

## 4.9

# PUBLIC SERVICES AND FACILITIES

### INTRODUCTION

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The Public Services and Facilities section of the EIR describes the public services and utilities provided in the City of Davis, including domestic water supply, wastewater treatment, fire protection, law enforcement, solid waste disposal, gas and electric service, telecommunications, schools, and parks and recreation. Documents referenced to prepare this section include the *City of Davis General Plan*<sup>1</sup>; the *Program EIR for the City of Davis General Plan Update and Project EIR for Establishment of a New Junior High School (General Plan Update EIR)*<sup>2</sup>; the City of Davis Public Works Department website<sup>3</sup>, *City of Davis Urban Water Management Plan 2005 Update*<sup>4</sup>, *Davis-Woodland Water Supply Project DEIR*<sup>5</sup>, as well as other sources noted within the section. Information related to the City's current and future water supply and capacity has been drawn from an internal letter directed to Bob Weir, City Public Works Director, on April 1, 2009.<sup>6</sup> This letter is provided in Appendix I of the Draft EIR.

### ENVIRONMENTAL SETTING

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The Environmental Setting section describes the existing conditions of each of the aforementioned public services and utilities in the City of Davis.

#### Domestic Water Supply

The City of Davis water service area, bordered by UC Davis and West Sacramento, includes the City of Davis, El Macero (located south of Interstate 80), and additional areas to the north, south, east, and west of the City. The service area has a population of approximately 67,270. The City currently uses groundwater as its only potable water supply source. The City pumps groundwater from the Sacramento Valley groundwater basin, which is not adjudicated, and there are no legal restrictions to groundwater pumping.

Two aquifers, each with unique characteristics, supply the City and UC Davis with groundwater. Water-producing zones less than 700 feet deep are referred to as the intermediate depth aquifer. A slowly-permeable clay layer confines underlying water-producing zones, which are referred to as the deep aquifer. Currently, fifteen of the City's wells tap into the intermediate aquifer system at a depth of approximately 300 to 600 feet. The City has six wells that draw water from the deep aquifer at depths between 1,490 feet and 1,800 feet (See Table 4.9-1). Due to more stringent water quality regulations and concerns, the City has been gradually shifting its groundwater pumping through its 21 wells from the intermediate to deep (below 700 foot depth) aquifers. Newer wells 28, 29, 30, 31, 32 are therefore completed in the deep aquifer to depths ranging from 1,400 to 1,800 feet (Winzler and Kelly, 2005).

Well No.	Location	Year Constructed	2008 Average Capacity (gpm)	Aquifer / Depth of Well (ft bgs)
1	Central	1982	950	Intermediate / 522
7	Central	1952	1000	Intermediate / 340
11	Central	1961	1320	Intermediate / 344
14	Central	1970	1600	Intermediate / 352
15	East	1965	1750	Intermediate / 520
19	North	1973	1330	Intermediate / 615
20	West	1976	1100	Intermediate / 456
21	South	1977	1130	Intermediate / 450
22	East	1977	1140	Intermediate / 510
23	Central	1980	1750	Intermediate / 419
24	Central	1982	1600	Intermediate / 460
25	West	1987	1200	Intermediate / 466
26	South	1987	1480	Intermediate / 492
27	North	1989	1300	Intermediate / 366
EM3	South	1991	1030	Intermediate / 471
28	West	1991	820	Deep / 1491
29	East	1996	1190	Deep / 1502
30	West	2001	2600	Deep / 1780
31	West	2001	2410	Deep / 1802
33	Central	2007	1840	Deep / 1520
32	South	2008	1450	Deep / 1600

The City's active wells range in age from nearly new to over 50 years old. Since 1987, the City has removed six intermediate wells from service due to age, poor water quality, production, and/or operation and maintenance problems. The City's average annual well production since the year 2000 is approximately 4,800 million gallons (MG).

Detailed Groundwater Basin Description

The City has few physical constraints on its groundwater supply other than the pumping capacities of existing wells. However, the Plainfield Ridge creates a minor restriction to east-west groundwater flow just west of the City. There are no other major restrictions to horizontal groundwater flow in the area (DWR "Bulletin 118," 2004). The following description of the City's groundwater basin offers potential physical considerations to the system.

The City's deep aquifer zone appears to exist throughout the service area, and is more predominant to the north and west. The deep aquifer zone slopes downward from the Plainfield Ridge, 3.5 miles west of the service area, with gradual flattening towards the east.

The productive aquifers in the Davis area of Yolo County occur in Tehama and younger formations. In most areas of Yolo County, the sands and gravel of the Tehama Formation are thin, discontinuous layers between silt and clay deposits. In much of the eastern portion of the

county, productive aquifers are found up to 700 feet below ground surface with few productive aquifers in the 700-foot to 1,000-foot depth range. In the study area (especially to the west), good quality water is also found in the Tehama Formation at depths of approximately 1,200 feet to 1,500 feet. Aquifers in the Davis area are recharged by a number of sources. Deep percolation of rainfall and to a lesser extent irrigation water, are major components of groundwater recharge. Other significant sources include infiltration in streambeds, channels, and the Yolo Bypass. Relatively coarse-grained deposits line both Putah and Cache Creeks, allowing substantial infiltration.

Water moves very slowly between aquifers at different depths. In some places, water moves between aquifers through wells that have been screened at a number of different depths to enhance production. This causes the well columns to act as open pipes to equalize the water pressure of aquifers at different depths. The deep aquifer has a much longer recharge period as compared to the intermediate depth aquifer, on the order of thousands of years versus hundreds of years, respectively. Both the City and UC Davis are increasingly reliant on the deep aquifer due to its superior quality compared to water produced from the intermediate depth aquifer. Furthermore, noticeable impacts on pumping from surrounding agricultural land use exist; however, quantification is not yet available.

#### Water Quality

The quality of the existing groundwater supply sources and planned surface water supply sources over the next 25 years is expected to be adequate. In recent years, a number of City intermediate depth wells have been removed from service due to water quality problems, including high concentrations of total dissolved solids, nitrates, iron, manganese, and selenium. These problems have caused the City to drill additional wells into the deep aquifer. Groundwater will continue to be chlorinated, and treated as necessary to meet drinking water standards. Water quality deficiencies are expected to be a major challenge in the next 10 to 15 years as long as the City relies solely on untreated groundwater. In addition, wellhead treatment poses challenges associated with brine disposal and other issues.

Pumping from intermediate depth aquifers in Yolo County has caused about two feet of subsidence in the area of the City over the past 10 years. In addition, some City intermediate depth wells appear to have been damaged by subsidence or other subterranean movement based on well screen failures. This information is based on actual field observations (e.g. levee elevations) and validated by studies done by other agencies such as the United States Geological Survey (USGS). The Yolo County Subsidence Network was established in 1999 (a joint regional effort) to provide the opportunity for county agencies to periodically monitor and measure subsidence effects. Subsidence could cause a number of adverse impacts, including reduced water quality because water removed from the clay inter-layers during subsidence is typically poorer quality than water in the coarse-grained layers. This lower quality water would eventually reach the pumping wells.

One of the main reasons for constructing wells in the deep aquifer is to obtain water with higher overall quality versus the current quality of water from the intermediate depth aquifer. Water from the deep aquifer has moderate levels of hardness and total dissolved solids. Available

information indicates that while boron exists in the aquifer, hexavalent chromium, selenium, and nitrates are not problematic constituents. Arsenic levels do not exceed current drinking water limits, but may exceed possible future limits for this constituent. Manganese does exist in this deeper aquifer, and treatment will be necessary at some of the deep well sites. The deep aquifer zone appears to exist throughout most of the Davis area; however, it may be less predominant toward the east and may not have sufficient water quality to meet future standards.

Additional water quality concerns include the concentration of some objectionable trace constituents in the deep aquifer, which is higher for wells in the far eastern portion of the service area. Parameters of greatest concern in the deep aquifer zone are hardness, arsenic, manganese, and high temperature. Manganese levels in some deep strata exceed secondary drinking water standards. Arsenic levels averaging 4.6 parts per billion (ppb) are within current drinking water standards (10 ppb in effect as of January 2006), but could be problematic if the limit is substantially reduced as may be promulgated by the California Environmental Protection Agency (Cal EPA) (Davis, 2004). Though wellhead treatment processes could be installed to remove arsenic and manganese or adjust temperature at the wellhead, it is very expensive, and would add capital and operating costs to intermediate or deep wells (West Yost, 2002).

Water Demand

The amount of groundwater projected to be pumped in the next 25 years is shown in Table 4.9-2. The City is investigating alternative potable water supplies such as surface water, and projects having a surface water supply source online by 2020 to meet all urban potable water demands. With their groundwater supply system designed to meet peak hour demands, until the surface water is available in 2020, the City projects pumping magnitudes to match total demand projections as shown in Table 4.9-3.

