El Dorado County
Solid Waste Management Plan

VOLUME II

Detailed Strategies and Support

DRAFT

August 17, 2011

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Section 1

Introduction

1. Introduction

Volume II of the El Dorado County Solid Waste Management Plan contains background data, detailed strategy descriptions, and supporting materials. This volume is intended to serve as a reference to the Volume I Executive Summary.

Sections 1 through 3 of this volume provide background information on the County's current solid waste management system, population, and waste projections through 2030. Sections 4 through 6 of this volume provide detailed descriptions of the Plan's 42 strategies, with one section per planning phase. **Exhibit 1-1,** on the following page, identifies the Section and page number where each strategy description can be found. Appendices A through I of this volume provide background information, analyses, and descriptions that contributed to the development of the Plan.

Plan Development

The County began the planning process in 2009. The Environmental Management Department, working with the El Dorado County Solid Waste Advisory Committee (EDSWAC), developed a Request for Proposal (RFP) to identify a contractor to assist the County in developing a solid waste management Plan. The County selected NewPoint Group Management Consultants, along with subcontractor BAS Engineering. NewPoint Group worked with the County and EDSWAC to develop a planning vision and several iterations of draft Plan documents. The two volume final draft Plan (this document) is now available to the public and Board of Supervisors for a 45-day public comment period. The final Plan, reflecting public comments, will be approved by the Board of Supervisors in the fall of 2011.

Exhibit 1-1
Summary of Strategies and Strategy Description Location

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Exhibit 1-1
Summary of Strategies and Strategy Description Location *(continued)*

Objectives and Strategies	Section 3 (Phase 1)	Section 4 (Phase 2)	Section 5 (Phase 3)	Page Number
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Section 2

Profile of County Solid Waste System

2. Profile of County Solid Waste System

In this section, we provide an overview of El Dorado County services areas for the six (6) current franchises the County has for waste management services. We also provide a summary of current El Dorado County services offered to County customers. This section is organized as follows:

A. County Franchise Areas
B. Community Services.

A. County Franchise Areas

The County has solid waste collection franchise agreements with the following six (6) companies, two of which are Waste Connections companies, and three of which are South Tahoe Refuse companies. In addition, two cities and two Community Service Districts (CSDs) in the County have separate franchise agreements:

A. Waste Connections of California
1. Amador Disposal Service – West Slope
2. El Dorado Disposal Services – West Slope
   a. Unincorporated
   b. City of Placerville
   c. El Dorado Hills CSD
   d. Cameron Park CSD

B. South Tahoe Refuse Company
3. American River Disposal Service – East Slope
4. Sierra Disposal Service – West Slope
5. South Tahoe Refuse Company – East Slope
   a. Unincorporated
   b. City of South Lake Tahoe

C. Tahoe-Truckee Sierra Disposal Company
6. Tahoe-Truckee Sierra Disposal – East Slope.

The six companies that service six (6) different unincorporated County areas, two (2) cities, and two (2) CSDs, are shown in **Exhibit 2-1,** on page 2-3. In the 1970s, nearly forty years ago, the County established these geographic areas based on legacy factors such as road/bridge infrastructure and proximity to landfill sites.

The County distinguishes between West Slope service areas and East Slope services areas. The West Slope service areas include areas within the current boundaries of the solid waste collection franchises for (1) Amador Disposal Service, (2) El Dorado

Table 2-1
Summary of Solid Waste Collection Franchisees and Service Areas

Region	Parent Company	Company	Estimated Number of Residential Customers[a]	Areas Served
West Slope	A. Waste Connections of California	A.1 Amador Disposal Service	1,226	South County (Somerset, Grizzly Flats, and Mt. Aukum)
		A.2 El Dorado Disposal Services (unincorporated County)	12,995	West County along Highway 50 Corridor (Pollock Pines west to El Dorado Hills)
		A.3 El Dorado Disposal Services (Cameron Park Community Services District)	5,890	Cameron Park CSD
		A.4 El Dorado Disposal Services (El Dorado Hills Community Services District)	12,095	El Dorado Hills CSD
		A.5 El Dorado Disposal Services (City of Placerville)	3,063	City of Placerville
	B. South Tahoe Refuse Company	B.1 Sierra Disposal Service	4,795	North County (Coloma, Pilot Hill, Cool, Lotus, Georgetown, Garden Valley, Greenwood, and Auburn Lake Trails)
East Slope	B. South Tahoe Refuse Company	B.2 American River Disposal Service	247	High Mountain County (Pacific House, Crystal Basin, Kyburz, Strawberry, and Echo Summit)
		B.3 South Tahoe Refuse Company (unincorporated County)	5,943	South Lake Tahoe Basin (Meyers, Christmas Valley, and Hope Valley)
		B.4 South Tahoe Refuse Company (City of South Lake Tahoe)	9,251	City of South Lake Tahoe
	C. Tahoe-Truckee Sierra Disposal	C.1 Tahoe-Truckee Sierra Disposal	757	West Lake Tahoe Basin (Meeks Bay, Rubicon, and Tahoma)
	Total		**56,262**	

[a] A county customer could equate to approximately 2.5 to 3.0 persons in the County population.

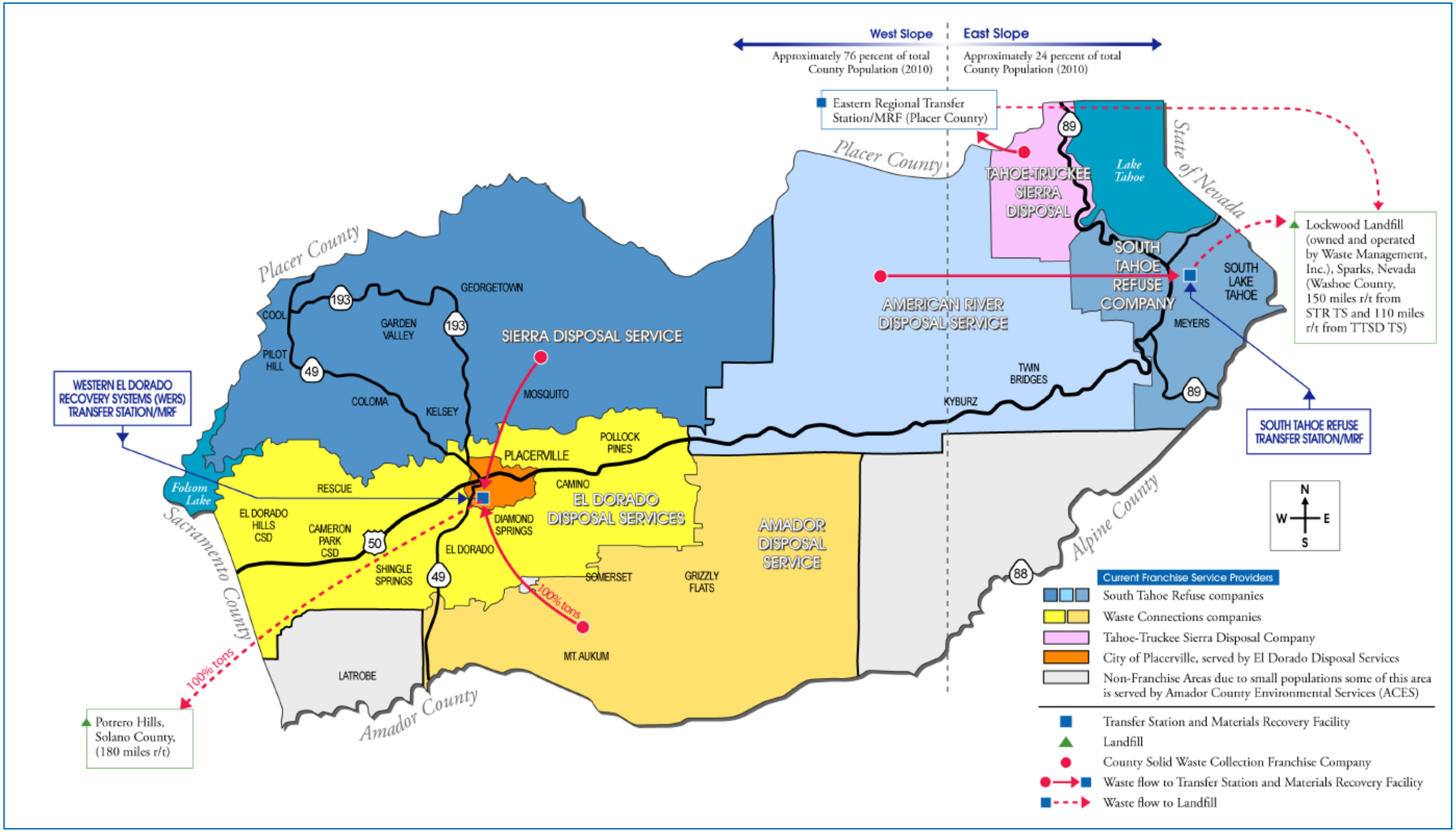
Disposal Services, and (3) Sierra Disposal Service.[1] East Slope service areas are those served by (1) American River Disposal Service, (2) South Tahoe Refuse Company, and (3) Tahoe-Truckee Sierra Disposal.[1]

Table 2-1, above, summarizes the franchise companies, estimated number of residential customers, and areas served. As shown in Table 2-1, Waste Connections companies serve approximately 63 percent of the County's residential accounts. South Lake Tahoe Refuse companies serve another approximately 36 percent of the County's residential accounts, while Tahoe-Truckee Sierra Disposal serves approximately one (1) percent of the County's residential accounts.

El Dorado Disposal Services (Waste Connections) also serves Cameron Park (Cameron Park Community Services District), El Dorado Hills (El Dorado Hills Community Service District), and the City of Placerville under separate franchises. Finally, South Tahoe Refuse Company, also serves the City of South Lake Tahoe, under a separate franchise.

[1] *Source:* Franchise Agreements between the County and the haulers.

Exhibit 2-1
Areas Served by Six County Solid Waste Collection Franchise Companies



[1] This landfill location may change. In the past five years, County waste also has been disposed of at the Forward Landfill in Manteca and Keifer Landfill in Sacramento.

Western El Dorado Recovery Systems, a company with common ownership to El Dorado Disposal Service, provides transfer station and Materials Recovery Facility (MRF) operations, and an on-site certified recycling redemption and free household hazardous waste (HHW) center for various customers on the West Slope of the County.

South Lake Tahoe MRF and Transfer Station, owned by South Tahoe Refuse Company, serves the surrounding Lake Tahoe area, and operates a MRF/transfer station, a resource recovery facility, two buy-back centers, and a free HHW program for various customers on the East Slope of the County. Tahoe-Truckee Sierra Disposal Company operates a transfer station and MRF, a buyback center, and a HHW operation at the Eastern Regional Landfill and Transfer Station in unincorporated Placer County, near Truckee, California.

B. Community Services

1. Residential Solid Waste Collection Service Levels

Current County residential solid waste collection service levels for refuse, curbside recycling, and yard waste services are shown in **Exhibit 2-2,** on page 2-5. This exhibit identifies container sizes, container types, and collection frequencies, for each of the franchise areas.

a. Residential Refuse Services

Pursuant to *Section 6* of the Franchise Agreements, between the County and its franchise agreement companies, refuse services occur once-a-week. For County residential refuse collection services, refuse is picked up once a week in all service areas. However, County customers are offered different service level options in terms of container size and container type, depending on the service area. For example, in the more urban portions of the County (e.g., Placerville, Cameron Park CSD and El Dorado Hills CSD), served by El Dorado Disposal Service, customers select a refuse cart (provided by the company serving the area), from the following sizes:

- El Dorado Disposal Service, Cameron Park CSD – 64 or 96-gallon cart
- El Dorado Disposal Service, El Dorado Hills CSD – 35, 64 or 96-gallon cart
- El Dorado Disposal Service, City of Placerville – 32, 64 or 96-gallon cart.

