4.12 WATER SUPPLY AND WASTEWATER

4.12.1 Setting

a. Water. Although Scotts Valley does not currently utilize any surface water resources, two significant streams intersect within the City, both of which are tributaries to the San Lorenzo River. These streams recharge groundwater within the Santa Margarita Groundwater Basin. Bean Creek drains 8.8 square miles at its United States Geologic Survey (USGS) gauge just beyond the western boundary of the City. Bean Creek is the natural drain for groundwater in the Scotts Valley area and is perennial in its lower reaches. Carbonera Creek drains 3.6 square miles at its USGS gauge near the southern boundary of the City. Unlike Bean Creek, Carbonera Creek typically becomes dry or near dry during the summer months. Both streams also recharge a local aquifer along certain reaches.

The City is served by two water districts, the Scotts Valley Water District (SVWD) and the San Lorenzo Valley Water District (SLVWD). The SVWD would supply water service to the proposed Specific Plan area. The SVWD uses groundwater from the Scotts Valley groundwater basin to serve its customers. Current users of the basin include the SVWD, the San Lorenzo Valley Water District, and a number of private groundwater users.

SVWD primarily serves residential customers, and to a lesser extent, commercial development generally located on Scotts Valley Drive and Mount Hermon Road. Water usage in the SVWD shows that 80.9% of the water is consumed by single-family residences, 5.5% is consumed by commercial uses, and 1.5% by industrial uses. The Y balance if the water use is in high density housing, landscaping, fire services, schools and parks (SVWD, 2005). As of 2005, SVWD has 3,773 active water service connections that serve an estimated population of 11,195 (as of 2005). Twenty-one of these customers also use the City's recycled water program for landscape irrigation.

<u>Perennial Yield and Water Consumption.</u> There is some level of disagreement regarding perennial yield and net consumption within the Scotts Valley groundwater basin. The SVWD contends that water levels in the basin have been dropping in response to uncontrolled and unmonitored private pumping. The following discussion is based upon information contained in the following reports:

- *Scotts Valley 1997 AB 3030 Groundwater Management Plan*, which was prepared in July 1997 for the SVWD by Todd Engineers.
- *Reevaluation of the Water Balance*, December 1998, which includes a reevaluation of the perennial yield of the basin and review of whether inflows and outflows (consumption) are in balance. This report was prepared by Todd Engineers in response to questions by other local agencies (including Santa Cruz County) regarding the accuracy of the AB 3030 report's perennial yield and net groundwater consumption figures.
- *Scotts Valley Water District AB3030 Groundwater Management Plan, 1998–1999 Annual Report*, which was prepared in June 1999 by Todd Engineers.
- Scotts Valley Water District, *Hydrogeologic Investigation of the South Scotts Valley Area – Final Report*, which was prepared by Todd Engineers, May 2003.

- *Scotts Valley Water District Groundwater Management Program, 2002–2003 Annual Report*, which was prepared in October 2003 by Todd Engineers.
- Scotts Valley Water District, *Groundwater Management Program, Mid-Annual Report*, which was prepared on September 16, 2004 by Todd Engineers.
- Scotts Valley Water District, *2005 Urban Water Management and Water Shortage Contingency Plan*, which was prepared by Water District Staff and ETIC Engineering, Inc., December 2005.

Perennial yield is defined as the annual inflow to the groundwater basin (new water going into the groundwater basin from rainfall or other sources). It is not a static number, but rather represents the changing interaction among the elements of the basin's water balance (inflow, outflow, and storage). Perennial yield represents the rate at which water can be withdrawn from the basin without producing undesirable results (such as depletion of the groundwater resource or degradation of water quality).

The average perennial yield of the Scotts Valley groundwater basin was estimated at approximately 4,200 acre-feet per year in the Water District's 1997 AB 3030 Groundwater Management Plan. This figure is based on a 1987 groundwater study conducted by Todd Engineering, and was determined by evaluating the inflow component of the water balance (recharge factors for various geologic formations in the area).