<b>Table 4.9-2</b>						
<b>Projected Normal Year Water Supplies (ac-ft/yr)</b>						
<b>Water Supply Sources</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Surface water <sup>a</sup>	0	0	0	18,800	20,000	20,000
Supplier produced groundwater <sup>b</sup>	15,600	16,700	17,700	0	0	1,200
Recycled water <sup>c</sup>	0	0	0	0	0	0
Water supply loss due to water quality	0	0	0	0	0	0
Transfers in or out	0	0	0	0	0	0
Exchanges in or out	0	0	0	0	0	0
Desalination water	0	0	0	0	0	0
<b>Total</b>	<b>15,600</b>	<b>16,700</b>	<b>17,700</b>	<b>18,800</b>	<b>20,000</b>	<b>21,200</b>
<sup>a</sup> Once surface water supply is available in 2020, projected demands are expected to be fully met by surface water. <sup>b</sup> However, groundwater supply will be available to supplement surface water supplies to meet peak summer demands. <sup>c</sup> Recycled water is discussed in Chapter 5 of this Plan. <i>Source: City of Davis Urban Water Management Plan, 2005.</i>						

<b>Table 4.9-3</b>						
<b>Projected Normal Year Water Supply and Demand Comparison (ac-ft/yr)</b>						
	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Supply Totals	15,600	16,700	17,700	18,800	20,000	21,200
Demand Totals	15,600	16,700	17,700	18,800	20,000	21,200
Difference (supply minus demand)	0	0	0	0	0	0
Difference as a percent of supply	0	0	0	0	0	0
Difference as a percent of demand						

*Source: City of Davis Urban Water Management Plan, 2005.*

*Normal Dry Year*

Normal-year water demands through the year 2030 are estimated based on a 1.2 percent growth estimate. By 2030, water demands are expected to increase by 36 percent, from 15,600 ac-ft/yr in 2005 to 21,200 ac-ft/yr in 2030. Impacts to water use due to conservation measures that meet demand reduction goals are reflected in the projected water demands.

*Single Dry Year*

The City assumes that overall demands will not change during a single dry year. Any demand reductions due to the implementation of the City’s water shortage contingency plan are not included in the single dry year demand estimates.

*Multiple Dry Years*

The overall water demand is assumed not to change during a single dry year, thus the first year demand of a multiple dry year drought is 100 percent of normal. Furthermore, it is assumed that overall demands will decrease 10 percent during a multiple dry year. Any demand reductions due to the implementation of the City’s water shortage contingency plan are not included in the multiple dry year demand estimates. The projected multiple dry year water demands in ac-ft/yr for the period ending in 2030 are shown in Table 4.9-4.

<b>Table 4.9-4</b>					
<b>Projected Multiple Dry Year Water Demands - Period Ending in 2030 (ac-ft/yr)</b>					
	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>
Total demand	20,200	18,400	18,600	18,900	19,100
Percent of project normal	100	90	90	90	90

*Note: Water savings from future water conservation is not included in demand projections.*  
*Source: City of Davis Urban Water Management Plan, 2005.*

Water Distribution System

In addition to the 21 city wells previously identified, the City of Davis water distribution system includes water tanks, booster pumps, and water main pipelines throughout the city necessary to provide the a system capacity to meet peak water demands.

### *Water Storage*

The City currently has two storage facilities; a 200,000 gallon elevated storage tank near Elmwood Drive and Eighth Street, and a 4 MG ground-based storage reservoir along John Jones Road in west Davis, adjacent to Sutter Davis Hospital. This west area water storage tank, as well as a new booster pump station, was built in 2002. An additional 4 MG tank is currently being planned in east Davis near Mace Boulevard and I-80.

### *Water Distribution*

The City distributes water to its customers through approximately 175 miles of 4-inch through 14-inch diameter pipelines. The hydraulic grade line in the system is primarily determined by the water level in the 200,000 gallon elevated storage tank at Eighth Street. Water levels in the elevated tank generally vary between 95 and 115 feet above ground level, maintaining system pressure between 40 and 50 pounds per square inch (psi) under most demand conditions. All facilities are monitored by a Supervisory Control and Data Acquisition (SCADA) system, which activates wells and booster pump facilities based on storage tank water levels or pressure at selected locations in the distribution system (Winzler and Kelly, 2005).

### *Water Supply Projects and System Upgrades*

This section provides a description of the City's water supply projects and water supply programs that may be undertaken to meet the total projected water use and provide system reliability. The City of Davis has identified a series of water distribution system upgrades that will provide sufficient system capacity to meet the City's future peak demands. The City is also investigating and pursuing supplemental water supplies to mitigate local groundwater quality concerns and create the possibility for conjunctive use of both groundwater and surface water. This would improve long term water supply reliability, reduce the potential negative impact of future water shortage conditions, and reduce reliance on the groundwater source to avoid potential future negative impacts as a result of increased regional groundwater pumping as well as subsidence and quality concerns for both drinking water and wastewater systems.

### *City Well Capacity Replacement Project*

To replace the lost capacity of several recently removed wells (as discussed in Section 2.3.1 of the City's Urban Water Management Plan), the Davis Well Capacity Replacement project consists of the installation of two or three deep aquifer wells with a combined maximum pumping capacity of 4,500 gallons per minute (gpm) and a water storage tank facility. The purpose of this well replacement project is to maintain an adequate water supply to meet current peak demands in the water system. The City's future water demands, whether due to the loss of existing wells and/or growth, are expected to be met with treated surface water supply and peak demand deep wells by 2020 (Winzler and Kelly, 2005).

### *East Area Tank*

The City is currently in the design phase of the East Area Water Storage Tank (4 million gallons) and booster station located in East Davis. Construction is anticipated to begin in summer of 2009 and be complete in summer of 2010. The booster station was originally designed to bring 3 pumps on-line in 2010, and then add an additional pump to meet future demands. The current distribution system pipe sizes in the area will not support the full flow of future capacity, so additional system piping is needed to transport the water. The City of Davis has determined that this additional capacity is needed now, and the fourth pump is being added at the same time as the other three. The additional piping has been added as an additional project to the City's program (see *East Area Main Upsize* below). Water delivery from the tank will be 4,000 gpm in 2010, and 6,000 gpm as soon as the pipe upsizing is complete (no later than 2011).

### *East Area Main Upsize*

With the installation of the East Area Tank, the City of Davis will need the pump station operational to full capacity immediately in order to meet projected demands. The full capacity of the booster pump station is 6000 gpm. The distribution system piping near the tank is not large enough to transport that much flow at acceptable pressures. In order to fully utilize the pump station build out capacity, an additional pipeline must be added from the tank site to the north, around the Mace Boulevard Curve to Alhambra Drive. This will distribute the additional water to system at acceptable pressures.

This large pipeline was anticipated to be needed once the surface water was brought on-line to transport surface water from the Terminal Reservoir to the tank. Both the Terminal Reservoir and the Corp Yard Tank are components identified in the Davis Woodland Water Supply Project (DWWSP). Funding for the pipeline was previously identified as part of the DWWSP. Building a portion of the pipeline now accelerates the need for the funds that have already been identified and have been included in the City's rate schedule.

### *West Area Main Upsize*

The existing West Area Tank site is located in West Davis. The current pump station capacity is 3,000 gpm and because connection to the distribution system is located so closely to Well 31, the booster pumps can not be run at the same time as the well. The distribution system piping along John Jones Road and partially down Covell Boulevard needs to be upsized to transport the combined flow at acceptable pressures. When the pipe upsizing is complete, we'll be able to move forward with a future project of increasing the pump station capacity to 6,000 gpm (not on the list yet).

This large pipeline was anticipated to be needed once the surface water was brought on-line to transport surface water from the Terminal Reservoir to the tank. Because of this, funding was previously identified as part of the Davis Woodland Water Supply Project (DWWSP). Building a portion of the pipeline at this time accelerates the need for the funds that have already been identified and have been included in the City's rate schedule.

## Surface Water Supply

The City of Davis, the City of Woodland, and the University of California, Davis (UC Davis) are facing a mutual challenge in meeting forecasted future water quality and supply needs for their customers. The project partners currently rely on groundwater as the sole source for meeting municipal and industrial water needs. Each of the partners operates its own water system, including groundwater wells, wellhead chlorination facilities, water storage, and water transmission pipelines.

On October 16, 2007, the Davis City Council approved Resolution 07-168 to certify the FEIR prepared for the Davis-Woodland Water Supply Project (SCH 2006042175). Based on the studies completed to date, the Davis-Woodland Water Supply Project (DWWSP) could ultimately divert up to 46.1 thousand acre-feet per year (TAF/yr) of surface water from the Sacramento River by the year 2040 to meet most of the municipal and industrial demands of the project partners. The DWWSP would divert water under new water rights that would be based on the project partners' pending water-right applications and through water transfers from holders of existing senior water rights (diverted surface water).

