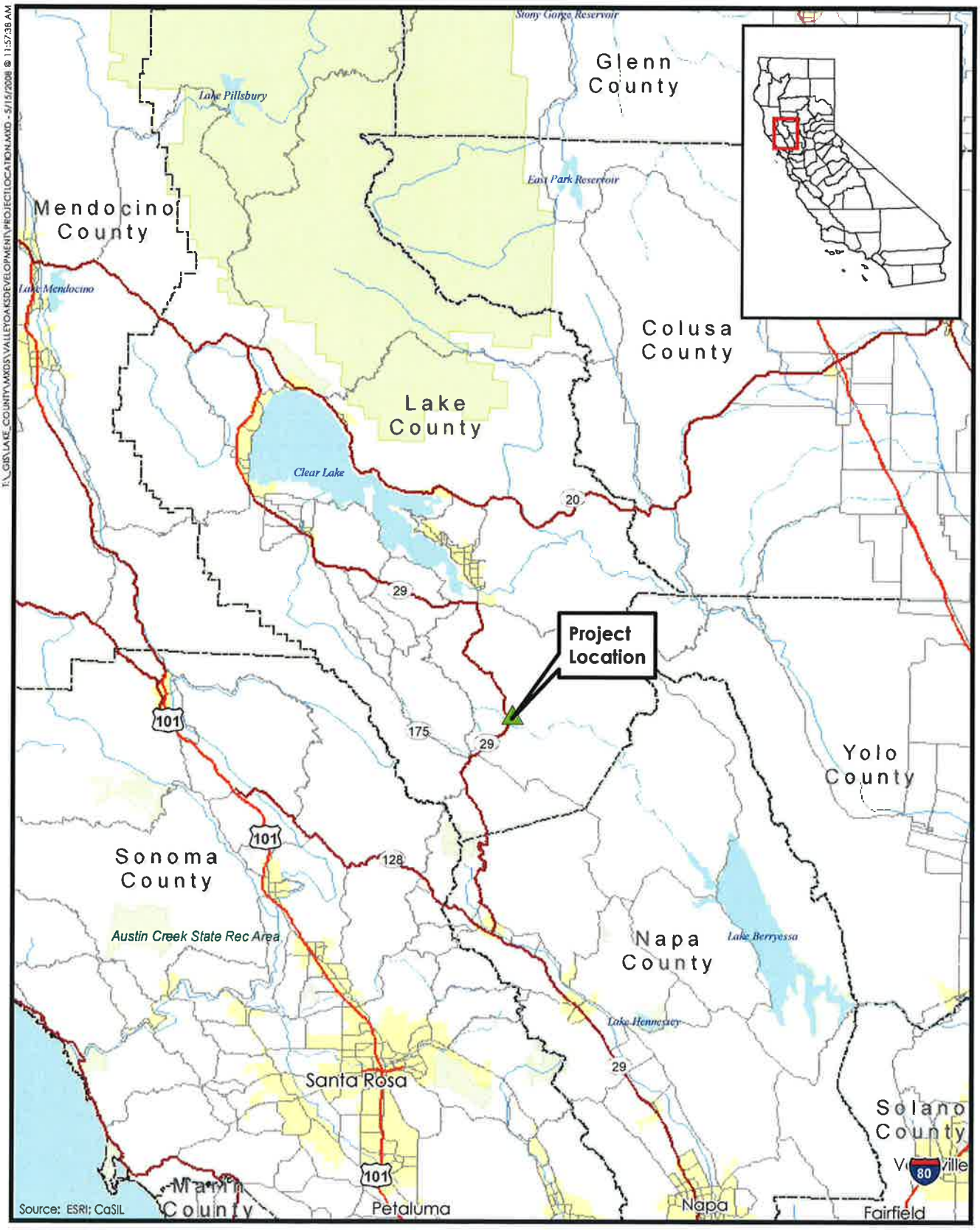

Figure 2.0-1
Regional Location

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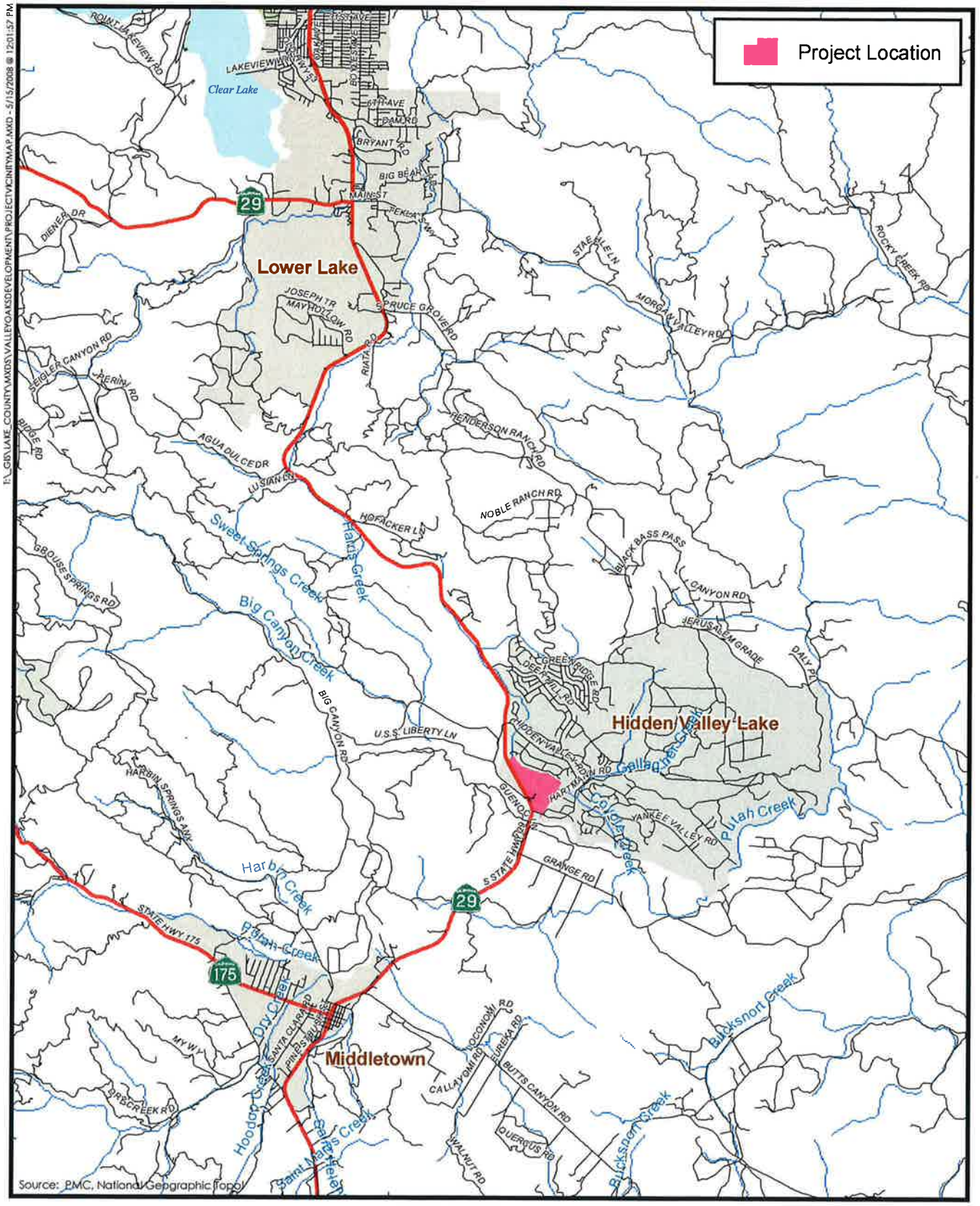

