

6 WASTEWATER AND SOLID WASTE

This chapter focuses on wastewater and solid waste facilities and services in Butte County. Other major public utilities and facilities are discussed elsewhere in the chapter: gas and electrical utilities are described in Chapter 14: Energy, and water supply systems in Chapter 12: Water Resources.

Wastewater disposal in unincorporated Butte County is not provided by a single public utility or agency, but occurs through a variety of service districts and community systems. In most of the unincorporated county, wastewater disposal occurs through individual private on-site septic systems. These systems have become of increasing concern in recent years, and have been the subject of considerable study and development of new regulations.

In addition, the chapter describes solid waste collection and disposal facilities in the County, including issues concerning the County's Neal Road Landfill, as well as compliance with State mandates regarding solid waste reduction.

I. WASTEWATER

This section describes the regulatory setting and existing conditions regarding the various methods by which wastewater disposal occurs in Butte County. As previously noted, these fall into two main categories: individual on-site wastewater disposal systems, also commonly termed septic systems and community wastewater systems, which offer centralized collection and treatment facilities serving multiple individual users.

A. Regulatory Setting

In California, all wastewater treatment and disposal systems fall under the overall regulatory authority of the State Water Resources Control Board (SWRCB) and the nine California Regional Water Quality Control Boards (RWQCBs), who are charged with the responsibility of protecting beneficial uses of State waters (ground and surface) from a variety of waste discharges,

including wastewater from individual and municipal systems. Butte County falls within the jurisdiction of the Central Valley RWQCB.

The RWQCB's regulatory role often involves the formation and implementation of basic water protection policies. These are reflected in the individual RWQCB's Basin Plan, generally in the form of guidelines, criteria and/or prohibitions related to the siting, design, construction and maintenance of on-site sewage disposal systems. The SWRCB's role has historically been one of providing overall policy direction, organizational and technical assistance and a communications link to the State legislature.

The RWQCBs may waive or delegate regulatory authority for on-site sewage disposal systems to counties, cities or special districts. This is not mandatory; however, it is commonly done and has proven to be administratively efficient. In some cases this is accomplished through a Memorandum of Understanding (MOU), whereby the local agency commits to enforcing the Basin Plan requirements or other specified standards that may be more restrictive. The RWQCBs generally elect to retain permitting authority over large and/or commercial or industrial on-site sewage disposal systems, depending on the volume and character of the wastewater. The established protocol for involvement of the RWQCB in permitting and review is established by a routine understanding between the County and the RWQCB. Table 6-1 provides a summary matrix of review and oversight authority for RWQCB and the County for new development projects requiring sewage system reviews.

1. Community System Regulations

The RWQCB has direct oversight and permitting responsibility for large-flow systems of greater than 2,500 gallons per day (gpd) and community systems, unless the Board chooses to waive that authority and delegate their oversight to the Department of Public Health, Environmental Division on a case-by-case basis. Some community systems in Butte County fall within County Service Areas (CSAs) which have assumed responsibility for oversight and/or maintenance of the infrastructure. In these cases the CSA is considered the

BUTTE COUNTY GENERAL PLAN 2030
SETTING AND TRENDS
WASTEWATER AND SOLID WASTE

TABLE 6-1 **RWQCB AND COUNTY REVIEW CRITERIA FOR NEW DEVELOPMENT PROJECTS**

Location	Project Type	RWQCB Review
Butte County	0-4 Residential (new parcels)	County Review only for installation/construction
	5-15 Residential (new parcels)	Inform RWQCB of project (copy of data to RWQCB)
	16+ Residential (new parcels)	Approval of RWQCB Staff or Board Required
	0-2,500 gal. Commercial < 6 residential unit equivalent	County Review only for installation/construction
	2,500+ gal. Commercial 6+ residential unit equivalent	Approval of RWQCB Staff or Board Required
	Two or more separate parcels residential or commercial that share sewage disposal	Approval of RWQCB Staff or Board Required
Chico Urban Area	0-4 Residential (new parcels), meeting Prohibition Order Requirements	Project Notification. Soil data and water quality not provided unless requested
	5+ Residential and all residential in Chico Urban Area under 1 acre/dwelling unit equivalent lot size	Approval of RWQCB Staff or Board Required
Paradise Adjacent High Nitrate Areas Watershed Protection Zones	0-1,000 gal. Commercial	County Review only for installation/construction
	1,000+ gal. Commercial	Approval of RWQCB Staff or Board Required
Durham (Developed Community Area)	Any development in excess of 1,000 gal./acre/day	Approval of RWQCB Staff or Board Required

Note: The above routing is for routine project reviews. Special circumstances may require additional Regional Water Quality Board approval.
Source: Butte County Environmental Health.

responsible party (discharger) under terms of the permit issued by the RWQCB.

2. Individual On-site Sewage Disposal System Regulations

Regulation of individual on-site sewage disposal systems in unincorporated Butte County occurs at a variety of levels, including by the SWRCB, through the Central Valley RWQCB, and locally, by the County. Recently, the State of California enacted legislation that will require the establishment of statewide standards for on-site sewage disposal systems.

Counties typically regulate septic systems via their environmental health and/or building or planning departments. In Butte County, septic systems are regulated by the Health Department. Local septic system ordinances often incorporate portions of the Uniform Plumbing Code and other specific requirements.

Most counties, including Butte County, focus their local ordinances on new system installations. A growing number of local jurisdictions in California have become very involved in onsite wastewater system management, including implementation of programs related to on-going inspections, maintenance and monitoring of individual systems, and/or the receiving environment. Butte County is undergoing a substantial overhaul to its on-site sewage disposal system program at the time of this writing.

The following sections describe the primary regulatory mechanisms in place for on-site sewage disposal systems. Assembly Bill 885 (AB 885), a significant piece of recently adopted legislation, will affect regulation of on-site sewage disposal systems upon adoption of new regulations.

a. Regional Water Quality Control Board Basin Plan for the Central Valley
The Central Valley RWQCB has adopted policies and requirements pertaining to on-site sewage disposal systems, commonly referred to as the Basin Plan.¹

The on-site sewage disposal systems element of the Basin Plan sets forth various objectives, guidelines, general principles and recommendations for the use of on-site sewage disposal systems that cover a variety of topics. Mandatory requirements for the siting and design of on-site sewage disposal systems are reflected in the Basin Plan. Included for all on-site sewage disposal systems are specific criteria related to separation distances to groundwater, setbacks to water features, soil conditions, percolation rates, special design systems, and leachfield replacement area. Further discussion of these criteria is provided later in this section.

b. Assembly Bill 885 (AB 885)

AB 885 was passed by the California Legislature in September 2000, and mandates the establishment of statewide standards to regulate the placement and use of on-site wastewater treatment systems (OWTS). The SWRCB has been charged with developing this critical set of uniform statewide standards for on-site sewage disposal systems that are required to be incorporated into all RWQCB Basin Plans in the near future. For the past several years the SWRCB has been in the process of developing statewide regulations for on-site wastewater treatment systems per AB 885. Adoption of the regulations is expected to occur by the middle of 2008, with the regulations becoming effective six months after adoption by the SWRCB. However, these regulations are still under development. The most recent draft was issued on March 13, 2007 and a final draft for public comment is expected in Fall of 2007. The most recent version of the working draft of the regulations was released for review and discussion with various stakeholder groups and individuals in March 2006. In the latest version, many of the controversial or

¹ A copy of the Basin Plan can be obtained at the RWQCB website at http://www.swrcb.ca.gov/rwqcb5/available_documents/basin_plans/appdx2.pdf, or at their offices in Redding, Sacramento, or Fresno.

objectionable requirements from the prior (April 2005) draft have been deleted or modified. The requirements in the March 2006 working Draft Regulations have been reviewed for consistency with current ordinances, policies and practices in Butte County and to evaluate the potential impacts of the proposed regulations on the County. The key findings and recommendations regarding potential implications for Butte County are as follows:

- ◆ **Site Evaluation Practices.** The proposed regulations will mandate more thorough and consistent soil and site evaluation practices for all new and repair/replacement OWTS for verification of soil depth and groundwater levels. Current practices focus primarily on attaining minimum horizontal setbacks and determination of groundwater separation, not on determination of soil texture, structure or depth. Proposed definitions for soil (especially rock content and weathered bedrock) will require more thorough and extensive soil profile evaluations and stricter interpretations of suitability than under current practices
- ◆ **Operation and Maintenance Manuals.** The proposed AB 885 regulations require the preparation of an O&M manual for all new and repair/replacement OWTS. This will require that the County adopt regulations or policies mandating the preparation and submission of an O&M manual for all new and repair/replacement OWTS. The County will also have responsibilities for reviewing and maintaining official copies of these documents.
- ◆ **Septic Tank Risers and Effluent Filters.** Access risers to “near” grade and the use of effluent filters will be required under the proposed regulations. These requirements will apply to new standard systems as well as supplemental treatment systems, and for any tank replacements. County regulations will have to be modified to incorporate these requirements.
- ◆ **Supplemental Treatment Systems.** The proposed regulations have minimum vertical separation requirements that will lead to increased use of supplemental treatment systems. Minimum vertical separation is the depth of continuous unsaturated, undisturbed earthen material between

the bottom of the dispersal system and the top of the seasonal high groundwater level, impermeable strata or bedrock. The County will be required to adopt changes to ordinances, regulations and/or polices to implement these requirements.