The DWWSP would construct and operate a water diversion facility near the Sacramento River. The DWWSP includes the construction of untreated-water conveyance pipeline facilities, a water treatment plant, treated water conveyance pipelines, and water storage facilities. The water diverted from the Sacramento River would vary from 15 to 46 TAF/yr with an annual average of 31.6 TAF/yr. The diverted surface water and Sacramento River intake water would be processed at the proposed water treatment plant. The water treatment plant would be constructed in two stages, with an ultimate capacity of 51.8 million gallons per day (mgd). Furthermore, the DWWSP would result in the construction of treated water transmission pipelines, pump stations, water storage facilities, vaults, and other water facilities within the City of Davis, City of Woodland, and UC Davis.

The total amount of water rights and entitlements that would be acquired and the capacities of the key project facilities are proposed to meet the needs of the project partners through 2040; other project facilities would be developed in stages corresponding to population growth and development that is anticipated will take place in accordance with local land use plans and growth policies.

## **Wastewater Treatment**

Wastewater treatment for the project area is provided by the City of Davis Public Works Department. The City's wastewater treatment plant is located approximately six miles northeast of Davis on County Road 28H, and is supplied by over 150 miles of sewer line. The plant was designed to accommodate an average dry weather flow of 7.5 mgd. In June 2005, the City of Davis estimated that the Plant's wastewater flows were 6.25 mgd. Treated effluent is discharged into the Willow Slough Bypass, a tributary to the Yolo Bypass. In the summer, the discharge is used for irrigation; in winter, the discharge flows into the Delta.

The treatment plant's design was based upon the 1987 City of Davis General Plan estimate of a Year 2010 population of approximately 75,000. The City of Davis Wastewater Master Plan Executive Summary lists the 2004 service area population as 65,890 and projected 2010 population served as 70,122. The 2000 Davis General Plan Update EIR states that the plant is expected to accommodate demand through 2010; however, little excess capacity would remain to handle additional development. Developers are required to pay for trunk sewers and all other lines needed to accommodate new development, so that the only cost borne by the City would be for maintenance of the lines.

Increased demand is not the only wastewater treatment concern faced by the City. In the *Status Report on Municipal Wastewater Treatment Facilities* (March 2003), the Public Works Department anticipates that increasingly strict State and federal wastewater discharge regulations would require major upgrades to the existing treatment facilities.<sup>7</sup> The main component of the treatment plant consists of 120 acres of eight-foot-deep secondary treatment oxidation ponds, which were constructed beginning in 1972. Ponds are less than ideal due to the following: they tend to grow algae, do not remove some types of contaminants, and are subject to uncontrolled variables such as weather and ecological factors. Later improvements to the system, including an overland flow system, aeration equipment, and a wetlands system (the Davis Wetlands) have resulted in treated municipal wastewater effluent containing concentrations of organic and suspended solids ranging from 45 to 90 mg/L, which is typical of older wastewater facilities.

Modern plants, such as the one recently constructed by U.C. Davis, produce much cleaner effluent water, with suspended solids concentrations in the three to ten mg/L range. Although the City has thus far been able to adapt to changing regulatory requirements, the *Status Report* states that the City's combination of natural and modified natural wastewater treatment processes may not be sustainable, reliable, or consistent with the State's wastewater treatment and disposal objectives. For instance, the system is not capable of meeting upcoming treatment standards for nitrogen (such as ammonia) and pathogens, including viruses.

Furthermore, compliance with more restrictive wastewater discharge standards may be dependent in part upon improved drinking water quality. Wastewater discharge requirements for some contaminants (for instance, copper) are much more stringent than standards for the same contaminants in drinking water; thus, water quality problems of the potable water supply may actually compound the difficulty of producing wastewater discharge which meets standards.

The *Status Report* calls for the City to make major improvements to the wastewater treatment system to achieve the following objectives if the City is to continue discharging its treated wastewater into the Willow Slough Bypass:

- Production of effluent with organic and suspended solids concentrations comparable to typical background values.
- Production of effluent essentially free of human pathogenic organisms.
- Production of effluent meeting California Toxics Rule (CTR) and related toxicity criteria.
- Construction of wastewater treatment facilities that have reliable wastewater performance characteristics.

- Construction of wastewater treatment facilities that maximize removal of contaminants and minimize addition of (or concentration of) contaminants during the wastewater treatment process.

## **Fire Protection**

Fire protection for the project area is provided by the City of Davis Fire Department. According to the Fire Department website, the Fire Department serves a 133-square mile area containing a population of over 68,138 people, on a total annual budget of approximately \$9.7 million.<sup>8</sup> The Fire Department provides prevention services and emergency response services. The prevention services include: fire safety inspections, fire investigations, plan review, public education, weed abatement, youth fire diversion, water supply issues, and permits. The emergency response services include: pre-hospital emergency medical services, fire suppression, hazardous materials response, technical rescue, and public assistance.

The Fire Department maintains a staff of 45 shift personnel (nine captains and 36 firefighters), one fire chief, three division chiefs, one fire prevention captain, and four administrative staff, for a total of 54 employees. Raney Planning & Management, Inc. contacted the Davis Fire Department Headquarters to obtain the most recent information for the Fire Department. A letter from the Fire Department (dated May 29, 2007) stated that the current service ratio for the Fire Department is 0.67 firefighters per 1,000 population for the entire service area and 0.70 within City limits.<sup>9</sup>

The Department's three fire stations are located in Central, West, and South Davis. The shift personnel (firefighters) are divided into three shifts, each shift working a 24-hour day (56-hour work week). Fire Department equipment consists of three engines, one rescue unit, one squad unit, two grass/wildland units, one water tender, and two reserve engines, as well as two antique fire apparatus units.

The Davis Fire Department has contractual agreements with the East Davis County Fire Protection District, the Springlake Fire Protection District, and the No Man's Land Fire Protection District to provide emergency response to these areas. The City and these three districts are divided into three emergency first-response areas. These areas provide clearly defined territories for dispatching the nearest fire and EMS personnel and equipment to an emergency. The Fire Department also has automatic aid agreements with the University of California at Davis Fire Department and the cities of Woodland, West Sacramento, and Dixon, as well as other fire protection agencies throughout California.

Insurance Services Office (ISO) ratings are used by insurance companies to determine fire insurance rates. The rating takes into account the number of firefighting personnel and equipment available to an area and the average emergency response times. Ratings range from one through ten, with one indicating excellent fire service and ten indicating minimal or no protection. The May 2007 letter from the Fire Department indicates that the City of Davis Fire Department's current ISO rating is four (4).

The 2001 General Plan states that the Fire Department attempts to operate within a standard of a five-minute response time 90 percent of the time. According to the May 2007 letter provided by the Fire Department as well as an updated response time map provided to City staff in March 2009 by the Department, the Department would be able to get to the project access point at East Covell Boulevard and Monarch Lane within 5 minutes if Engine 33 (from Station 33 on Mace Boulevard) is not already assigned. However, the internal streets of the project would be outside of the five minute response time area.

According to the Department, in 1999 the need for a fourth engine company and station was identified for the northern portion of the City. However, funding for the ongoing annual operation costs of said fourth company has not been identified. As a result, the fourth fire station is on hold, pending identification of an ongoing revenue source to fund the personnel and maintenance of the station.

### **Law Enforcement**

The Davis Police Department (DPD) operates out of a modern station located at 2600 Fifth Street, approximately 1.25 miles south of the project site. The Police Department serves an area of approximately nine (9) square miles and provides service to approximately 68,000 City residents. Of the 101 full-time employees, 60 are sworn officers and 45 are civilians.<sup>10</sup> The sworn officers perform law enforcement tasks as well as administration and supervision, while the civilian personnel perform tasks including administration, support, supervision, dispatch, parking enforcement, and community service duties. The Police Department maintains 14 marked patrol vehicles, two marked civilian vehicles assigned to patrol, and 14 unmarked cars assigned to investigations and administration.

The City's service ratio standard is 1.2 officers per 1,000 population; the existing service level is roughly 0.88 officers per 1,000 population.<sup>11</sup> The City's target response time for emergencies and non-emergencies are five to six minutes and 20-30 minutes, respectively. The actual response time for emergency and non-emergencies are four minutes and 20 minutes, respectively. The DPD averages 8,400 priority calls per year and 48,600 non-priority calls.

### **Solid Waste Disposal**

Solid waste collection and disposal in the City of Davis (including the project site) is provided by Davis Waste Removal, Inc. (DWR). DWR has a drop-off and buy-back center and provides residential curbside, apartment, and business collection services. In addition to the weekly garbage service, DWR provides green waste and recycling pickup and street sweeping service. Recoverable items include: mixed paper, glass, aluminum cans, steel and tin cans, some plastics, corrugated cardboard, yard waste, and used motor oil.

Local solid waste management planning is governed by the Integrated Waste Management Act of 1989. The Act established strict mandates for local agencies to achieve a 25 percent reduction in solid waste disposed of by 1995 and a 50 percent reduction by the year 2000. Each city is required to prepare, adopt, and submit to the County a Source Reduction and Recycling Element (SRRE). Counties must also prepare a SRRE for unincorporated areas.

