CHAPTER THIRTEEN: WASTEWATER COLLECTION AND TREATMENT

13.1 Introduction

This chapter summarizes Master Plan provisions related to wastewater collection, treatment and disposal, and states implementation for Specific Plan III (SP III). The treatment facilities will include aerated lagoons, preliminary treatment, activated sludge, filtration, disinfection, effluent storage, and if necessary, interim farmland irrigation. All of the land in SP III undergoing conversion from agricultural to urban uses will drain by gravity through a backbone collection system to the treatment plant. It is possible that portions of the existing Grant Line Villages area will have low areas that will require pump stations to lift sewerage flows into the gravity collection system. The design capacity of the treatment facility and all related components will be 5.40 MGD (average dry weather flow) at buildout. The treatment processes and facilities will be built in stages appropriate to serve one or more neighborhoods and a balanced amount of industrial/commercial and public uses.

The Mountain House Community Services District (MHCSD) Development Standards were used to provide conceptual planning estimates for SP III.

13.2 Wastewater Generation

13.2.1 Master Plan Summary

The Master Plan provides a total estimated daily volume of the sewage generated from the community with and without conservation. The calculation of sewage generated with the use of conservation techniques is not believed to be conservative and should be verified as the community is developed. The design capacity of the treatment facilities and all related components will be 5.40 mgd at buildout.

All Specific Plans except Specific Plan I will include an evaluation/assessment of actual wastewater generation compared to Master Plan assumptions. In addition, monitoring of sewage generation figures will be carried out by the MHCSD on a routine basis. Both of these evaluations will be used to determine whether adjustments to treatment and collection facilities need to be made and how this impacts the schedule of wastewater improvements and sizing.

If wastewater generation specified in the Master Plan is exceeded for a previous Specific Plan, subsequent Specific Plans will specify additional actions that would be implemented to achieve reduced wastewater generation. In addition, the Master Plan will be revised, if necessary, prior to approval of SP III to reflect new projected wastewater generation and revised infrastructure facilities to permit increased wastewater generation and disposal.

13.2.2 Specific Plan III Description

The Master Plan requires an evaluation of actual wastewater generation compared to Master Plan assumptions. Table 13-1: Generation of Wastewater by Land Use, presents the wastewater generation for the SP III area versus the wastewater generation (average dry weather flow, with 14% conservation) identified in the Mountain House Master Plan (MHMP). The proposed college will generate more wastewater than the single family home land use for the same area in the MHMP. The Delta College Center EIR utilized a wastewater generation rate of 12 gallons per capita per day (gpcd) (average dry weather flow, without conservation). For SP III, the wastewater generation rate for the college is being revised upward to 15 gpcd, per the direction of the MHCSD. Also, per the direction of the MHCSD, the total wastewater generation by the land uses within SP III cannot exceed the Master Plan. Therefore, the amount of wastewater generation allocated to the college is greater than the Master Plan, and wastewater generation from other properties within SP III have been correspondingly reduced. The existing sewer infrastructure downstream is therefore unaffected by the addition of the college land use.

13.2.3 Implementation Measures

MHCSD Generation, Design and Monitoring Requirements: All implementing projects shall comply with the MHCSD Development Standards.

13.3 Wastewater Collection System

13.3.1 Master Plan Summary

The Master Plan limits the area to be served by the wastewater trunk collection system to the limits of the Mountain House sphere of influence. The system is intended to transport wastewater from all areas within the community to the treatment plant and avoid any adverse impacts on public health and safety. Wastewater shall be conveyed to the treatment plant through a pipe network system in a fast and efficient manner. The collection facilities will be designed and constructed in such a manner that the health and safety of inhabitants of the community are not adversely affected.

13.3.2 Specific Plan III Description

A trunk pipeline system must be installed to adequately serve SP III. There are no additional facilities needed to serve future developments, as SP III is at the “upstream” extremity of the Mountain House Community. In no case will SP III development be forced to install trunk line extensions through completed Mountain House neighborhoods in order to secure service (see Figure 13.1: Sanitary Sewer).