Figure 2.0-2
Project Vicinity

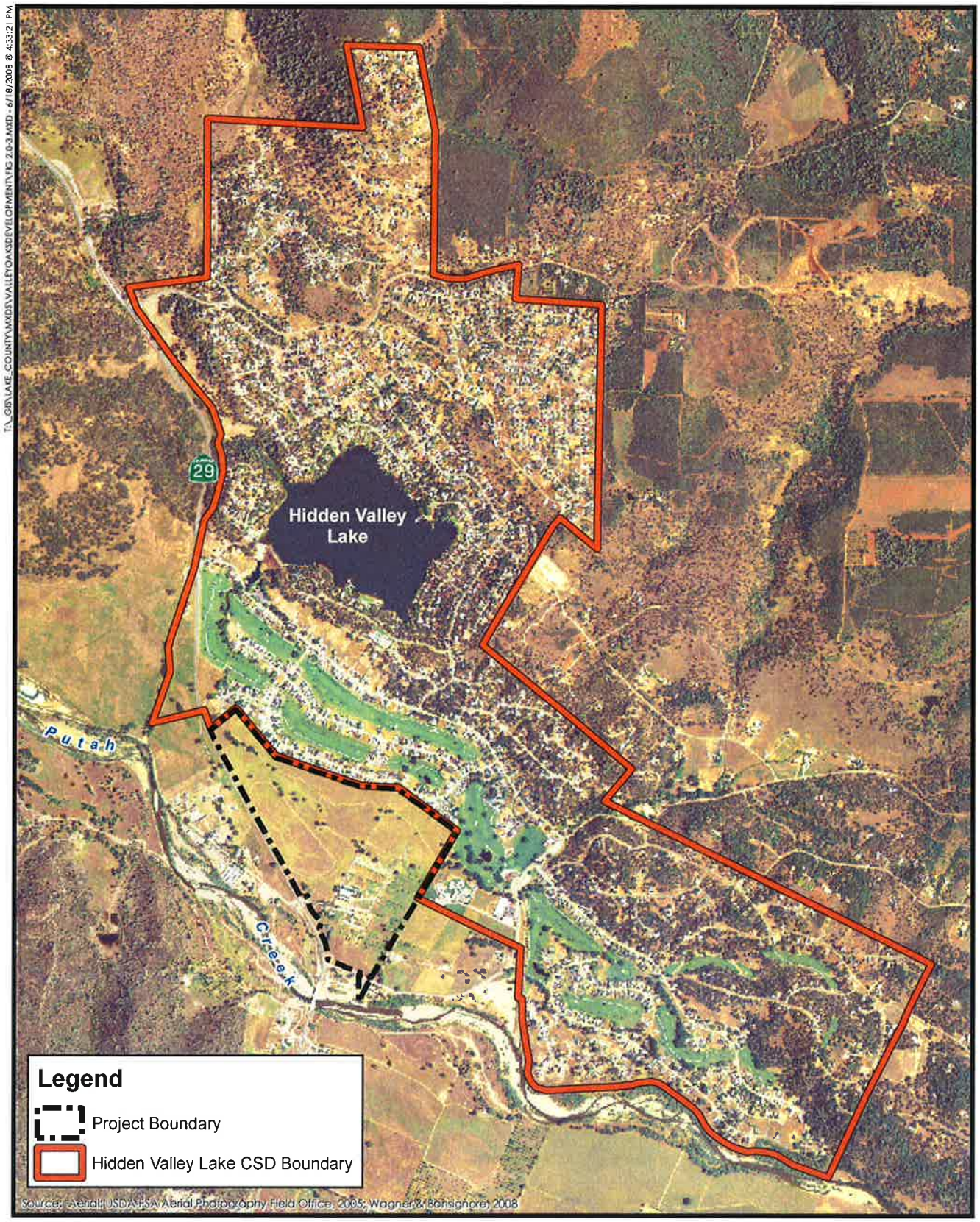

Figure 2.0-3

Existing Hidden Valley Lake CSD Boundary

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3.0 REGULATORY FRAMEWORK

The planning, procurement, and management of new water supplies to meet the existing and projected future water demands of the Valley Oaks Planned Development (proposed project) includes the coordination of numerous federal, state, and local agencies. Local water supply projects are subject to the issuance of water rights; environmental review under CEQA and, under certain circumstances, the federal equivalent, the National Environmental Policy Act (NEPA); and other regulatory permitting requirements.

As set forth in the State Water Resources Control Board's (SWRCB) "Information Pertaining to Water Rights in California", California law divides water into two categories for purposes of regulation – surface water and percolating groundwater. Since December 19, 1914, the appropriation of water in surface streams, the underflow of surface streams, and subterranean water flowing through known and definite channels have been governed by statutes enacted pursuant to the California Water Commission Act. The diversion of such water directly onto lands that are not riparian to the source, or for storage in a reservoir, requires an appropriative water right permit from SWRCB. An appropriative water right carries a priority in relation to other appropriative rights. The water user who is "first in time" is "first in right."

A riparian right usually attaches to land bordering a stream, lake, or pond, and has a higher priority than most appropriative rights. Riparian owners may use the natural flow of the stream directly for beneficial purposes on riparian land without a permit. During times of low flow, riparian water must be shared equitably by the various riparian diverters on a particular watercourse, each in accordance with their needs. Diversions made pursuant to claim of riparian right do not require a permit from SWRCB.

Groundwater that is not part of a subterranean stream is classified as "percolating groundwater." Use of percolating groundwater does not require a permit from SWRCB. Absent any evidence to the contrary, groundwater is presumed to be percolating groundwater. For groundwater to be classified as a subterranean stream, certain physical conditions must exist. These conditions were set forth in State Water Resources Control Board Decision 1639 "In the Matter of Garrapata Water Company" and are as follows:

a) A subsurface channel must be present;

b) The channel must have relatively impermeable bed and banks;

c) The course of the channel must be known or capable of being determined by reasonable inference; and

d) Groundwater must be flowing in the channel.

The California Supreme Court has held that the use of groundwater is subject to the provisions of reasonable and beneficial use.

WATER PLANNING – RELATED LEGISLATION

URBAN WATER MANAGEMENT PLANNING ACT

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610 - 10656). The Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of reliability in its water service

sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act describes the contents of the Urban Water Management Plans (UWMP) as well as how urban water suppliers should adopt and implement the plans. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied. Under the current law, all urban water suppliers with more than 3,000 service connections or water use in excess of 3,000 acre-feet per year (afy) are required to submit an UWMP to the California Department of Water Resources (DWR) every five years.

SENATE BILL (SB) 610 AND ASSEMBLY BILL (AB) 901

During the 2001 regular session of the State Legislature, SB 610 and AB 910 – Water Supply Planning, were signed and became effective January 1, 2002. SB 610 amends Public Resources Code Section 21151.9, requiring any EIR, negative declaration, or mitigated negative declaration for a qualifying project to include consultation with affected water supply agencies (current law applied only to Notice of Preparations (NOPs). SB 610 also amends the following: Water Code 10656 and 10657 to restrict state funding for agencies that fail to submit their urban water management plan to the Department of Water Resources; and Water Code Section 10910 to describe the water supply assessment that must be undertaken for projects referred under PRC Section 21151.9, including an analysis of groundwater supplies. Water agencies would be given 90 days from the start of consultation in which to provide a water supply assessment to the CEQA lead agency; Water Code Section 10910 would also specify the circumstances under which a project for which a water supply assessment was once prepared would be required to obtain another assessment. AB 910 amends Water Code Section 10631, expanding the contents of the urban water management plans to include further information on future water supply projects and programs and groundwater supplies.

CALIFORNIA WATER CODE SECTION 10910

Water Code Section 10910 requires any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code, which requires a Water Supply Assessment to be prepared under the following conditions:

- A proposed residential project with 500 or more units.
- A proposed shopping center or business establishment employing more than 1,000 people or having more than 500,000 square feet of floor space.
- A proposed commercial office building employing more than 1,000 people or having more than 250,000 square feet of floor space.
- A proposed hotel or motel, or both, having more than 500 rooms.
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 people, occupying more than 40 acres of land, or having more than 650,0000 square feet of floor space.
- A mixed-use development that would demand a volume of water equivalent to or greater than the volume of water required by a 500-dwelling-unit project; and

- For lead agencies with fewer than 5,000 water connections, any new development that would increase the number of water service connections within the service area by 10% or more.

Water Code Section 10910 also requires the lead agency to identify any affected water supplier and confirm if demands associated with a proposed development project are included in the supplier's UWMP. If the demands are included in the UWMP, it may be incorporated by reference in the WSA.

SENATE BILL (SB) 221

SB 221 adds Government Code Section 66455.3, requiring that the local water agency be sent a copy of any proposed residential subdivision of more than 500 dwelling units within 5 days of the subdivision application being accepted as complete for processing by the city or county. It adds Government Code Section 66473.7, establishing detailed requirements for establishing whether a "sufficient water supply" exists to support any proposed residential subdivisions of more than 500 dwellings, including any such subdivision involving a development agreement. When approving a qualifying subdivision tentative map, the city or county must include a condition requiring a sufficient water supply to be available. Proof of availability must be requested of and provided by the applicable public water system. If there is no public water system, the city or county must undertake the analysis described in Section 66473.7. The analysis must include consideration of effects on other users of water and groundwater.