All non-recyclable waste generated by the City of Davis is disposed of at the 770-acre Yolo County Central Landfill, which is located off County Road 28H near its intersection with County Road 104. The landfill is owned and operated by the Yolo County Department of Public Works and Transportation. As of May 2007, the landfill had a remaining capacity of 20 million cubic yards and is projected to reach capacity in the year 2045.<sup>12</sup> Under the landfill's existing permit, the facility is allowed to receive up to 1,800 tons per day, 360 days a year. The landfill receives approximately 900 tons of solid waste per day. The landfill also includes a recycling drop-off facility, a wood processing facility, and a methane gas collection facility, and accepts drop-offs of household hazardous waste at no charge to County residents on designated Saturdays throughout the year.

### **Gas and Electric Service**

Gas and electric service in the City of Davis is provided by Pacific Gas & Electric (PG&E) under a franchise granted to PG&E by the City.

### **Telecommunications**

The 2001 City of Davis General Plan states that telecommunication infrastructure and services have been identified as important community resources, which are likely to be as important to the continuing economic development of the community as basic infrastructure such as water, sewer, and road systems. The use of advanced telecommunications technologies provide a means to reduce traffic (telecommuting and telework), strengthen business and attract potential high-tech business (economic development), and increase citizen participation in local government (electronic democracy), as well as generally improve the quality of life for residents.

The City of Davis oversees the development of telecommunications infrastructure through the City Telecommunications Ordinance. The City is in the process of revising the existing franchise ordinance to reflect the substantial changes that have taken place in telecommunications in the 15 years since the original ordinance was last updated.

The City is also a partner in the Yolo Area Regional Network (YARN), an organization promoting and coordinating the development of regional information infrastructure and services in a manner intended to most fully benefit the residents of the Yolo County area.

### **Schools**

#### Grades K-12

The City of Davis is served by the Davis Joint Unified School District (DJUSD). The DJUSD covers an area of 126 square miles and employs approximately 1,000 people. The district maintains eight (8) standard elementary schools, one (1) small "magnet" elementary school, three (3) junior high schools, one (1) comprehensive high school, one small "magnet" high school, one School for Independent Study, and one continuation school. The City also has four (4) private schools: Davis Waldorf School (K-8); St. James School (K-8); Montessori-Portage

Bay (K-3); and Merryhill Country Day School (K-8). Table 4.9-5 provides the current enrollment for the schools within the DJUSD.

School	Enrollment	District-Adopted Size	Space Available (+/_)
<b>Elementary Schools</b>	<b>4,332</b>	<b>4,650</b>	<b>318</b>
Birch Lane (K-6)	616	641	25
Cesar Chavez (K-6)	591	612	21
Fairfield (K-3)	58	58	0
Korematsu (K-6)	472	503	31
Montgomery (K-6)	475	494	19
North Davis (K-6)	590	619	29
Patwin (K-6)	469	572	103
Pioneer (K-6)	570	590	20
Valley Oak (K-6)	0	0	0
Robert Willet (K-6)	491	561	70
<b>Junior High Schools (7-9)</b>	<b>1,999</b>	<b>2,675</b>	<b>676</b>
Ralph Waldo Emerson	490	810	320
Oliver Wendell Holmes	728	950	222
Frances Ellen Watkins Harper	781	915	134
<b>High Schools (10-12)</b>	<b>1,990</b>	<b>2,443</b>	<b>453</b>
Davis Senior High	1,658	2,199	541
Da Vinci High	332	244	576
King High (continuation school)	N/A	N/A	-
<b>TOTAL</b>	<b>8,321</b>	<b>9,768</b>	<b>1,447</b>
<i>Source: Michael Adell, Director of Facilities, DJUSD, March 2009.</i>			

The school district has experienced declining enrollments and has had to close one school beginning in the 2008/2009 school year and is currently working on an elementary boundary change to accommodate the school consolidation. The District does not currently use any bussing programs and/or will not be placing any portable classrooms to accommodate overcrowded schools at this time due to recent declining enrollments.

### **Parks and Recreation**

The Davis Parks and General Services Department manages parks, urban forest and recreation facilities in the City. The Davis Community Services Department is responsible for a variety of recreational programs. Additionally, City schools, UC Davis, and private organizations provide recreational facilities and services to the City.

The City of Davis Parks & General Services Department maintains over 400 acres of parks and greenbelts throughout the community. The 32 neighborhood and community parks and the extensive system of greenbelts include 43 different play areas, 12 large reservable picnic areas

and many smaller ones, 33 tennis courts, and many other amenities such as horse shoe pits, disc golf, basketball courts, exercise courses, etc. Examples of recreational programs operated by the Community Services Department include swimming, gymnastics, arts and crafts, and dance classes. In addition, various groups use City recreational facilities, including high school sports teams, adult softball and basketball, the gymnastics team, little league, and the youth soccer league. The UC Davis athletic program is home to a wide variety of intramural and intercollegiate sports, many of which provide spectator opportunities for the public.

The City's General Plan establishes a standard of 5 acres of parkland per 1,000 residents (Table 14, p. 231). The General Plan also establishes standards for a community park (minimum 15 net acres) within 1.5 miles of all dwelling units and a neighborhood park (minimum 5 acres) within 3/8 mile of all dwelling units (pp. 220 and 221).

In addition, according to Action item POS 3.1(l) of the General Plan, greenbelt requirements should be calculated separately from park acreage dedication or in-lieu fee payment requirements that are specifically authorized by the Quimby Act (Gov. Code 66477). The General Plan standard for greenbelt provision is as follows: 10 percent of newly developing residential land should be developed as open space, primarily greenbelt. Greenbelt land is required to be improved by the developer of the residential project. Parks and Open Space Standard 3.1(h) establish a minimum greenbelt width of 35 feet, with an overall average width of 100 feet.

The City's standard for the provision of parkland acreage for new developments is codified in Chapter 36 of the Davis Municipal Code, Subdivision Ordinance, Section 36.08.040 - Parkland dedication. The standard requires the provision of 0.0131 acres of parkland per dwelling unit. Fees may be paid in-lieu of parkland dedication.

## **REGULATORY CONTEXT**

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Existing policies, laws, and regulations related to public services and utilities that would apply to the proposed project are summarized below.

### **Federal**

#### Clean Water Act (CWA) / National Pollutant Discharge Elimination System (NPDES) Permits

The CWA is the cornerstone of water quality protection in the United States. The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."

The CWA regulates discharges from "non-point source" and traditional "point source" facilities, such as municipal sewage plants and industrial facilities. Section 402 of the Act creates the NPDES regulatory program which makes it illegal to discharge pollutants from a point source to the waters of the United States without a permit. Point sources must obtain a discharge permit

from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). NPDES permits cover industrial and municipal discharges, discharges from storm sewer systems in larger cities, storm water associated with numerous kinds of industrial activity, runoff from construction sites disturbing more than one acre, mining operations, and animal feedlots and aquaculture facilities above certain thresholds.

Permit requirements for treatment are expressed as end-of-pipe conditions. This set of numbers reflects levels of three key parameters: (1) biochemical oxygen demand (BOD), (2) total suspended solids (TSS), and (3) pH acid/base balance. These levels can be achieved by well-operated sewage plants employing "secondary" treatment. Primary treatment involves screening and settling, while secondary treatment uses biological treatment in the form of "activated sludge."

All so-called "indirect" dischargers are not required to obtain NPDES permits. An indirect discharger is one that sends its wastewater into a city sewer system, so it eventually goes to a sewage treatment plant. Although not regulated under NPDES, "indirect" discharges are covered by another CWA program called pretreatment. "Indirect" dischargers send their wastewater into a city sewer system, which carries it to the municipal sewage treatment plant, through which it passes before entering surface water.

## **State**

### Fire Services

#### *Uniform Fire Code*

The Uniform Fire Code with the State of California Amendments contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the California Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The Fire Code contains specialized technical regulations related to fire and life safety.

#### *California Health and Safety Code*

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, include regulations for building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

## Schools

### *California Code of Regulations*

The California Code of Regulations, Title 5 Education Code, governs all aspects of education within the State.

### *Proposition 1A/Senate Bill 50*

Proposition 1A/Senate Bill (SB) 50 (Chapter 407, Statutes of 1998) is a school construction measure authorizing the expenditure of State bonds totaling \$9.2 billion through 2002, primarily for modernization and rehabilitation of older school facilities and construction of new school facilities. \$2.5 billion is for higher education facilities and \$6.7 billion is for K-12 facilities. Proposition 1A/SB 50 implemented significant fee reforms by amending the laws governing developer fees and school mitigation.

- Establishes the base (statutory) amount (indexed for inflation) of allowable developer fees at \$1.93 per square foot for residential construction and \$0.31 per square foot for commercial construction.
- Prohibits school districts, cities, and counties from imposing school impact mitigation fees or other requirements in excess of or in addition to those provided in the statute.
- Suspends for a period of at least eight years (2006) a series of court decisions allowing cities and counties to deny or condition development approvals on grounds of inadequate school facilities when acting on certain types of entitlements.

Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any “[...] legislative or adjudicative act [...] involving [...] the planning, use, or development of real property” (Government Code 65996(b)). Additionally, a local agency cannot require participation in a Mello-Roos for school facilities; however, the statutory fee is reduced by the amount of any voluntary participation in a Mello-Roos. Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be “full and complete mitigation.” The law identifies certain circumstances under which the statutory fee can be exceeded, including preparation and adoption of a “needs analysis,” eligibility for State funding, and satisfaction of two of four requirements (post-January 1, 2000) identified in the law including: year-round enrollment, general obligation bond measure on the ballot over the last four years that received 50 percent plus one of the votes cast, 20 percent of the classes in portable classrooms, or specified outstanding debt. Assuming a district qualifies for exceeding the statutory fee, the law establishes ultimate fee caps of 50 percent of costs where the State makes a 50 percent match, or 100 percent of costs where the State match is unavailable. District certification of payment of the applicable fee is required before the City or County can issue the building permit.

### *Proposition 55*

Proposition 55 is a school construction measure passed in 2004 authorizing the sale of approximately \$12.3 billion in bonds to fund qualified K-12 education facilities to relieve overcrowding and to repair older schools. Funds target areas of the greatest need and must be spent according to strict accountability measures. These bonds would be used only for eligible Projects. Approximately ten billion dollars would be allocated to K-12 schools.

### *Department of Education Standards*

The California Department of Education published the Guide to School Site Analysis and Development to establish a valid technique for determining acreage for new school development. Rather than assigning a strict student/acreage ratio, this guide provides flexible formulas that permit each district to tailor the Department's ratios as necessary to accommodate each district's individual conditions. The Department of Education also recommends that a site utilization study be prepared for the site, based on these formulas.

### **Local Regulations**

The following are applicable goals and policies from the Water Element of the City of Davis General Plan related to public services and facilities:

- Goal WATER 1      Minimize increases in water use. Reduce per capita water consumption by 20 percent as compared to historic use through programs encouraging water conservation.
  - Policy WATER 1.1      Give priority to demand reduction and conservation over additional water resource development.
  - Policy WATER 1.2      Require water conserving landscaping.
  - Policy WATER 1.3      Do not approve future development within the City unless an adequate supply of quality water is available or will be developed prior to occupancy.
  
- Goal WATER 2      Ensure sufficient supply of high quality water for the Davis Planning Area.
  - Policy WATER 2.1      Provide for the current and long-range water needs of the Davis Planning Area, and for protection of the quality and quantity of groundwater sources.
  - Policy WATER 2.2      Manage groundwater resources so as to preserve both quantity and quality.
  - Policy WATER 2.3      Maintain surface water quality.

- Goal WATER 5      Remain within the capacity of the City wastewater treatment plant.
- Policy WATER 5.1    Evaluate the wastewater production of new large-scale development prior to approval to ensure that it will fall within the capacity of the plant.
- Policy WATER 5.2    Provided that the existing plant capacity is not exceeded, require new large-scale development to pay its fair share of the cost of extending sewer service to the site.
- Goal WATER 3      Design stormwater drainage and detention facilities to maximize recreational, habitat, and aesthetic benefits.
- Policy WATER 3.1    Coordinate and integrate development of storm ponds and channels Citywide, to maximize recreational, habitat, and aesthetic benefits.
- Policy WATER 3.2    Coordinate and integrate design, construction, and operation of proposed stormwater retention and detention facilities City-wide, to minimize flood damage potential, and improve water quality.

The following are applicable goals and policies from the Police and Fire Element of the City of Davis General Plan related to public services and facilities:

- Goal POLFIRE 1      Provide high quality police and fire protection services to all areas of the City.
- Policy POLFIRE 1.1    Recruit and maintain a staff of high-quality police officers and firefighters.
- Policy POLFIRE 1.2    Develop and maintain the capacity to reach all areas of the City with emergency police and fire service within a five-minute emergency response time, 90% of the time. Response time includes alarm processing, turnout time, and travel time.

The following are applicable goals and policies from the Materials, Solid Waste, and Recycling Element of the City of Davis General Plan related to public services and facilities:

- Goal MAT 1          Enhance the quality of the environment by conserving resources and minimizing waste by reducing, reusing, recycling, and re-buying.
- Policy MAT 1          Promote reduced consumption of non-renewable resources.

Goal MAT 2 Provide adequate waste disposal capacity for Davis.

Policy MAT 2.1 Plan for the long-term waste disposal needs of Davis.

The following are applicable goals and policies from the Energy Element of the City of Davis General Plan related to public services and facilities:

Goal ENERGY 1 Reduce per capita energy consumption in Davis.

Policy ENERGY 1.1 Develop programs to increase energy conservation on the household and business levels.

Policy ENERGY 1.2 Develop a comprehensive program to reduce City government energy consumption.

Policy ENERGY 1.3 Promote the development and use of advanced energy technology and building materials in Davis.

Policy ENERGY 1.4 Continue to enforce landscaping requirements that facilitate efficient energy use or conservation.

Policy ENERGY 1.5 Encourage the development of energy-efficient subdivisions and buildings.

The following are applicable goals and policies from the Computers and Telecommunications Element of the City of Davis General Plan related to public services and facilities:

Goal C&T 1 Encourage development of new infrastructure and service to allow all who live, work, and study in Davis to utilize new technologies to communicate with individuals and institutions locally, regionally, nationally, and globally.

Policy C&T 1.3 Encourage educational opportunities regarding science, computers, and technology for Davis residents.

Goal C&T 2 Pursue telecommunications as a means to reduce transportation impacts that can improve air quality and personal convenience and reduce dependency on non-renewable resources.

The following are applicable goals and policies from the Youth and Education Element of the City of Davis General Plan related to public services and facilities:

Goal Y&E 7 Work with the Davis Joint Unified School district and private school operators to provide for public schools and educational facilities that serve

as neighborhood focal points and maintain a quality learning and recreational environment.

Policy Y&E 7.1 It shall be the policy of the City to integrate public schools physically and functionally as focal points of their surrounding neighborhoods.

Goal Y&E 8 Plan for the costs of new school facilities when planning for specific new residential developments.

Policy Y&E 8.1 It shall be the policy of the City to require to the extent legally permissible the full mitigation of school impacts resulting from new residential development within the boundaries of the City.

Goal Y&E 9 Construct new public schools to meet the needs of residential growth.

Policy Y&E 9.1 It shall be the policy of the City to take all legally permissible steps to ensure the full mitigation of impacts of new development on school facilities

The following are applicable goals and policies from the Parks, Recreation, and Open Space Element of the City of Davis General Plan related to public services and facilities:

Goal POS 3 Identify and develop linkages, corridors, and other connectors to provide an aesthetically pleasing and functional network of parks, open space areas, greenbelts, and bike paths throughout the City.

Policy POS 3.1 Require creation of neighborhood greenbelts by project developers in all residential projects, in accordance with Policy LU A.5.

Policy POS 3.3 Implement specific projects to augment the existing greenbelt/open space system.

Goal POS 4 Distribute parks, open spaces, and recreation programs and facilities throughout the City.

Policy POS 4.1 Preserve existing parks, greenbelts, and open space areas.

Policy POS 4.2 Construct new parks and recreation facilities.  
f. Acquire and develop park land to meet the standards for neighborhood and community parks outlined above, with highest priority for park development in those areas that do not

currently meet the distance-from-dwelling standard.

Goal POS 5      Respect natural habitat areas and agricultural land in planning and maintaining the City's park system.

Policy POS 5.1      Protect and retain wildlife habitat, agricultural land, and open space when planning and maintaining City park lands.

Goal POS 6      Encourage local organizations, the Davis Joint Unified School District, UC Davis, and the private sector to provide, develop, and maintain needed parks, open space, recreation facilities, programs, activities, and special events to the greatest extent possible.

Policy POS 6.2      Require dedication of land and/or payment of an in-lieu fee for park and recreational purposes as a condition of approval for subdivisions, as allowed by the Quimby Act (Government Code 66477).

Goal POS 7      Reflect a balance between preservation, education, recreation, and public health and safety in park and open space planning.

Policy POS 7.1      Proceed with park and open space planning in a balanced fashion, pursuing all the varying and sometimes competing uses of Open Space as opportunities are identified. These competing uses include resource conservation (farm land and groundwater recharge), wildlife and habitat needs, buffering of the agricultural and urban interface, alternative transportation corridors, and active and passive recreation uses.