For the more rural County areas, customers generally provide their own can(s), and decide the number of cans for refuse service, as follows:

- American River Disposal Service, County Franchise Area – 32 or 45-gallon can(s)
- Sierra Disposal Service, County Franchise Area – 32 or 45-gallon can(s)
- South Tahoe Refuse Company, County Franchise Area – Unlimited can(s)
- Tahoe-Truckee Sierra Disposal, County Franchise Area – 32-gallon can(s).

There are two collection areas with both can and cart service options available to the customers. Customers can choose between can service and cart service, as follows:

- Amador Disposal Service, County Franchise Area – 32 or 45-gallon can(s), or a 96-gallon cart
- El Dorado Disposal Service, County Franchise Area – 32 or 45-gallon can(s), or a 64 or 96-gallon cart.

b. Residential Curbside Recycling Services

Depending on the service area, there are two types of residential curbside recycling container options offered to County customers, blue bag or cart. Blue bags are collected weekly, or bi-weekly, and the larger 64- and 96-gallon carts are collected bi-weekly.

Exhibit 2-2
Solid Waste Collection Service Levels for El Dorado County

No.	Company/Area	Service Type					
		Residential Refuse*	Residential Curbside Recycling*	Residential Yard Waste*	Commercial Refuse	Commercial Recycling	Commercial Green and Food
A	*Waste Connections of California*						
1.0	Amador Disposal Service	32 or 45-gallon can(s), or 96-gallon cart, weekly	Blue bag in the cans, weekly	None	Variety of bins and debris boxes available	Free service available	
2.0	**El Dorado Disposal Services**						
2.1	– Cameron Park (Mandatory)	64 or 96-gallon cart, weekly	64-gallon or 96-gallon cart, bi-weekly	96-gallon carts, bi-weekly	Variety of bins and debris boxes available	Free service available	Utilize drop off bins
2.2	– City of Placerville (Mandatory)	32, 64, or 96-gallon cart, weekly	64-gallon or 96-gallon cart, bi-weekly	96-gallon carts, bi-weekly	Variety of bins and debris boxes available	Free service available; 95 percent of commercial businesses have accounts	
2.3	– El Dorado Hills (Mandatory)	35, 64, or 96-gallon cart, weekly	64-gallon or 96-gallon cart, bi-weekly	96-gallon carts, bi-weekly	Variety of bins and debris boxes available	Free service available	Available, but only limited number of commercial green waste accounts
2.4	– Unincorporated County Area	32 or 45-gallon can(s), or 64 or 96-gallon cart, weekly	64 or 96-gallon carts, or blue bags, bi-weekly	96-gallon carts, bags, or bundles, bi-weekly	Variety of bins and debris boxes available	Free service available	
B	*South Tahoe Refuse Company*						
3.0	**American River Disposal Service**	32 or 45-gallon can(s), weekly	Blue bags, weekly	None, material is sorted at MRF	Options per cubic yard or per can		
4.0	**Sierra Disposal Service**	32 or 45-gallon can(s), weekly	Blue bags, weekly	None	Variety of cans, bins and debris boxes available	Free service available; cardboard and commingled recyclables	
5.0	**South Tahoe Refuse Company**	Unlimited can(s), weekly	Blue bags, weekly	Collection available – wood chips, pine needle pilot	Variety of bins and debris boxes available	Free service available – blue bag and various options	Collecting food waste from commercial in a pilot program
C	*Tahoe-Truckee Sierra Disposal Company*						
6.0	**Tahoe-Truckee Sierra Disposal**	32-gallon can(s), weekly	Blue bags (outside refuse container), weekly	None	Variety of bins available		

* Carts are provided by the companies. Cans are provided by customers. Multi-family recycling programs are minimal, but available. Educational outreach and school recycling are also available, on request.

In areas served by El Dorado Disposal Services, most customers are offered a bi-weekly cart option for curbside commingled recycling services (up to two, 64-, or 96-gallon carts provided by the company). Recycling services are as follows:

- 64-gallon or 96-gallon carts, biweekly – Cameron Park CSD, El Dorado Hills CSD, and City of Placerville
- 64-gallon or 96-gallon carts, or blue bags, bi-weekly – El Dorado Disposal Services Unincorporated County area.

In addition to El Dorado Disposal Services, there are four other County franchise areas with weekly blue bag curbside recycling service, as follows:

- Blue bags – Amador Disposal Service, American River Disposal Service, Sierra Disposal Service, South Tahoe Refuse Company, and Tahoe-Truckee Sierra Disposal franchise areas.

Residential curbside recycling service rates are included in the standard refuse collection services for most customers, except that in the County franchise area served by Tahoe-Truckee Sierra Disposal, the customer must provide their own blue bag for curbside recycling service.

c. Residential Yard Waste Services

In the County, El Dorado Disposal Services is the only franchise company that provides residential yard waste services to its customers. El Dorado Disposal Services provides curbside 96-gallon cart services, bi-weekly, for yard waste to most of its customers, such as customers in the Cameron Park CSD, El Dorado Hills CSD, the City of Placerville and the Unincorporated County area.

The El Dorado Disposal MRF at 4100 Throwita Way also accepts yardwaste for a fee. In the Unincorporated County area, El Dorado Disposal Services also provides yard waste service options, such as bags, or bundles. There is an additional charge for Unincorporated County area customers.

In the rest of the County franchise areas, the companies don't provide residential yard waste service to their customers. In these service areas, instead of customers separating materials, materials are sorted at the South Tahoe Refuse Transfer Station dirty MRF. These County franchise areas, without yard waste service available, are as follows:

- Amador Disposal Service, County Franchise Area
- American River Disposal Service, County Franchise Area
- Sierra Disposal Service, County Franchise Area
- South Tahoe Refuse Company, County Franchise Area.

In addition to the curbside yard waste services provided by El Dorado Disposal Services, the County also presently employs a yard waste burn option. County customers may burn tree trimmings, leaves, dry pine needles, and plants on their property during scheduled burn days and times. As a result, these customers may not need curbside yard waste services.

2. Commercial Bin and Cart Solid Waste Collection

Similar to residential services, the six (6) franchise companies provide County commercial solid waste collection services. Each company serves its own exclusive franchise area, as described for residential services above. County commercial customers are provided cart or bin collection services as shown in **Table 2-2,** on page 2-7.

Table 2-2
El Dorado County
Commercial Bin/Cart Refuse Collection Services
(As of November 2010)

Company	Refuse Can/Cart Sizes	Refuse Bin Sizes/Frequencies
Amador Disposal Service	32-gallon or 45-gallon can(s)	1, 1.5, 2, or 6 cubic yard picked up 1 to 6 times per week
American River Disposal	32-gallon can(s)	1, 2, 3, 4, 5, 6, or 8 cubic yard picked up 1 to 6 times per week
El Dorado Disposal Service	32-gallon or 45-gallon can(s); 64 or 96 gallon carts	1, 1.5, 2, 3, 4, 5, 6, or 8 cubic yard picked up 1 to 6 times per week
Sierra Disposal Service	32-gallon or 45-gallon can(s)	1 cubic yard
South Tahoe Refuse Company	32-gallon can(s)	6 or 10 cubic yard picked up 1 to 6 times per week
Tahoe-Truckee Sierra Disposal	32-gallon can(s)	3, 4, or 6 cubic yard picked up 1 to 3 times per week

Table 2-3
El Dorado County
Debris Box Collection Services
(As of November 2010)

Company	Refuse Debris Box Sizes	Recycling Debris Box Sizes	Yard Debris Box Sizes
Amador Disposal Service	6, 10, 20, or 30 cubic yard	N/A	N/A
American River Disposal	10, 14, 15, 20, and 33 cubic yard	N/A	33 cubic yard
El Dorado Disposal Service	6, 10, 20, 30, 40, or 50 cubic yard	N/A	20 or 30 cubic yard
Sierra Disposal Service	6, 20, or 30 cubic yard	30 cubic yard	N/A
South Tahoe Refuse Company	10, 14, 15, 20, 33, or 40 cubic yard	33 cubic yard	33 or 40 cubic yard
Tahoe-Truckee Sierra Disposal	10, 15, 20, 25, or 30 cubic yard	N/A	N/A

3. Debris Box Solid Waste Collection

As shown in **Table 2-3,** above, all six (6) franchises provide a range of different debris box collection services, ranging from 6 to 50 cubic yards in size. Some of the franchisees provide separate recycling or yard waste debris boxes, ranging in size from 20 to 40 cubic yards.

4. Transfer Stations and Landfills

Transfer Station, Materials Recovery Facilities, and landfills are key elements in the County's solid waste collection system. County customers currently are served by three (3) Materials Recovery Facilities (MRFs) and transfer stations (two in-County), as follows:

- Western El Dorado Recovery Systems (WERS) MRF, located in Diamond Springs, California (El Dorado County)
- South Tahoe Refuse Transfer Station, located in South Lake Tahoe, California (El Dorado County)
- Eastern Regional Transfer Station, located in Placer County.

Refuse is transferred to the Western El Dorado Recovery Systems MRF, which is owned and operated by El Dorado Disposal Services; the South Tahoe Refuse Transfer Station, which is owned and operated by South Tahoe Refuse Company; and the Eastern Regional Transfer Station/MRF which is operated by Tahoe-Truckee Sierra Disposal on Placer County owned land, for the purposes of recovering and recycling materials.

Table 2-4
El Dorado County
Materials Recovery Facility/Transfer Station Specifications*

Facility	Year Constructed	Building Size (square feet)	Site acreage	Maximum Permitted Throughput (tons per day)	Permitted Capacity (tons per day)	Permitted Operations
Western El Dorado Recovery Systems Materials Recovery Facility	1996		10.14	400	400	Transfer/processing
South Tahoe Refuse East Slope Transfer Station and Resource Recovery Facility	2008	33,700	7.7	370	432	Transfer/processing, chipping and grinding

* The Eastern Regional Transfer Station, operated by Tahoe-Truckee Sierra Disposal, is excluded from this table because it is located in Placer County.

A profile of transfer station/material recovery facilities located within El Dorado County is shown in **Table 2-4,** above. There are two (2) facilities within the County, one on the West Slope and one on the East Slope. The East Slope facility, located in the City of South Lake Tahoe, includes both a transfer station/"dirty MRF" and a newly constructed Resource Recovery Facility. Material types accepted by each in-County MRFs/transfer station are shown in **Table 2-5,** on page 2-9.

Recent facility diversion rates are shown in **Table 2-6,** on page 2-9. The WERS facility diversion rates averaged approximately 31 percent between calendar years 2007 and 2009. The STR facility diversion rates averaged approximately 40 percent between fiscal years 2007 and 2009.

In addition, there are currently two landfills, all out-of-County, used by the six El Dorado County haulers, as follows:

- Lockwood Landfill – located at Sparks, Nevada (Washoe County)
- Potrero Hills Landfill – located in Solano County, California.

These transfer facilities and landfills used by County franchise companies receive solid waste from the unincorporated areas and incorporated cities via the County's franchised haulers. Solid waste is generated from a mix of residential, commercial, and industrial sources in the County.

Refuse collection services are non-mandatory for the unincorporated County areas, except for the South Tahoe Refuse County franchise area. County customers are not obligated to pay for refuse collection services. Many customers prefer to self-haul their refuse to a transfer station. Up to twenty (20) percent of total County refuse volume is self-hauled. However, refuse collection services are mandatory for Cameron Park CSD, El Dorado Hills CSD, the City of Placerville, and the City of South Lake Tahoe.

Table 2-5
El Dorado County
Materials Recovery Facility/Transfer Station
Materials Accepted

Material Types	
Construction and demolition n Asphalt n Concrete n Contractors steel n Dirt n Roofing (asphalt/composition/tile) **Green waste/organics** n Aquatic weeds n Pine needles n Sod n Slash n Stumps n Wood chips n Yard trimmings **E-waste** n CD players/DVD players n Computer monitors and CPU n Copiers n Cordless phones n Fax machines n Radios/stereos n Satellite receivers n Telephones n Televisions	**Household hazardous waste/universal waste** n Batteries (car, household) n Chemical products n Compressed gas cylinders n Florescent bulbs and tubes n Oils n Paints n Solvents **Municipal solid waste (MSW)** **Special waste** n Appliances n Furniture n Mattresses/box springs n Milled wood n Refrigerators n Roofing n Tires

Table 2-6
El Dorado County
Materials Recovery Facility/Transfer Station Diversion*

Facility				CY 2007	CY 2008	CY 2009
Western El Dorado Recovery Systems Materials Recovery Facility				29.8%	31.4%	31.4%
	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
South Tahoe Refuse Co. MRF/Transfer Station	37.4%	37.5%	38%	37.3%	44.0%	39.3%

* The Eastern Regional Transfer Station, operated by Tahoe-Truckee Sierra Disposal, is excluded from this table because it is located in Placer County.