- ◆ **Dispersal System Siting and Design Criteria.** The proposed dispersal system siting and design requirements are generally consistent with and/or less restrictive than the current Plan. Many of the requirements are structured to allow for more latitude in the use of supplemental treatment to overcome soil depth/suitability constraints for OWTS. Based on the soil definitions in the proposed regulations, there is likely to be an increased need to specify supplemental treatment systems and shallow dispersal designs (including mounds) for sites that may have been permitted for conventional trench designs under current practices.
- ◆ **Protection of Impaired Waters.** Currently, there are no waters in Butte County officially listed by SWRCB where OWTS have been identified as contributing to the water quality impairment. Therefore, this section of the regulations would not have an immediate impact on the County.
- ◆ **Groundwater Quality and Septic Tank Monitoring.** The proposed AB 885 regulations will mandate new groundwater sampling and septic tank inspections requirements for new and existing OWTS. The proposed regulations do not explicitly require the County to enforce this requirement or to collect and maintain any of the results from sampling that is performed. However, as the local agency responsible for implementing the regulations, at a minimum, the County would be obligated to provide some level of oversight for these activities, the details of which would likely have to be specified in the RWQCB MOU or the Conditional Waiver from the SWRCB.
- ◆ **Record Keeping.** The proposed requirements specify only that system owners maintain copies of the Record Plan and the Operations and Maintenance Manual for the OWTS. The County, as the implementing authority will also be required to collect, review and maintain records of these same items. The proposed regulations fail to acknowledge any

requirements for collection and maintenance of quarterly testing results for supplemental treatment system performance.

- ◆ **Groundwater Level Monitoring.** The proposed AB 885 criteria for groundwater level monitoring are generally consistent with Butte County practices relative to site evaluations for new land divisions. The County has not adopted the specified numerical standards proposed by these requirements but has followed a detailed, written policy developed jointly with and approved by the Regional Board. The County would be required to codify this numeric standard from AB 885 or have the SWRCB and RWQCB acknowledge that the current County policy is consistent with the intent and specifics of the proposed requirements.

This summary provided above is based on the most recent working draft of AB 885 regulation issued by the SWRCB staff. Changes or additions are anticipated prior to release of the formal Draft Regulations and Draft EIR. Also, many questions still remain to be answered about some of the specific expectations or requirements for local administration and enforcement of the proposed requirements, especially regarding water quality data collection, performance evaluation and follow-up corrective actions. The report recommends that the County should continue to monitor and participate in the AB 885 review and adoption process, to identify additional changes and seek answers/clarifications to the questions that still remain about the implementation of the requirements.

c. Butte County Regulations

On-site wastewater systems in Butte County within the parameters of Table 6-1 fall under the local jurisdictional authority of the Butte County Public Health Department, Environmental Health Services Division (EHS), with the exception of the Town of Paradise, where on-site sewage disposal systems have been regulated by the Town since 1992 with the formation of the Paradise On-Site Wastewater Management Zone. On-site sewage disposal systems located within the incorporated areas of Chico and Oroville are regulated by the County under agreements with these cities. The County and the Town of Paradise are required to conduct their local regulatory programs

in accordance with the RWQCB Basin Plan Guidelines and related requirements identified by specific written agreements.

Regulations governing the design and installation of on-site wastewater treatment and disposal systems are found in various guidelines documents, many of which were published some time ago. Many of the documents are out of date and, although never formally abandoned, have been effectively superseded by new, more stringent standards. Three historical documents that have been key components of Butte County's regulatory framework are:

- ◆ The Summary of Soil Type and Suitability for Septic Tank System table.
- ◆ General Requirements for Leach Fields (Residential) in the Chico Area.
- ◆ Percolation Test Summary from Oroville Records 1959-1963.

These historical documents, along with the USPHS Manual of Septic Tank Practice, USEPA On-Site Wastewater Treatment and Disposal Systems Design Manuals and the Town of Paradise Design Manual, provide minimum standards for designing systems, with the effective standards as enforced by EHS at least as stringent as the historical documents listed above. For example, over time the required lineal footage of leachline based on soil suitability has been replaced with more conservative design requirements, resulting in larger dispersal fields. In the case of the general requirements for leachfields in the Chico Area, these requirements did not take into account separation to groundwater, and are less than the sizing guidelines currently in use.

i. Butte County Code, Chapter 19

Butte County regulations for on-site sewage disposal systems are a compendium of several documents and ordinances. The framework for Butte County permitting is contained in Chapter 19 of the Butte County Code. Chapter 19 establishes the requirements for sewage disposal within the county addressing a variety of aspects including documentation of unlawful disposal methods, general permit requirements, and establishment of temporary conditions, as well as exceptions. The chapter also specifies septic system setbacks, and provides reference to other regulations, contained in

Appendix VII for subdivision requirements. Reference to “Chico Urban Area Nitrate Compliance Plan,” graywater use guidelines and Watershed Protection Zone requirements are also set forth.

Supplementing the Chapter 19 framework is a series of policies, documents and inter-office memoranda establishing design and construction requirements for septic systems. These requirements include bedroom definition specifications, disposal field sizing, siting and design requirements, septic tank sizing, inspection requirements, and materials requirements.

ii. Appendix VII – Subdivisions

Appendix VII, which was revised on January 20, 1987, supplements the County regulations in Chapter 19 by establishing requirements for new subdivisions. These regulations are significantly more conservative than the design requirements of Chapter 19 and its supporting documents, but less restrictive than the Basin Plan guidelines in that increased land area is allowed as mitigation for shallow usable soil. Appendix VII presents this by a matrix relating minimum usable land areas, percolation rates and soil depth for subdivisions where septic tanks and drainfields are to be used. In order for a subdivision to be approved, each proposed lot must have a minimum useable wastewater system area. The usable area is defined based on a series of exclusions that consider areas within the lot that are:

- ◆ Building setbacks.
- ◆ Surface or sub-surface utility easements (excluding easements for sewage disposals).
- ◆ Roadway or access easements.
- ◆ Within 5 feet of existing structures (for new lots without structures, 2,500 square feet is assumed for building size).
- ◆ Within 5 feet of the property line.
- ◆ Within minimum separation distances to: wells, streams, springs, drainage courses, cut or fill banks, lakes or reservoirs, and lot lines adjacent to

properties that use wells when well location is not yet installed or unspecified on plan.

- ◆ Paved areas with percolation rates exceeding 30 min/in.
- ◆ Areas with slopes in excess of 30 percent.
- ◆ An area that has a percolation rate in excess of 120 min/in.
- ◆ An area with less than 2 feet of soil above an impervious stratum.
- ◆ An area with less than 5 feet of soil above seasonal high groundwater.

In addition to these minimum lot size requirements, sewage disposal areas must be such that it is practicable to use them as disposal areas in accordance with standard practices. The net usable area is further reduced according to the Minimum (Horizontal) Separation Distances shown in Table 4-3 of Appendix VII.

iii. Wastewater Ponds Ordinance (Resolution 87-108)

In July of 1987 the Board of Supervisors of Butte County adopted Resolution 87-108, which states that wastewater ponds are an unacceptable method of sewage disposal for individual development projects in Butte County. This decision was based on the determination by the Board that wastewater ponds for small projects discourage public infrastructure development and that wastewater ponds should be used for larger area-wide systems only. Moreover, there was concern about creating private sewage systems within well-defined and existing urban uses that had only private property owners associations providing ongoing monitoring and management. Mobile home parks within the City of Chico's sphere of influence, as well as an apartment complex, and residential subdivision were a central part of the discussion at the time.

The incorporation of wastewater ponds into the standard regulations raises a variety of issues. A key issue that needs to be considered is the coordination of new wastewater ponds with future municipal facilities and orderly infrastructure development. From a planning perspective, it is important to

develop a holistic approach to wastewater management, rather than address the needs of a single development at a time.

The RWQCB generally agrees with the concept of seeking a comprehensive area-wide solution for wastewater treatment (Dykstra, 2006). However, they also point out that the SWRCB and Central Valley RWQCB policies encourage water recycling, which often requires a pond for winter storage of treated water when there is no demand for recycled water (e.g. for irrigation). The use of a recycled water system with ponds for winter storage can be part of a comprehensive, area-wide solution to wastewater treatment; and the RWQCB encourages the County to provide for the authorization of such systems.

Butte County Public Health Department has worked for the past two years to develop an ordinance regulating wastewater ponds that addresses the concerns that have been raised. The following summarizes these efforts.

- ◆ In August of 2005, a memorandum and draft ordinance was presented to the Board of Supervisors that suggested language for allowance of wastewater ponds under certain limited conditions with horizontal setbacks to surface water and site features. The Board tabled consideration of the proposal, pending completion of the Questa Engineering Corporation's On-Site Wastewater Program Evaluation.
- ◆ The above referenced Questa report was completed and accepted by the Board in June 2006.
- ◆ A plan for implementing the Questa recommendations, including those relative to wastewater ponds, was submitted and accepted by the Board on August 8, 2005.
- ◆ Policy recommendations for development of a wastewater pond ordinance were submitted and approved by the Board on January 9, 2007. The policy framework accepted was as follows.

- I. Identify and restrict type of allowable pond:
 - A. The ordinance allows permitting of retention and recycled water ponds, with effluent that has had secondary treatment and disinfection.
 - B. In the future, the ordinance may be amended with additional requirements and safeguards for wastewater treatment ponds.