## IMPACTS AND MITIGATION MEASURES

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### Standards of Significance

An impact to the public services and utilities of the proposed project area would be considered potentially significant if the proposed project would:

- Require substantial expansion of water supply treatment or distribution facilities;
- Require substantial expansion of water pollution control facilities;
- Require extension of sewer mains with capacity to serve new development;
- Result in the degradation of existing wastewater infrastructure;

- Require additional fire protection staff and equipment to maintain acceptable levels of service;
- Require additional law enforcement staff and equipment to maintain acceptable service ratios;
- Allow residences in areas that cannot be adequately served with police or fire services;
- Produce solid waste in excess of available landfill capacity;
- Result in the need for a new system or substantial alteration to power or natural gas utilities;
- Require expansion of the existing school system; or
- Not provide adequate parkland or greenbelt acreage.

## Methods of Analysis

The Impacts and Mitigation Measures section evaluates the impacts of the proposed project on the existing public services that would occur if the project is developed as currently proposed. Impact significance is determined by comparing project conditions to the existing conditions. The responsible agencies for each service have been contacted regarding the potential impacts on their facilities.

## Project Impacts and Mitigation Measures

### 4.9-1 Ability of Existing Water Conveyance Facilities to Meet Project Water Demands.

The City's water supply and distribution system is currently operating below its desired capacity at times of peak demand. The City's goal is to provide adequate system capacity to meet flow requirements to respond to a major fire occurring at a time of maximum consumption demand, with sufficient residual system pressure in accordance with State guidelines, and industry standards. For example, if the largest capacity well typically used for meeting demand (ex. Well 30) was offline, and if Well 31 cannot be used due to distribution system constraints, and a major fire occurred at the peak hour of water system demand, system pressure is anticipated to be below the minimum value, under the guidelines. The City is pursuing ways to alleviate this situation, and is looking at several measures that could provide more water during peak demands. For example, the City can accelerate the construction of a number of master-planned lines in the vicinity of tanks. This could allow Well 31 to be used during peak water demand periods and also allow for the addition of a fourth pump at the proposed East Tank and booster station at Mace Blvd/I-80. The City would also initiate an expansion of its inter-tie agreement with UC Davis to provide additional supplies during peak periods of demand.

The completion of the East Area Tank, the East Area Main Upsize, and the West Area Main Upsize are scheduled to occur by 2011. When completed, these water supply system capacity improvements will meet the City's peak water demand for its current residents combined with the additional demands of the proposed project. These capacity improvements currently are proposed to be accelerated from originally anticipated schedules. This may require the City to incur additional interest obligations or other

unanticipated costs to construct the improvements. Without these improvements, the project would contribute to the need to identify new sources of water to serve current residents and the proposed project, resulting in a *significant* impact on the ability of the City's water conveyance facilities to meet the water demand.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.9-1(a) *Prior to issuance of building permits, the East Area Tank, the East Area Main Upsize, and the West Area Main Upsize shall be included within the City's Capital Improvement Plan and fully funded for construction.*

4.9-1(b) *If the following is not included in the City's water connection charge at the time the water charge is paid for any unit in the project, then, in addition to the water connection charge, the project shall pay fair share fees for the above-listed improvements at the time of building permit issuance. This fair share shall include any additional costs that the City may incur to accelerate the timing of the above-listed projects.*

**4.9-2 Long-term availability of water supply to meet the project water demand.**

Normal-year water demands through the year 2030 are estimated based on a 1.2 percent growth estimate. By 2030, water demands are expected to increase by 36 percent, from 15,600 ac-ft/yr in 2005 to 21,200 ac-ft/yr in 2030. With the City's groundwater supply system designed to meet peak hour demands, until surface water is available in 2020, the City projects pumping magnitudes to match total demand projections. The Sacramento Valley groundwater basin is not adjudicated, and there are no legal restrictions to groundwater pumping. However, according to the City of Davis 2005 Well Capacity Replacement EIR, recent studies of long-term quality and yield of the deep aquifer suggest that the reliability of the deep aquifer could be at risk of overpumping if both the City of Davis and UC Davis rely on it as their only water supply source.<sup>13</sup> As a result, the City of Davis and UC Davis (as well as the City of Woodland) are currently working to secure surface water supply sources. The joint surface water supply project, known as the Davis-Woodland Water Supply Project, is described in the setting section above. In conjunction with several approved or submitted projects, such as the Chiles Ranch Subdivision and Grande School site, the City's anticipated water demand beyond 2020 would exceed the groundwater supply. Should the current delivery date of the surface water project exceed 2020, the City will need to identify alternative water supply and infrastructure projects to meet water supply demand and water quality needs.

The City of Davis relies solely on groundwater drawn from 21 wells located throughout the City to meet 100 percent of its potable water demands. Fifteen of these wells tap into the intermediate depth aquifer, and the remaining six are in the deep aquifer. The intermediate wells have high total dissolved solids values and previous intermediate wells have been abandoned due to high nitrates and chromium. The deep aquifer wells

generally have better water quality, although the most recently completed deep well, Well 32, is not online yet as the concentration of manganese currently being drawn from the well exceeds secondary health standards for this constituent. Investigations are currently in progress to remedy and bring the well online by summer 2009.

The water from the wells does not pass through a central treatment or distribution facility, but rather is filtered naturally by the sand and gravel in the aquifers from which it is drawn. The only treatment administered is the addition of chlorine (sodium hypochlorite) at all wells for disinfection. Well 29 also has activated carbon filtration tanks to alleviate an odor problem. Pumping rates from each well vary with seasonal groundwater levels and distribution system hydraulic conditions.

By 2010-11, wells 32 (completed, but not yet online), 34 and 35 (exploration has begun and if the chosen sites are viable, production wells would be completed) are expected to be online. The eight deep wells would enable the City to meet all non-peak demands and the intermediate depth wells would assist in meeting peak demands. Well 31 is not currently available to meet peak demands because of existing distribution system hydraulic constraints, due to the vicinity of other wells and to the West Area Tank. Well 31 fills the West Area Tank at night, and then the booster pumps at the tank provide water to the system throughout the day.

Based on information provided by City of Davis Public Works Department, existing average domestic water use in the City is typically around 190 gallons per capita per day (gcd). However, the project engineer has stated that a per-capita rate of 190 gcd is very conservative for the proposed project, given the smaller house and yard sizes inherent in the project's higher density; and the incorporation of several water reduction measures. The proposed projected demand, with separate evaluations of inside and outside use were performed, as summarized below.

To reduce projected demand, the project proposes to implement a number of water conservation and efficiency measures. Domestic inside-use water-saving measures will include low-flow fixtures, low water use dishwashers and efficient hot water delivery systems. If mainline water pressure conditions so warrant, pressure regulators will be installed at domestic water meters. When included as part of the appliance package of homes or apartments, builders will be directed to select low water factor clothes washers. It is anticipated that the above measures would reduce inside usage by approximately 20%. Assuming inside use constitutes around 40% of overall use for single-family homes, and using the City's average usage of 190 gcd as a baseline, the project's average inside use would be around 80 gcd. Therefore, a 20% reduction will result in an *inside* use in the region of 65 gcd.

For *outside* use, the proposed project would limit the amount of turf coverage per lot and/or adopt a 'water-budget' approach landscape design. Homeowner education on water use and conservation would also help to achieve and maintain water savings.

Assuming 191 dwelling units at a typical occupancy of 2.48 persons/du, the average residential *irrigation* demand (excluding the orchard and City-irrigated areas) translates to an additional 40 gcd, utilizing the following assumptions:

- Average irrigation demand (residential only) = 18,845 gpd
- Residential irrigation per-capita demand =  $18,845 \text{ gpd} / (191 \text{ du} \times 2.48 \text{ persons/du})$   
= 40 gcd (approx)

With the orchard and City-irrigated areas included, the overall site-wide irrigation demand is estimated at approximately 85 gcd. Thus the project's entire per-capita inside plus outside average use is estimated at approximately 65 gcd (inside residential use) plus 85 gcd (total irrigation use), totaling 150 gcd. According to the project engineer, given that the proposed landscaping is anticipated to have lower irrigation demands than a standard existing Davis residence, and that the project also has substantial non-residential areas, an Evapotranspiration (Et0) approach was used to calculate irrigation usage, rather than assuming the irrigation would be 60 percent of existing residential use. As demonstrated above these calculations yield 40 gcd for residential irrigation, and 85 gcd for total irrigation (i.e. Residential, HOA, City Greenbelt, City Streets and Orchard).

To further reduce the demand on the City's water supply infrastructure, the project proposes that some or all of the HOA-maintained landscape be irrigated via the existing shallow agricultural well on the property, provided the well proves reliable and practical to operate. A connection to the City's domestic water system could be made to provide backup and/or supplementary supply to the HOA irrigation system. Irrigation equipment would be 'purple pipe' and pipe runs would be largely contained within the HOA areas, with periodic street crossings as required. The equipment would be operated and maintained by the HOA. Irrigation would occur mostly at night, and water quality would be monitored to ensure that minimum standards for safety are met. The irrigation of the orchard and other HOA areas via the onsite agricultural well could reduce the demand on the City supply by as much as 30 gcd, resulting in a net average City demand of approximately 150 gcd minus 30 gcd, totaling 120 gcd.