WATER SUPPLIERS AND ASSOCIATED AGENCIES

FEDERAL

U.S. Bureau of Reclamation

The United States Bureau of Reclamation (USBR) was established in 1902, and oversees the operation of dams, powerplants, and canals it constructed in the 17 western states. USBR has constructed more than 600 dams and reservoirs including Hoover Dam on the Colorado River and Grand Coulee on the Columbia River. The USBR is currently the largest wholesaler of water in the country, delivering water to more than 31 million people and providing 140,000 western farmers with irrigation water for 10 million acres of farmland. The USBR is also the second largest producer of hydroelectric power in the western United States, with 58 powerplants providing more than 40 billion kilowatt hours annually and producing enough electricity to serve 6 million homes.

The USBR has jurisdiction over the Central Valley Project (CVP), which reaches some 400 miles, from the Cascade Mountains near Redding in the north to the Tehachapi Mountains near Bakersfield in the south. The CVP consists of 20 dams and reservoirs, 11 powerplants, and 500 miles of major canals, as well as conduits, tunnels, and related facilities. The CVP manages some 9 million acre-feet of water annually and delivers about 7 million acre-feet of water for agricultural, urban, and wildlife use and also generates 5.6 billion kilowatt hours of electricity annually to meet the needs of about 2 million people.

U.S. Fish and Wildlife Service and National Marine Fisheries Service

The United States Fish and Wildlife (USFWS), in cooperation with other federal and state agencies, enforce the federal Endangered Species Act through the evaluation of potential

impacts on candidates or threatened and endangered fish and wildlife resources resulting from development projects.

U.S. Army Corps of Engineers

The United States Army Corps of Engineers (USACOE) is responsible for issuing permits for the placement of fill or discharge into any water of the United States. Fill and discharge permits are required under Section 401 and Section 404 of the federal Clean Water Act (CWA). Any water supply or development project that includes in-stream construction activities, streambed alterations, or modifications to existing stream systems trigger the need for USACE permits and related environmental required by the USACE. USACE is the responsible agency for flood control planning and also assists state and local agencies with the design and funding for flood control related projects.

U.S. Geological Survey

The United States Geological Survey (USGS) is the responsible agency for compiling and disseminating the nation's water use data. The USGS works in cooperation with federal, state, and local environmental agencies to collect water-use information at the local level.

STATE

California Department of Water Resources

The California Department of Water Resources (DWR) is responsible for preparation and implementation of the California Water Plan. DWR is also the responsible agency for the regulation of dams, flood control, and other functions related to the state's surface and groundwater resources. Additionally, DWR assists local water agencies in the preparation of their UWMPs and compliance with the Urban Water Management Planning Act.

State Water Resources Control Board – Division of Water Rights

The Water Commission Act of 1913 established the water right permit process and created the agency that later evolved into the State Water Resources Control Board, Division of Water Rights. That agency was given the authority to administer permits and licenses for California's surface water. SWRCB Division of Water Rights is responsible for the granting of water right permits and licenses through an appropriation process following public hearings and appropriate environmental review by applicants and applicable responsible agencies. In granting water right permits and licenses, SWRCB must consider all beneficial uses.

Regional Water Quality Control Board – Central Valley Region

The Regional Water Quality Control Board (RWQCB) is responsible for the preparation and implementation of the basin water quality plans, consistent with the federal Clean Water Act; the enforcement of these plans ensures that local water quality is protected. The proposed project is within the jurisdictional boundaries of the Central Valley Regional Water Quality Control Board (CVRWQCB). CVRWQCB also issues water quality-related certifications to developers of water projects under Section 401 of the federal Clean Water Act.

California Department of Fish and Game

The California Department of Fish and Game (DFG) is a responsible agency with respect to the review of water right applications and is also responsible for issuing streambed alteration agreements for water diversions that affect the bed or banks of stream channels or lakes. DFG works in coordination with various federal and state agencies to mitigate the impacts of projects on fish and wildlife resources. DFG also has authority over the establishment of instream flows (minimum releases below a dam or diversion structure) to maintain habitat below a project.

LOCAL

Lake County Department of Water Resources

The Lake County Department of Water Resources (LCDWR) is responsible for two branches: The Lake County Flood Control and Water Conservation District; and Lakebed Management. The Lake County Flood Control and Water Conservation District is a political subdivision of the State of California established under the Lake County Flood Control and Water Conservation Act, of the State Water Code in 1951. The Flood Control District administers the National Flood Insurance Program for Lake County; plans and implements flood control projects including preliminary engineering and contract administration for Master Plans of Drainage, aerial photography, groundwater management planning, watershed management planning and development of grant proposals.

Lakebed Management is responsible for maintaining the public trust lands below the highwater mark (7.79 Rumsey) in Clear Lake in accordance with Lake County code, Chapter 23, the Shoreline Ordinance, and Chapter 639 in the State Statutes of 1973. The Lakebed Division processes permits and encroachment leases for all structures in the lake below 7.79' on the local Rumsey gauge. The Lakebed Division maintains navigation aides, swim markers and swim areas; performs water quality monitoring; and provides support to the Sheriff's Department (CREWS), Department of Fish and Game, Corps of Engineer, and State Lands Commission. Lake Enhancement programs such as algae management are also the responsibility of Lakebed Management.

Lake County Water Protection District

The Lake County Watershed Protection District works to protect and maintain the County's water resources. The District is part of the Lake County Department of Public Works and reports directly to the County Board of Supervisors. The District is an authorized groundwater management agency as defined by the California Water Code Sections 10753 (a) and (b). District responsibilities include the following:

- Water Resources Planning: groundwater and watershed management;
- Flood Control: administration of the National Flood Insurance Program for Lake County, plan and implement flood control projects, and maintain levees and creeks;
- Operations and Maintenance: operate and maintain the Kelsey Creek Detention Structure, Adobe Creek Reservoir, Highland Spring Reservoir, Highland Springs Park, and the Middle Creek Flood Control Project; and
- Prevent other environmental damage.

Hidden Valley Lake Community Services District

The Hidden Valley Lake Community Services District (HVLCSD) provides municipal water service to the Hidden Valley Lake Subdivision, which is an existing 3,200 acre planned community. The Hidden Valley Lake Subdivision is adjacent to the proposed project to the north and east and includes 3,350 residential lots, and 18-hole public golf course, campgrounds, parks, and open space. Treated wastewater from HVLCSD wastewater treatment plant (WWTP) provides supplemental irrigation water for the golf course and parks. HVLCSD would be the sole water purveyor for the proposed project.

RELATED PLANS AND AGREEMENTS

Lake County Groundwater Management Plan

The Lake County Groundwater Management Plan (LCGWMP) was developed by the Lake County Watershed Protection District (LCWPD) to provide guidance in managing the County's ground water resources. LCWPD initiated a number of efforts to address water resources issues in the County, including documenting the current status of water use and supply, identifying areas of need, and developing recommendations to ensure a high quality and reliable supply of water in the future.[1] The GWMP, together with the Lake County Water Inventory and Analysis and the Lake County Water Demand Forecast, which were all approved by the County Board of Supervisors in April 2006, provide a framework for the County and individual water consumers to implement effective water resource management programs.

Lake County Groundwater Export Ordinance

On January 26, 1999, the Lake County Board of Supervisors adopted an ordinance adding Chapter 28 to the Lake County Code regarding the Extraction and Exportation of Groundwater from Lake County. The Ordinance was developed in conjunction with, and with the approval of, the Water and Land Subcommittee of the Lake County Coordinating Resource Management Committee and the Lake County Community Development Department and various other County departments. The ordinance requires a permit to be issued by the County in order to extract and export groundwater in excess of one (1) acre-foot per year, which is granted if findings and determination is made that the extraction will not cause or increase an overdraft of the groundwater underlying the County, will not adversely affect the long-term ability for storage or transmission of groundwater within the aquifer, or will not (together with other extractions) exceed the safe yield of the groundwater underlying the county unless the safe yield is exceeded only by extractions in connection with a conjunctive use program.

State Water Resources Control Board License and Permit

On November 29, 2001 the SWRCB issued License 13527 and Permit 20770B pursuant to Applications 30049A and 30049B, respectively. License 13527 allows the HVLCSD to divert up to 651 acre-feet annually from the underflow of Putah Creek by means of its Grange Road wells located in the Coyote Valley Groundwater Basin for municipal purposes with the Hidden Valley Lake Subdivision. Permit 20770B provides for the HVLCSD to divert an additional 1,649 acre-

[1] The Lake County Deputy Director of Public Works has asked HVLCSD to prepare an amendment to the Lake County GWMP and associated documents to address misstatements with respect to the Coyote Valley Groundwater Basin and HVLCSD water resources management and use. Such amendment is expected to be submitted to Lake County for its consideration in 2008.

feet annually from the underflow of Putah Creek at its Grange Road wells and Agricultural Well for municipal use within the proposed project, and for fish and wildlife preservation within the Putah Creek corridor.