Table 2-7
El Dorado County
MRF/Transfer Stations and Self-Haul Tipping Fees used by El Dorado County
(As of July 2011)

MRF/Transfer Station	Tipping Fee Per Ton	Location
South Tahoe Refuse Transfer Station*	$94.80	South Lake Tahoe, California
Western EL Dorado Recovery Systems MRF/Transfer Station	75.53	Diamond Springs, California
Eastern Regional Transfer Station	77.50	Placer County, California

* Equivalent rate based on a conversion factor of 350 pounds per cubic yards for mixed waste. The rate is for 6 yards.

The Materials Recovery Facilities (MRFs) are one of the County's key elements in meeting the State's fifty (50) percent, Assembly Bill (AB) 939 waste reduction goal. All waste is sorted at these facilities to recover recyclable materials. Recovered materials are cleaned and sold to market.

Table 2-7, above, provides a summary of the tipping fee information for each MRF/transfer station used by the County's franchises. The per ton tipping fee rates charged to County customers range from $75.53 per ton to $94.80 per ton for compacted mixed solid waste.

In the County, franchise companies use different approaches to manage materials once collected. All companies transfer materials collected to a MRF/transfer station first. The County ultimately exports all solid waste out of the County for landfill disposal. **Table 2-8,** on page 2-11, provides a summary of the waste management approaches, and processes, employed by each County franchise company.

All franchised companies use MRF/transfer stations to sort materials, and then transfer refuse to landfills for disposal. Western El Dorado Recovery Systems consolidates and transfers refuse to Potrero Hills Landfill in Solano County, California. The South Tahoe Refuse MRF/ Transfer Station and the Eastern Regional MRF/ Transfer Station consolidate and transfer refuse to Lockwood Landfill, located at Sparks, Nevada.

American River Disposal Service and South Tahoe Refuse Company do not require customers to sort recyclables and yard waste, and instead sorts all of the materials at its Materials Recovery Facility (MRF), or "dirty MRF" in the City of South Lake Tahoe.

Waste Connections collects and transfers recyclable and yard waste materials at its Western El Dorado Recovery Systems (WERS). The current material throughput at the WERS facility is greater than the facility's designed capacity. Without additional investments, the facility will likely face a number of operational limitations such as tight self-haul drop off/turnaround areas, larger weekend traffic volumes on City streets, limited material storage areas, and small overall site footprint.

Table 2-8
MRF/Transfer Stations and Landfills for El Dorado County
(As of November 2010)

No.	Company	Materials Recovery Facility/ Transfer Station(s)	Landfill(s)	Recyclable Processing Facility	Greenwaste Processing Facility
A	*Waste Connections of California*				
1.0	Amador Disposal Service	Western El Dorado Recovery Systems, Diamond Springs, California	Potrero Hills Landfill, Solano County, California[1]	Pacific Rim, Benecia, California	Lopez Ag Service, Sacramento, California
2.0	El Dorado Disposal Services	Western El Dorado Recovery Systems, Diamond Springs, California	Potrero Hills Landfill, Solano County, California[1]	Pacific Rim, Benecia, California	Lopez Ag Service, Sacramento, California
B	*South Tahoe Refuse Company*				
3.0	American River Disposal Service	South Tahoe Refuse Transfer Station, South Lake Tahoe, California	Lockwood Landfill, Sparks, Nevada	South Tahoe Refuse Transfer Station, South Lake Tahoe, California	Bently Agrowdynamics, Minden, Nevada
4.0	Sierra Disposal Service	Western El Dorado Recovery Systems, Diamond Springs, California	Potrero Hills Landfill, Solano County, California[1]	Recycling Industries	Bently Agrowdynamics, Minden, Nevada
5.0	South Tahoe Refuse Company	South Tahoe Refuse Transfer Station, South Lake Tahoe, California	Lockwood Landfill, Sparks, Nevada	South Tahoe Refuse Transfer Station, South Lake Tahoe, California	Bently Agrowdynamics, Minden, Nevada
C	*Tahoe-Truckee Sierra Disposal Company*				
6.0	Tahoe-Truckee Sierra Disposal	Eastern Regional Transfer Station/ MRF, Placer County, California	Lockwood Landfill, Sparks, Nevada	Eastern Regional Transfer Station/ MRF, Placer County, California	Eastern Regional Transfer Station/ MRF, Placer County, California

[1] In the past, El Dorado Disposal Service has also disposed of waste at the Forward Landfill in Manteca, California, and the Keifer Road Landfill in Sacramento, California.

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Section 3

El Dorado County Population and Waste Projections 2010 to 2030

3. El Dorado County Population and Waste Projections 2010 to 2030

This section of the Plan provides projections for El Dorado County population, waste generation, and waste characterization through 2030. These projections provide the baseline from which to plan waste management and diversion needs and opportunities for the County. The population and waste projections draw on several different sources, and represent the best possible projection, given the data available. **Appendix A** in this volume provides a more detailed explanation of the assumptions and calculations behind the projections. The primary sources of these projections are as follows:

Population:

- The 2010 California Department of Transportation (Caltrans) El Dorado County Economic Forecast
- Sacramento Area Council of Governments (SACOG) Regional Analysis District population projections
- El Dorado Hills Community Services District population estimates and master plan build-out
- California Department of Finance (DOF) population data for the County and for South Lake Tahoe (including actual County population data for 2005 and 2010).

Waste Generation and Characterization:

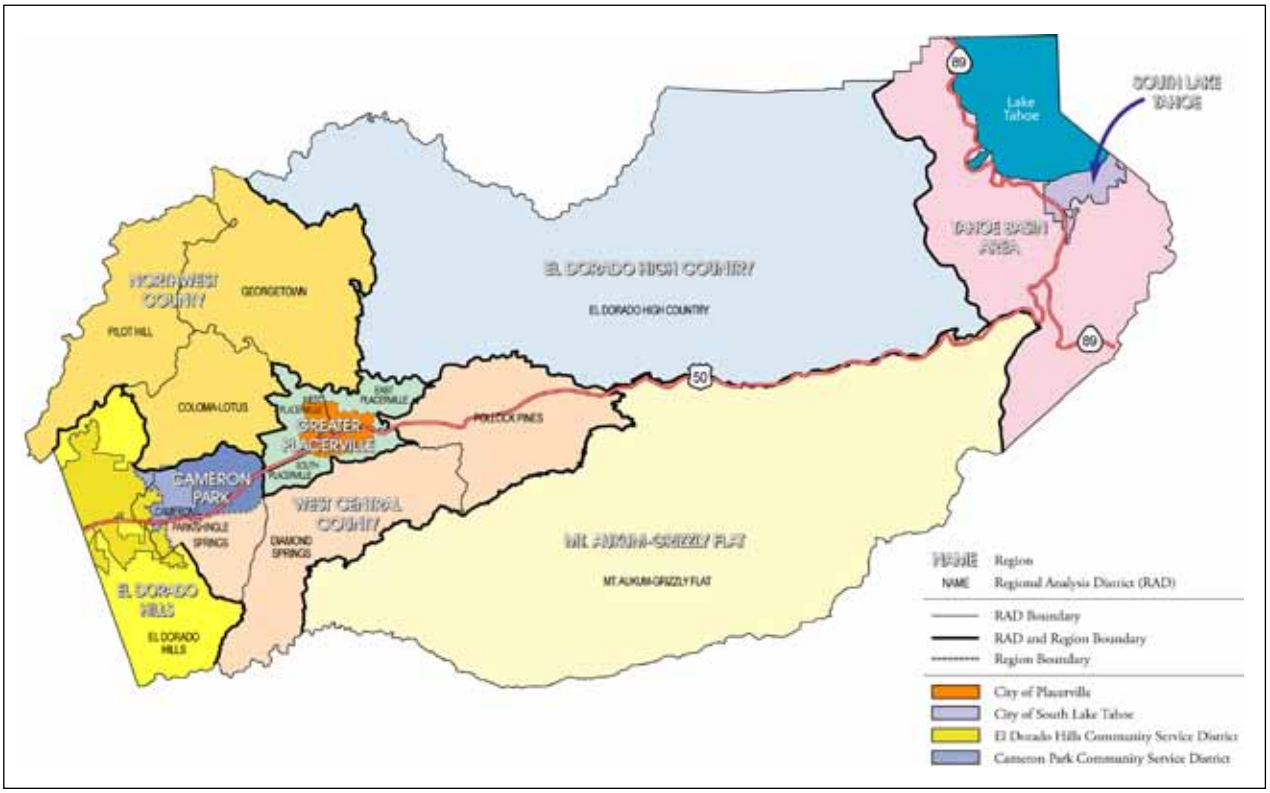
- California Integrated Waste Management Board (CIWMB) (now CalRecycle) disposal data for El Dorado County unincorporated, City of Placerville, and City of South Lake Tahoe
- CIWMB waste characterization studies
- Department of Finance population and housing data.

A. Population

This planning document divides the County into nine (9) regions. These regions are based on the SACOG Regional Analysis Districts (RADs) used for planning purposes.[1] The regions are somewhat analogous to, but not the same as, existing franchise regions. **Figure 3-1,** on page 3-2, illustrates the nine regions, as well as RADs and major jurisdictions. The nine regions are defined as follows:

[1] The exception is the two Tahoe basin regions, which are not within SACOG. The RADs are areas defined by SACOG that are similar, but not identical, to community planning areas or cities. SACOG utilizes RAD for planning and projection purposes.

Figure 3-1
El Dorado County
Regions and Jurisdiction



1. Northwest County – this heavily rural region consists of three RADs: Pilot Hill, Georgetown, and Coloma-Lotus that make up the northwestern portion of the county
2. El Dorado Hills – this region consists of only the El Dorado Hills RAD. This area includes, but extends slightly beyond, the El Dorado Hills Community Service District (EDHCSD) boundary, and covers much of the western border of the county
3. Cameron Park – this region consists of the northern half of the Cameron Park-Shingle Springs RAD, and includes the Cameron Park Community Services District (CPCSD), just east of El Dorado Hills
4. West Central County – this primarily rural region consists of the southern half of the Cameron Park-Shingle Springs RAD, plus two additional RADs: Diamond Springs and Pollock Pines, covering much of the area south of Placerville and east of El Dorado Hills
5. Mt. Aukum-Grizzly Flat – this heavily rural region consists of the Mt. Aukum-Grizzly Flat RAD, covering most of the southern region of the county
6. Greater Placerville – this region includes three RADs: West Placerville, East Placerville, and South Placerville. The region includes the incorporated City of Placerville, but extends beyond the Placerville city limits
7. El Dorado High Country – this heavily rural region consists of the El Dorado High Country RAD, and covers much of the northern county, including some of the east slope

Table 3-1
El Dorado County
Population Estimates[a] by Region
(2005 to 2030)

Region	2005	2010	2015	2020	2025	2030	Growth 2010 to 2020	Growth 2020 to 2030
Northwest County	21,092	21,136	21,203	21,413	21,581	21,598	1.3%	0.9%
El Dorado Hills	31,222	36,000	41,511	47,042	51,938	57,344	30.7%	21.9%
Cameron Park	13,629	14,786	14,988	15,620	15,770	15,786	5.6%	1.1%
West Central County	40,635	43,025	43,402	44,582	45,462	45,553	3.6%	2.2%
Mt. Aukum-Grizzly Flat	13,950	13,993	13,999	14,017	14,268	14,294	0.2%	2.0%
Greater Placerville	18,415	18,818	18,941	19,326	19,852	19,906	2.7%	3.0%
El Dorado High Country	3,147	3,174	3,168	3,151	3,263	3,275	-0.7%	3.9%
Tahoe Basin Area	6,993	7,000	7,033	7,055	7,076	7,098	0.8%	0.6%
South Lake Tahoe	23,904	24,087	24,329	24,573	24,820	25,069	2.0%	2.0%
Total	172,987	182,019	188,574	196,779	204,030	209,923	8.1%	6.7%

[a] Appendix A provides a detailed description of the population projection methodology.