The onsite demand reduction combined with improvements to the City's existing water system and implementation of the DWWSP, or other project(s) subsequently adopted by the City in order to meet demand and water quality, would result in the City having adequate water to supply the project. Further, the addition of the 191 units from the project would provide additional funding for the future water supply projects.

The City of Davis Urban Water Management Plan (UWMP) determined that the City does not have sufficient groundwater to supply the City beyond 2020. The City of Davis collaborated with the City of Woodland and UC Davis to create the DWWSP to provide long-term water supply. As the proposed project would create additional water demand than originally anticipated in the General Plan, the project would contribute toward the need to construct new water supply and treatment facilities, resulting in a *significant* impact would occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

- 4.9-2            *The project applicant shall pay fair share fees for the future water supply project(s) required to meet City demand beyond 2020 at the time of building permit issuance.*

**4.9-3 Increased demand for wastewater disposal.**

Wastewater Treatment

The project's sewer demand has been calculated by the project engineer as follows:

$$191 \text{ units} * 2.5 \text{ people/unit} * 95 \text{ gallons/capita/day} = 0.045 \text{ million gallons per day.}^{14}$$

The City of Davis Wastewater Treatment Plant has a capacity of 7.5 mgd. In June 2005, the City of Davis estimated that the Plant's wastewater flows were 6.25 mgd. Since June 2005, little additional development has occurred in the Davis city limits. Considering this and the fact that buildout of the General Plan is projected to result in a total sewer demand of 7.0 mgd, the project would not adversely impact the Plant's current total capacity.

Wastewater Conveyance

A public sewer line does not serve the project site. According to the project engineer, four preliminary options exist for sanitary sewer (SS) service to the project site:<sup>15</sup>

1. A gravity system connecting to the existing Wildhorse Subdivision sewer system. The two possible points of connection are the 6-inch SS main at the end of Caravaggio Place and the 6-inch SS main at the intersection of Caravaggio/Bonnard. Capacity of the downstream pipes and connection point elevations would need to be confirmed to determine the feasibility of either of the options. However, given the shallow depths of the connection points, large quantities of fill would be required to allow gravity discharge. Given the cost and design challenges of elevating the site, this option is not considered viable.
2. A gravity drain connecting to the existing 42-inch trunk sewer north of the Wildhorse Golf Course. The 42-inch line is a primary conveyance leading directly to the Davis Wastewater Treatment Plant and City Public Works staff had previously indicated additional capacity is available in the line.
3. Construction of an on-site central lift station and force main to the 42-inch trunk sewer north of Wildhorse Golf Course. Given the cost to construct a sewer pump

station to current City standards, Option 3 is likely to be more expensive than Options 2 and 4.

4. Construction of a gravity sewer to an existing line in Monarch Lane. Option 4 involves collecting Wildhorse Ranch wastewater at the south end of the property, then running a connecting line across Covell Boulevard to an existing 8-inch line at the intersection of Monarch Lane and Bryant Avenue. The capacity and depths of the downstream lines, as well as the capacity of the Manzanita Sewer Lift Station would need to be confirmed.

The above options have only been reviewed as preliminary and more detailed analysis of costs, grading, and constructability would be performed during the Tentative Map stage. The preferred sanitary sewer system is Option 2 and the secondary system is Option 4.

Option 2 would result in the development of a drainage system which drains to the north. A gravity sewer outfall pipe would be constructed at the northeast corner of the site, running along the east edge of the Wildhorse golf course, and connect to the existing 42-inch trunk sewer north of the golf course.

Option 4 would result in the development of a drainage system which drains to the south. A pipeline would be constructed under Covell Boulevard to connect the drainage system to the existing six-inch line in Monarch Lane. Downstream improvements would include the installation of additional pumping capacity at the existing Manzanita lift station.

It should be noted that several septic systems exist on the project site. The systems would need to be properly removed per the procedures of the Yolo County Public Health Services, Environmental Health Division. This issue is addressed in Section VII (b) of the Initial Study (see Appendix B to this DEIR).

### Conclusion

Adequate capacity exists at the Davis wastewater treatment plant to accommodate the project's wastewater demand. However, although two wastewater conveyance alternatives appear viable, additional information is needed to determine the feasibility of either alternative. As a result, the project would have a *significant* impact related to wastewater conveyance.

### Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

- 4.9-3 *Prior to the approval of a tentative map for the Wildhorse Ranch project, the applicant shall submit a design-level wastewater report for the proposed project that demonstrates how the project's wastewater will be delivered to the Wastewater Treatment Plant. Included in the report shall be a determination of the capacity of downstream sewer lines and what*

*improvements, if any, need to be constructed to accommodate and convey the project's additional wastewater, and the construction and operational costs of the options. The wastewater report shall be subject to approval by the City Engineer. The applicant shall be required to fully fund and construct the necessary wastewater improvements determined by the wastewater report.*

#### **4.9-4 Increased demand for fire protection services.**

The proposed project involves the construction of 191 residential units, which would result in a population increase in the City of Davis of approximately 474. The current service ratio for the Fire Department within the Davis City limits is 0.70 firefighters per 1,000 population. Utilizing the Department's service ratio standard, the proposed project would generate the need for an additional 0.33 personnel (Personnel required = total project population (474)/1,000 x 0.70).

As discussed above, the May 2007 letter and the March 2009 response time map provided by the Fire Department indicated that the internal streets of the proposed project lie just outside of the Department's 5 minute response time area. Furthermore, response times to the project site could be greater if Engine 33 (from Station 33 on Mace Boulevard) is already assigned. The Davis General Plan specifically identified the Wildhorse development as having deficient response times. The proposed project is located within the Davis General Plan area, adjacent to the Wildhorse development area, within the area identified as having a deficient response time. The General Plan EIR identified a significant and unavoidable cumulative impact related to the adequacy of the fire protection infrastructure, as buildout of the General Plan would result in development in areas that are outside of the General Plan update performance standards. The City Council found that feasible mitigation measures did not exist to reduce the impact to a less-than-significant level, and, as a result, fire response times would remain deficient until such time as a fourth fire station is constructed to serve the northwestern portion of the City of Davis. The Davis City Council adopted Findings of Fact and a Statement of Overriding Considerations that found that the specific economic, legal, social, technological, and other considerations supported approval of the General Plan despite the significant and unavoidable impact. Therefore, consistent with the analysis of the Davis General Plan and General Plan EIR, the proposed project would have a **significant** impact to fire protection services.

##### Mitigation Measure(s)

Implementation of the following mitigation measures would reduce impacts to fire protection provision by providing funding for fire department facilities and operations. However, as the project would be located outside of the five minute response time area, consistent with the analysis of the General Plan EIR, the above impact would remain *significant and unavoidable*.

4.9-4 *Prior to the issuance of building permits, the applicant shall contribute funds to the Davis Fire Department for the provision of facilities needed to*

*provide adequate fire protection service to the proposed project. These facilities may include but are not necessarily limited to a fourth City fire station and a ladder truck. The amount of funding shall be determined by the Community Development Director and the Davis Fire Chief.*

#### **4.9-5 Increase demand for law enforcement protection services.**

The proposed project involves the construction of 191 residential units, which would result in a population increase in the City of Davis of 474 persons. According to the Davis Police Department, the City's service ratio standard is 1.2 officers per 1,000 population and the existing service level is roughly 0.88 officers per 1,000 population. Utilizing the City's service ratio standard, the project would generate the need for an additional 0.57 officers (Officers required = total project population/1,000 x 1.2). The Davis Police Department has indicated that it does not have adequate resources to meet its current obligations.<sup>16</sup> Therefore, the additional demand created by the proposed project would have a **significant** impact to police protection services.

##### Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.9-5 *Prior to the issuance of building permits, the project applicant shall contribute funding to the Davis Police Department needed to provide an additional 0.57 officer. Funding options include, but are not necessarily limited to the following:*

- 1) *Provide an endowment fund that would provide for the hiring of approximately 60 percent law enforcement officer and the support equipment and materials for the officer;*
- 2) *Contribute toward hiring new officers, their equipment and materials with the goal of improving community relations as a good steward of the community; or*
- 3) *The project applicant shall present an alternative and acceptable means, as determined by the Police Chief, whereby the required law enforcement officer will be provided in the long-term.*

*The final funding mechanism and dollar amount shall be reviewed and approved by the Community Development Director and the Davis Police Chief.*

#### **4.9-6 Increased demand for school resources.**

The proposed project includes the development of up to 191 residential units, which would result in the introduction of additional students to the Davis Joint Unified School District. Table 4.9-6 shows the number of students by grade that would be expected to be generated by the Wildhorse Ranch project.