Coyote Valley Groundwater Basin 2007 Monitoring Report

The HVLCSD is required to prepare annual monitoring reports in accordance with the terms and conditions of its SWRCB License and Permit. The Coyote Valley Groundwater Basin 2007 Monitoring Report was completed in February 2008 and includes information on HVLCSD's surface water diversions and groundwater monitoring well levels.

4.0 WATER SUPPLY ASSESSMENT

INTRODUCTION

The Valley Oaks Planned Development (proposed project) is a residential, commercial, parks and open space project consisting of approximately 380 single-family dwelling units, 53 senior living/multi-family residential units, approximately 55 medium density residential units and commercial space in five separate areas ranging between a total of 190,000 – 230,000 square feet. In accordance with Senate Bill (SB) 610 and Assembly Bill (AB) 901, and as set forth in the California Water Code Section 10910, an assessment is required to determine whether the projected water demands of the proposed project can be met by the proposed water supply. The proposed project falls within the definition of projects requiring a water supply assessment [Water Code Section 10912(b)].

Hidden Valley Lake Community Services District (HVLCSD) is the designated water supplier for the proposed project. HVLCSD is a municipal water provider whose service area is located immediately adjacent to the proposed project. This assessment includes a description of the HVLCSD system, its water supply and facilities, existing and future water demands, and entitlements and water rights relevant to the proposed project. It also identifies the projected water demands of the proposed project, and the adequacy of the proposed water supply to meet those demands.

HVLCSD has concluded that it has sufficient water supplies to meet the projected water demand of the proposed project, in addition to its own existing and projected uses. HVLCSD has the right to appropriate water from the Putah Creek Watershed and the Coyote Valley Groundwater Basin to meet these demands.

WATER DEMANDS OF THE PROPOSED PROJECT

The proposed project will require a water supply to serve a single-family, multi-family, and commercial and recreation/open space development to be located on the approximate 150 acre parcel. The estimated water demands for the Valley Oaks project are listed in **Table 4.0-1**. The total demand at build-out would be approximately 277 acre-feet annually.

TABLE 4.0-1
VALLEY OAKS WATER DEMAND

Land Use	Water Demand (af/yr)
Residential	177.7
Congregate Care	5.5
Commercial	94.2
Recreation/Open Space	Included in the above totals
Total	**277.4**

Source: Civil Design Consultants, 2008

WATER RESOURCES IN THE PROPOSED PROJECT AREA

SURFACE WATER RESOURCES

Surface water resources in the vicinity of the proposed project include Putah Creek and its tributaries of Coyote Creek, Gallagher Creek and Crazy Creek. The Putah Creek watershed is

located about 75 miles north of San Francisco, surrounds the communities of Hidden Valley Lake and Middletown, and is found midway between Clear Lake (to the Northwest) and Lake Berryessa (to the Southeast). The watershed is about 35 miles in length and 20 miles in width at its widest point. Elevations range from 440 feet (the lake level of Lake Berryessa) to 4,722 feet at Cobb Mountain, and are tributary to Lake Berryessa. The headwaters of Putah Creek are located on the eastern slope of the Coast Range in the Mayacamas Mountains, and begin with flows of Dry Creek and Canyon Creek. St. Helena Creek originates at Mount St. Helena and has its confluence with Putah Creek at the town of Middletown. Putah Creek runs through the Callayomi Valley before entering the Coyote Valley via a narrow canyon which is composed of Franciscan or Knoxville formations.

A man-made dam was constructed on Coyote Creek during the 1960s to form the 2,500-acre Hidden Valley Lake Reservoir which is used for recreational and fire protection purposes for the Hidden Valley Lake Subdivision. HVLCSD holds the water right license on the reservoir, but it is not part of its municipal water supply. After exiting Hidden Valley Lake Reservoir through a reinforced concrete weir and spillway, Coyote Creek flows into a settling basin and through the Coyote Valley as a meandering waterway. The flow splits near the boundary of the Hidden Valley Lake Subdivision through a pipe arch culvert under SR 29 to its confluence at Gallagher Creek before entering Putah Creek. Crazy Creek enters Putah Creek about a mile further downstream.

Approximately one mile downstream of the Crazy Creek confluence, Putah Creek flows through a narrow canyon at the outlet of the Coyote Valley Groundwater Basin. This is also the location of the U.S. Geological Survey (USGS) Gaging Station "Putah Creek Near Guenoc" which was operational from 1904-06, and from 1930-76. It was reestablished in 1998 through a joint funding agreement between HVLCSD, Callayomi County Water District and Solano County Water Agency. The gaging station is operated and maintained by USGS and the data is published in its Annual Water Data Reports and is available on a real-time basis on the Internet at the following address: http://waterdata.usgs.gov/ca/nwis/uv/?site_no=11453500

USGS records indicate that the average annual discharge for the entire period of record at the Gaging Station is approximately 149,664 acre-feet. The maximum, minimum and average annual discharge amounts as recorded by USGS are shown below in **Table 4.0-2**.

TABLE 4.0-2
PUTAH CREEK NEAR GUENOC GAGING STATION
ANNUAL DISCHARGE

Year Type	Year	Annual Discharge (Acre-Feet)
Maximum	1941	310,914
Minimum	1976	25,535
Average	*	149,664

Notes: For period of record July 1930 to September 1976, and April 1998 to April 2008.

The minimum annual discharge for the period of record is shown as 25,535 acre-feet. For the period of time when the Gaging Station was not in operation the annual flows were estimated by correlating historic recorded discharge with annual precipitation amounts. The discharge for 1976 was estimated at 16,000 acre-feet, which would be the minimum annual discharge as recorded or estimated at the Putah Creek Gaging Station for the period 1930 through 2008.

GROUNDWATER RESOURCES

The Coyote Valley Groundwater Basin (CVGWB) drains the headwaters of Putah Creek. The total area of the alluvium in the Coyote Valley is estimated to be about 4,000 acres. The groundwater moves through the alluvium from the Crazy Creek drainage toward the outlet of the CVGWB near the USGS Gaging Station. The drainage area of Putah Creek above the Guenoc Gage is approximately 113 square miles. The groundwater basin is generally tilted such that the surface flow at the Guenoc Gage is continuous, though lower surface flows are common in the summer months. Upstream from the Guenoc Gage, surface flows at times are discontinuous, when the flow goes underground before surfacing further downstream. The proposed Valley Oaks project overlies the alluvial valley of the CVGWB.

The USGS Water Supply Paper 1297 "Groundwater of Lower Lake-Middletown Area, 1955" conservatively estimated the storage capacity of the Coyote Valley Groundwater Basin as approximately 27,000 acre-feet. USGS estimates that the thickness of the Coyote Valley alluvium could be as much as 200 feet with as much as 50,000 acre-feet of groundwater storage. Department of Water Resources Bulletin 99 "Reconnaissance Report on Upper Putah Creek Basin Investigation, March 1962" (Bulletin 99) estimates that the alluvium could be as thick as 300 feet in Coyote Valley. According to the well driller log, HVLCSD's Grange Road 2 well was drilled to a depth of 292 feet in 1985.

Notwithstanding, the 50,000 acre-foot estimated storage capacity determined by USGS Bulletin 99 estimates that the mean annual percolation from tributary streams within the Coyote Valley Groundwater Basin boundaries could reach 9,300 acre-feet, provided that ample storage space was available and that percolation was not impeded by a high water table. The 9,300 is assumed to be the actual natural recharge of the basin and the upper limit of water development in the CVGWB without artificial recharge. Additional investigation would be required to accurately identify ultimate development potential within the CVGWB; however, 9,300 acre-feet is presently considered the *minimum* amount of usable capacity (DWR, Bulletin 99). While the 50,000 is not all recoverable, it is likely that the total that *could be* recovered would exceed 9,300 acre-feet.

Historic groundwater levels of the basin indicate relatively minor changes in storage capacity since prior to 1990. The total amount of water available in storage therefore, greatly exceeds the amount that is currently being withdrawn by HVLCSD and others within the CVGWB (Wagner and Bonsignore estimated the current demands from the CVGWB to be about 1,800 acre-feet in 2007). The demand will increase to approximately 2,080 acre-feet annually with the demands of the Valley Oaks project.