8. Tahoe Basin Area – this region of the county is not within the SACOG area. This region includes most of the east slope portions of the county in the Tahoe basin, with the exception of the City of South Lake Tahoe

9. South Lake Tahoe – this region of the county is not within the SACOG area. The region includes the incorporated City of South Lake Tahoe.

Table 3-1, above, provides population projections by region, and for the county overall from 2005 to 2030. **Figure 3-2,** on page 3-4, provides a graphical representation of population projections. These El Dorado County population projections are more conservative than projections developed a few years ago by DOF and SACOG. Prior to the 2008/09 recession, El Dorado County was one of the fastest growing counties in the state, with projections for high growth through our projection period. However, growth in the county came to almost a complete standstill in 2009 and growth remains slow today. These projections do take into account expected growth by region, as some areas (the two community service districts) are expected to grow more rapidly, while others are projected to have very little growth.

The total population of El Dorado County is projected to increase just over 8 percent between 2010 and 2020, to 196,779, with an additional 6.7 percent increase between 2020 and 2030, to 209,923. Among the nine El Dorado County regions defined for this study, El Dorado Hills has the greatest projected growth, at 30.7 percent over the next ten years, slowing somewhat to 21.9 percent between 2020 and 2030. The Cameron Park region is projected to have 5.6 percent growth in the next ten years, slowing to 1.1 percent between 2020 and 2030. South Lake Tahoe and Placerville, the two incorporated cities in the County, are projected to have relatively low growth over the twenty year period. Projected growth in the county's more rural areas is also projected to be low.

Figure 3-2
El Dorado County
Actual and Projected Population, by Region
(2005 to 2030)

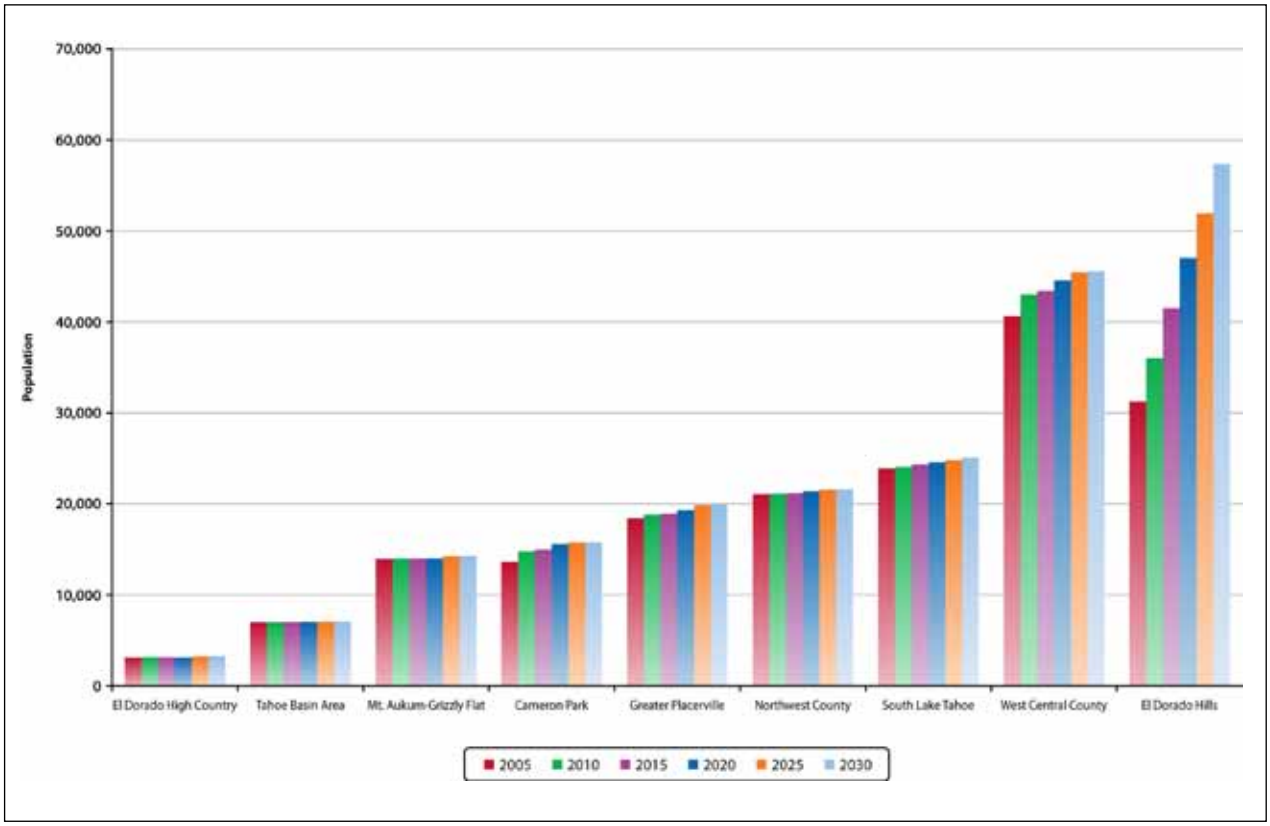


Table 3-2
Waste Disposal Projections by Region
(2010 to 2030)

Region	Tons/person	2010	2015	2020	2025	2030
Northwest County	0.67	14,044	14,099	14,239	14,351	14,362
El Dorado Hills	0.67	23,922	27,605	31,283	34,539	38,134
Cameron Park	0.67	9,826	9,967	10,387	10,487	10,498
West Central County	0.67	28,591	28,863	29,647	30,233	30,293
Mt. Aukum-Grizzly Flat	0.67	9,299	9,310	9,322	9,488	9,506
Greater Placerville	0.59	11,068	11,138	11,364	11,673	11,705
El Dorado High Country	0.67	2,109	2,107	2,095	2,170	2,178
Tahoe Basin Area	1.05	7,378	7,413	7,436	7,458	7,481
South Lake Tahoe	1.39	33,484	33,817	34,157	34,500	34,846
Total		139,721	144,319	149,930	154,899	159,003

Table 3-3
Calculation of Tons Disposal/Person for South Lake Tahoe

	2010
Estimated Tons Disposed	33,484
Population	24,087
Tons/person	1.39

B. Waste Projections and Characterization

Table 3-2, on page 3-4, provides waste projections for the County through 2030 overall and by region. These projections are based on per person waste disposal, by jurisdiction, for 2010, multiplied by population projections from Table 3-1. **Table 3-3,** above, provides an example of the tons/person calculation in Table 3-2 for South Lake Tahoe. The tons disposed data are from the CIWMB/CalRecycle actual reported disposal tonnages for the jurisdiction. The population data are from the California Department of Finance. The tons/person for each year is equal to tons disposed divided by population. The average tons/person for 2010 is 1.39. The County generated just over 139,000 tons in 2010, with generation estimated to increase to just under 150,000 tons by 2020.

The greatest increase in waste disposal over the 20 year planning period results from the projected population increase in El Dorado Hills. The South Lake Tahoe region is another large-volume generating region due to the higher per capita waste generation, likely resulting from the influence of tourism. The West Central County is the third major generating region due to the region's relatively large population. A primary difference between regions is that in El Dorado Hills and South Lake Tahoe, much of the waste generation is concentrated in a relatively small geographical area, while in West Central County, waste generation is spread more evenly throughout the small communities in the region.

Waste characterization data are based on CalRecycle's 2008 waste characterization data for the state, by sector (commercial, single family, multi-family, and self-haul). The statewide data was adjusted to reflect the County's mix of single family and multi-family households (El Dorado County has a higher proportion of single family homes than the statewide average), and checked against County-specific waste characterizations done prior to 2008. **Table 3-4,** on page 3-6, provides the percentages and tons of waste disposed, by material type, for 2010. Appendix A provides additional detail on waste generation and diversion requirements to meet the 75 percent diversion target.

The data in Table 3-4 are based on CalRecycle's waste characterization, and thus reflect only the materials that are disposed, not diverted. These data reflect existing diversion levels (statewide) for paper, organics, and other recyclables. Thus, to the extent that materials in Table 3-4 can be diverted, these tonnages represent opportunities to increase County diversion. For example, approximately 30,000 tons of paper will be disposed in the County in 2010, with more than one-half coming from the commercial sector. Much of this material could potentially be diverted through increased commercial and residential paper recycling, or reduced through waste reduction programs. Other material categories that represent significant diversion potential include: food, other organics, inerts and other (C&D), and plastic.

Table 3-4
El Dorado County
Waste Characterization Estimates for Waste Disposed[a]
(2010)

	Commercial	Residential		Self-Haul	Total
		Single	Multi		
Percent by Sector	50.0%	26.4%	3.6%	20.0%	100.0%

Material	Percent by Material				
Paper	19.7%	18.7%	21.8%	5.5%	16.7%
Glass	2.2%	2.1%	3.1%	0.5%	1.9%
Metal	4.5%	4.1%	3.7%	5.6%	4.6%
Electronics	0.5%	0.7%	0.7%	0.4%	0.5%
Plastic	11.3%	10.0%	7.3%	5.8%	9.7%
Food	18.5%	26.6%	22.6%	1.1%	17.3%
Other Organic	12.0%	24.6%	19.5%	12.5%	15.7%
Inerts and Other (C&D)	27.8%	9.6%	15.4%	58.8%	28.7%
Household HW	0.3%	0.3%	0.3%	0.4%	0.3%
Special Waste	3.1%	0.3%	4.5%	9.3%	3.7%
Mixed Residue	0.1%	3.0%	1.1%	0.1%	0.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

	Commercial	Residential		Self-Haul	Total
		Single	Multi		
Percent by Sector	50.0%	26.4%	3.6%	20.0%	100.0%

Material	Tons by Material				
Paper	18,018	9,032	1,436	2,012	30,498
Glass	2,012	1,014	204	183	3,413
Metal	4,116	1,980	244	2,049	8,389
Electronics	457	338	46	146	987
Plastic	10,335	4,829	481	2,122	17,767
Food	16,922	12,846	1,488	402	31,658
Other Organic	10,976	11,880	1,284	4,573	28,713
Inerts and Other (C&D)	25,428	4,636	1,014	21,512	52,590
Household HW	274	145	20	146	585
Special Waste	2,835	145	296	3,402	6,678
Mixed Residue	91	1,449	72	37	1,649
Total	91,464	48,294	6,585	36,584	182,927

Sources: El Dorado County and CIWMB Waste Characterizations for 1999; CIWMB California Waste Characterization for 2008; DOF data on single and multi-family households in El Dorado County in 2010; NPG waste generation estimate for El Dorado County for 2010.

[a] These data were determined at the State level, and thus are estimates when applied to the County level. A County-specific waste characterization would provide a more accurate characterization of the County's unique mix of waste disposed, and an assessment of where to target new programs.

Section 4

Phase 1: Near-Term Strategies

4. Phase 1: Near-Term Strategies

This section describes the near-term strategies for the County's future solid waste management system. **Exhibit 4-1,** on page 4-2, summarizes twenty-one (21) strategies to implement in the near-term. The near-term is defined as the five-year period from 2011 through 2016. During this time the County should implement several key strategies, and may begin planning for additional strategies. The emphasis during Phase 1 will be comprehensive program implementation, combined with facility upgrades and future facility planning. The right-most columns of Exhibit 4-1 show whether the strategy is designed to move the County toward a 75 percent diversion rate, or whether the strategy is currently a State-mandated requirement.