- II. Minimum design flow:
 - A. All ponds must be at least 2,500 gpd for residential or 1,000 gpd for commercial.
 - B. Smaller capacity considered through an exemption or exception process for repair situations.

- III. Maximum design flow:
 - A. No maximum flow. The ordinance will apply to all ponds up to but not including those that are owned and operated by a municipality.

- IV. Maintaining adequate freeboard:
 - A. Minimum of 2 ft as required by the Regional Board is appropriate.
 - B. Use appropriate flow.
 - C. Account for, or mitigate inflow and infiltration through system design or allowance for flow equalization.
 - D. Water balance used to size pond to withstand a 100-year rainfall event without overflow, and to drain completely prior to the next rainfall year, unless the pond is used as a landscape feature for recycled water.

- V. Liner:
 - A. Liner requirements assume effluent has had at least secondary treatment and disinfection.

- B. Synthetic liner required except for when the pond is built into the landscaping for recycled water and remains nearly full throughout the year.
 - C. Synthetic liner requirement:
 - 1. Minimum of 60 mil high density polyethylene (HDPE); this is the thinnest liner that is tough.
 - 2. Liner should be UV stabilized
 - D. Clay liner requirement:
 - 1. 12 inches of clay with permeability not to exceed 1×10^{-6} cm/sec.
 - E. Other requirements associated with the liner:
 - 1. Liner installed under supervision of a licensed geotechnical engineer.
 - 2. QA/QC plan, inspection, and construction certificate by a PE.
 - 3. Groundwater monitoring.
- VI. Setbacks (from toe of pond):
- A. 100 ft to 10-year floodplain (high water mark) or floodway.
 - B. 100 ft to individual or public water system well.
 - C. 100 ft to lake or domestic water supply reservoir.
 - D. 100 ft to perennial stream.
 - E. 200 ft to perennial stream in watershed protection district.
 - F. 50 ft to ephemeral stream.
 - G. 50 ft to property line (greater separation may be required through Conditional Use Permit).
- VII. Geographical sensitive areas:
- A. In 100-year floodplain, there must be added protection from washout and verification that the flood elevation will not be increased at the property line pursuant to Butte County Code Chapter 26, Article IV.
 - B. Minimum top of berm or other pond protection to be 1 foot above Base Flood Elevation

- C. Ponds and effluent disposal proposed to be located over an aquifer recharge area (i.e. Lower Tuscan Aquifer) raises a high level of concern and will be addressed through additional design, monitoring, and/or maintenance.

VIII. Management:

- A. Renewable operating permit will be required by the Butte County Public Health Department
- B. Ultimate goal is to be managed by a countywide management entity. Until such an entity has been established, management may be a CSA or other County approved governmental entity for a residential subdivision, or a single owner for other community, large flow systems.
- C. The system is required by the CVRWQCB to have a certified wastewater operator for the system (collection, treatment, storage, disposal), but we want to encourage other recognized third-party certification programs for operators as an alternative
- D. O&M manual to be provided by the design engineer and must be approved by the CVRWQCB and Butte County Public Health Department prior to construction of the system.
- E. Applicant must provide verification of Technical, Managerial, and Financial (TMF) capability based on requirements for public water systems, and TMF must be approved by Butte County Public Works, Butte County Public Health, and CVRWQCB
- F. The management plan will include, but be limited to, provisions approved by Butte County Public Health and incorporated by the CVRWQCB for:
 - 1. Control of odors, vegetation, and vectors
 - 2. Safety and control of public hazards
 - 3. Pond level and overflow prevention
 - 4. Contingency and emergency response for problems that may occur, i.e. equipment malfunctions, failure of the treatment or dispersal component, etc.

IX. Regulatory oversight:

- A. Conditional Use Permit required.
- B. CEQA review.
- C. Grading permit required, upon passage of grading ordinance.
- D. Waste Discharge Requirements by CVRWQCB.
- E. Renewable Operating Permit by Butte County Public Health.

X. Coordination with Municipal Services When in Urban Sphere of Influence:

- A. Mandatory project review and coordination with sewage agency for planning and design review.
- B. Installation of dry sewers to facilitate future connection.

- ◆ An ordinance was prepared based on these policy recommendations and presented to the Board with a request for direction regarding Environmental Impact Review on June 12, 2007.

iv. Nitrate Compliance Plan (RWQCB Order No. 90-126)

In the 1980s, the RWQCB recognized that on-site sewage disposal systems were contributing to elevated nitrate levels in groundwater in the Chico area. In response, the RWQCB initially issued a Prohibition Order requiring all existing septic systems in the Chico Urban Area to convert to community sewer system. The County, working with the City of Chico and the RWQCB, developed strict standards limiting any new systems, the creation of an On-Site District, and a plan to finance the conversion of thousands of existing septic systems to the city sewer system.

The Nitrate Compliance Plan, adopted by the Board of Supervisors on September 25, 2001, supersedes the previous Nitrate Action Plan, and enacts strict standards for density requirements for new septic systems. The standards, as established in the Nitrate Compliance Plan, allow for conventional septic systems only in narrowly defined circumstances. The plan calls for the elimination of existing systems in most of the Chico Urban Area and identifies a financing mechanism to do this. The plan also provides

for case-by-case evaluation of non-residential septic systems and recognizes that sewer connection may not be practical or feasible in all cases.

Prior to the establishment of the Nitrate Compliance Plan, the County required new development on existing parcels to meet the more stringent standards of Appendix VII for new construction within the Chico Urban Area, rather than those of Chapter 19 and its supporting documents. The standards as established by the Nitrate Compliance Plan allow for the use of conventional systems comprised of standard septic tanks with conventional leach fields. These standards are more restrictive than those imposed for existing parcels in other areas of the County and include specific provisions intended to reduce the overall density of wastewater discharges to mitigate cumulative nitrate loading impacts.

v. Watershed Protection Zone (Resolution 97-175)

The Board of Supervisors of the County of Butte adopted the Watershed Protection Zone Resolution 97-175 to supersede the prior Resolution 87-251. The Watershed Protection Zone establishes policies, procedures and standards for the Paradise Reservoir, Magalia Reservoir, and Firhaven Creek Watersheds, including limitations and restrictions on land use, sewage disposal, and erosion control measures. The resolution is established to provide protection for sensitive water resources within Butte County, including the water supply of the Town of Paradise.

The resolution establishes specific restrictions and procedures, including the prohibition against the division of lots within the Firhaven Creek Watershed and changes to parcel zoning within the Watershed Protection Zone. The resolution broadens the effect of Appendix VII to also include all development, including multi-family residential, commercial and industrial regardless of the date the parcel was created. Minimum horizontal setbacks to surface water features, including streams, drainageways, and lakes or reservoirs are established and language is provided to indicate that these separations are to be strictly enforced.

The resolution also provides a procedure for request of a variance and outlines the required response of the health department.

B. Existing Conditions

This section describes existing conditions related to individual and community wastewater systems, and to on-site sewage disposal systems in the county.

1. Public and Community Wastewater Systems

Several urban area and smaller clusters of development in Butte County are served by community wastewater systems. Due to urban densities that are not suitable for individual systems or to take advantage of economies of scale, some communities rely on community systems for wastewater treatment and disposal. Community systems can be separated into two major categories; municipal wastewater systems, and non-community wastewater systems.

a. Municipal Wastewater Systems

Municipal wastewater treatment plants are used to serve the sanitary sewer needs of major population areas. Typically, these systems are operated by cities or local sewerage agencies under permits from the Regional Water Quality Control Board.

Municipal systems are comprised of collection, treatment and disposal components. Wastewater collection occurs through a network of gravity mains that accept flows from the served units and is collected and conveyed through a pipe infrastructure to the treatment facility. Conveyance is typically by gravity; but pumps and pressurized force mains are required to accommodate low lying properties and low points in the collection system. The treatment system and facility differ based on the level of treatment required to meet permit requirements as well as cost, space available, and estimated flow. Systems commonly include primary treatment, the separation and settling of solids, followed by a secondary treatment system

using aerated or oxidation lagoons, or activated sludge. Where disinfection of the final effluent is included, chlorine, ozone gas, or ultraviolet light are the typical methods. Disposal for municipal systems is usually by discharge to water body, land application, subsurface application, or evapo-transpiration.

There are five currently active municipal wastewater treatment plants in Butte County, including facilities located in the Biggs, Chico, Gridley, Richvale and Oroville areas. Information concerning the capacity, treatment and disposal methods in use at these facilities, as well as any known issues are summarized in Table 6-2. Information in the table is based on information from the 2005 draft General Plan Background concerning existing municipal wastewater systems as well as interviews by Questa Engineering of Butte County and RWQCB staff. The municipal systems are all owned and operated by independent agencies (city or special district).

b. Non-Community Wastewater Systems

There are currently six CSAs managing a number of non-municipal community sewerage systems in the County. Table 6-3 lists various systems currently operated under County sewerage CSAs and their locations are shown in Figure 6-1. All of these systems are regulated by the RWQCB except for one. The exception is CSA 135, Zone 4, which serves a small four-lot subdivision; the system consists of a sand filter and community leachfield. The RWQCB did not issue waste discharge requirements for this system; instead it is regulated by the Butte County Environmental Health Division.