DESCRIPTION OF THE DESIGNATED WATER SUPPLIER

Water Code Section 10910(b) requires the identification of the public water system that will supply water to the proposed project. HVLCSD has been identified as the designated water supplier for the proposed project. HVLCSD is a public agency that serves municipal water to the Hidden Valley Lake Subdivision, a 3,200 acre planned community situated in southeastern Lake County consisting of about 3,350 residential lots, a 100-acre recreational lake, an 18-hole public golf course, campgrounds, parks and open space. Tertiary wastewater from the District's wastewater treatment plant is used to supplement irrigation requirements for the golf course and parks. The HVLCSD also provides water to the riparian corridor of Putah Creek several miles downstream at the U.S.G.S. Gaging Station to provide minimum flows with the intention of

enhancing and maintaining wildlife, fish and other aquatic species in the riparian corridor during the summer months.

Water Supply and Entitlements

The water demands of the proposed Valley Oaks project will be served by HVLCSD from diversions made from the Putah Creek Watershed and the Coyote Valley Groundwater Basin. As set forth in *Water Code Section 10910(d)(2)(A)*, water supply entitlements and water rights of the public water system must be identified and demonstrated through written contracts or other proof of entitlement.

HVLCSD is located within and meets its municipal demand by pumping groundwater from its existing wells within the Coyote Valley Groundwater Basin (CVGWB) and adjacent to Putah Creek near Crazy Creek. HVLCSD pumps water pursuant to its appropriative water rights obtained from the State Water Resources Control Board (SWRCB) and under a riparian right obtained from the former Stonehouse Mutual Water Company, which was acquired by HVLCSD in 1993 made possible by special legislation (California Assembly Bill 1504).

Water Right Permit 20770 (Application 30049) was issued by the SWRCB to HVLCSD on December 29, 1994. In accordance with the terms of the Condition 12 Settlement Agreement in the Stipulated Judgment for the Upper Putah Creek Watershed Adjudication, Sacramento County Superior Court Case No. 515766, and as set forth in SWRCB Order WR 96-002, HVLCSD sought a License for the amount of water that had been perfected under its Permit as of December 31, 1995. On November 29, 2001, the SWRCB bifurcated Permit 20770, and issued License 13527 and Permit 20770B pursuant to Applications 30049A and 30049B, respectively. A copy of these documents is on file at the State Water Resources Control Board, 1001 I Street, Sacramento, CA 95812-2815.

License 13527 allows the HVLCSD to divert up to 651 acre-feet annually from the underflow of Putah Creek by means of its Grange Road wells for municipal purposes. Permit 20770B allows the HVLCSD to divert an additional 1,649 acre-feet annually from the underflow of Putah Creek at its Grange Road wells and its Agricultural Well for municipal use, and for fish and wildlife preservation within the downstream Putah Creek riparian corridor.

Also as part of the terms and conditions of its water right Permit and License, HVLCSD prepared a groundwater monitoring plan setting forth a program for construction of a series of dedicated monitoring wells and the collection and reporting of seasonal groundwater levels within the Coyote Valley Groundwater Basin. HVLCSD also reports on the surface water outflow from the CVGWB. A report summarizing this information and HVLCSD's water use has been submitted to the SWRCB each year since 1995. These reports are available by contacting HVLCSD.

HVLCSD's Permit 20770B expires at the end of 2011. At that time, HVLCSD may request that a License be issued for the amount of water put to beneficial use prior to the expiration date, and/or request an extension of time to have additional time in which to make full beneficial use. If full beneficial use of Permit 20770B has not been made by 2011, HVLCSD will request a time extension. It should be noted that an expired permit remains in good standing pending approval of a time extension request. There is no renewal needed for License 13527 provided the water diverted pursuant to the license is continually put to beneficial use and HVLCSD is in compliance with the terms and conditions of its license. HVLCSD is in compliance with all terms of its license and permit.

HVLCSD also diverts water pursuant to a claim of riparian right. The water use is documented in Statement of Water Diversion and Use Nos. 14734, 14735 and 14736 on file with the SWRCB. Copies of these Statements are included in **Appendix A**.

Ground water resources within the CVGWB will be the primary source to meet the demands of the proposed project. The CVGWB is not an adjudicated basin. There is not a formal procedure for the appropriation of groundwater in a non-adjudicated basin. Groundwater can be used without regulatory approval from the SWRCB provided the water is used on lands overlying the groundwater basin by the overlying owner. A public water supplier can appropriate surplus groundwater for use on non-overlying lands provided there is water surplus to the needs of existing overlying users. The CVGWB is not in any state of overdraft, and surplus water exists for development as evidenced by the DWR Bulletin 99 which estimated there was 9,300 acre-feet of developable water supply.

Groundwater is classified as 'percolating groundwater' unless it is part of a subterranean stream. Absent evidence to the contrary, groundwater is presumed to be percolating groundwater. The SWRCB has permitting authority over subterranean streams, but not percolating groundwater. State Water Resources Control Board Decision 1639 in the matter of Garrapata Water Company in Monterey County set forth criteria regarding classification of groundwater. For groundwater to be classified as a subterranean stream, the following conditions must exist:

1. A subsurface channel must be present;
2. The channel must have relatively impermeable bed and banks;
3. The course of the channel must be known or capable of being determined by reasonable inference; and
4. Groundwater must be flowing in the channel.

The proposed diversion of groundwater from the CVGWB for the proposed project is presumed to be percolating groundwater. The claim of percolating groundwater in the CVGWB has not been challenged to date. The burden of proof is on the entity asserting that the groundwater is part of a subterranean stream.

The Valley Oaks parcels overlie the alluvium of the CVGWB and as such may have an overlying right to the water pumped from the ground below the parcels for use thereon. The Valley Oaks project may be riparian depending on the classification of the groundwater. Similarly to other riparian lands served by the HVLCSD, Valley Oaks might be served water under a riparian water right if it was determined that 1) a subterranean stream as described above exists at the point of extraction (well serving the project), and 2) the Valley Oaks parcels are riparian to Putah Creek.

Whether or not Valley Oaks has a riparian right or an overlying right, HVLCSD can serve the proposed project as an appropriator of surplus groundwater. As stated above, there is surplus groundwater in the CVGWB. While HVLCSD has adequate entitlements pursuant to its appropriative water right permit and license to serve the proposed project, it does not need to rely on those water rights for such service. Thus it is not necessary at this time to determine the actual water right of Valley Oaks for the proposed water service to be made under a valid claim of right. The water right entitlement(s) for the proposed project will be either:

1. A riparian right if the CVGWB is a subterranean stream at the point of extraction, or

2. An overlying right to CVGWB by the fact that the parcels overlie the CVGWB alluvium, or

3. Served surplus groundwater by HVLCSD from CVGWB.

Possible Future Addition of Valley Oak to the HVLCSD Water Right Permit and License

As indicated above, HVLCSD will serve the proposed project under the overlying water right of Valley Oaks, or Valley Oaks' riparian right, or as an appropriator of surplus groundwater. However, it might be desirable in the future to amend HVLCSD's water right Permit and License to include the lands of Valley Oaks. Since that future action would require CEQA review by HVLCSD, it is prudent to point out in this document that all of the related environmental impacts associated with water use within Valley Oaks are addressed by this EIR. In fact, the most important potential impact, the availability and reliability of a long-term water supply has been directly answered in the affirmative.

Prior Water Use and Projected Demand

Water Code Section 10910(d)(1) requires the description of prior years' water use by the public water system under its existing entitlements. **Table 4.0-3** summarizes the use of water by HVLCSD pursuant to its water right License, Permit, and under claim of riparian right. Municipal use amounts include water used for golf course irrigation, when necessary.

TABLE 4.0-3
HVLCSD WATER USE SUMMARY (1995 – 2007)

Year	Municipal Use (Acre-Feet)	Supplemental For Fish and Wildlife Preservation (Acre-Feet)	Total (Acre-Feet)
1995	1,233	0	1,233
1996	1,423	0	1,423
1997	883	200	1,083
1998	744	0	744
1999	707	58	765
2000	694	153	847
2001	834	233	1,067
2002	1,315	0	1,315
2003	1,173	99	1,272
2004	1,321	60	1,381
2005	1,199	6	1,205
2006	1,146	2[1]	1,148
2007	1,062[2]	0	1,062
Average			1,119

[1] Source of Supplemental Water during 2006 was from a groundwater well owned by a neighboring landowner.
[2] Does not include water that was sent to reclaimed water pond in 2007.

Source: Coyote Valley Groundwater Basin 2007 Monitoring Reports and HVLCSD records

In its 2001 Water Master Plan and the 2007 Coyote Valley Concept Infrastructure Plan, HVLCSD projects that the number of residential and non-residential service connections would increase from 2,391 connections in 2007, to a maximum of 3,776 connections in 2028. The municipal water demand under the current configuration of HVLCSD is expected to increase from 1,062 acre-feet in 2007 to a maximum of 1,556 acre-feet annually by the year 2028. This demand is based on a projection of HVLCSD's historic average per-connection values and does not include the 277 acre-feet demand associated with the Valley Oaks project. **Figure 4.0-1** sets forth HVLCSD's projected water connections and water use for the period 2007-2028.