The strategies in Phase 1 cover all five Plan objectives:

- Objective 1 – Develop Authorities for Future Solid Waste Management
  - Strategy 1.1 – Create a West Slope Joint Powers Authority (JPA)
  - Strategy 1.2 – Conduct County Waste Characterization Studies
  - Strategy 1.3 – Extend Use of and Modify WERS Facility as Needed
  - Strategy 1.4 – Expand Mandatory Residential Collection Ordinance
  - Strategy 1.6 – Conduct Procurement(s) to Obtain Franchised Service Provider(s)
- Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services
  - Strategy 2.2 – Use Greater Pay-As-You-Throw (PAYT) Pricing Programs
  - Strategy 2.3 – Expand Use of Purchasing Preference Practices
  - Strategy 2.4 – Implement Mandatory Commercial Recycling Program
  - Strategy 2.5 – Enhance and Enforce the Construction and Demolition Ordinance
  - Strategy 2.6 – Expand Use of Curbside Recycling Programs (Targeted to Selected Areas)
  - Strategy 2.7 – Expand Residential Cart Collection Systems (Targeted to Selected Areas)
  - Strategy 2.8 – Enhance Existing School, Park, and Community Facility Recycling Programs (and implement where necessary)
  - Strategy 2.9 – Expand Diversion Programs at Public Facilities
  - Strategy 2.10 – Expand Multi-Family Recycling Program
  - Strategy 2.13 – Enhance Home Composting Programs
  - Strategy 2.17 – Advance Outreach and Education Programs

Exhibit 4-1
Phase 1 Strategies

Objectives and Strategies	East Slope	West Slope	Page Number	Strategy to Move to 75% Diversion	State-Mandated Requirement
Objective 1 – Develop Authorities for Future Solid Waste Management					
Strategy 1.1 – Create a West Slope Joint Powers Authority (JPA)		X	4-4	X	
Strategy 1.2 – Conduct County Waste Characterization Studies	X	X	4-13		
Strategy 1.3 – Extend Use of and Modify WERS Facility as Needed		X	4-14	X	
Strategy 1.4 – Expand Mandatory Residential Collection Ordinance	X	X	4-16	X	
Strategy 1.6 – Conduct Procurements to Obtain Franchised Service Provider(s)	X	X	4-21		
Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services					
Source Reduction					
Strategy 2.2 – Use Greater Pay-As-You-Throw (PAYT) Pricing Programs	X	X	4-21	X	
Strategy 2.3 – Expand Use of Purchasing Preference Practices	X	X	4-22	X	
Recycling Collection and Processing					
Strategy 2.4 – Implement Mandatory Commercial Recycling Program	X	X	4-24		X
Strategy 2.5 – Enhance and Enforce the Construction and Demolition Ordinance	X	X	4-25		X
Strategy 2.6 – Expand Use of Curbside Recycling Programs (Targeted to Selected Areas)	X	X	4-26	X	
Strategy 2.7 – Expand Residential Cart Collection Systems (Targeted to Selected Areas)	X	X	4-26	X	
Strategy 2.8 – Enhance Existing School, Park, and Community Facility Recycling Programs (and implement where necessary)	X	X	4-27	X	
Strategy 2.9 – Expand Diversion Programs at Public Facilities	X	X	4-28	X	
Strategy 2.10 – Expand Multi-Family Recycling Program	X	X	4-29	X	
Organics and Composting Practices					
Strategy 2.13 – Enhance Home Composting Programs	X	X	4-30	X	
Public Education					
Strategy 2.17 – Advance Outreach and Education Programs	X	X	4-31	X	

Exhibit 4-1
Phase 1 Strategies *(continued)*

Objectives and Strategies	East Slope	West Slope	Page Number	Strategy to Move to 75% Diversion	State-Mandated Requirement
Objective 3 – Create Solid Waste Management Facility Infrastructure					
Strategy 3.1 – Evaluate, Finalize, Plan, and Initiate Facility Infrastructure Strategies	X	X	4-31		
Strategy 3.5 – Develop Small Volume Rural Transfer Facilities and Strategically Placed Debris Boxes on the West Slope		X	4-32	X	
Strategy 3.9 – Develop West Slope C&D Processing Facility		X	4-33	X	
Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services					
Strategy 4.1 – Revise Rate System to Fund New Facilities and Programs	X	X	4-34		
Objective 5 – Determine and Implement Appropriate Performance Tracking					
Strategy 5.1 – Identify Appropriate Performance Metric for Each Selected Strategy	X	X	4-38		

- Objective 3 – Create Solid Waste Management Facility Infrastructure
  - Strategy 3.1 – Evaluate, Finalize, Plan, and Initiate Facility Infrastructure Strategies
  - Strategy 3.5 – Develop Small Volume Rural Transfer Facilities and Strategically Placed Debris Boxes on the West Slope
  - Strategy 3.9 – Develop West Slope C&D Processing Facility
- Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services
  - Strategy 4.1 – Revise Rate System to Fund New Facilities and Programs
- Objective 5 – Determine and Implement Appropriate Performance Tracking
  - Strategy 5.1 – Identify Appropriate Performance Metric for Each Selected Strategy.

The remainder of this section describes each of the 21 Phase 1 strategies. The strategies are organized by Objective. The following is provided for each strategy:

- An overview discussion of the strategy, the status of current County related activities or facilities, and rationale for the strategy
- Preliminary high-level costs and benefits for the strategy
- Barriers/challenges (and potential solutions) for the strategy
- Implementation timing, strategies and next steps.

A. Objective 1 – Develop Authorities for Future County Solid Waste Management

Strategy 1.1 – Create a West Slope Joint Powers Authority (JPA)

Description and Rationale

The jurisdictions on the County's West Slope should form a joint powers (waste management) authority (JPA) called the West Slope JPA (WSJPA). The WSJPA should include the following four (4) member agencies:

- City of Placerville
- El Dorado County
- Cameron Park Community Services District (CPCSD)
- El Dorado Hills Community Services District (EDHCSD).

Even with creation of this WSJPA, each individual member agency should maintain a large degree of autonomy. For example, each member agency should continue to have the individual power to create and issue franchise agreements. Member agencies also will have the authority to establish rates charged to their customers.

The WSJPA should be created as a joint powers authority pursuant to Title 1, Division 7, Chapter 5, Article 1 (Section 6500, et seq.) of the Government Code of the State of California, commonly known as the Joint Exercise of Powers Act (the JPA Act). This Act allows two or more public agencies to jointly exercise any power held in common.

WSJPA goals include:

- Provide a unified and coordinated West Slope solid waste management system
- Develop and manage a regional West County composting facility and C&D facility
- Jointly measure disposal reduction by member agencies

- Provide joint planning, financing, administration, management, review, monitoring, and reporting of solid waste, recycling, and greenwaste activities
- Use the most efficient strategies for source reduction, recycling, and reuse
- Combine public education efforts for solid waste management services and programs
- Provide economies-of-scale in developing new West Slope solid waste facilities
- Jointly issue revenue bonds, and other indebtedness to pay for the operation, construction, acquisition, rehabilitation, and/or expansion of solid waste facilities
- Meet the requirements of the California Integrated Waste Management Act (Assembly Bill 939)
- Work together to meet current and future California diversion requirements
- Work together on sustainability and AB 32 programs.

The WSJPA should be overseen by:

- A governing WSJPA Board of four (4) members. The WSJPA Board will include one member each from the El Dorado County Board of Supervisors, the El Dorado Hills Community Services District Board of Directors, the Cameron Park Community Services District Board of Directors, and City of Placerville City Council

Staffing for a WSJPA likely would be relatively minimal initially. The WSJPA could be staffed using existing member agency staff to minimize costs. Proposed WSJPA staffing levels include:

- A managing director (as required or if appropriate, likely part-time)
- Up to two full-time equivalent employees to support activities of the WSJPA (e.g., secretarial support, accounting staff, and legal staff).

The WSJPA should have, at a minimum, quarterly meetings. The WSJPA should develop minutes of all meetings. The County auditor should audit funds of the WSJPA.

The WSJPA should have the following powers:

- Adopt resolutions as authorized by law
- Adopt an annual budget, as appropriate
- Apply for grants
- Acquire, assume, site, license, construct, finance, dispose, condemn, operate and maintain (in part or by contracting out) solid waste management facilities, transfer stations, landfills, transformation facilities, MRFs, composting facilities, and HHW facilities
- Develop bylaws
- Enter into contracts
- Incur debts, liabilities, or obligations
- Invest surplus funds
- Issue revenue bonds or obligations at the WSJPA Board deems appropriate
- Plan and study alternative waste management practices
- Provide landfill closure and post-closure planning
- Seek funding from member agencies for costs not funded through revenues associated with the WSJPA
- Select facility operators.

The WSJPA should prepare the following reports on behalf of the jurisdictions:

- Non-disposal facility elements
- Disposal and diversion reports
- Annual reports.

Member agency responsibilities include:

- Ensure waste collected within their jurisdiction is directed to WSJPA facilities
- Implement specific diversion programs selected for implementation by the WSJPA

- Combine solid waste diversion percentages together to meet Cal Recycle mandates
- Delegate disposal and non-disposal responsibilities over solid waste to the WSJPA
- Receive assessments by the WSJPA for civil penalties imposed by Cal Recycle for a member agency's failure to meet AB 939 mandates
- Make advances and contributions to the WSJPA and be repaid.

Costs/Benefits

There is a relatively minor cost (staff time, legal review) for the parties to develop, review, and approve a WSJPA agreement. A sample WSJPA agreement, based on one developed for the South Lake Tahoe Basin Waste Management Authority, is provided in **Exhibit 4-2,** starting on page 4-7. The costs for member agency participation in developing the WSJPA are relatively minor. On an ongoing basis, the administrative costs for the WSPJA likely would range from $0 to $150,000 per year.[1]

By creating a West Slope JPA, member agencies realize economic benefits when coordinating new investments in regional facilities and equipment that may not be possible if pursued individually.

Barriers/Challenges (and Potential Solutions)

There is a relatively long track record of successful waste management JPAs in California. There are approximately 20 similar JPAs created for waste management purposes in California. Successful examples of neighboring JPAs, including the Western Placer Waste Management Authority and South Lake Tahoe Basin Waste Management Authority, support creation of the WSJPA.

Development of a WSJPA is a key element in the success of the County's solid waste planning. A WSJPA would provide the foundation for the cooperative planning efforts contained in this Plan. Implementation of this strategy is an important first step in beginning to transform the County's solid waste system.

Initially, there may be some jurisdictions that benefit more than others when converting from individual jurisdictional AB 939/SB 1016 reporting to consolidated WSJPA reporting. Those that may not gain initially will need to realize that the long-term benefits of coordinated integrated waste management planning will offset the short-term initial AB 939 diversion reporting setbacks. Coordinated West Slope program and facility planning is best done with all jurisdictions participating and directing their material flow to jointly developed and managed facilities. Otherwise, the economics of West Slope facility operations and management are likely marginalized. Likewise, during this period of financial hardship for local jurisdictions, opportunities for shared program and service costs are highly advantageous.

A challenge for the WSJPA is that the Board and managing director would need to coordinate member agency planning efforts while balancing, in many cases, the lack of ultimate authority to require member agencies to carry these activities out. The WSJPA Board and managing director often would act in an advisory capacity. To overcome the problem of responsibility without authority, member agencies would need to work in the spirit of cooperation to achieve their mutually beneficial goals.

As one offset to potential WSJPA barriers, member agencies would continue to exercise independent power within their own jurisdiction. For example, member agencies would establish their own franchise agreements for refuse collection and disposal.

[1] Depending on the extent of responsibilities of the WESJPA, the member agencies could offer to provide city, service district, or county staffing for the WESJPA rather than having the WESJPA hire its own staffing. For example, should the WESJPA not direct material flow to a facility, and assume a more limited programmatic role, as opposed to one involving facility development and management, WESJPA staffing support requirements would be minimal.

Exhibit 4-2
Sample West Slope Joint Powers Authority
Joint Powers Agreement

This AGREEMENT is entered into as of the ___ of ____ 20__ , by and among the Agencies as designated.