Table 13-1: Generation of Wastewater by Land Use

		Amount of Land Use				W/O Conservation Daily Rate		With Conservation Daily Rate		Wastewater Generation w/Cons.	
		Master Plan		SP III						MP	SP III
Land Use	**Abbrev.**	**Units**	**Acres**	**Units**	**Acres**	**Per DU**	**Per Acre**	**Per DU**	**Per Acre**	**GPD**	**GPD**
Residential											
Very Low Density	R/VL	133		103		312		268		35,687	27,637
Low Density	R/L	811		432		312		268		217,608	115,914
Medium Density	R/M	1,385		1,435		270		232		321,597	333,207
Medium High Density	R/MH	348		270		200		172		59,856	46,440
Senior Housing	R/MH			-		200		172			
High Density	R/H			-		200		172		-	-
Density Bonus Units	R/H	0		-		200		172		-	-
Second Units	R/H	0		-		200		172		-	-
Commercial											
Neighborhood Commercial	C/N		3.0		1.5		2,000		1,720	5,160	2,580
Community Commercial	C/C						2,000		1,720		
General Commercial	C/G						2,000		1,720		
Office Commercial	C/O		7.0		16.7		2,000		1,720	12,040	28,724
Town Center/Mixed Use	M/X						2,000		1,720		
Industrial											
Limited Industrial	I/L		139.4		87.2		1,600		1,376	191,814	119,987
General Industrial	I/G						1,600		1,376		
Open Space											
Neighborhood Parks	O/S		10.0		11.0						
Community Parks	O/S		38.0		31.0						
Regional Parks	O/S										
Golf Courses	O/S										
Marina/Other OS	O/S				29.2						
Wetland	O/S		2.0		2.0						
Landscape Buffers	O/S		3.0		0						
Easements	O/S										
Schools											
Elementary/Middle			32.0		32.0		3,000		2,580	82,560	82,560
High School											
DCC (15 gpcd x 12,360 population x 0.86 conservation factor)					114.3		1622		1,395		159,444
Public											
Water Treatment Plant											
Wastewater Treatment Plant											
Transit											
Churches/Civic											
Major Street R/W											
MH Pkwy & Grant Line Rd.			32.0		32.0						
Central Parkway			21.1		30.6						
DeAnza Blvd.			15.8		15.8						
Railroad											
TOTAL ESTIMATE OF WASTEWATER GENERATION (GALLONS PER DAY)										**926,321**	**916,493**

FIGURE 13-1: SANITARY SEWER

Currently, a sanitary sewer main line exists in DeAnza Boulevard south of Mascot Boulevard near the northerly boundary of SP III (Parcel H). Ultimately, the existing 12-inch sewer main in DeAnza Boulevard between SP III and Mascot Boulevard will need to be paralleled or replaced to provide the equivalent capacity of a 15-inch sewer main. By the summer of 2004, a sanitary sewer main line may exist in Central Parkway to the south side of Mascot Boulevard. These two sewer main lines are required to be extended southward across Grant Line Road to serve the SP III area. Both southerly extensions require right-of-way to be obtained from Trimark in order to install the lines.

13.3.3 Implementation Measures

a. The wastewater trunk collection system shall be installed at the size and locations shown in Figure 13-1: Sanitary Sewer. The detailed design and construction of the facilities shall be in accordance with current MHCSD Development Standards and good engineering practices.
b. If in the future there are any revisions to the Land Use Plan, the wastewater generation assumptions, or MHCSD standards, a re-analysis of the trunk collection system shall be performed. The MHCSD will review any changes made to insure that the overall system design continues to meet the minimum requirements of the Master Plan and County Standards.
c. All sanitary sewer collection system improvements shall be designed and construction in conformance with the approved or currently amended Sanitary Sewer Collection System Study, this Specific Plan, and adopted MHCSD Development Standards.

13.4 Wastewater Treatment

13.4.1 Master Plan Summary

The Master Plan requires that expansion of the wastewater treatment plant be constructed and operational before development exceeds the existing capacity.

For Neighborhood F in Specific Plan I, the initial level of treatment was allowed to be secondary level treatment aerated lagoons or other higher-level treatment processes approved by the regulatory agencies. No later than at the buildout of Specific Plan I, a high-volume activated sludge or equivalent treatment process shall be constructed in phases to serve all future community wastewater treatment needs. The aerated lagoons will be replaced by the new facilities. The decommissioned aerated lagoons will serve as storage reservoirs for the ultimate treatment process.