Capital Outlay Program

Water Code Section 10910(d)(2)(B) requires a copy of the capital outlay program for financing the delivery of the identified water supply for the Valley Oaks project. HVLCSD uses revenues from tax assessments to finance its municipal or special assessments/bonds, which are in turn used to fund existing infrastructure. The Water Enterprise Fund charges existing residential and commercial users a bi-monthly base rate and an overuse rate to fund the general operations, maintenance, and day-to-day activities. A flat bi-monthly sewer charge funds the Sewer enterprise fund for the general operations, maintenance and day-to-day activities.

For any new development, HVLCSD levies connection fees for residential and commercial users and also requires, under the "Attorney Service Agreement", an annexation into HVLCSD boundaries to install and maintain for one year all required water and sewer infrastructure necessary to provide utility service. HVLCSD annually updates and amends the Capital Facility Fees through the establishment and approval of an ordinance. The ordinance outlines and includes provisions for the modification, structuring, restructuring and approval of rates, tolls, fares and other charges by the Ordinance, which are levied on HVLCSD's residential and commercial customers to ensure adequate and reliable funding and to improve and protect groundwater quality.

The Capital Facilities fees are for the purpose of meeting operating expenses, and obtaining funds for capital projects necessary to maintain service within existing service areas. A copy of the current Ordinance is included as **Appendix B**.

Permit Requirements for Construction of Facilities

Water Code Section 10910 (d)(2)(c) requires the identification of any federal, state, or local permits required for construction of the facilities that will be required to serve the water supply to the Valley Oaks project.

HVLCSD would need to install a new 500,000 gallon water storage tank and a new diversion well(s) to serve the Valley Oaks project. The project would tie into HVLCSD's existing transmission system and the majority of the new lines and related facilities would be located within the County right-of-way. The transmission lines located within the County right-of-way would require approval from the Lake County Department of Public Works. Construction of any new wells would require approval from the State of California Department of Health Services. Additionally, any transmission lines or facilities crossing SR 29 would require an encroachment permit from the California Department of Transportation. The physical effects of providing new site-specific infrastructure is addressed and reviewed in the appropriate technical sections of the

Valley Oaks EIR. Any permits identified pursuant to that review will have to be obtained prior to any start of construction related activities.

Regulatory Approvals for Delivery of Water

Regulatory approvals that will be required for the delivery of the water supply for the Valley Oaks project must be identified pursuant to Water Code Section 10910 (d)(2)(D).

As discussed above, HVLCSD plans to serve the project from diversions made from the Putah Creek Watershed pursuant to the claim of riparian rights, and from groundwater resources within the Coyote Valley Groundwater Basin. No regulatory approvals are required for the use of these water supplies. Upon commencement of the use of water under claim of riparian rights, a Statement of Water Diversion and Use is required to be filed with the SWRCB.

The HVLCSD is in the process of amending its current Sphere of Influence (SOI) to expand its service area boundaries in an effort to better manage the CVGWB. Any SOI amendments are subject to Local Agency Formation Commission (LAFCO) oversight and approval. It is important to note that the proposed SOI amendment is independent of the Valley Oaks project and would not require approval prior to implementation of, or in association with, the Valley Oaks project.

In order to provide water to serve demand within the expanded SOI, including the Valley Oaks project, HVLCSD anticipates that a new groundwater well(s) and storage tank will be required. The design and siting of any new wells proposed for use by a public water system are subject to the California Department of Health Services (DHS) review and approval and require a DHS permit prior to construction or operation. No other regulatory approvals are anticipated.

Potential Conflicts with Use of Designated Water Supply

Water Code Section 10910 (e) states:

> *"If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments."*

The intent of this section is to identify any potential conflicts that may arise from the exercise of a water supply entitlement, water right, or water service contract to serve a proposed project if such water entitlement, water right, or water service contract has not been previously exercised.

As stated herein, HVLCSD intends to serve the Valley Oaks project from diversions from the Putah Creek Watershed and/or from groundwater resources within the Coyote Valley Groundwater Basin (CVGWB), which is a non-adjudicated basin. The County has not identified the CVGWB as being overdrafted, and there is no indication from extensive monitoring by

HVLCSD of any overdraft. Only adjudicated groundwater basins have an established system of rights. In non-adjudicated groundwater basins, users are not required to apply for groundwater rights before use or extraction. To date, Lake County has no adjudicated groundwater basins.

There are no other public water systems or municipalities that rely on the CVGWB. HVLCSD does not receive water under contract from any entity and exercises its own water rights to meet its municipal demands. For over forty years HVLCSD and/or its predecessor has diverted water from the Putah Creek Watershed for municipal purposes.

In 2002 HVLCSD commissioned a geophysical survey of the CVGWB. The survey identified four other entities that divert a substantial amount of water from the Putah Creek Watershed within the area of the CVGWB for irrigation purposes. The amount of water being diverted by those four entities was approximately 700 acre-feet annually. The current municipal demand of HVLCSD (1,100 acre-feet in 2007) and the projected demand of the proposed Valley Oaks project (277 acre-feet) would increase the average annual diversions within the CVGWB to about 2,080 acre-feet. There are also several diversions being made for domestic purposes within the CVGWB, but the annual amount of those diversions were considered minimal and were not included in the survey.

Groundwater Supply

Because the Valley Oaks project would be supplied partially by groundwater resources, Water Code Section 10910(f)(1) through (5) requires specific additional information about that resource.

Section 10910(f)(1) – Published Data: Lake County and HVLCSD do not currently have an adopted Urban Water Management Plan; however, Lake County did adopt the *Lake County Groundwater Management Plan* (GWMP) together with the *Lake County Water Inventory and Analysis* and the *Lake County Water Demand Forecast*, which were all approved by the County Board of Supervisors on April 11, 2006.[3]

The Coyote Valley Groundwater Basin is included within the Upper Putah Inventory, and is analyzed in the GWMP. In 2001, HVLCSD issued its Water Master Plan which evaluates growth, water demand, and water storage, diversion and conveyance facilities.

Section 10910(f)(2) – Basin Description: The Coyote Valley Groundwater Basin (CVGWB) is in the southeastern portion of Lake County along Putah Creek. The general direction of groundwater flow in the Coyote Valley is to the southeast, in the direction of Putah Creek. The CVGWB is 5 miles long and 2.5 miles wide. The CVGWB is bordered on the east by Clear Lake volcanics, Serpentinized ultramafic rock on the south and west, and Franciscan formation on the north. Low hills of basalt are found in the south and southeastern portion of the CVGWB. Holocene alluvium is the primary water bearing unit and overlies the Cache Formation.

According to the GWMP, groundwater within the upper 100 feet of the formation is generally unconfined and the existing wells in the alluvium produce an average of 1,000 gallons per minute. The groundwater levels in the CVGWB generally are shallow in the spring, decrease over the summer, and recover during winter recharge. Water levels are between 10 and 15 feet

[3] Lake County Deputy Director of Public Works has asked HVLCSD to prepare an amendment to the GWMP and associated documents to address misstatements with respect to the Coyote Valley Groundwater Basin and HVLCSD water resources management and use. Such amendment is expected to be submitted to Lake County in 2008.

below ground surface on average in the spring and are generally stable throughout the CVGWB. Spring to summer drawdown in the western areas typically range from 20 to 25 feet, and drawdown in the eastern portions generally range from 5 to 10 feet. The Department of Water Resources (DWR) Bulletin 99 estimated that 9,300 acre-feet is the upper limit of development in the CVGWB without artificial recharge and is considered the useable capacity.

To improve understanding of the County's groundwater resources and prevent basin overdraft, Lake County has identified and is in the process of implementing Basin Management Objectives (BMOs) which address groundwater levels, groundwater quality and land related influences on the County's water supplies. The BMOs are both qualitative and quantitative and are based on numeric thresholds and define specific actions when conditions exceed the predetermined thresholds. BMOs for the CVGWB are identified as follows:

- Prevent long-term declines in groundwater levels.
- Maintain groundwater levels to assure an adequate and affordable irrigation and domestic water supply.
- Develop an understanding of groundwater within the basin.
- Maintain a sustainable water supply now and into the future.
- Understand geothermal water occurrence.
- Increase monitoring and understanding of groundwater levels, groundwater quality, land subsidence and connections between these elements.
- Understand well depths consistent with basin pumping or available yield.