Due to the date of the study from which the perennial yield was determined (1987), and changes in the City's water use patterns since that time, Todd Engineering reevaluated the perennial yield of the basin and recalculated the water balance in the Reevaluation of the Water Balance report (1998). The recalculation was based on an evaluation of the outflow and change in storage components of the water balance.

According to the Reevaluation report, average stream outflows were about 2,050 acre-feet per year. Natural outflows also include discharge from springs; information about these outflows is generally not available, but the report estimates them to be about 480 acre-feet per year. Average groundwater consumption (pumping minus return flow to the basin) was estimated to be about 2,168 acre-feet per year. (This figure is an average for the 10-year period; the report notes that groundwater pumping in 1998 was over 3,500 acre-feet, and that pumping had increased over the time period of 1988 through 1998.) Total outflows were therefore estimated to be about 4,698 acre-feet per year. Of this outflow, the report estimates that about 330 acre-feet per year came from groundwater storage, and the remainder was provided by inflow to the basin. Based on these estimates, the report concluded that the perennial yield of the Scotts Valley groundwater basin was approximately 4,370 acre-feet per year (similar to the 4,200 acre-feet per year perennial yield cited from the 1987 study). The original perennial yield was, therefore, described as "reasonably accurate, likely conservative, and appropriate for planning purposes" (Todd Engineers, 1998).

The AB 3030 Groundwater Management Plan 1998-1999 Annual Report reevaluated the groundwater storage decline of 330 acre-feet per year presented in the Reevaluation report. According to the AB 3030 1998-1999 report, the average groundwater storage decline from 1988 to 1998 was approximately 160 acre-feet per year, which is approximately 50 percent less than the 330 acre-feet per year estimated in the Reevaluation report. The change in the estimate was based on the use of data for substantially more wells, over a wider distribution.

Use of 160 acre-feet per year as the groundwater storage revises the water balance equation, resulting in a perennial yield of approximately 4,540 acre-feet per year (about four percent higher than the previous perennial yield value of 4,370 acre-feet per year). According to the 1999 report, these figures are consistent with the results of the computer modeling performed for the Reevaluation report. Although total estimated pumping was well below the reported perennial yield, groundwater storage declined between 1988 and 1998 an average of at least 160 acre-feet per year, suggesting that either the reported perennial yield or the total estimated pumping is likely to be in error. Subsequent annual reports indicated that groundwater storage continued to decline.

~~Hydrographs of the two production wells constructed to serve the north end of Scotts Valley (Wells 3B and 7A) show that the pumping level in Well 7A has dropped almost 400 feet since it came on line in 1992, and the pumping level in 3B is at its lowest recorded level (this well is usually rested when not needed as it has relatively low-quality water that is high in iron and hydrogen sulfide). The SVWD is participating in a study to revise the groundwater basin model and to better determine issues surrounding safe or perennial yield and water consumption. The project is being directed by a Technical Advisory Committee (TAC) formed of staff from SVWD, San Lorenzo Valley Water District and the County of Santa Cruz. Estimates of perennial yield may change substantially by the end of the groundwater modeling project. The SVWD contends that the groundwater supply in Scotts Valley is in a condition of overdraft.~~

<u>Groundwater Storage.</u> Groundwater storage refers to the total amount of groundwater stored in the Scotts Valley basin (the Santa Margarita aquifer plus the Lompico aquifer). This number is substantially higher than the perennial yield. In 1986, total storage was estimated to be approximately 50,260 acre-feet. In the Reevaluation report, the total amount of groundwater stored in the Scotts Valley basin was estimated to be 266,806 acre-feet. The December 2005 update to the Urban Water Management Plan estimates current storage at 257,807 acre-feet (SVWD, 2005). The numbers are substantially different because the earlier study had limited data on the total groundwater storage for the Lompico aquifer. Todd Engineers conducted computer modeling in 1997 that provided an improved understanding of the geometry and storativity of the Lompico Aquifer. Due to the apparent discrepancies between reported perennial yield, estimated pumping, and loss in storage, the SVWD sought an AB 3030 grant to improve the understanding of regional hydrogeology and update the groundwater model. From 2002 to 2003, Todd Engineers performed a hydrogeologic investigation to improve the hydrogeologic model of the Scotts Valley area. This study found that groundwater storage continued to decline between 2002 and 2003. ~~Work is ongoing on the new model that, among other goals, should provide an updated estimate of the sustainable (or perennial) yield (SVWD, 2003).~~