The Master Plan also requires that the feasibility of using reclaimed water for irrigation of the golf course(s) and other public open space areas such as parks be reevaluated as changes in wastewater treatment technology occur and shall be considered to the extent economically feasible by the MHCSD.

Wastewater Treatment Plant: The MHCSD has secured two discharge permits from the Central Valley Regional Water Quality Control Board (CVRWQCB), one to discharge to Old River 5.4 MGD on a year

around basis, and the second to discharge on land 2.6 MGD. The land disposal permit is being used at this time so that a history of effluent quality analysis can be established. This history is needed as part of a detailed analysis of effluent disposal to Old River that is required by the river discharge permit. The MHCSD expects to have the detailed analysis completed within the next two years.

As of March 2004, the present Waste Water Treatment Plant (WWTP) has a treatment capacity of 0.45 MGD. Tertiary treatment is achieved through aerated lagoons, and other enhanced treatment processes. Effluent is disposed on land directly north of the plant site.

The WWTP is currently (March 2004) being enlarged to a capacity of 3.0 MGD. The first two of the eventual four sequencing batch reactor (SBR) units are being constructed, and the MHCSD expects the project to be completed by January 1, 2005. The expansion is needed to keep pace with the residential development of the Mountain House community.

13.4.2 Specific Plan III Description

Phased expansion of the WWTP will be required to serve the Specific Plan II and SP III lands within the community. The scope and schedule of additional phases will be determined by the MHCSD in conjunction with the phased development of the SP III area.

As permitted under existing discharge permits granted by the CVRWQCB, either land discharge, Old River Discharge, or a combination of both will be utilized during the implementation of SP III. The existing land disposal permit is for use on property owned by Trimark; therefore, only to an extent to which agreement is reached with Trimark may any quantity of effluent generated by SP III be disposed of on these lands. Accordingly, GNK, the main developer of SP III, has secured the off-site Pombo property located at the southeast corner of Mountain House Parkway and Byron Road (see Figure 13-1: Sanitary Sewer). The Pombo property is being held for potential use as a reclamation site for SP III treated effluent, subject to agreements with other SP III landowners and approvals from MHCSD, CVRWQCB, the affected irrigation districts and other affected agencies.

SP III and related environmental analysis recognizes and by reference incorporates the findings, approvals and conditions of the East Altamont Energy Center (EAEC) by the California Energy Commission (CEC), including the CEC's requirements of the EAEC to construct conveyance pipelines and pumping facilities to connect the facility with the Mountain House Waste Water Treatment Plant, and the EAEC's requirement to convey and utilize Mountain House treated effluent for the EAEC's cooling and non-potable uses. This provision was specifically analyzed as part of the CEC's environmental review and approval process. In addition to the land and Old River Discharges allowed under existing CVRWQCB Discharge Permits, treated effluent from the Mountain House Waste Water Treatment Plant may be discharged to the EAEC facility as allowed for under the CEC's permit. Specific discharge options will be determined by the MHCSD during the phasing and implementation of SP III.

13.4.3 Implementation Measures

a. In order to be able to serve the additional development of SP III and Specific Plan II, a second WWTP expansion will be needed. Therefore, the engineering design process for the second expansion is now underway, and it is expected that the second expansion construction effort will begin soon after the first expansion construction is completed. It is planned that by early 2007, the WWTP will have the capacity to treat 5.4 MGD of wastewater.

b. The waste water treatment plant shall be constructed and deemed operational, with sufficient capacity to meet the projected demands for SP III, prior to the issuance of any building permits for the construction of buildings within SP III.

c. All applicable implementing projects shall comply with the existing San Joaquin County Use Permit for the Waste Water Treatment Plant.

d. Subject to the terms of the Master Plan Development Agreement between San Joaquin County and Trimark Communities, LLC, and the Master Acquisition and Reimbursement Agreement between the MHCSD and Trimark Communities, LLC, treated effluent may be discharged through a variety of options, including, but not limited to one or a combination of the following:

e. The total treated wastewater generated by SP III may be discharged year-round into Old River, subject to the adopted standards of CVRWQCB Order 98-192 as amended.

f. Land reclamation, consistent with standards established by and subject to environmental clearance and obtaining the requisite permits from the CVRWQCB and MHCSD, may be used to dispose of treated effluent from SP III on the Pombo or other off-site properties.

g. The total treated waste water generated by the entire community may be discharged to users outside the limits of the MHCSD as may be allowed by separate permit and environmental analysis, including the discharge and conveyance to the East Altamont Energy Facility in Alameda County.

h. MHCSD Design and Construction Requirements: All implementing public improvement projects shall comply with the applicable provisions of the MHCSD Development Standards.