The GWMP also included the following recommendations and implementation programs to prevent overdraft and ensure adequate long-term groundwater supplies in the CVGWB and all the County's groundwater basins:

- Continue the development of the County's AB 3030 Groundwater Management Plan in an effort to promote groundwater management activities that will result in an adequate supply of high quality groundwater in the future;
- Encourage active participation by local stakeholders in both groundwater planning and groundwater monitoring efforts. The County will also encourage groundwater monitoring partnerships with local groundwater users;
- Participate in coordinated regional and statewide groundwater monitoring and planning efforts;
- Pursue the installation and monitoring of additional groundwater monitoring wells in areas of data gaps and in areas where increasing groundwater demand is anticipated in the future; and
- Support additional studies focused on furthering the understanding of individual groundwater source areas and basins.

Additionally, the Lake County Board of Supervisors enacted Chapter 28 "Regulation of the Extraction and Exportation of Groundwater" from Lake County groundwater basins, to maintain groundwater tables, prevent overdraft and protect the County's groundwater resources.

Lake County's water resources recommendations are consistent with the water resources goals of HVLCSD, the designated water supplier. As stated herein, HVLCSD manages, monitors and reports on its water use and the groundwater elevations of its monitoring wells within the CVGWB. Pursuant to its groundwater monitoring program, HVLCSD constructed twelve monitoring wells within the CVGWB, four of which are located along a line generally parallel to Putah Creek and eight of which are located in the Crazy Creek drainage along a line generally perpendicular to Putah Creek. Since 1990, HVLCSD has made monthly water level measurements of its monitoring wells located throughout the CVGWB. The monitoring information collected by HVLCSD is contained in its annual summary report to the SWRCB.

The location of the twelve monitoring wells and their corresponding monthly hydrographs are shown on the map in **Appendix C**. Groundwater level measurements for Wells GR1 and GR2 were taken periodically beginning in 1984 and monthly since 1990. Monthly monitoring of Well GR3 and Wells TP1, TP2 and TP3 began in 1995. In October 2002, Well GR1 failed and was immediately removed from service. In February 2003, HVLCSD installed Well GR4 at the same location to replace the failed well and monitoring of GR4 began in July 2003. Monitoring of Wells MW1 through MW4 began in 1996, and in 1998 for Well MW5. Monitoring of the Agricultural Well AG1 began in February 1999.

The available data collected by HVLCSD indicate that groundwater levels in the CVGWB are generally stable and vary between 920 and 940 feet above mean sea level (msl). Groundwater levels at the various wells in the summer months typically fall approximately 10 to 15 feet, but fully recover each winter. During a relatively dry period (1992-94), water levels dropped an average of about 20 feet during the summer months, but all fully recovered in the ensuing winter months. The hydrographs do not show any evidence of overdraft in the CVGWB. Results from all monitoring wells over the period of record for each well indicate that groundwater surface levels diminish in the summer months, but recover fully each winter. Over the past few years water levels have showed an upward trend.

Section 10910(f)(3) Current Demands: HVLCSD's water diversions from the CVGWB are set forth in **Table 4.0-3**. Annual diversions for the period 1995-2007 have ranged from 744 to 1,423 acre-feet, and the average annual use for this period is about 1,120 acre-feet. The diversions are made from the HVLCSD's Grange Road Wells and the Agricultural Well located in the central portion of the CVGWB near the confluence of Gallagher and Putah Creeks. The HVLCSD diversion data is included in its annual Monitoring Report submitted to the SWRCB.

Section 10910(f)(4) – Projected Demands: The Valley Oaks project estimates that its annual water requirements will be approximately 277 acre-feet. Under its present configuration, HVLCSD's projected water use is expected to be about 1,556 acre-feet by the year 2028. Projected demand to meet potential future annexations could approach 3,600 acre-feet by the year 2028 (see **Figure 4.0-1**). HVLCSD anticipates that it will install a new groundwater well(s) to serve the Valley Oaks project. The well(s) will likely be sited within he proposed project's 150-acre parcel which is located within the central portion of the CVGWB, between Crazy and Putah Creeks. The new well(s) will be located approximately one mile to the northeast of HVLCSD's existing water diversion facilities.

Section 10910(f)(5) – Sufficiency of Supply: The Valley Oaks project would be supplied both from groundwater resources within the CVGWB and from the Putah Creek Watershed. The Department of Water Resources (DWR) Bulletin 99 estimated that 9,300 acre-feet is the upper limit of development without artificial recharge and is considered the useable groundwater capacity within the CVGWB.

The work done in connection with the HVLCSD geophysical survey of the CVGWB estimated current annual groundwater diversions within the CVGWB as about 1,800 acre-feet annually. The proposed Valley Oaks project would increase annual use by 277 acre-feet, for a total of about 2,080 acre-feet. Given that the average annual discharge of Putah Creek for the period of record at the USGS Gaging Station "Putah Creek Near Guenoc" is 149,664 acre feet and that the groundwater levels are stable, there is sufficient water available for the proposed project from the CVGWB. The projected demand of the proposed project would increase total use within the CVGWB by 277 acre-feet annually, which represents an additional 3% of the CVGWB's estimated usable capacity of 9,300 acre-feet.

Water available annually for recharge to the CVGWB greatly exceeds the estimated current and proposed demand. As stated above, the minimum *estimated* annual discharge at the Putah Creek Gaging Station was 16,000 acre-feet, which exceeds the current and proposed annual demand of 2,080 acre-feet by more than 700%. The percent flow exceedence for discharge of Putah Creek for the period of record is shown in **Figure 4.0-2**.

Lake County estimated that the *current* average groundwater extractions for the *entire* Upper Putah Inventory Unit, which *includes* the Callayomi-Long Valley Groundwater Basin, and several independent well owners and operators in addition to those in the Coyote Valley Groundwater Basin, is approximately 2,072 acre-feet in average years, 2,452 acre-feet during dry years, and approximately 1,769 acre-feet during wet years. DWR Bulletin 99 estimates the usable capacity of the CVGWB and the Callayomi-Long Valley Groundwater Basin as 9,300 acre-feet and 9,000 acre-feet, respectively. The estimated annual extractions in the Upper Putah Inventory Unit as determined by Lake County represent approximately 13% during dry years and approximately 10% during wet years of the CVGWB and Callayomi-Long Valley Groundwater Basin's estimated usable combined capacity of 18,300 acre-feet. Lake County did not determine the extractions within the CVGWB alone.

CONCLUSION

The HVLCSD determined that it has identified sufficient water supplies to meet the projected demand of the Valley Oaks project in addition to the demand of its existing community and other anticipated future water users within its service area boundaries for the 20 year period from 2007 to 2028 under normal, single dry and multiple dry water years. This determination is based on the following:

- The Coyote Valley Groundwater Basin has been extensively analyzed in USGS Water Supply Paper 1297 *"Groundwater of Lower Lake-Middletown Area, 1955"*; Department of Water Resources Bulletin 99 *"Reconnaissance Report on Upper Putah Creek Basin Investigation, March 1962"* (Bulletin 99); *Coyote Valley Groundwater Basin 2006 Monitoring Report* prepared annually by the HVLCSD in accordance with SWRCB License and Permit requirements; and the California Department of Water Resources "*Groundwater Basin Bulletin 118"*, last updated on February 27, 2004.

- The average annual discharge of Putah Creek as recorded at the USGS Gaging Station for the period of record is about 149,664 acre-feet.

- Long-term hydrographs for the twelve monitoring wells in CVGWB indicate that groundwater levels are stable. Results from all monitoring wells over the period of record for each well indicate that groundwater levels decline in the summer months, but recover fully each winter. Over the past few years water levels have showed an upward trend.

- HVLCSD has rights to appropriate water from the Putah Creek Watershed and the Coyote Valley Groundwater Basin pursuant to its License and Permit and to use water under claim of riparian right to meet its municipal and environmental mitigation requirements. The HVLCSD holds appropriative water rights issued by the SWRCB that allows year around diversions of up to 2,300 acre-feet annually from the underflow of Putah Creek. Of that amount, 651 acre-feet has been perfected under License 13527 (Application 30049A), and the remaining 1,649 acre-feet is available for appropriation under Permit 20770B (Application 30049B).

- The Valley Oaks project will be served by HVLCSD from surface water resources within the Upper Putah Creek Watershed and from groundwater sources within the CVGWB. The current HVLCSD water supply program provides and demonstrates 100% reliable water supply to meet its demands while properly managing and maintaining the integrity of the Coyote Valley Groundwater Basin, and the environmental resources of Putah Creek.