W I T N E S S E T H :

Whereas, the County of El Dorado, City of Placerville, Cameron Park Community Services District, and El Dorado Hills Community Services District (individually "Agency" and collectively "Agencies") share a common interest in cost-effective management of solid waste generated on the Western Slope of El Dorado County

Whereas, the Agencies wish to encourage construction of solid waste handling facilities such as compost facilities, construction and demolition facilities, and materials recovery facility/transfer stations on the West Slope of El Dorado County, and wish to establish a fair and equitable arrangement to share in the costs of such facilities, and

Whereas, the Agencies find that it would be in their mutual advantage and benefit to work together to share costs to plan and implement source reduction, recycling, composting, public education, household hazardous waste management, and other solid waste programs and services, and

Whereas, the Agencies have determined that creation of a joint powers authority is the most appropriate manner in which to accomplish their goals while at the same time accommodating their individual interests, and

Whereas, Title 1, Division 7, Chapter 5, Article 1 (Section 6500, et seq.) of the Government Code of the State of California, commonly known as the Joint Exercise of Powers Act (the "JPA Act") provides that the County of El Dorado, City of Placerville, Cameron Park Community Services District, and El Dorado Hills Community Services District may by agreement jointly exercise any power common to them, and it is the intent of the Agencies to utilize this statutory authority to enter into this Agreement,

NOW, THEREFORE, based upon the mutual promises contained in this Agreement, the Agencies agree as follows:

1. There is hereby created the West Slope Joint Powers Authority ("Authority") to exercise in the manner set forth in this Agreement the powers common to each of the Agencies. The members are: the County of El Dorado, City of Placerville, Cameron Park Community Services District, and El Dorado Hills Community Services District. The Authority shall be a public entity separate from the Agencies. No debt, liability, or obligation of the Authority shall constitute a debt, liability, or obligation of any Agency

Exhibit 4-2
Sample West Slope Joint Powers Authority
Joint Powers Agreement *(continued)*

and each Agency's obligation hereunder is expressly limited only to the appropriation and contribution of such funds as may be levied pursuant to this Agreement or as the Agencies may otherwise agree.

2. Boundary

   The boundary of the Authority shall be the boundaries of unincorporated El Dorado County (west of ____), the City of Placerville, Cameron Park Community Services District, and El Dorado Hills Community Services District

3. Powers

   The Authority shall have the following powers:

   a. to make and enter into contracts;

   b. to apply for and accept grants, advances, and contributions;

   c. to provide funding to public or private entities for the construction of materials recovery facilities, transfer facilities, composting facilities, construction and demolition facilities, or other solid waste handling facilities, and/or conduct of programs under the general purview of the Authority;

   d. to employ or contract for the services of agents, consultants, and such other persons or firms as necessary;

   e. to promulgate regulations governing the construction, management, maintenance, operation and control of any public or private materials recovery facilities, transfer facilities, composting facilities, construction and demolition facilities, or other buildings or improvements involved with solid waste processing;

   f. to acquire, hold or dispose of property, including exercise of the power of eminent domain under the provisions of Code of Civil Procedure sections 1230.010 et seq., as these sections exist and as they may be amended from time to time;

   g. to sue or be sued in its own name;

   h. to incur debts, liabilities or obligations, subject to limitations herein set fourth;

   i. to adopt, as authorized by law, ordinances or resolutions necessary to carry out the purpose of this agreement;

   j. to adopt annually a budget setting forth all administrative, operational and capital expenses for the Authority, together with the apportionment of such expenses by levy against each Agency to the extent as set forth herein.

Exhibit 4-2
Sample West Slope Joint Powers Authority
Joint Powers Agreement *(continued)*

4. Organization

   a. Board

      The Authority shall be governed by the Board which shall exercise all powers and authority on behalf of the Authority.

      The Board is empowered to establish its own procedures. The Board may do any and all things necessary to carry out the purposes of this Agreement.

   b. Members

      The Board shall exist of one member of the governing body of each of the Agencies. Upon execution of this Agreement, the governing body of each Agency shall by resolution or other appropriate action appoint its member(s) to serve on the Board and one of its members to serve as an alternate member of the Board after his or her appointment, until a successor is selected. Each member and alternate shall serve at the pleasure of the governing body of the appointing agency. Any change in appointment of a member or alternate shall be by resolution of the governing body of the appointing Agency.

   c. Vote Required

      A unanimous vote shall be required for the adoption of a resolution or ordinance. Actions to approve Authority participation in or financing of materials recovery facilities, transfer facilities, composting facilities, construction and demolition facilities, or other solid waste handling facilities shall require a unanimous vote of the Agencies. A majority vote is required for all other actions.

   d. Meetings of the Board

      (1) Regular Meetings

         The Board shall hold at least one regular meeting each quarter. The date, hour, and place at which each such regular meeting shall be held shall be fixed by resolution of the Board.

      (2) Special Meetings

         Special meetings of the Board may be called in accordance with provisions of law.

      (3) Notice of Meetings

         All meetings of the Board shall be held subject to both the provisions of the Ralph M. Brown Act, being sections 54960 et seq. of the California Government Code requiring notice of meetings of public bodies to be given.

Exhibit 4-2
Sample West Slope Joint Powers Authority
Joint Powers Agreement *(continued)*

(4) Minutes

The Board shall cause minutes of all meetings to be kept and shall, as soon as possible after each meeting, cause a copy of the minutes to be forwarded to each member of the Board and to each Agency.

e. Bylaws

The Board shall adopt by resolution from time to time such bylaws, rules or regulations for the conduct of its affairs as may be required.

5. Budget and Dues of Members

The fiscal year of the Authority shall be the fiscal year beginning July 1 and ending June 30. For each fiscal year, the Authority shall adopt a budget. A unanimous vote of the Agencies shall be necessary for a budget to be adopted. At the same time as the budget is adopted, the Authority shall establish the dues of each Agency, if necessary.

Each Agency shall be responsible for the payment to the Authority, of the dues which are set at the time of adoption of the budget. As long as the Agency is a member of the Authority, the Agency shall pay the dues by imposing a surcharge on the solid waste disposal bill of each person owning, occupying or in possession or control of a parcel of property serviced by a solid waste collection franchisee within the boundary of each Agency of the Authority in an amount sufficient to pay that Agency's dues. Alternatively, the governing body of an Agency may pay its dues from other funding sources.

Surplus funds generated by the Authority shall be credited against future dues of the Agencies, or may be returned to the Agencies in proportion to the contribution of each Agency during the term of this Agreement.

6. Funds, Audit and Accounting Services

The Authority shall appoint a Finance Officer to serve the combined functions of treasurer and auditor pursuant to Government Code Section 6505.6, as it now exists or as it may be amended from time to time. The Finance Officer shall serve as the depository and have custody of all Authority funds from whatever source, and shall perform the following functions:

a. Receive and receipt for funds for the Authority and place them in appropriate accounts of a financial institution, checking accounts or interest bearing government accounts to the credit of the Authority, and invest any surplus funds in accordance with Government Code section 53601, as that section exists or as it may be amended from time to time;

b. Draw warrants or otherwise be responsible to certify the payment of demands against the Authority when approved by the Authority or by a person authorized by the Authority to so approve;

c. Pay sums due from Authority money, or any portion thereof, only upon warrants or other equivalent certification pursuant to procedures established by the Authority;

d. Verify and report in writing on the first day of July, October, January, and April of each year to the Authority and to the Agencies the amount of money held for the Authority, as well as the amount of receipts and the amount paid out since the last report to the Authority;

e. Pursuant to Government Code section 6505.6, as it now exists or as it may be amended form time to time, the Finance Officer shall cause an independent audit of the accounts and records to be conducted by a certified public accountant or public accountant. This independent audit shall comply with the requirements of section 6505 of the Government Code as it now exists or as it may be amended form time to time. In each case the minimum requirements of the audit shall be those prescribed by the State Controller for special districts under section 26909 of the Government Code as it now exists or as it may be amended form time to time. The audit shall conform to generally accepted auditing standards.

7. Disposition of Authority Funds Upon Termination

a. In the event of termination of the Authority where there is a successor public entity which will carry on the activities of the Authority and assume its obligations, Authority funds, including any interest earned on deposits, remaining upon termination of the Authority and after payment of all obligations shall be transferred to the successor public entity.

b. If there is no successor public entity which would carry on any of the activities of the Authority or assume any of its obligations, Authority funds, including any interest earned on deposits, remaining upon termination of the Authority and after payment of all obligations, shall be returned in proportion to the contribution of each Agency during the term of the Agreement.

c. If there is a successor public agency which would undertake some of the functions of the Authority and assume some of its obligations, Authority funds, including any interest earned on deposits, remaining upon termination of the Authority after payment of all obligations, shall be allocated by the Board between the successor public entity and member agencies.

In the event the Authority is terminated under any circumstances falling within (b) or (c) above, all decisions of the Board with regard to determinations of amounts to be transferred to member agencies or any successor shall be final.

8. Withdrawal and Termination of Membership

Any Agency may withdraw from this Agreement, subject to written notice submitted to the Authority at least one full fiscal year in advance of the effective date of withdrawal. The membership of any Agency which ceases to have powers in common with the parties to this Agreement shall terminate thirty (30) days after the occurrence of the requisite events as specified in this section.

Exhibit 4-2
Sample West Slope Joint Powers Authority
Joint Powers Agreement *(continued)*

9. Execution of Counterpart

   This Agreement may be executed in identical counterpart by the governing bodies of each Agency, and shall become effective as the date of execution by the Agency last approving this Agreement. Each Agency shall provide each other with a certified copy of the Agreement showing the Agency's execution.

10. Amendment

    This Agreement may be amended only by the unanimous vote of the governing boards of all Agencies.

Dated: _____

County of El Dorado
State of California

By _____

ATTEST:

By _____

Dated: _____

City of Placerville
State of California

By _____

ATTEST:

By _____

Dated: _____

Cameron Park Community Services District
State of California

By _____

ATTEST:

By _____

Dated: _____

El Dorado Hills Community Services District
State of California

By _____

ATTEST:

By _____

Should the West Slope jurisdictions not implement a WSJPA, this Plan can still move forward. However, the West Slope jurisdictions may be less vested in jointly participating in coordinated facility development and Countywide planning efforts. The WSJPA would strengthen the resolve of the parties to work together to implement the West Slope solid waste management strategies contained in this Plan.

Implementation Timing, Strategies, and Next Steps

The jurisdictions should form the WSJPA by a target date of December 31, 2012. Steps to implement the WSJPA include:

- Member agency representatives meet to refine WSJPA purpose, goals, and objectives
- Develop a WSJPA agreement
- Receive approvals of the WSJPA agreement from city, community service districts, and board of supervisors
- Select WSJPA board members
- Select WSJPA agency personnel or managing director
- Develop WSJPA budget and funding mechanism(s), as appropriate
- Hire WSJPA staff, as appropriate
- Cause a notice of the WSJPA agreement to be filed with the office of the California Secretary of State as required by Government Code 6503.5.

In the event that the cities and county do not form the WSJPA, the County should continue to move forward with this Plan.

Strategy 1.2 – Conduct County Waste Characterization Studies

Description and Rationale

The WSJPA, or the County, may conduct waste characterization studies every five to ten years, as appropriate, to assist in measuring success of existing diversion programs, and developing new diversion programs and facilities. The previous County-specific waste characterization studies were conducted in 2001. The WSJPA, or the County, may conduct a new waste characterization study within the next two years to provide a baseline for the current planning effort.

CalRecycle provides a Uniform Waste Disposal Method for jurisdictions to utilize in conducting waste characterizations. The method is based on classifying and weighing waste from a specified number of samples, by sector (single-family, multi-family, commercial, etc.), and by season. For example, in order to obtain a statistically reliable characterization of residential waste, a study should at a minimum include thirty samples, distributed over at least two seasons, with each sample at least 200 pounds. CalRecycle's methodology also provides field sorting protocols, minimum health and safety standards, and data analysis methods.