13.5 Non Residential Discharges

13.5.1 Master Plan Summary

In order to insure that raw wastewaters discharged to the treatment facilities do not limit treated effluent disposal or reuse options, the Master Plan requires that nonresidential wastewater discharged to the treatment facilities will have characteristics similar to residential wastewater.

Sewer discharge and pretreatment standards shall be implemented by the MHCSD to regulate wastewater discharges to the plant prior to the issuance of a building permit to a user with discharges.

A public outreach and education program shall be implemented by the MHCSD to inform dischargers of what is allowed for discharge to the sewer, and to emphasize waste minimization concepts and techniques.

13.5.2 Specific Plan III Description

Non-residential uses will require pre-treatment measures as indicated below.

13.5.3 Implementation Measures

a. All implementing projects shall comply with the MHCSD Sewer Ordinance and applicable MHCSD-enforced Covenants, Conditions and Restrictions.
b. A permit to discharge is required by the MHCSD for certain categories of nonresidential dischargers. The criteria for such permits shall be established prior to the issuance of a building permit for a user with non-residential type discharges.
c. Discharge limitations shall be established, and pretreatment shall be required by the MHCSD of dischargers who otherwise would not meet these limits.

13.6 Sludge Disposal

13.6.1 Master Plan Summary

The Master Plan requires that, for all Specific Plans where wastewater treatment sludge requires disposal, the Specific Plans shall identify the proposed method(s) of sludge disposal for the duration of the plans.

13.6.2 Specific Plan III Description

The present method of sludge disposal by the MHCSD, trucking of sludge material to an approved landfill site, will be continued for ongoing waste water treatment plant operations including subsequent plant expansions required to treat waste water from SP III or other Specific Plan areas being developed concurrently. The MHCSD is currently in the process of developing a Sludge Management and Disposal Plan to comply with applicable requirements, as part of the future expansion plans for the waste water treatment plant. This plan needs to address the most economical and beneficial manner to dispose of the treated sludge. It will be developed in accordance with applicable regulations and will be implemented as part of the implementation of SP III.

13.6.3 Implementation Measures

a. Until sludge is classified, the sludge shall be disposed of by the MHCSD in the Foothill land fill or other acceptable landfill. Sludge shall meet non-hazardous classification and be dried for disposal in a landfill.
b. The sludge shall be assessed regularly by the MHCSD for waste classification and the alternatives of land application, dedicated land disposal and composting, shall be analyzed

based on such factors as current regulations, sludge constituents, land availability, demand for compost and cost to implement.

c. Sludge disposal alternatives shall be evaluated and selected by the MHCSD at a six month interval.

13.7 Capital Facility Cost and Phasing

13.7.1 Master Plan Summary

The Master Plan required that initial aerated lagoons and pumps be sized to satisfy the demands of the first neighborhood. They will be replaced with a higher volume treatment facility upon commencement of the second Specific Plan, and will be expandable to accommodate future development phases. All line sizing will be engineered to handle through flows from successive neighborhoods in accordance with the Master Plan. Cost and phasing assumptions are discussed in more detail in the Public Financing Plan (PFP).

All implementing projects shall comply with the applicable requirements of the Public Financing Plan, which includes the Technical Report, any Master Acquisition and Reimbursement Agreement between the MHCSD and SP III developers, any Development Agreement between San Joaquin County and SP III developers, MHCSD Capital Improvement Program, and applicable development fee ordinances. As may be required, such additional financing plans, technical reports, agreements and amendments to existing agreements and ordinances shall be developed to facilitate the permitting and construction of additional waste water treatment and disposal facilities required to serve the needs of SP III.

13.7.2 Specific Plan III Description

The developers of SP III shall arrange financing and coordinate with the MHCSD for the required special studies, design, approval and construction of waste water collection system and treatment plant capital improvements. The SP III developers shall enter into agreements with MHCSD and Trimark Communities to provide financing and pay their fair share of all required wastewater infrastructure, both existing facilities and that proposed for SP III and other Specific Plan areas developing concurrently.

13.7.3 Implementation Measures

None.