<u>The hydrogeologic characterization and numerical model development of the recent "*Groundwater Modeling Study of the Santa Margarita Basin*", prepared by ETIC Engineering, Inc. in May 2006 estimated the average annual sustainable yield of the Santa Margarita Groundwater Basin. It calculated the estimated volume of groundwater that can be extracted from existing pumping wells, such that there is no loss of storage in the Santa Margarita Groundwater Basin. Previous basin-wide safe yield estimates based on a water-balance approach have suggested an ultimate annual safe yield of approximately 4,200 acre-feet (Todd, 1998). These estimates are accurate within the limits of a water-balance approach, but do not</u>

account for such factors as localized effects on storage or the limits on groundwater extraction related to the actual locations and pumping capacities of extraction wells in the basin. Application of a newly developed numerical model of the Santa Margarita Groundwater Basin indicates an average annual sustainable yield of 3,320 acre-feet.

Net Consumption. Net consumption is defined as the water pumped from the groundwater basin, minus what is called return flow (water returned to the basin through septic tanks, infiltration of irrigation water, and percolation from ponds). The amount of water returned to the basin is important because it is a part of the inflow to the basin, and thus is included in the perennial yield.

According to the 1997 AB 3030 report, in 1996, total net consumption from the Scotts Valley groundwater basin was estimated to be approximately 2,685 acre-feet, which is about 64 percent of the latest official estimate of the perennial yield of the basin (using the conservative estimate of 4,200 acre-feet as the perennial yield). This estimate is based on an assumption of 33 percent return flow to the basin.

The Reevaluation report estimated net groundwater consumption from the basin in 1998 as 2,687 acre-feet, based upon an assumption of 28 percent return flow. This return flow is lower than the percentage previously estimated, and reflects the fact that new residences in Scotts Valley are likely to be connected to the sewer system (Todd Engineers, 1998). Of the total groundwater *pumped* from the basin in 1998 (3,737 acre-feet), the SVWD pumped 1,949 acre-feet (The SVWD pumped 2,101 acre-feet in 1997 and 2022 acre-feet in 2002, the most recent year for which complete figures are available).

Although the SVWD is expected to increase pumping from the basin as growth occurs in Scotts Valley, water consumption from the other basin users is not expected to increase substantially in the long term. The only other municipal user, the San Lorenzo Valley Water District, does not have the ability to add many new meters because of the configuration of parcels. Therefore, most of the increase in consumption from the Scotts Valley basin will come from the addition of meters by the SVWD.

In the Scotts Valley groundwater subarea , one key change is a reversal in the net groundwater flow. In water year 1985, the Scotts Valley groundwater subarea water budget shows the net groundwater flow as an 800 AFY outflow. However, over the past 15 years, the net groundwater flow has reversed so that not there is an 800 to 1,000 AFY inflow of groundwater into the Scotts Valley groundwater subarea (Kennedy/Jenks, 2007). The net natural flow has decreased from an outflow of about 1,200 AFY in water year 1985 to about 500 AFY per year in water year 2007 (Kennedy/Jenks, 2007). This change as primarily related to groundwater levels in Santa Margarita since the deeper units of the Lompico and Butano have limited interaction with surface waters.