Non-municipality community systems are comprised of wastewater treatment components common to multiple units, typically multiple residential units or mixed-use developments. Community systems are often used for planned developments and community leachfield upgrade projects (i.e. replacing a group of failed individual septic systems). Community systems have the advantage of allowing for more flexibility in site planning by condensing the area used for wastewater treatment and disposal. This may leave more land area available for open space or for other site development uses. Additionally, in cases where some lots in a development may have

BUTTE COUNTY GENERAL PLAN 2030
SETTING AND TRENDS
WASTEWATER AND SOLID WASTE

TABLE 6-2 MUNICIPAL WASTEWATER TREATMENT SYSTEMS

Community	Treatment Method	Disposal Method	Permitted Capacity (mgd)^b	Comments
City of Biggs	Aerated Lagoons	Surface Discharge	0.37	Problems with disinfection system (chlorine), inflow and infiltration in collection system, and flow recordation.
City of Chico	Activated Sludge	Surface Discharge	6.0	Expansion planned to accommodate Chico Urban Area Nitrate Compliance Plan. Potential expansion to 12 mgd. Improvement to industrial pretreatment program necessary.
City of Gridley	Aerated Lagoons	Evaporation/ Percolation Ponds	1.05	Approaching permit capacity.
Richvale Sanitary District	Primary Settling	Evaporation Ponds	0.03	-
Sewerage Commission - Oroville Region ^a (City of Oroville, Thermalito Irrigation District, LOAPUD)	Activated Sludge	Surface Discharge	6.5	Industrial pretreatment program approved by RWQCB in 2000; History of inflow and infiltration problems (responsibility of collection system agencies).

^a SC-OR provides wastewater treatment for the City of Oroville, Lake Oroville Area PUD, and Thermalito Irrigation District under a Joint Powers Agreement.

^b MGD = Millions of Gallons Per Day.

TABLE 6-3 EXISTING CSA WASTEWATER SYSTEMS

System Name	WDID No.	RWQCB Status	Parcels Served	System Description	County Environmental Health Activities
CSA 21 Zone 1 – Oakridge Sewer – Skansen	5A0401108001	3B	34	Gravity sewer system with fresh water flushing - collector piping to dosing tank to 2 ponds; semi-annual cleanout of ponds	Monthly monitoring and water testing
CSA 21 Zone 2 – Oakridge Sewer – The Bluffs at Spanish Gardens	None	None	23	STEPS to community leachfield	Quarterly monitoring
CSA 21 Zone 3 – Oakridge Sewer – The Bluffs at Spanish Gardens	None	None	3	Individual on-site septic tanks and leachfields	None required
CSA 21 Zone 4 – Oakridge Sewer – Rocky Bluffs	5A0401108001	3B	31	STEPS to dosing siphon to bottomless sand/gravel filter; redundant system available	Quarterly monitoring with water testing
CSA 82 – Stirling City Sewer	5A040113001	2B	94	Gravity main line to two concrete storage tanks to three ponds; storage tanks constructed f2002 - replaced redwood storage tank	Quarterly monitoring
CSA 94 – Sycamore Valley Sewer and Lighting	None	None	22	STEPS to community leachfield	Quarterly monitoring
CSA 135 Zone 2 – Keefer Creek Estates	5A041041001	3B	21	STEPS to dosing siphon to gravel filter to community leachfield; Homeowners Association administers WDRs	Quarterly monitoring
CSA 135 Zone 4 – McWilliams	5A041041001	3B	4	STEPS to open-bottom sand filters in community leachfield	Quarterly monitoring
CSA 141 – Mountain Oaks Sewer	5A040121001	2B	55	STEPS to dosing chamber to pond to irrigation system; redundant system available; Homeowners Association administers WDRs	Quarterly monitoring
CSA 169 Zone 1 – Pheasant Landing	5A041045001	3B	17	STEPS to individual sand filters to shallow percolation	Administers WDRs
CSA 169 Zone 2 – Pheasant Landing	None	None	26	STEPS to individual sand filters to shallow percolation; Homeowners Association administers WDR; County may assume responsibility of regulation oversight and maintenance in the future, but developer continues to operate & maintain system	Currently only fee collection

limiting site constraints for wastewater but are otherwise buildable, combining the wastewater system in one portion of a development that is most amenable to wastewater treatment may allow for the development and the wastewater facilities to be better matched to the physical limitations of the site. By consolidating all or portions of the wastewater system components, there is also the potential for greater reliability and lower costs for operation and maintenance. However, this is contingent upon reliable operation and maintenance.

2. Individual On-Site Sewage Disposal Systems

There are an estimated 50,000 on-site sewage disposal systems (i.e., septic systems) in Butte County, serving approximately half of the County's population.² Roughly 25 percent of the septic systems are located within and fall under the jurisdiction of the Town of Paradise; the remaining 75 percent of the systems fall under County jurisdiction. Standard septic tank-leachfield systems have historically been the common practice in most of the unincorporated areas of the County, necessitating and receiving relatively limited oversight from the County Environmental Health Division and the Central Valley Regional Water Quality Control Board (RWQCB).

This section reviews septic system siting requirements, design practices, and alternative on-site wastewater technologies available to address the types of physical constraints (e.g., shallow soils, high groundwater, excessively rapid or slow percolation) encountered in Butte County. Management requirements associated with conventional and alternative technologies are also presented and discussed. Much of this information is drawn from the On-Site Wastewater Program Evaluation for Butte County, released in 2006, which provided an in-depth study of issues concerning siting and regulation of on-site sewage systems in the County³.

² Fogel, Doug. Program Manager, Environmental Health. Public Health Department, County of Butte. Personal Communication with Lisa Katz, DC&E, July 3, 2007.

³ Butte County Public Health Department, August 8, 2006, *On-Site Wastewater Program Evaluation Implementation Plan*.

a. Siting Requirements for On-Site Sewage Disposal Systems

The following is a review of the key factors that affect the siting and functioning of on-site sewage disposal systems, including the applicable standards contained in the Basin Plan and/or Butte County regulations.

i. *Soils*

Soil suitability is the single most critical aspect of on-site sewage disposal. The soil provides the medium for the dispersal and treatment of wastewater discharged through sub-surface leachfield systems. This is accomplished mainly through a combination of physical filtering, biological and chemical processes, and dilution. In order to be effective, the soil must have reasonable permeability for water movement, sufficient amount of fine soil particles (i.e. silt, clay, and fine sand) for filtering and support of biological activity, adequate depth of soil above the water table (zone of aeration) for treatment to occur, and suitable drainage to prevent saturation or flooding. Septic system failures can occur as a result of: (a) the inability of soil to absorb the wastewater at a rate that matches the flow from the house; (b) inadequate treatment due to shallow soils and/or rapid percolation to the water table; or (c) seepage along a drainage course or cut slope due to inadequate lateral setback, shallow soils, and/or poor percolation. Soil conditions can vary within short distances. Detailed investigation of the soil is generally needed to determine the septic system suitability of any given site. At a minimum, proper investigation includes a soil profile analysis to determine soil texture, structure and depth, percolation/permeability characteristics, and presence of groundwater.

The Basin Plan requires that there be a minimum of 5 feet of soil below the bottom of a leaching trench or 10 feet of soil below the bottom of a seepage pit and that the separation from groundwater be 5 feet for leaching trenches and 10 feet for seepage pits.

Excavation of soil pits are typically not required for issuance of construction permits for on-site wastewater systems on existing parcels within the County. Staff utilizes soil classification maps for determining soil type for existing

parcels and, in some cases may road cuts, or neighboring site information to further assess soil conditions. If there are no available data, the data is inconclusive, or there is a contention, then staff will require usually require excavation of soil pits.

ii. Geology

The geology of an area is important to the suitability and performance of on-site sewage disposal systems due to its influence on topography and landforms, the type and characteristics of soils that develop at the surface, the occurrence and movement of sub-surface water, and slope stability. For example, more resistant rocks generally are associated with steeper terrain, ridges and knolls, where the soils tend to be relatively shallow and, thus, limited for subsurface sewage disposal systems. Softer rock types, such as sandstones and shales, will weather to form deeper soil layers and deposits of eroded materials. However, soil permeability can vary widely, depending upon the degree of weathering that takes place (i.e. to form clays) and the mineralogy of the rock.

The type and structure of the bedrock has a strong influence on groundwater conditions, which, in turn, affects the suitability and potential impacts of on-site sewage disposal. In hard rock areas, water movement is generally restricted to fracture zones, often referred to as the secondary permeability, which may offer little in the way of treatment and possesses the potential for wastewater to be transported significant distances in an anaerobic state. Some rock types, such as sandstones, conglomerates, and limestones, have significant primary permeability, which provides for transmission of water through the interstices in the rock itself, where additional filtering and treatment can occur. Contacts between different rock types or layers are often avenues for the movement of sub-surface waters; springs and seeps are often found where fractures and geologic contacts come to the surface. Where the underlying rock lacks significant primary or secondary permeability, a water table may form near the ground surface that interferes with the suitability and use of septic systems. Areas of steep slopes and weak

rock types generally pose the greatest slope stability concerns and most severe limitation for subsurface sewage disposal.

iii. Percolation

The percolation test is a commonly used method of evaluating hydraulic conductivity in soils and determining the suitability and proper sizing for an on-site sewage disposal system. Although criticized because of variability in results related to technique and weather conditions, it can, in certain circumstances, be a useful tool if combined with the soil profile data. Although the Basin Plan has guidelines for percolation testing and minimum disposal area, standard practice in Butte County is not to require percolation tests for permitting on-site sewage disposal systems on existing parcels, but instead, soil classification data for establishing the total length of leaching trenches. Soil evaluation, when done thoroughly by trained and experienced professionals, can be a more reliable and consistent analytical method than percolation testing. Percolation tests are required in both CSA 4 (Paradise Pines) and the Watershed Protection Zone.