Results of a waste characterization study would assist the WSJPA, or the County, in identifying waste streams to be targeted for future waste diversion programs and infrastructure development, evaluate the effectiveness of recycling and diversion programs, and focus on specific wastestreams (food waste or C&D, for example). Without a County-specific waste characterization, the County must rely on statewide characterization data that may not reflect the County's unique waste stream characteristics.

Costs/Benefits

The cost of a waste characterization would depend on size and scope (number of seasons, number of sectors, etc.).

With an accurate understanding of wastes generated, by type and sector, the WSJPA, or the County, will be able to more effectively plan, manage, and measure diversion programs.

Specific information on wastes that are being disposed will be valuable in refining the strategies outlined in this vision. For example, Alameda County is drawing on the results of their 2008 waste characterization study to focus efforts on reducing the 60 percent of materials in their refuse (primarily food waste and other organics) that could be diverted.

Barriers/Challenges (and Potential Solutions)

The cost of a waste characterization study may present a barrier. The JPA can pool resources in order to share the potential cost burden.

Implementation Timing, Strategies, and Next Steps

The WSJPA, or the County, should conduct a waste characterization study during 2012. The WSJPA, or the County, should conduct a follow-up waste characterization study during Phase 2 (2017 to 2025).

To implement a waste characterization study, the WSJPA, or the County, should contact each County jurisdiction to obtain their support for the study. Ideally, each County jurisdiction should participate in, and contribute to, the waste characterization study. The WSJPA, or the County, should utilize the CalRecycle Uniform Waste Disposal Method. Because conducting a waste characterization can be labor intensive, the WSJPA, or the County, may choose to release a Request for Proposal (RFP) for a waste characterization study. The RFP will specify the number of samples, seasons, and statistical reliability.

Strategy 1.3 – Extend Use of and Modify WERS Facility as Needed

Description and Rationale

The County currently utilizes the WERS MRF/transfer station for the majority of materials generated on the West Slope. The County's West Slope franchises for collection services are set to end on the dates shown in **Table 4-1,** on the next page. The franchise end dates for unincorporated West Slope areas are between 2012 and 2014. The City of Placerville, Cameron Park Community Services District, and El Dorado Hills Community Services District recently extended the existing contracts for collection services with El Dorado Disposal Services.

The County may extend the agreement with EDDS to utilize the WERS facility until such time as a cost-effective alternative is available. Potential alternative are the West Slope EcoPark described under Strategy 3.2, or the Modern and Economical MRF/Transfer Station described under Strategy 3.10.

The County, City of Placerville, Cameron Park Community Services District, and El Dorado Hills Community Services District may need to utilize the existing WERS facility over the next several years. These West Slope jurisdictions should work with the existing owner/operator to ensure that the WERS facility, and an operating contract, are in place during this period.

Based on economic factors, the WSJPA, or the County, also may decide not to implement a new West Slope EcoPark (described in Section 6, Strategy 3.2). Under this scenario, the WSJPA, or the County, may elect to work with the WERS operator to upgrade the existing WERS facility to handle expected County growth and possibly incorporate features similar to those proposed for the new West Slope EcoPark (see Strategy 3.2).[2]

Depending on the County's future diversion goals and collection service offerings, there is the possibility of a low cost option in which the operator redesigns the existing WERS dirty MRF

[2] Due to the 10 acre-size limitation, this WERS facility would not provide sufficient space to accommodate conversion technologies in addition to the other features identified for the EcoPark (an EcoPark site with conversion technology spaces requires 15 acres).

Table 4-1
El Dorado County
Franchise Agreement Terms Summary
(As of November 2010)

Company	Franchise Effective Date	Initial Term	Initial Franchise End Date	Extended Term	Extended Franchise End Date	Optional Extension Term	Final Franchise End Date
Waste Connections of California							
Amador Disposal Service	June 25, 2002	10 years	**June 30, 2012**	–	–	N/A[g]	N/A[g]
El Dorado Disposal Services[a]							
– El Dorado County[b]	Oct. 1, 2004	8 years[c]	**Dec. 31, 2012**	–	–	2 years[d]	Dec. 31, 2014
– City of Placerville[e]	Mar. 8, 1994	20 years	Dec. 31, 2013	–	–		June 30, 2023
– Cameron Park Community Service District	Feb. 2008	10 years	Feb. 2018	5 years	Feb. 2023	5 years	Feb. 2023 or Feb. 2028
– El Dorado Hills Community Services District[f]	Dec. 8, 1994	21 years	July 1, 2015	8 years	July 2023	5 years	July 2023 or July 2028[i]
South Tahoe Refuse Company							
American River Disposal Service	Aug. 22, 2000	4 years	Dec. 31, 2004	5 years	Dec. 31, 2009	5 years[g]	**Dec. 31, 2014**
Sierra Disposal Service	Aug. 22, 2000	4 years	Dec. 31, 2004	5 years	Dec. 31, 2009	5 years[g]	**Dec. 31, 2014**
South Tahoe Refuse Company	Jan. 24, 1995	10 years	Dec. 31, 2004	5 years	Dec. 31, 2009	5 years[g]	**Dec. 31, 2014**
Tahoe-Truckee Sierra Disposal Company							
Tahoe-Truckee Sierra Disposal[h]	Feb., 2005	5 years	**Dec. 31, 2009**	–	–	5 years[g]	Dec. 31, 2014

[a] El Dorado Disposal Services was a subsidiary of USA Waste of California, Inc. (Waste Management, Inc.), and was acquired by Waste Connections of California, Inc. in June 2006.

[b] Franchise Agreement assigned from USA Waste of California, Inc. to Waste Connections of California, Inc. on June 6, 2006.

[c] Subject to the Board of Supervisors' approval of performance and a 50 percent recycling rate, on, or before December 31, 2006, this franchise term may be extended for up to an additional five year period.

[d] The County can grant up to two, one year extensions.

[e] Under separate non-County franchise. Franchise agreement assigned from USA Waste of California, Inc. to Waste Connections of California, Inc. on June 5, 2006.

[f] Under separate non-County franchise. Franchise agreement assigned from USA Waste of California, Inc. to Waste Connections of California, Inc. in June 2006.

[g] These optional terms are at the request of the haulers.

[h] Tahoe-Truckee Sierra Disposal has not yet formally requested a franchise extension to 2014.

[i] El Dorado Hills CSD will extend their agreement to 2028 only if Cameron Park CSD extends their franchise agreement five years (to 2028). If not, El Dorado Hills CSD franchise agreement will expire July 2023.

Source: El Dorado County Solid Waste Services Franchise Agreements, and El Dorado County Environmental Management Department.

sort line as a clean MRF sort line so that it can sort single stream recyclables only. Under this lower cost scenario, the operator could design the line to minimize purchasing an extensive amount of high cost sorting equipment. Depending on the size and functionality of a clean MRF sort line, this lower cost "retooling" option could range in capital costs from $1 to $4 million.

Cost/Benefits

Under the current status quo conditions, there are no additional new costs as the WERS is already used by West Slope areas. By extending the use of the WERS facility, the WSJPA, or the County, will maintain solid waste processing and recycling capabilities while they consider long-term facility infrastructure improvements.

Should the WSJPA, or the County, and WERS owner/operator agree to upgrade and modernize the existing facility for long-term continued use, there would be costs to demolish and prepare the site, and costs to construct a new facility on-site. High-level estimated costs to demolish the WERS building and prepare the site for new facility construction are $1.5 million. Costs to upgrade and modernize the WERS facility include design costs, site improvement costs, facility building costs, fixed equipment costs, permit costs, developer fees, architect/ engineering costs, and permit costs. Low-level estimated costs to upgrade and modernize the WERS facility range from $4 to $7 million. High-level estimated costs to upgrade and modernize the WERS facility range from $7 to and $11 million.

Barriers/Challenges (and Potential Solutions)

Upgrading the existing WERS facility has some constraints. For example, the layout would continue to require self-haulers to use outside tipping lanes. At 10 acres, the WERS facility also does not have adequate space to include future conversion technologies. Additionally, community use of the WERS facility during construction would be challenging.

Implementation Timing, Strategies, and Next Steps

The WERS facility may need to remain open over the next several years, until an alternative is in place, or the existing facility is retrofitted.

Should the WSJPA, or the County, select a strategy to upgrade the WERS for long-term continued use, the WERS owner/operator would need to either:

- Demolish the existing building and reconstruct a new facility in its place. This scenario requires the WERS owner/ operator to temporarily redirect waste to another facility or facilities. The WERS owner/ operator also would need to construct a temporary area to handle and transfer self-haul material. Throughout construction, this scenario likely would increase operating costs, and potentially could lower diversion rates; or
- Construct the new facility in the current green waste and construction and demolition (C&D) handling locations. This scenario allows the existing dirty MRF sort line to remain operational. The WERS owner/operator would demolish the old building after completing the new facility. The WSJPA, or the County, and WERS owner/operator will need to assess subsurface geology conditions, under the green waste and C&D locations, which if problematic could restrict this option entirely.

Strategy 1.4 – Expand Mandatory Residential Collection Ordinance

Description and Rationale

Selected County areas have a mandatory garbage collection ordinance. These mandatory collection areas currently include:

- Cameron Park Community Services District (Ordinance 2007-02)
- El Dorado Hills Community Services District (Ordinance 2007-01)
- City of Placerville (Title 7, Chapter 1A-3, City Code)
- City of South Lake Tahoe (Chapter 23, Section 20.3, City Code)
- All Unincorporated El Dorado County areas in the South Lake Tahoe Basin.

Unincorporated El Dorado County areas located on the West Slope of the County and within the Tahoe-Truckee Sierra Disposal franchise currently do not have a mandatory collection ordinance.

The County should implement a phased approach for mandatory residential collection in those areas of the unincorporated County that currently do not have mandatory collection. This approach should be based on the percentage of potential customers by zip code that subscribe to refuse collection. When 85 percent of the potential

customers subscribe to refuse collection, then all customers in the zip code would be required to subscribe to collection services.

The 85 percent potential customer ratio should be determined by the County based on hauler customer records, County GIS data, and property tax records of occupied parcels and units. Once each year, the County and haulers should determine the percent of customers with service, by zip code, and identify those zip code areas that should be shifting to mandatory collection. There should be a three-month implementation period for mandatory collection, during which time residents will be notified of the new collection service requirements. As described under Strategies 2.6 and 2.7, all customers should be provided with a minimum of two carts (refuse and recycling), and an option for a third cart for yard waste at no additional charge.

The County should establish clear definitions and guidelines for mandatory collection with limited provisions for exclusions. For example, the City of Placerville's mandatory collection code requires mandatory collection for garbage, recyclable materials and other solid waste materials generated on all occupied properties within the City of Placerville. The code identifies noticing requirements and fees/liens for failure to comply. Placerville allows some exclusions, and requires property owners to present their case for exclusion to the City Manager. Exclusions may be granted in the case of long, narrow, or steep driveways where the franchise collector/hauler is unable to properly and safely use their equipment, and granting the exclusion would not create a nuisance.

It is possible that even with an 85 percent guideline for converting an area to mandatory collection, some County areas may never be converted to mandatory collection due to unique challenges associated with the area (e.g., hard-to-serve, long driveways, remoteness, proximity to available small volume transfer stations, or very high service costs which would require very large rate increases).

Costs/Benefits

There is a cost associated with providing refuse collection to those customers that currently do not subscribe to service. This cost could be offset by rates charged to these customers. Benefits of mandatory collection include: ease of solid waste collection, increased diversion, rate stability, eliminated need to self-haul waste, and reduced illegal disposal. This strategy will shift hauler revenue from self-haul fees at the transfer station to residential service fees.

Barriers/Challenges (and Potential Solutions)

Some unincorporated County residents will not want mandatory collection because they either are used to self-hauling and/or perceive that it will be more costly. To ease the transition, upon implementation of mandatory collection, the County should work with the franchisee to provide targeted education and outreach to residents as their communities transition to mandatory collection (e.g., written pamphlets, special call-in numbers, and explanations for why curbside service is preferred). The County should inform residents three months in advance of mandatory collection, so there are no surprises. Because the County will not implement mandatory collection in a zip code community until 85 percent of potential customers already subscribe to collection services, the number of residents that would be affected by the shift to mandatory collection would be relatively small. The County may consider exclusions to mandatory collection on a case-by-case basis, with guidelines to be included in the code. It is likely that the most remote communities in the County may never achieve the 85 percent target.