The groundwater recharge in the Scotts Valley groundwater subareas has been impacted by urbanization. The primary cause of this impact is covering large areas with pavement and the installation of storm drains to collect rainfall and carry it directly to streams, such as Bean Creek. The estimated volume of lost groundwater recharge due to urbanization is on the order of 500 to 1,000 AFY (Kennedy/Jenks, 2007).

Water Demand in Scotts Valley Water District. The following discussion refers to total water demand, which is different from net consumption because it does not include return flows to the groundwater basin. The discussion refers to the SVWD service area only.

Demand figures for the SVWD service area indicate that total water usage has been increasing since 1983. In 1983, water consumption averaged 373 gallons per meter per day (for 1,921 meters) and in 2005 water consumption averaged 473 gallons per meter per day for approximately 3,550 meters (potable connections only, excluding fire service and recycled connections). Total water consumption in 1983 was 803 acre-feet; consumption in 2005 was approximately 1,881 acre-feet, with 130 acre-feet of recycled water.

The year 2010 was initially chosen by the SVWD as its "buildout" year for long-term water supply planning purposes. More recent planning documents include projections to 2025. The SVWD's projections do not necessarily reflect General Plan buildout conditions, but are based on the SVWD's conclusions regarding the maximum number of meters that can be served. In 1998, the SVWD estimated that it could serve 4,150 meters in 2010 (the SVWD's projected buildout date), with a total annual consumption of approximately 2,498 acre-feet. Of this total, approximately 2,145 acre-feet per year would be met by groundwater (51 percent of the then-estimated perennial yield of 4,200 acre-feet) and approximately 350 acre-feet per year would be met by the use of reclaimed water (35 percent of reclaimed water system capacity) (SVWD, 1998).

The population in the SVWD service area is projected to increase by 10 percent between 2005 and 2030 (ETIC 2006). Historically, groundwater production has grown proportionally with growth. This anticipated growth will continue to put pressure upon the SVWD's water supply. To maintain water supply reliability during periods of need, such as an extended drought, will require increasing the volume of groundwater in storage in times of adequate supply.

b. Wastewater. The City's Wastewater Operations Division in the Public Works Department is responsible for the operation of the City's wastewater treatment plant and the maintenance of the wastewater collection and effluent system. In 1994, the capacity of the plant was expanded to 1.5 million gallons per day. Currently, the plant is permitted to receive 1.5 million gallons of effluent per day. The plant uses an activated sludge treatment method and currently processes 0.95 million gallon per day. It is estimated that ultimate capacity for General Plan buildout is 1.5 million gallons per day.

The proposed Specific Plan area is served by a 10-inch vitrified clay pipe (VCP) sewer main running south-east along Mt. Hermon Road with slopes ranging from 0.3percent to 0.5 percent. One tributary 8-inch VCP line runs due south for approximately 1,000 feet from the intersection of Skypark Drive and Navigator Drive to Mt. Hermon Road. There are currently four service manholes along this line which provides service to parcel 662, 668, 272, 274 and 276. Another 8-inch VCP line runs down the center of the site for about 750 feet between parcels 270 and 260. This line supports most existing on-site development and contains four service manholes and a cleanout at the end of the line. All the wastewater from the proposed Plan Area is carried to the Scotts Valley Wastewater Treatment Plant, which is located near the intersection of Mt. Hermon Road and Scotts Valley Drive.

c. Regulatory Setting.

Scotts Valley General Plan. According to the Scotts Valley General Plan, Policy PSP-559 requires the City to cooperate with water districts serving the Planning Area and private wells to promote water service, infrastructure improvements, and sound resource management. The objective associated with this policy, PSO-558, is to promote adequate water service. Action PSA-561 requires the City's support of assessment districts in development areas to extend and replace water lines. Action PSA-562 requires the City to condition new development to extend water lines and increase capacity as necessary. Action PSA-564 requires the City to assist the Water District in meeting the goals of AB 3030, including recharge, wellhead protection zones, and safe yield.