The Basin Plan guidelines for conventional leachfield systems establish that the percolation rate be not slower than 60 minutes per inch (MPI); and if the rate is faster than 5 MPI it must be shown that a sufficient distance of soil is available to assure proper infiltration. The “Septic System Requirements” handout for Butte County Environmental Health indicates that the slowest allowable percolation rate is 120 MPI, which have been accepted by the RWQCB. Percolation rates of 120 MPI for existing parcels and 240 MPI for creation of new parcels are identified in the pending draft AB 885 regulations. Similar rates are cited in U.S.EPA on-site wastewater literature, and are commonly used in many jurisdictions in California.

iv. Seasonal Groundwater

High seasonal, or “perched” groundwater is another factor that affects the ability of the soils to absorb and provide treatment for the effluent. A high seasonal water table can reduce the effectiveness of the soil treatment zone, be a conduit for groundwater or surface water contamination, and contribute to

hydraulic failure of a disposal field, causing the effluent to backup in wastewater drains or potentially rise to the ground surface. High seasonal groundwater is a limiting factor for on-site sewage disposal suitability in the Valley region and elsewhere in the county based on site-specific soil, geology, and topographic features.

v. Slope

Slope stability, erosion hazards and the potential for downslope seepage or breakout of effluent, pose limitations on the steepness of the slope where on-site sewage disposal systems can be located. There are also practical limits for construction on steep slopes. The Basin Plan slope limitation for on-site sewage disposal systems is 30 percent.

vi. Setbacks

Minimum horizontal setback distances between on-site sewage disposal system components and various property features, as specified in the Basin Plan, are shown in Table 6-4.

vii. Density Considerations and Cumulative Impacts

High-density development using on-site wastewater systems can contribute to elevated nitrogen concentrations in the groundwater and/or a general rise or mounding of the water table, both of which are undesirable. Such problems are generally avoided by planning for sufficiently large lots sizes where on-site sewage disposal systems are used. As an example, the Nitrate Compliance Plan of the Chico Urban Area establishes density requirements due to the high level of nitrate loading. Also, the RWQCB has established development densities within the Town of Paradise of 1,000 gallons-per-day per acre; as noted previously, the County does not have jurisdiction over septic systems in the Town of Paradise.

b. Conventional Wastewater Treatment Systems

The following is a general description and overview of the components and workings of typical on-site wastewater treatment and disposal systems and key requirements related to design, construction, operation and maintenance

TABLE 6-4 **MINIMUM SEPARATION DISTANCES IN FEET**

Facility	Domestic Well	Public Well	Flowing Stream^a	Drainage Course or Ephemeral Stream^b	Cut or “Fill Bank^c	Property Line^d	Lake or Reservoir^e
Septic Tank or Sewer Line	50	100	50	25	10	25	50
Leaching Field	100	100	100	50	4h	50	200
Seepage Pit	150	150	100	50	4h	75	200

^a As measured from the line which defines the limit of a 10-year frequency flood.

^b As measured from the edge of the drainage course or stream.

^c Distance in feet equals four times the vertical height of the cut or fill bank. Distance is measured from the top edge of bank.

^d This distance shall be maintained when individual wells are to be installed and the minimum distance between waste disposal and wells cannot be assured.

^e As measured from the high water line.

within Butte County. There can be significant variation between on-site wastewater systems on different sites, but the following discussion describes the typical requirements for system components and their general configurations. Conventional on-site wastewater treatment systems within Butte County consist of two major components: (1) a septic tank for collection, settling and digestion of sewage wastes from the building; and (2) a dispersal system for further treatment and absorption of the septic tank effluent into the soil.

i. Septic Tank

The septic tank provides primary treatment of wastewater by providing sufficient detention time for gravity separation of solids. Heavier solids settle, forming a sludge layer at the bottom of the tank while fats, oils, grease, lighter solids, and decomposing organic material float to the surface to form a

scum layer. Anaerobic and facultative decomposition of organic material occurs in these layers.

Modern septic tanks are typically constructed of concrete, fiberglass or plastic with two compartments, separated by a baffle. Septic tank sizes vary; a 1,000 or 1,200-gallon tank is typical for most single-family residences. The septic tank operates in a “full” condition, with the liquid level at the level of the outlet pipe and normally about 3 inches below the inlet pipe (from the house plumbing). The septic tank provides several days of detention time for settling and digestion of sewage solids. The inlet and outlet ends of the tank have either a concrete baffle or a “sanitary tee” to maintain a clear pathway for flow into and out of the tank, and to prevent floating material and other solids in the tank from passing into the dispersal field where they can create obstructions or damage the absorption capacity of the soil. In cases where additional treatment is provided following the septic tank, for example through a sand filter, an effluent filter may be installed at the outlet to further prevent the passage of suspended solids out of the septic tank. Effluent filters are not a standard requirement or common component of on-site treatment systems in Butte County.

The clarified effluent passes by gravity from the septic tank into a 4-inch diameter pipe that runs directly to the disposal field, or to a distribution box that spreads the effluent to different parts of the disposal field. Sewage odors and gases generated in the septic tank are vented back through the house plumbing system to the roof vent pipes. The septic tank is provided with an access manhole and covers on the inlet and outlet side of the tank.

Septic tanks require periodic inspection to check the tank conditions and clean the effluent filter on the outlet end of the tank, and occasionally to pump out the solids and scum that accumulate over time. Although highly dependent on use, the commonly recommended inspection frequency for septic tanks is about every 3 to 5 years. Once pumped by a licensed septage hauler, the waste is disposed of at the County’s Neal Road septage receiving area.

The County has established minimum guidelines for septic tanks. These minimum guidelines are generally in accordance with Uniform Plumbing Code standards and include: two-chamber baffled tank, concrete or other durable material, and minimum sizes according to the number of bedrooms.

ii. Dispersal System

The conventional type of drainfield system approved for use in Butte County is the standard leachfield trench system.

A dispersal system (also termed drainfield or soil absorption field) consists of either a series or network of perforated pipes installed in shallow gravel-filled trenches or a series of proprietary gravelless chambers approved for use by the Environmental Health Division. The amount of trench length depends upon the bottom area (and in some cases sidewall area) of the trench, soil type and the daily design flow for the house or building being served. Total leachfield lengths may range from 50 feet to several hundred feet. The effluent from the septic tank flows by gravity through the perforated pipes, exits through the holes in the pipe, and trickles through the rock or gravel where it is absorbed by the soil. The leachfield is located in the unsaturated zone of the soil where the wastewater is absorbed and treated through physical, chemical and biological processes as it moves through the soil. The soil also acts as a natural buffer to filter out many of the harmful bacteria, viruses, and excessive nutrients, effectively treating the wastewater as it percolates through the unsaturated zone before it reaches the groundwater or nearby watercourses.

Seepage pits are also considered a type of conventional dispersal. Seepage pits (also termed drywells) have been used in Butte County as an alternate means of disposal when either: (a) there is insufficient area of the parcel for a drainfield, or (b) impermeable soils overlie better drained soils that can be accessed by the deeper excavation. Seepage pits are not currently allowed for new subdivisions and are limited for use on existing parcels because of the increased risk of groundwater contamination posed by deep dispersal.

c. Alternative Wastewater Treatment Systems

Alternative systems are not currently covered under Butte County on-site wastewater regulations; however, they have been used selectively in the County. Their use has primarily be approved in response to various pressures, including need to repair aging or failed systems, community projects, and homeowner/developer interest in systems utilizing alternative technology. Some of the applications have had the involvement and oversight of the RWQCB. However, except for community or other systems permitted by the RWQCB, no program or requirements have been implemented for ongoing oversight for operation and maintenance of alternative systems. There are currently fewer than 200 alternative systems in use in the County outside of the jurisdictionally independent area of the Town of Paradise. With the enactment of enhanced nitrate-removal treatment standards for the Chico area, as well as expected elements of the AB 885 state standards process, greater demand for the use of alternative systems can be expected in Butte County in the future.

d. Development of On-Site Water Ordinance and Manual

Butte County Public Health Department has worked for the past year to develop an ordinance and manual regulating on-site wastewater systems. The following summarizes these efforts.

- ◆ The Departments of Public Health and Public Works presented a report to the Board of Supervisors in October of 2004 recommending that outside consulting services be used in the development of on-site wastewater policies and standards to address, at a minimum; a) compliance with AB 885 by the year 2009, b) oversight of system operation, maintenance and replacement, c) establishment of one or more regional sanitation districts, and d) a recommendation to provide cost recovery.
- ◆ Butte County Public Health Department entered into a contract with Questa Engineering in June of 2005 to perform this work. The original scope of work contained three primary tasks: 1.) Analyze current practices and make recommendations relevant to onsite wastewater

systems 2.) Analyze program requirements and costs associated with the most recent draft of AB885, 3.) Analyze and make recommendations relevant to regional oversight entities, and additionally, the consultant was asked after beginning the scope of work, to make recommendations regarding the use of sewage ponds.