<b>Table 4.9-6</b>					
<b>Student Generation Estimates for Proposed Project</b>					
<b>Housing Type</b>	<b># of Units</b>	<b>K-6 Yield/Enrollment</b>	<b>7-9 Yield/Enrollment</b>	<b>10-12 Yield/Enrollment</b>	<b>Total Yield/Enrollment</b>
Single Family	191	0.41 / 78	0.15 / 29	0.13 / 25	0.69 / 132
<b>Total</b>	<b>191</b>	<b>78</b>	<b>29</b>	<b>25</b>	<b>132</b>

*Source: Michael Adell, Director of Facilities, DJUSD, November 2007.*

As can be seen in Table 4.9-6, the Wildhorse Ranch project would be expected to generate 132 additional students, which would attend the DJUSD. Currently, adequate capacity exists to service the additional demand that would be created by the proposed project.<sup>17</sup> In addition, this project’s student population increase will be considered during the current boundary change considerations.

Furthermore, the project applicant would be required per SB 50 and AB 16 to pay school impact fees. Levels of developer fee contribution are determined by the State Allocation Board and increase annually. Current State statutes dictate that school districts have the authority to levy fees (known as statutory or Level I fees) on new development. The current DJUSD rate for new residential development is \$2.63 per square foot. Therefore, without payment of development impacts fees, the proposed project would have a *potentially significant* impact to existing District facilities.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

4.9-6            *Prior to the issuance of building permits, the applicant shall show proof to the Community Development Department of payment of current SB50 and AB 16 school impacts fees.*

**4.9-7 Increased demand for solid waste disposal/recycling services.**

Solid waste services (collection and recycling) are provided to the City of Davis by Davis Waste Removal, a private firm under contract with the City. All non-recyclable wastes collected from the City are disposed of at the 770-acre Yolo County Central Landfill in the northeast portion of the Davis Planning Area. The City does not contain any special landfill sites. Average solid waste generation rates are calculated using a per capita factor derived by dividing total solid waste by the current population. Although done on a per capita basis, this rate reflects all land uses within the City. The “per person generation rate” in the City was estimated at 3.12 pounds per day in the 2000 General Plan Update EIR (p. 5C-9).

According to the General Plan Update EIR, the landfill has an estimated capacity of 25 million cubic yards. As of May 2007, the remaining lifespan of the landfill is estimated to be 20 million cubic yards or 38 years at current levels of disposal. The estimated year

2045 closure of the landfill is based on population projections for Yolo County and its cities, factored by current levels of waste production.

The project would introduce approximately 474 people to the City of Davis. Using the General Plan Update EIR's generation rate of 3.12 pounds per person per day (see pg. 5C-44, General Plan Update EIR), this results in the project generating approximately 1,479 pounds (approximately 0.00000088 million cubic yards per day or 0.00032 million cubic yards per year). Although the project site was not anticipated to be built-out in the 2001 Davis General Plan, an additional 0.00032 million cubic yards per year would not exceed the Landfill's remaining capacity of 20 million cubic yards. Therefore, the proposed project would have a *less-than-significant* impact on solid waste disposal and recycling.

Mitigation Measure(s)

*None required.*

**4.9-8 Increased demand for park and recreation services and facilities.**

The City's parks, open space, and recreation system includes several types of parks. The 2001 General Plan defines a Community Park as a minimum of 15 net acres, with 25 net acres being the preferred size. The General Plan (pg. 220) states "There should be a community park within 1½ miles of all dwelling units." The General Plan also defines Neighborhood Park as a minimum of five net acres, and states that "There should be a neighborhood park within 3/8 mile of all dwelling units." The existing community and neighborhood parks satisfy the above outlined park proximity requirements for the project. The project's additional residential units would result in additional demand to park facilities uses. However, the subject site is not of sufficient size, and the population anticipated ( $191 \times 2.48 = 474$  persons based on 2.48 persons per household), would not generate enough demand to warrant a need for additional park facilities. One Community Park, Mace Ranch Community Park, is located within a half mile or less of the subject site, and two Neighborhood Parks, Slide Hill Park, and Robert Arneson Park, are located within a quarter of a mile of the subject site.

Although the project does not require the provision of a park based upon the above City standards, the project would be required to pay Quimby Act fees. As stated above, the City's standard for the provision of parkland acreage for new developments is codified in Chapter 36 of the Davis Municipal Code, Subdivision Ordinance, Section 36.08.040 - Parkland dedication. The standard requires the provision of 0.0131 acres of parkland per dwelling unit. Fees may be approved in-lieu of parkland dedication.

The General Plan standard for greenbelts requires a provision of ten percent of newly developing residential land. Consistent with the General Plan interpretation guidelines, the Ag Buffer (2.26 ac), the Covell Boulevard Greenstreet (0.33 ac), and neighbors' land dedication (1.07 acres) are excluded from the gross density calculation. Using this approach, a total of 3.92 acres was subtracted from the 25.78-acre total site acreage, resulting in project acreage of 21.88 acres. Using the City Community Development

Department's preferred guidelines for calculating the greenbelt dedication; the greenbelt acreage is 10 percent of the gross residential area which includes the internal streets in the total acreage. As a result, the applicant proposes to dedicate 1.61 acres of the project for City greenbelt. It should be noted that the 10 percent calculation currently provided as part of the project description (i.e., 1.61) does not appear to meet the City's GP interpretation guidelines; review of the project applications will address this potential inconsistency as part of its analysis prior to project approval.

Although adequate park are located proximate to the project site per the standards outlined in the General Plan, without the project's payment of applicable in-lieu Quimby fees, a *significant* impact would result.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

4.9-8            *Prior to the issuance of building permits, the applicant shall pay in-lieu Quimby fees for required park acreage.*

**4.9-9 Impacts to gas and electric facilities.**

The proposed project would result in the construction of 191 residential units. As a result, the proposed project would require gas and electric service for the residences proposed for the project site. Mrs. Rebecca Kelly from PG&E has indicated that adequate capacity exists to serve the project site should the appropriate infrastructure be constructed.<sup>18</sup> The applicant would be required to construct the necessary infrastructure to serve the project site, which would ensure that impacts are *less-than-significant*.

Mitigation Measure(s)

*None required.*

**Cumulative Impacts and Mitigation Measures**

**4.9-10 Long-term impacts to public services and facilities from the proposed project in combination with existing and future developments in the Davis area.**

Implementation of the proposed project would contribute toward an increased demand for public services and facilities within the City of Davis. Public service and facility needs for the City of Davis have been evaluated in the Davis General Plan, and the goals and policies included in the General Plan ensure that adequate services will be available for build-out of the General Plan according to the current Land Use Diagram. The current Land Use Diagram shows the project site as Agriculture. Therefore, development of the project site with urban uses would exceed the demand for public services and facilities anticipated in the Davis General Plan. However, as demonstrated in this Draft EIR, with the incorporation of mitigation measures, impacts to public services and facilities as a result of the proposed project would be less-than-significant. Therefore, the project's

cumulative contribution to the City's public service and facility needs would also be less-than-significant. Furthermore, other future development projects would be required by the City to pay their fair share fees toward the expansion and creation of public services and facilities. Therefore, although certain facilities would be adversely impacted as a result of project implementation, cumulative impacts associated with public services and facilities would be considered *less-than-significant* with mitigation incorporated.

Mitigation Measure(s)

*None required.*

## Endnotes

<sup>1</sup> *City of Davis General Plan*, May 2001.

<sup>2</sup> *Program EIR for the City of Davis General Plan Update and Project EIR for Establishment of a New Junior High School* (General Plan Update EIR). January 2000.

<sup>3</sup> <http://www.city.davis.ca.us/pw/>

<sup>4</sup> *City of Davis Urban Water Management Plan 2005 Update*. March 2006.

<sup>5</sup> City of Davis, *Davis-Woodland Water Supply Project Draft Environmental Impact Report*, April 2007.

<sup>6</sup> City of Davis, *Water Supply Demand / Capacity Forecasting*, April 1, 2009.

<sup>7</sup> City of Davis Public Works. *Status Report on Municipal Wastewater Treatment Facilities* (March 2003)

<sup>8</sup> Davis Fire Dept Website: <http://www.city.davis.ca.us/fire/GeneralInfo.cfm>, accessed March 2009.

<sup>9</sup> Davis Fire Department, Fire Chief Rose Conroy, Letter Correspondence, May 29, 2007.

<sup>10</sup> Davis Police Department Website: <http://cityofdavis.org/police/>; accessed March 2009.

<sup>11</sup> Ibid.

<sup>12</sup> Yolo County Division of Integrated Waste Management, Linda Sinderson, e-mail correspondence, May 29, 2007.

<sup>13</sup> Draft Environmental Impact Report Davis Well Capacity Replacement, City of Davis, February 2005.

<sup>14</sup> Ibid.

<sup>15</sup> Parlin Wildhorse Ranch – Water, Sanitary Sewer and Storm Drain Conceptual Improvements, Cunningham Engineering, Inc., March 13, 2007.

<sup>16</sup> Davis Police Department, Landy Black, Davis PD, May 30, 2007.

<sup>17</sup> Michael Adell, Director of Facilities, DJUSD, Letter Correspondence, November 2007.

<sup>18</sup> Personal communication with Mrs. Rebecca Kelly, PG&E, December 21, 2007.