Scotts Valley Water District Policies. Water purveyors are required by law to provide not only potable water for normal consumptive uses, but also water for fire suppression purposes. It is also common practice for water suppliers to provide some degree of storage in order to offset a temporary loss of supply. Current SVWD emergency storage policy includes the following guidelines: (1) the system should be capable of providing for five consecutive days of demand at 90 percent of maximum-day conditions; (2) the system should provide, in elevated storage, for the fire suppression requirements of the largest single fire as established by the Scotts Valley Fire Protection District (a four-hour fire at 5,000 gallons per minute, or 1.2 million gallons); (3) the system should be capable of satisfying the criteria for emergency supply from a combination of storage and wells with either the loss of the two largest supply wells or the loss of the single largest supply well and the largest single reservoir; and (4) all key wells, pumping stations, and treatment facilities should be constructed or retrofitted to provide for alternate power supplies.

4.12.2 Impact Analysis

a. Methodology and Impact Criteria. Impacts to water supply are analyzed by using the various hydrological reports discussed above. For the purposes of this analysis, the primary data used was from the SVWD 2005 Urban Water Management and Water Shortage Contingency Plan. The data, compared to other reports, tends to be conservative, thus it provides a reasonable worst case scenario for potential impacts to water supply.

Consistent with the criteria used in the Initial Study for this project, development pursuant to the proposed Scotts Valley Town Center Specific Plan would result in a significant impact if development under the plan would:

- *Fail to have sufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements are needed.*
- *Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*

Drainage-related impacts are discussed in Section 4.7, *Hydrology and Water Quality*. Water and wastewater-related impacts are discussed below.

b. Project Impacts and Mitigation Measures.

Impact W-1 **Commercial and residential development accommodated under the Specific Plan would generate demand for approximately 150 acre feet of water per year. Given the limited availability of water resources for the City, impacts would be Class II, *significant but mitigable*.**

Commercial and residential development accommodated under the Specific Plan would generate demand for approximately 150 acre feet of water per year (RRM Design Group, 2008). This is a potentially significant impact on water resources for the reasons described below.

According to the most recent Urban Water Management Plan update (December 2005), water demand in SVWD is projected to be approximately 2,239 acre-feet per year in 2010 and approximately 2,343 acre-feet per year in 2025 (SVWD, 2005). Groundwater production is expected to provide approximately 1,891 acre-feet per year in 2010 (45 percent of the latest official estimate of perennial yield of 4,200 acre-feet), and approximately 1,811 acre-feet per year in 2025. Reclaimed water would account for approximately 350 acre-feet per year of this production in 2010 and approximately 535 acre-feet per year of this production in 2025 (SVWD, 2005).

According to SVWD projections presented in the 1999 Urban Water Management Plan, there would be sufficient water in the Scotts Valley groundwater basin to meet the estimated cumulative demand in 2010 (Sansing, 1998). Yet the 2000 Urban Water Management Plan noted that concentrated pumping in southern portions of the City in the last 30 years has resulted in significant declines in municipal production wells and therefore may not be able to meet future cumulative demand. However, the SVWD contends that through a combination of recycled water use, redistribution of pumping, and groundwater management measures to achieve the maximum sustainable yield, demand can be met through 2025 (SVWD, 2005).

The 2005 Urban Water Management Plan indicates that in 2005, there was a perennial yield surplus of 606 acre-feet, and in 2010 and 2025, there is an expected surplus of 563 and 505 acre-feet, respectively. SVWD is currently identifying potential locations for a new production well that would service the district, which would likely further increase water supply. Additionally, in 2002, SVWD inaugurated the recycled water program. The program is focused upon providing recycled water for irrigation purposes. In 2004, the program delivered 35 acre-feet of water to district customers. The recycled water program is expected to expand as funds become available to install additional infrastructure to support more customers. As previously discussed, the program is expected to produce 350 acre feet in 2010 and 535 acre feet by 2015. Thus, by 2015, the program would potentially offset water demand by approximately 23 percent. Additionally, the 2005 Urban Water Management Plan has identified 14 water management measures, which are currently being implemented that encourage conservation and theoretically reduce overall demand. The management measures include the following:

- Water Survey Programs for Single Family and Multifamily Residential Customers
- Residential Plumbing Retrofits
- System Water Audits, Leak Detection and Repair

- Metering with Commodity Rates for New Connections and Retrofit of Existing Connections
- Large Landscape Conservation Programs and Incentives
- High Efficiency Washing Machine Rebate Program
- Public Information Program
- School Education Program
- Conservation Program for Commercial, Industrial, and Institutional Accounts
- Wholesale Water Agency Programs
- Conservation Pricing
- Water Conservation Coordinator
- Water Waste Prohibitions
- Residential High Efficiency Toilet Replacement Program

In addition, population growth can influence overall water demand for the City. The Association of Monterey Bay Area Governments (AMBAG) population growth estimations for Scotts Valley were considerably more than actual population growth. AMBAG estimated that in 2005, Scotts Valley's population would be 13,182 (AMBAG, 2004); however, as of 2007, the population was 11,615 (California Department of Finance, 2007). This information suggests that future water demand may be less than expected if the City's population continues to increase at its current rate.

Existing and proposed water infrastructure are illustrated in Figures 2-7 and 2-8 in Section 2.0, *Project Description.* An 8-inch PVC reclaimed water service line runs from a 10-inch reclaimed water main line in Mt. Hermon Road up the access driveway into the interior of the Specific Plan area and provides service to the fields located off Kings Village Road. A 10-inch potable water line runs in Mt. Hermon Road and provides service to fire hydrants located approximately every 300 feet as well as laterals along south side of the site. An 8-inch looped line carries potable water up both access driveways surrounding the project site, and a stubbed line extends further up the more western driveway to the intersection of Skypark Drive and Navigator Drive. On the western portion of the Specific Plan area there are five hydrants supported by the looped line and one by the stubbed line in addition to one on Skypark Drive which is supplied by a 10-inch off-site line. On the eastern portion of the site there are eight additional hydrants and various laterals providing service to the existing buildings along both the west and east side of Kings Village Road.

In addition to emergency fire flow, the proposed Specific Plan is estimated to require 150 acre-feet of water per year from City water sources. Based on this estimated annual usage, peak day flow demand for the project should be 190 gallons per minute with a peak hour demand of 325 gallons per minute. Predicted demand is based on the maximum allowed number of residential units and square feet of floor area planned for retail, food services, and offices. Onsite water lines would be looped at all possible locations and sized to support pressure and flow requirements of the local fire codes.

The proposed potable water system components for the project would be constructed to accommodate the proposed uses in the Specific Plan area and would connect to the City's existing water system at a minimum of four locations. The connections would include one along Mt. Hermon Road at the main entrance to the Town Center, a connection point at the Kings Village Road entrance, one at the north side of the site at the Blue Bonnet Lane line, and one would connect to the existing lines in the developed western portion of the site. Portions of existing lines would need to be rerouted in the currently developed western side of the site. For example, the existing water line northeast of Kmart would have to be rerouted to the new road alignment when new development occurs and the existing fire hydrant in that location would need to be relocated to a nearby accessible location. In addition, new fire hydrants would be required throughout the proposed development and located pursuant to California Fire Code.

On-site irrigation would use non-potable water from either rain water harvesting or via the City's reclaimed water distribution system. To achieve needed pressure from the reclaimed water system, the low pressure line running to the site from the pressure reducing station on Whispering Pines would be replaced.

The project site is identified as a groundwater recharge area. The project site currently contains approximately 5.6 acres of impervious surface area and 11.7 acres of pervious grass-covered fields. The project would contain approximately 15.5 acres of impervious surfaces and 1.7 acres of pervious surfaces. Development of the site would decrease the pervious area of the project area and alter on-site infiltration of precipitation at the site, thereby impacting groundwater recharge. This would significantly impact local groundwater supplies.