- ◆ The consultant also held a series of public/community meetings which allowed for questions, input and dialogue regarding this subject among a variety of citizens, engineers, developers, real estate industry members and elected officials.
- ◆ The 90 percent report was completed and agendized for consideration by the Board at the May 9, 2006 meeting. Subsequently, the board was given an opportunity to submit comments, questions, and the public was provided a final opportunity to comment on the document as well. The intent was to submit a final report to the Board, considering the final comments, during the month of June, 2006.
- ◆ Questa submitted the Butte County On-Site Wastewater Program Evaluation and it was accepted by the Butte County Board of Supervisors in June 2006.
- ◆ A plan for implementing the Questa recommendations, including those relative to wastewater ponds, was submitted and accepted by the Board on August 8, 2005.
- ◆ As specified in the implementation plan, the Wastewater Working Group was established in September 2007. The group is an informal advisory committee voluntarily follows Brown Act requirements and posts all committee business on the Butte County Public Health Department, Environmental Health Division website. Stakeholder groups represented on the committee include:
 1. Building Industry
 2. Realtors
 3. Environmental Consultants
 4. Septic pumpers/manufacturers
 5. Academia

6. On-Site Wastewater Consultants/Engineers
7. On-Site Wastewater Vendors/Proprietor
8. Regional Water Quality Control Board
9. Citizens

- ◆ Policy recommendations for development of an on-site wastewater ordinance and manual have been developed by the committee, are compatible with the recommendations of the Questa recommendations, and will be submitted to Board on July 12, 2007.

II. SOLID WASTE

Solid waste management is a rapidly changing utility in Butte County for several reasons. Requirements for landfill design, operations and construction are stricter. Collection and disposal technologies have changed. Recycling requirements by State agencies also influence the way local governments solve solid waste issues. As the county grows, capacity of facilities, potential future disposal sites, funding, and service areas and support systems will need to be continually evaluated and reassessed to ensure that solid waste disposal systems and techniques remain consistent with demand, as well as changing regulations regarding source reduction and diversion.

A. Regulatory Framework

Solid waste management in Butte County is conducted under federal and State regulatory policies that are implemented and enforced by the California Integrated Waste Management Board (CIWMB), the State Regional Water Quality Control Board (RWQCB), the Butte County Air Quality Management District and Butte County Environmental Health Division (BCEHD). Butte County EHD has been certified and licensed by CIWMB to implement state laws and regulations regarding solid waste and is the Local Enforcement Agency (LEA) for the State program. County policy for solid

waste management is implemented under the County Board of Supervisors by the Public Works Department, which is the responsible agency for administering landfill operations. The Butte County Integrated Waste Management Local Task Force (LTF) is an advisory body comprised of city staff, solid waste industry representatives, and members of the public. It monitors the development of the Butte County Integrated Waste Management Plan (CIWMP). The LTF serves as an advisory subcommittee of the Board.

Solid waste management occurs under several jurisdictions in Butte County. The incorporated cities of Chico and Oroville and Paradise have individual waste management jurisdictions and policies, and operate independently. The City of Biggs, the Town of Paradise, and Butte County (unincorporated area) formed the Butte Regional Solid Waste Management Authority in December, 1999 for coordinating solid waste management, including waste diversion and recycling activities as required under state of California legislation (AB 939). In 2006 the Town of Paradise chose to manage their solid waste program independently of the Butte County Regional Authority. The City of Gridley joined the Authority in August 2002. Biggs, Gridley, and Paradise each contract individually for solid waste collection services (as also occurs with Chico and Oroville). On July 8, 2003, the Butte County Board of Supervisors amended Chapter 31 of the Butte County Code, entitled “Solid Waste Collection, Management and Recycling” in an effort to update county solid waste regulations to better reflect current solid waste management regulations and requirements mandated by the State of California. The County Code amendments seek to improve solid waste collection and disposal in Butte County by increasing performance standards of the licensed solid waste haulers and directing the disposal of collected solid waste to Neal Road Landfill.

1. Existing Facilities

Existing solid waste management facilities in Butte County consist of two transfer stations, a large transfer station/materials recovery facility, the Neal Road public use landfill (and adjacent septage waste disposal area), one private

wood waste recycler and two municipal wood waste recyclers. The City of Chico operates its own compost site for green waste which is located at the City airport.

Recycling, composting and waste combustion programs in Butte County are designed to make other waste management operations more environmentally friendly and economically efficient. Butte County currently meets the requirements of AB 939, also known as the California Integrated Waste Management Act of 1989, which requires 50 percent recycling by 2000. In 2005, approximately 110,000 tons (or about 50 percent) of the solid waste generated within the Butte Regional Solid Waste Management Authority jurisdiction was diverted from permitted disposal facilities.⁴ Butte County Public Works Department increased the local waste haulers annual diversion from 15 percent to 20 percent, and this year, expect to began a curbside recycling program for the Paradise Ridge area.

B. Waste Stream Assessment

The quantities of solid waste that a population generates vary according to the season, the geography, and social attitudes. Examining patterns of waste disposal in Butte County can shape development controls and serve as a barometer of economic change.

a. Current Waste Stream

In 2006, the quantity and sources of the waste stream in Butte County were determined based on data collected by the Public Works Department as part of the documentation required by the state under the AB 939 regulations. Table 6-5 shows the results of this analysis broken down by each jurisdiction in Butte County.

⁴ The 52 percent diversion rate for 2005 has not yet been certified by the California Integrated Waste Management Board. This certification is expected in 2008.

TABLE 6-5 **TONS OF SOLID WASTE GENERATED, BY JURISDICTION**

Jurisdiction	2000 Population	Estimated Tons Generated (2006)
Biggs	1,793	1,742
Chico	59,954	86,208
Gridley	5,382	6,099
Oroville	13,004	15,851
Paradise	26,408	24,291
Unincorp. Co	96,630	71,685
Totals	203,171	205,876

Source: Butte County Public Works Department, *Butte County Annual Waste Origin Report*, 2006.

According to the County Public Works Department, the Neal Road Landfill buried 166,500 tons of municipal solid waste during 2006. In addition to that total, 10,782 tons of inert materials (broken concrete and asphalt), 4,751 tons of green waste, 1,226 tons of scrap metal, 106 tons of tires and 231 tons of electronic waste were diverted from disposal in the landfill. The Neal Road Landfill also accepted 6,159,503 gallons of septage and RV wastes during 2006 for disposal in a lined liquid waste impoundment.

b. Analysis of the Future Waste Stream

Population variations have a significant impact on the Butte County municipal waste stream. According to the *Joint Technical Document, Neal Road Landfill, September 2001* (JTD), the population in Butte County is projected to grow by about 3.3 percent every year. Using the JTD projection figures, the 2000 population of 96,630 is expected to reach 157,260 by the year 2015 (these figures represent the unincorporated portions of the county.) These projections are significantly higher than the Butte County Association of Governments' (BCAG) projections, which predict the population in the

unincorporated portions of the county will be 98,786 in 2015 and 114,687 in 2030, with an average annual growth rate of 1.1 percent.

Commercial and industrial growth and per capita generation trends are also significant factors that will affect the future waste stream. The emerging construction concept of “green building” may have a positive impact on waste reduction depending on cost and public acceptance.

Table 6-6 below shows projected countywide solid waste generation for 2010, 2020, and 2030 based on actual per capita waste generation rates in 2002.

TABLE 6-6 PROJECTED COUNTYWIDE WASTE GENERATION: 2002-2030

	2002 Actual ^a	2010 Projected	2020 Projected	2030 Projected
Population	210,367	240,190	286,440	344,570
Waste Generated (Tons)	209,840	239,588	285,722	343,707

^a Population figure is January 2003 population estimate by the California Department of Finance (DOF).

^b Population projections from the Butte County Association of Government’s (BCAG) 2003 update to the Regional Travel Demand Model for the Butte County Regional Transportation Plan (RTP) – see Chapter 2 (Population).

Sources: Butte County Recycling Coordinator, and Mintier & Associates.

C. Collection and Transfer

a. Collection of Municipal Solid Waste

Butte County is served by five licensed private haulers who provide residential, commercial, and industrial collection services for solid waste transported to the Neal Road Landfill for disposal. Franchise agreements for these services are established in the incorporated cities of Biggs, Gridley, Oroville and Paradise. In Butte County, Waste Management, Inc. operates North Valley Disposal and North Valley Waste Management. Norcal Waste Systems, Inc. operates Oroville Solid Waste and Norcal Waste Systems of

Butte County. Northern Recycling and Waste Services have contracted with the Town of Paradise to provide waste collection services and operate the Town's green waste recycling facility. The other solid waste collection companies are Crowder Rubbish Service and Country Roads Disposal. All commercial waste haulers operating in Butte County are required to obtain a permit issued by Butte County EHD after meeting requirements set forth in Butte County Code, Chapter 31.

Table 6-7 outlines the existing haulers, their service areas, contract status, recycling efforts and percent of waste stream diversion.

b. Transfer Stations

Private collection firms operate three transfer stations in Butte County. The Ord Ranch Transfer Station is leased by the City of Gridley from Butte County and operated by North Valley Waste Management. The North Valley Disposal Transfer Station is owned and operated by North Valley Waste Management. North Valley Waste Management is a subsidiary company of Waste Management, Inc.

The Ord Ranch Transfer Station is situated on one acre and as of 2006 is permitted to transfer up to 64 tons per day, operating only on weekends. All materials collected at the transfer station are hauled to Neal Road Landfill for disposal.

The Oroville Transfer Station, owned and operated by Norcal Waste Systems, Inc. is permitted to process 195 tons per day (2006 data) of refuse from residents and businesses in Oroville and communities in the central valley. It is an indoor facility, situated on 13 acres and equipped with a stationary compactor; it also includes a materials recovery facility and a household hazardous waste management facility.