- The Valley Oaks project overlies the alluvial area of the CVGWB. The Department of Water Resources Bulletin 99 estimated that 9,300 acre-feet is the upper limit of development in the CVGWB without artificial recharge and is considered the useable capacity within the basin. HVLCSD's geophysical survey of the CVGWB estimates existing groundwater extractions as 1,800 acre-feet annually. When considered with the 277 acre-feet projected annual water demand of the Valley Oaks project, the total demand is still substantially below the estimated usable and available capacity of 9,300 acre-feet within the CVGWB.

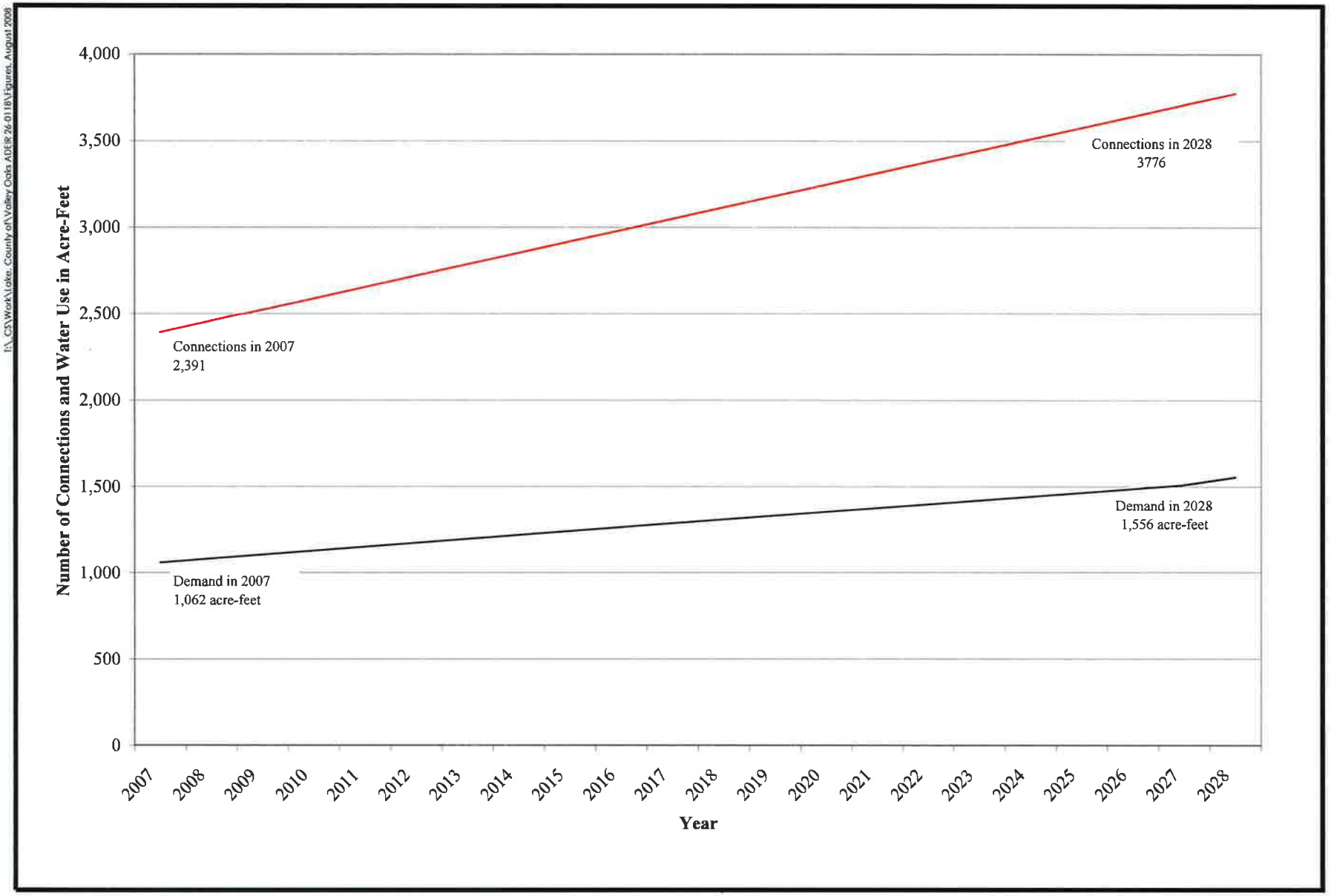
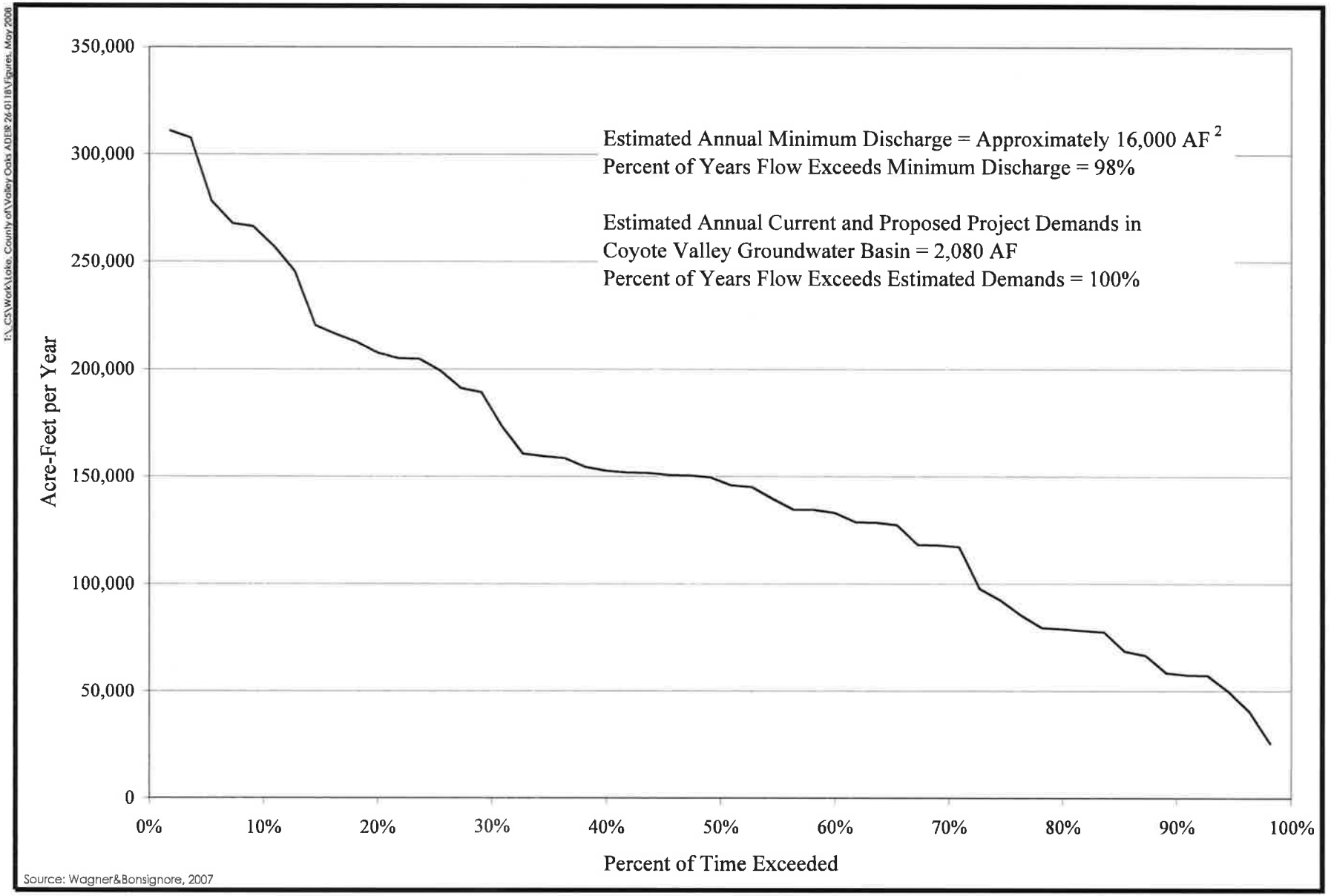


Figure 4.0-1

HVLCSD Projected Residential and Non-Residential Connections and Total Water Demand

PMC



1) All data unless otherwise noted from published USGS records for gaging station "Putah Creek Near Guenoc."
2) Estimated from a correlation of historic recorded discharge and precipitation records.

Figure 4.0-2
Annual Putah Creek Discharge

5.0 REFERENCES

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APPENDIX A - STATEMENT OF WATER DIVERSION AND USE NOS. 14734, 14735, AND 14736