A report prepared by Daniel B. Stephens & Associates, Inc., May 29, 2008 estimates the potential groundwater recharge impact at 14 acre-feet per year, which would be equivalent to approximately one percent of the SVWD's annual potable water deliveries or 10 percent of its annual recycled water delivered. The SVWD contends that this report underestimated the potential groundwater recharge impact. The SVWD has identified the project area as a leading candidate site in terms of groundwater recharge potential.

The Specific Plan includes several design elements that are inherently mitigative, and would reduce the water supply impacts discussed above. The mitigative design elements include the following:

- *Minimize erosion to protect habitat and reduce stress on natural water systems.*
- *Encourage the design and construction of energy efficient buildings to reduce air, water, and land pollution and environmental impacts from energy production and consumption.*
- *Use of building roofs, parking lots, and other horizontal surfaces to convey water to either distribute stormwater into the ground or collect it for reuse.*
- *Design site drainage integrating a decentralized system that distributes stormwater across the project site to replenish groundwater supplies.*
- *Pervious (permeable) paving, especially at intersections, crosswalks, and parking areas.*
- *Subsurface irrigation system.*
- *Use of "urban bio-swales".*
- *Use of appropriate landscaping irrigation through a drip system using recycled water per Chapter 17.47 Recycled Water Regulations of the City's Municipal Code.*
- *Landscaping using drought tolerant plants.*
- *Use of low water demand fixtures, including high-efficiency toilets and waterless urinals.*

Mitigation Measures. In addition to the requirements described in the 2005 Urban Water Management Plan and design features of the proposed Specific Plan, the following mitigation measures would offset water demand associated with the proposed Specific Plan to the extent feasible:

W-1(a) **Potable Water**. The applicant for each future development under the Specific Plan shall construct the necessary infrastructure to receive potable water service and shall pay its fair share contribution of fees to the Scotts Valley Water District to receive potable water service. Payment of fees shall occur prior to the issuance of building permits. Final flow estimates and needed water system improvements will be determined by the SVWD based on detailed construction plans, ~~hydraulic~~hydrologic modeling, and fire protection requirements as determined by the Fire District. Looping of SVWD mains will be required as part of the initial construction.

W-1(b) **Recycled Water**. The applicant for each future development under the Specific Plan shall use reclaimed water for landscape irrigation. The applicant shall construct the necessary infrastructure to receive recycled water and shall pay its fair share contribution of fees to receive recycled water. Payment of fees shall occur prior to the issuance of building permits.

W-1(c) **Water Conservation Measures.** Future development under the Specific Plan shall implement the following water conservation measures where applicable, including, but not limited to:

- Plant material shall be grouped by water needs;
- Extensive mulching (2-inch minimum depth) shall be used in landscaped areas, where feasible, to improve the water holding capacity of the soil by reducing evaporation and compaction;
- Use of energy efficient/low use dishwashers and washing machines; and
- Installation of low flow (2 gpm) shower heads shall be required on all new residential units.

W-1(d) **Design and Construction Recharge Facility.** The first future development under the Specific Plan shall design a recharge facility for the project site pursuant to the approval of the City and the SVWD to mitigate potential loss of groundwater recharge from the Town Center project. The design could be based on a variety of recharge structures (infiltration basin, infiltration trench, leach field, or caisson). The siting of such a recharge structure needs to consider known soil and shallow groundwater contamination at the site. As such, the hydrogeology related to

> the three regional plumes of contamination located on or adjacent to the project area, some of which have active remediation systems, shall be evaluated by a California State Certified Hydrogeologist as part of the design of the recharge facility. Any subsurface information available for the project area shall also be reviewed to evaluate the best location for siting of the recharge structure, and to evaluate the best type of recharge structure to construct in order to obtain infiltration of stormwater runoff into the most receptive subsurface formation, and to alleviate any potential for cross contamination from perched groundwater zones beneath the area into the regional groundwater aquifer(s). The recharge structure shall be constructed pursuant to the approved design subject to the approval of the City and SVWD. Subsequent development pursuant to the Town Center Specific Plan shall pay their fair share contribution toward the design and construction of the recharge facility.