TABLE 6-7 **SOLID WASTE HAULERS – BUTTE COUNTY**

Private Hauler	Service Area	Franchise/Contract	Recycling Efforts
Crowder Rubbish Service 153 Innsbrook Way Chico, CA 95973	Unincorporated Butte County only.	None.	None.
Oroville Solid Waste Disposal P.O. Box 1512 Oroville, CA 95965	Greater Oroville Area, Richvale, Rural Gridley, Rural Biggs, Nelson, Nord, Thermalito, Palermo, Bangor, Berry Creek, Feather Falls, Honcut, Cherokee, Concow, Paradise & Magalia areas, (Own and Operate Oroville Transfer Station)	Franchise in City of Oroville expires 2010. Town of Paradise permit.	Five buy back centers, office paper recycling, cardboard recycling route, school recycling program, & drop-off center. MRF facility in Oroville processes Oroville MSW.
Norcal Waste Systems of Butte County 3097 Southgate Lane Chico, CA 95928	City of Chico, Forest Ranch, Cohasset, Unincorporated Butte County	City of Chico permit. County hauling license.	Curbside recycling, including green waste collection.
North Valley Disposal Services P.O. Box 1159 Chico, CA 95927	Greater Chico Area, Durham, & Nord, unincorp. South County, Cohasset, Forest Ranch	City of Chico permit renewed every five years	Curbside & buy back program, office paper, cardboard.
Northern Recycling and Waste Services 920 American Way Paradise, CA 95969	Greater Paradise & Magalia Areas, Upper Ridge area, Butte Valley	Butte County license renewed annually. Town of Paradise permit.	Curbside recycling, including green waste collection, commercial waste.
Country Roads Disposal P.O. Box 1103 Berry Creek, CA 95916	Unincorporated Southern Butte County	None	Curbside collection of aluminum, glass and No. 1 plastic.
North Valley Waste Management 2569 Scott Ave. Chico, CA 95928	Gridley	Franchise with City of Gridley through 12/8/07	Curbside commingled, curbside yard waste, cardboard.
NRWS P.O. Box 2592 Paradise, CA 95467	Paradise and		

Source: Mintier and Associates, 2005.

D. Solid Waste Disposal

The primary solid waste disposal site in the County is the County owned and operated Neal Road Landfill. The Louisiana Pacific Landfill is not an active landfill and no longer accepts woodwaste or cogeneration waste and is currently in the process of Clean Closure under permit from the Regional Water Control Board.

The Butte County Division of Environmental Health, Department of Public Health functions as the Local Enforcement Agency operating under the guidelines of the County Solid Waste Enforcement program and the oversight of the CIWMB.

1. Neal Road Landfill

Neal Road Landfill is located seven miles southeast of Chico in the Central Buttes area, a rural area of the county characterized by topographic plateaus separated by ravines and canyons. Elevations at the site range from 210 to 460 feet MSL. The facility is one mile from the nearest residence.

The landfill is situated on 190 acres of property owned by Butte County. The landfill was operated by the Neal Road Landfill Company under contract with Butte County from 1978 through February 28, 2003. The County Public Works Department assumed daily operational responsibility on March 1, 2003. The landfill was originally opened as a burn dump in 1965. In 1970 it was converted into a sanitary landfill operation under the jurisdiction of the Department of Public Works.

The Neal Road Landfill is permitted to accept municipal solid waste, inert industrial waste, demolition materials, special wastes containing non-friable asbestos, and seepage. Hazardous wastes, including friable asbestos, are not accepted at the Neal Road facility or any other Butte County disposal facility. The permitted maximum disposal amount at the Neal Road is 1,500 tons per day.

The total capacity of the Neal Road Landfill was estimated in 2001 at 20,217,600 cubic yards (13,141,300 tons) and this estimate remains accurate in 2007.⁵ This available capacity would meet approximately 25 years of municipal solid waste disposal needs in the county.

This number is refuse fill capacity (excludes cover soils) and includes capacity obtained from the construction of future waste disposal modules. Based on an average waste disposal amount of 435 tons per day and using BCAG's average annual growth rate of 1.1 percent, it is anticipated that the site will continue to receive solid waste until at least the year 2033.

The Butte County Department of Public Works serves as the responsible agency that monitors the remaining capacity of the landfill site.

a. Regulatory Approval and Compliance

The Neal Road Landfill operates under Facilities Permit No. 04-AA-0002 which was issued February 2, 1999, revised and renewed July 19, 2005 by Butte County EHD under review of CIWMB. Butte County EHD is responsible for permitting, inspecting, and enforcing regulations at landfill sites.

Activities at the Neal Road Class III Landfill are also regulated by RWQCB Waste Discharge Requirements (WDRs) Order No. R5-2002-0145 and Monitoring and Reporting Program No. R5-2002-0145, which were adopted on August 19, 2002. The latter regulatory permitting documents strive to protect surface and groundwater quality.

The Butte County Air Quality Management District issued a Title V operating permit for landfill operations air emissions control. Permit No. NRL-01-01-TV was issued to the county Public Works Department on March

⁵ March 2, 2007. Communication with Steve Rodowick, Butte County Recycling Coordinator.

3, 2003. The Butte County Environmental Health Division issues an annual permit to the Neal Road Landfill and performs frequent inspections.

b. Leachate Control

The Neal Road Landfill has mechanisms for collecting and disposing leachate. To impede the generation of leachate, a relatively impermeable cover, consisting of synthetic tarp, is installed on the landfill. Leachate is collected along the perimeter of the landfill toe in a rock drain and under landfill modules. The leachate collected in the perimeter system is discharged to a Class II surface impoundment located within the permitted landfill area. Sampling groundwater wells located near the solid waste disposal facility assist in detecting the presence, degree, and migration of leachate. The groundwater monitoring system at the Neal Road Landfill consists of one upgradient and nine downgradient monitoring wells. Two additional monitoring wells are proposed.

Lysimeters were installed under the disposal site in 1990 to monitor the unsaturated zone water quality. Lysimeters are instruments that measure the water that percolates through a particular depth of soil. There are nine lysimeters installed at Neal Road Landfill. Sampling and laboratory analysis of water samples collected from the monitoring wells and the lysimeters are performed on a quarterly basis. All data is reported to the RWQCB.

c. Closure and Post-Closure Maintenance

Once the Neal Road Landfill reaches capacity, closure and post-closure care procedures will be implemented to minimize potential adverse environmental effects. Closure involves capping the landfill with a low-permeability material (compacted clay and a synthetic membrane) to minimize moisture infiltration, developing and maintaining surface drainage control structures, and maintaining the function of leachate and methane collection and monitoring equipment. Post-closure care involves inspecting the site, monitoring the environment, maintaining the land surface, controlling methane, and transporting and treating leachate. Post-closure maintenance is

considered a long-term obligation (minimum 30-year period) and is overseen by the CIWMB.

The eastern half (27 acres) of the previous 80-acre refuse footprint closed during 2004. The balance (21 acres) of the previous 80-acre footprint was closed during 2007, and all waste disposal activities will occur on lined modules thereafter.

2. Louisiana-Pacific Landfill

Louisiana Pacific Landfill is in a Clean Closure Process under permit and oversight of the Regional Water Quality Control Board. It is no longer permitted as a solid waste landfill in Butte County.

E. Special Wastes

This section describes the public and private services that are available for transporting, disposing, and treating a variety of solid wastes.

1. Current Special Waste Management

Medical waste, non-hazardous ash, construction and demolition waste, non-friable asbestos, and bulky items such as mattresses and white goods are accepted at the Neal Road Landfill. Friable asbestos wastes are disposed of in permitted Class II landfills outside Butte County and are not allowed in Neal Road Landfill for disposal.

2. Household Hazardous Waste

Several Household Hazardous Waste (HHW) programs have been implemented in Butte County. These include permanent HHW collection facilities located in Chico and Oroville, maintenance of a load checking program at the Neal Road Landfill, and advocating of public education and information. One-day HHW collection events are routinely held at various locations in the county. Funding for the HHW events is raised by fees generated from the Neal Road Landfill gate fees. Electronic hazardous waste

(e-waste) facility is now operational for the Neal Road Landfill, and diverted over 200 tons of waste last year.

3. Construction/Demolition Waste

Construction and demolition debris is made up of a variety of waste material including steel, asphalt, concrete, brick, plaster, wallboard, and piping. Some of this material may contain hazardous substances such as asbestos.

Butte County has designated separate areas for stockpiling and processing of green wastes and concrete/asphalt wastes at Neal Road Landfill and encourages cooperation with reduced tipping fees. Wood chips are sold to existing cogeneration and biomass fuel markets. Crushed concrete and asphalt material is used to build and reinforce landfill roads.

4. Infectious Waste

A local company picks up and disposes infectious waste from all veterinary clinics, hospitals, and medical and dental practices.

5. Used Oil

Twenty certified oil recycling centers in Butte County accept about 45,000 gallons per year of used engine and similar lubricating oils. Agricultural generators of waste oil have two recycling centers available: one located at Neal Road Landfill and the other located at Compton Enterprises.

6. Tires

Tens of thousands of old tires accumulate in Butte County every year. These scrap tires are a major problem for communities. Stockpiled and littered tires have negative aesthetic impact and increase the risk of fire and disease and provide breeding habitat for mosquitoes.

There are four identified feasible alternatives to the county's old tire supply: landfill disposal; technological transformations such as retreading; resurfacing city streets with rubberized asphalt; or energy recovery.

About 144 tons of waste tires (or 11,500 tires) were accepted at Neal Road Landfill during 2006. Of that amount, virtually all tires were shipped to the Calaveras Cement cogeneration facility in Redding, California

Two tire amnesty events were held in 2005 and 2006. The County was recently awarded a CIWMB tire amnesty grant to fund two events in 2007/2008. This effort is intended to address the illegal dumping problem in the rural areas of the county.

The County was also recently awarded one of 39 grant allocations from the CIWMB to provide funding for programs designed to identify illegal waste tire piles, inspect tire facilities and haulers, investigate complaints and provide industry training.

F. Public Education and Involvement

The success of an education and involvement program hinges on participation by the commercial sector and the media. Local commercial haulers use an extensive array of mechanisms to advance solid waste management awareness. Television programming, radio, and newspaper are used to advance public awareness.

The Butte County Department of Public Works implements public education and involvement programs for the unincorporated areas.

G. Financing and Revenues

a. Operating Revenue

Butte County solid waste management systems are funded by fees charged at Neal Road Landfill and total approximately \$6,500,000 per year.

Table 6-9 outlines the existing solid waste disposal fees at the Neal Road Landfill, the Ord Road Transfer Station, and the Oroville Transfer Station.⁶

b. Capital Financing

Capital financing for Butte County solid waste management operations and improvements may be accomplished through borrowing, using incoming revenues, and/or private financing. General obligation bonds are considered a stable mechanism for funding capital equipment acquisitions or facilities. Operations and maintenance revenues can be collected by one or a combination of several methods. A waste surcharge can be collected from each customer in the periodic billings of the waste haulers. Fees from building and development impact mitigation and business license renewal can also be collected. Grant funds are received from the state Department of Conservation and the California Integrated Waste Management Board for recycling and household hazardous waste programs. Butte County also plans to explore other State and federal programs that may offer grant funds and low interest loans.

c. Multi-Jurisdictional Factors

A regional approach to solid waste management offers a number of potential financing advantages. Recycling, composting, and waste-to-energy programs require a large waste generation and collection base in order to generate a marketable product. Development of regional sites assures a consistent supply of materials, allowing Butte County communities to achieve economies of scale through better utilization of capital and more efficient management.

⁶ March 2, 2007. Communication with Steve Rodowick, Butte County Recycling Coordinator.

TABLE 6-9 **BUTTE COUNTY LANDFILL AND TRANSFER STATION FEES**

Type of Waste	Costs
Neal Road Landfill Fees	
Municipal Wastes	Minimum charge is \$10.00 per vehicle up to 667 lbs. net weight. All other vehicles over 1,550 lbs. \$32.00 per ton.
Tires	\$2.00 per tire, up to 36" \$4.00 per tire from 36" to 48" \$13.00 per tire from 48" to 60" \$140 per ton over for tires over 60" and large loads \$140 per ton for altered (cut) tires
Yard waste	\$5.00 minimum, \$20.00 per ton maximum
Special Handling	\$60.00 per load for wastes requiring immediate cover
Demolition Wastes	\$32.00 per ton
Refuse Haulers	\$32.00 per ton
Inert Waste (concrete, dirt, asphalt)	\$5.00 per ton. No charge for clean inerts.
Septage	\$77.61 per 1,000 gallons (\$18.61/ton)
Oroville Transfer Station	
Minimum Charge	\$7.50
Commercial Vehicle	\$40.75/ton
Standard Pickup Truck	\$25.25 (level bed) \$38.75 (over bed)
Appliances	\$11.50 (w/o freon) \$32.25 (with freon)
Oro Road Transfer Station	
Municipal Wastes	\$4.00 minimum per barrel 32 gal.; truck \$19.00
Stumps	Large stumps not taken
Tires	\$5.00 to \$15.00, car and light truck only

Notes: Fees effective July 1, 2007.

Sources: Butte County Public Works Department, 2003, Norcal Waste Systems 2003. Neal Road Landfill Fee Schedule, 2006.

H. Source Diversion and Reduction

AB 939, the Integrated Solid Waste Management Act of 1989, requires every jurisdiction in California to develop comprehensive plans for implementing programs and policies to reduce, recycle, or otherwise divert from landfill disposal a minimum of 25 percent of each jurisdiction's solid waste stream by 1995 and 50 percent by the year 2000.

It has been observed that county and incorporated city solid waste systems are somewhat different in operational methodology and public awareness of waste stream recycling opportunities. This fact is evident in the differences between the existing diversion rates for the various jurisdictions. As the mandated requirements of AB 939 continue to be implemented and as public awareness on solid waste issues heightens, source reduction and recycling efforts will continue to result in significant changes in the solid waste infrastructure for Butte County.

1. Source Reduction

Source reduction is an approach to solid waste reduction that addresses how products are manufactured, purchased, and used.

Source reduction technical options planned in Butte County include product reuse, reduced material volume, increased product lifetime, and decreased consumption. For example, Butte County will examine alternatives for reusing scrap paper. It will also develop a policy regarding the replacement of paper towel dispensers with air hand dryers, promote the use of cloth diapers in child care centers, and accommodate swap meets and thrift and repair shop businesses.

The County IWMP anticipates that all of the proposed source reduction programs could achieve a minimum diversion of 2 percent of the waste disposed in Butte County. The CIWMP was reviewed during 2005.

Educating the residents in Butte County is designed to elicit assistance by the public and the private sectors in meeting goals for reducing solid wastes. Technical assistance is also available to help households and businesses track their waste output through waste audits. The County can also encourage people to reduce junk mail and encourage bulk buying source reduction goals.

2. Recycling

a. Existing Recycling Programs

Recycling, an essential practice for diverting solid wastes from landfills, is a fundamental part of the Butte County integrated waste management plan. In 2000, approximately 77,467 tons (or about 39 percent) of the solid waste generated within the Butte Regional Solid Waste Management Authority jurisdiction was diverted from permitted disposal facilities by recycling programs and facilities.

Commonly recycled solid waste materials in Butte County include: paper, both old newspaper and corrugated cardboard; aluminum; glass; ferrous metals; plastics, both PET and HDPE; and batteries. Industrial food processors separate food wastes for use as animal feed by farmers. Scrap metal dealers located in Butte County receives and resells ferrous metals and other so-called “white” metal goods, such as aluminum and tin. Fats and greases from grocery stores and restaurants are collected by a rendering company. Tree trimmings and yard wastes are also collected for mulch and cogeneration fuel.

Existing recycling activities and programs are overseen by the County and operated by the County at Neal Road Landfill and by the private sector at other locations.

b. Planned Programs

Planning for recycling involves understanding materials markets, building local expertise, setting realistic goals, and promoting public participation.

Programs include implementation of a residential curbside recycling program in the Chico urban sphere. Operation of a construction and demolition debris salvage program are planned activities Neal Road Landfill. Butte County will continue to oversee the existing buy-back recycling centers. A planned public education and involvement program will foster participation in recycling.

c. **Materials Recovery Facility (MRF)**

A MRF is a centralized facility that receives separates, processes, and markets recyclable materials. Norcal Waste Systems of Butte County, which serves Oroville, Chico, Durham, and Magalia, operates a MRF. Construction of a facility to sort some of the incoming wastes and divert materials to an on-site organic waste processing facility is under consideration by Butte County Public Works Department.

3. Composting

a. **Existing Composting Programs**

There is one permitted regional composting facility established in Butte County, as well as a number of smaller, privately operated facilities. The regional facility accepts green wastes, consisting of lawn clippings, leaves, and tree branches. Vegetative food waste can be recycled as animal feed or diverted into cogeneration fuel. Commercial and industrial wood waste is also diverted into cogeneration fuel.

Yard waste composting is a low technology, low cost operation that can handle a substantial portion of the municipal solid waste stream. The City of Chico owns and operates a yard waste composting program. About 400 cubic yards/day of leaves collected in the autumn months (40,000 cubic yards/year) are composted near the Chico Municipal Airport. The compost product is used for landscaping purposes. The City of Gridley operates a sewage sludge drying facility near its wastewater treatment plant.

Yard waste composting activities by the City of Chico have in the past raised some concern over surface water quality. In 1981, the Regional Water

Quality Control Board suggested that the leaf composting operation was causing polluted leachate to enter Sheep Hollow Creek. Since that time, corrections to rectify the situation have been implemented.

b. Composting Objectives

As of 2007 programs for composting include curbside collection of residential yard waste, a drop-off system for commercial and industrial generated yard waste and the composting facility at the Chico Airport site. In Paradise Ridge and in the densely populated areas of the unincorporated County, further curbside expansion is planned.⁷

4. Solid Waste Combustion

Butte County has one biomass conversion facility, which is the only cogeneration plant in the county. The Pacific Oroville Power, Inc. (POPI) plant, located in Oroville, burns wood waste through the direct combustion process to generate electricity. The electricity is sold to PG&E. The most recently available information, which dates from 2003, notes that the plant generates 18 MW of electricity, though it is licensed at 22 MW. The wood fuel for the plant comes from agricultural wastes and timber operations. In accordance with the Clean Air Act (CAA), combustion facilities in Butte County must meet source performance standards that limit emissions of individual pollutants to the air.

⁷ March 2, 2007. Communication with Steve Rodowick, Butte County Recycling Coordinator.