Significance After Mitigation. With implementation of the identified mitigation measures, impacts would be reduced to a less than significant level.

Impact W-2 **The proposed Specific Plan could generate up to 0.2 million gallons of wastewater per day. The Scotts Valley Wastewater Treatment Plant has the capacity to service the proposed Specific Plan. Generally, the sewer lines on the site can accommodate additional waste water generated by the proposed site. Installation of 8-inch diameter sewer lines on the proposed site would accommodate additional waste water generated by the mixed-use Town Center and no downstream pipelines should need to be upgraded. This would be a Class III, *less than significant* impact.**

The project site is served predominately by two lines, as illustrated in Figure 2-9 in the *Project Description.* A 10-inch vitrified clay pipe (VCP) sewer main that runs southeast along Mt. Hermon Road with slopes ranging from 0.3 percent to 0.5 percent. Tributary to this line is an 8-inch VCP line that runs due south for approximately 1,000 feet from the intersection of Skypark Drive and Navigator Drive to Mt. Hermon Road. There are currently four service manholes along this line that serve the western portion of the site. Another 8-inch VCP line runs down the east side of the existing Kmart center for approximately 750 feet. This line supports most existing onsite development and contains four service manholes and a cleanout at the end of the line.

The other main line supporting the development area is a 12-inch line running south down Kings Village Road. Tributaries to this line include infrastructure to serve upstream housing developments to the north, and an 8-inch line cutting in diagonally from the east and carrying more offsite waste. This line supports four maintenance manholes and provides service to most of the Specific Plan area located east of Kings Village Road. All of the wastewater from existing uses on the proposed project site is currently carried to the Scotts Valley Wastewater Treatment Plan, which is located near the intersection of Mt. Hermon Road and Scotts Valley

Drive. The plant implements an activated sludge treatment method and currently processes 0.95 million gallons per day (MGD), but its permitted capacity is 1.5 MGD. Effluent is treated to tertiary levels and then redistributed as irrigation water in the City's reclaimed water system.

Development under the proposed Specific Plan would generate up to 0.2 million gallons per day of waste water, with a peak flow rate of 185 gallons per minute (RRM Design Group, 2008). Wastewater flow quantities are based on predicted building uses and per unit of floor area generation factors. The system supporting the proposed development would tie into the existing system on Mt. Hermon Road. Total development under the Specific Plan could introduce 180 gallons per minute into the City's sanitary distribution system. An additional five gallons per minute would be generated by the new buildings in the currently developed western portion of the site. Construction of the buildings would also require rerouting the existing sewer line to follow the proposed street alignment at that location. Generally, the sewer lines on the site can accommodate additional waste water generated by the proposed site. Installation of 8-inch diameter sewer lines on the proposed site would accommodate additional waste water generated by the mixed-use Town Center and no downstream pipelines should need to be upgraded (see Figure 2-10 in Section 2.0 *Project Description).* Impacts are anticipated to be less than significant.

Mitigation Measures. No mitigation measures are required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts.

Water. The proposed Specific Plan would cumulatively increase the overall amount of water demanded by SVWD customers. This project, combined with those that are proposed or currently under construction throughout the City, could require more water than is currently available to the City given the limited amount of water resources. Implementation of various water conservation efforts and use of recycled water would reduce overall demand; therefore, cumulative impacts to water supply would be Class III, *less than significant.*

Wastewater. The proposed Specific Plan, combined with those projects that are proposed or currently under construction, would cumulatively contribute to the amount of wastewater received by Scotts Valley Wastewater Treatment Plant. However, the plant has approximately 0.5 million gallons per day of remaining capacity and could serve future projects within the City. Therefore, cumulative impacts to wastewater facilities would be Class III, *less than significant*.