Implementation Timing, Strategies, and Next Steps

Table 4-2, on the next page, provides preliminary data from haulers and a County GIS analysis of the percent of customers by zip code. Customer and parcel/unit data were combined in some zip codes because the two data sets were not

Table 4-2
Preliminary Comparison of Customers to Unit on Developed Residential Parcels, by Zip Code

Community	Zip Code(s)	Units	Customers	Percent of Units with Customers
Cool/Greenwood	95614, 95635	2,058	1,912	93%
Georgetown	95634	1,341	1,052	78%
Lotus/Garden Valley	95651, 95633	1,547	1,197	77%
Pilot Hill	95664	547	405	74%
Northwest County Subtotal		**5,493**	**4,566**	**83%**
Camino	95709	1,968	1,182	60%
Shingle Springs/Latrobe	95682	4,071	2,100	52%
Unincorporated Placerville/Rescue[a]	95667, 95672, 95613	11,537	5,869	51%
Pollock Pines	95726	4,793	2,438	51%
Diamond Springs	95619	2,068	811	39%
El Dorado/El Dorado Hills (non CSD)	95623, 95762	2,164	838	39%
West Central County and Greater Placerville Subtotal		**26,601**	**13,224**	**50%**
Fiddletown	95629	66	8	12%
Grizzly Flats	95636	669	383	57%
Somerset/Mount Akum	95684/95656	1,615	835	52%
Mt. Akum/Grizzly Flat Subtotal		**2,350**	**1,226**	**52%**
Kyburz	95720	351		
Echo Lake	95721	455		
Twin Bridges	95735	239		
El Dorado High Country/Tahoe Basin Subtotal		**1,045**	**247**	**24%**
Tahoma (includes Meeks Bay)	96142	1,160	757	65%
Unincorporated County Total[b]		**36,649**	**20,034**	**55%**

[a] Includes Coloma and Kelsey customers.

[b] Excludes unincorporated areas with existing mandatory collection.

consistent (for example, showing greater than 100% of units with service). **Appendix H** provides the preliminary zip code map of developed residential parcels in the unincorporated County (excluding El Dorado Hills CSD, Cameron Park CSD, and the cities of Placerville and South Lake Tahoe).

Based on this preliminary data, one (1) community is higher than the mandatory collection trigger of 85 percent (Cool/Greenwood). However, these preliminary figures should be verified with property tax records prior to establishing mandatory collection.

As communities reach the mandatory collection target, the County and hauler(s) should provide outreach and education to support the transition, for example:

- Meeting with residents in affected communities to present outreach programs, discuss the new policy, answer questions, provide implementation details, and address concerns

- Developing a County Ordinance to codify the new requirements; amend existing ordinances, as necessary. Work with the Board of Supervisors to approve the ordinance changes
- Incorporating changes in franchise agreements.

Alignment of Strategy with Franchise Agreements

The franchise agreement between EDDS and the County expires December 31, 2012. There are two one-year extension options, which would extend the agreement to December 31, 2014. The County's franchise agreements with Sierra Disposal Service and Tahoe-Truckee Sierra Disposal expire December 31, 2014. The franchise agreement with Amador Disposal Service (recently purchased by Waste Connections), which covers the Mt. Aukum/Grizzly Flat region expires in 2012. The County should work with the haulers to incorporate the mandatory collection trigger prior to the end of the franchise agreements. For example, aligning the EDDS franchise agreement with the mandatory collection strategy would require the following changes:

- Revise the language of the existing franchise agreement in Section 3.E. that states, "The parties acknowledge that solid waste collection service is not mandatory throughout the Franchise Area, but is mandatory in Cameron Park." (Page 9 of 65)
- Revise language in Exhibit B, Level of Service, to remove the optional containers, and require that EDDS provide at least two 32, 64, or 96 gallon wheeled carts for refuse, recycling, and green waste. Remove any additional fees for green waste collection
- Require EDDS to provide public outreach and education related to implementing the mandatory collection.

In developing (or extending) franchise agreements for January 1, 2015 and beyond, the County should incorporate language to reflect the phasing in of mandatory collection. The next franchise agreement(s) should also reflect a requirement that the franchisee provide at least two or three carts for all residents (refuse, recycling, green waste) (Strategy 2.7), fees inclusive of recycling and green waste collection, where applicable, and a public education and outreach effort related to program roll-out.

Estimated Diversion and Disposal Impacts

Implementing this phased in approach to mandatory collection would represent a significant policy change for the County. Below, we provide estimates of the number of new customers that would participate in residential collection, by region. These estimates are based on population projections, residential units as determined by GIS, and current customer levels in the regions. These preliminary data are combined to regions, rather than provided by zip code. Actual phased zip code implementation of mandatory collection would likely not affect all communities in a region, and thus the number of new customers would be lower.

Table 4-3, on the next page, provides the number of new customers in total, and by phase. It is estimated that there are approximately 16,607 unincorporated County households (primarily West Slope) that do not currently have waste collection services. Using an average of 2.5 persons per household, this is equivalent to a population of 41,518, approximately 23 percent of the County's population.

Table 4-4, on the next page, provides estimates for the waste generation and diversion impacts of mandatory refuse and recycling collection, by region. This analysis is based on a relatively low disposal figure of 0.65 tons, per person, per year used to estimate additional disposal. These estimates assume that most self-haul would be eliminated once mandatory collection was implemented. These estimates also assume that some additional disposal that might be occurring illegally, or simply remaining on property, would be collected, thus resulting in a net increase in disposal.

Table 4-3
Estimates of Additional Customers with Mandatory Collection

Region	Total Unserved Population Estimate	West Central/ Greater Placerville	Northwest County	Remaining Unincorporated
West Central/Unincorporated Greater Placerville	13,363	13,363		
Northwest County	927	–	927	
Mt. Aukum/Grizzly Flat/High County/Tahoma	2,317	–		2,317
Total Number of New Customers	16,607	13,363	927	2,317
Population (@ 2.5 persons/household)	41,518	33,408	2,318	5,792

Table 4-4
Estimates of Additional MSW, Recycling, and Green Waste with Mandatory Collection and Expanded Cart System (tons per year)

Waste Generation	Tons/ person/ year	Total Tons	West Central/ Greater Placerville	Northwest County	Remaining Unincorporated
New Customer MSW Disposal[a]	0.65	27,000	21,700	1,500	3,800
Reduced MSW Self Haul[c]		(10,000)	(8,500)	(500)	(1,000)
Additional MSW Disposal		**17,000**	**13,200**	**1,000**	**2,800**

Waste Diversion	Tons/ person/ year	Total Tons	West Central/ Greater Placerville	Northwest County	Remaining Unincorporated
New Customer Recycling[a]	0.13	5,400	4,300	300	800
Additional Recycling from Current MSW Customers[b]		4,100	2,100	1,300	700
Reduced Recycling Self Haul[c]		(1,500)	(1,200)	(300)	
Additional Recycling		**8,000**	**5,200**	**1,300**	**1,500**

	Tons/ person/ year	Total Tons	West Central/ Greater Placerville	Northwest County	Remaining Unincorporated
New Customer Green Waste[a]	0.12	5,000	4,000	300	700
Additional Green Waste from Current MSW Customers[b]		3,800	2,000	1,200	600
Reduced Green Waste Self Haul[c]		(1,500)	(1,200)	(300)	
Additional Green Waste		**7,300**	**4,800**	**1,200**	**1,300**

[a] New customer MSW disposal, recycling, or green waste provides an estimate of additional material collected from new customer residents in each region with mandatory collection.

[b] Additional recycling or green waste from current MSW customers provides an estimate of additional material collected from current MSW-only customers once these customers are provided recycling and green waste services.

[c] Reduced self haul provides an estimate of material that is currently being self hauled that would shift to mandatory curbside collection.

Table 4-4 also provides estimates for increased recycling and green waste collection that could result from implementing the mandatory collection combined with three cart service (Strategy 2.7). These estimates are based on relatively high figures of 0.13 tons of recycling per person, and 0.12 tons of green waste per person. These estimates also take into account that not all current MSW customers participate in recycling and yard waste collection. If fully implemented across the unincorporated County, the strategies could increase recycling by 8,000 tons per year, and green waste collection by over 7,000 tons per year.

Strategy 1.6 – Conduct Procurement(s) to Obtain Franchised Service Provider(s)

Description and Rationale

Given the near-term expiration of some of the franchise agreements (as identified in Table 4-1), some County jurisdictions may need to conduct a bid process to obtain new refuse, recycling, and yardwaste services within two and one-half years from the writing of this Plan. County jurisdictions may want to integrate these collection franchises with MRF/transfer facility operations and/or new facility development (identified as Strategies 1.3, 3.2, 3.10).

Implementation Timing

Should the County jurisdictions determine a competitive bid process is necessary, a request for proposal (RFP) process would take approximately two years.

Cost/Benefits

A competitive RFP process could cost approximately $50,000 to $150,000 per jurisdiction (including staff time and potentially outside assistance from a consultant and/or attorney).

Barriers/Challenges (and Potential Solutions)

The outcomes of an RFP process for collection services are unknown. There are risks that the new service provider may not provide the same quality or level of service, and/or resulting collection rates could be higher (either initially or over time). These risks can be mitigated with clear expectations from County jurisdictions as to required services and rate setting processes.

B. Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services

Source Reduction

Strategy 2.2 – Use Greater Pay-As-You-Throw (PAYT) Pricing Programs

Description and Rationale

County jurisdictions should implement a variable fee structure (PAYT) that charges higher fees for larger amounts of waste. PAYT creates an economic incentive for residents to reduce the amount of waste they generate. Under PAYT, disposal rates are higher for larger containers, and lower for smaller containers. When accompanied by education, recycling, and green waste collection, PAYT can lead to lower waste generation. In some communities, PAYT pricing has helped reduce the amount of waste disposed by as much as 25 to 45 percent. Actual disposal reductions might be somewhat lower in El Dorado County, because some diversion opportunities are already in place. However, PAYT has been shown to increase composting and recycling diversion by 8 to 13 percent in communities with existing programs that switched to a variable rate structure.

A key in implementing PAYT is to determine an appropriate differential between containers. If the differential is too small, there is not enough

incentive to select a smaller container. If the differential is too large, residents may select the smaller container, but dump excess waste illegally (or in the recycling container). Another important factor is to obtain customer support for the program prior to implementing changes. Most programs provide a small can option (often less than 32 gallons) that allows customers to select a low-cost and low-generation option. Education and outreach to larger generators is essential in order to help these residents identify ways to reduce waste generation to the maximum extent possible.

Currently, some jurisdictions in the County with cart-based collection have modest PAYT rate structures, while others do not. **Table 4-5,** on the next page, provides a comparison of rates from four (4) El Dorado County jurisdictions with cart-based collections with rates from four (4) similar counties with tiered (PAYT) rate structures. As Table 4-5 illustrates, the differentials between the smallest and mid-size carts and mid-size and large carts are smaller in El Dorado County than in the comparison counties. With greater rate differentials, there is increased incentive to adopt a smaller cart size and reduce waste generation. Table 4-5 also illustrates the wide variability in rates between El Dorado County jurisdictions.

Cost/Benefits

PAYT shifts the cost burden to the larger-volume disposers, resulting in a more equitable distribution of fees. Overall program costs will not be significantly different. The economic incentive inherent in PAYT leads to significant increases in diversion, even in communities with existing recycling programs.

Barriers/Challenges (and Potential Solutions)

Residents that maintain the larger container sizes will likely see rate increases. Education can help alleviate concerns about rate changes and identify options for residents to reduce costs. PAYT can sometimes result in illegal disposal when customers select a cart size that is too small. To discourage illegal dumping, the haulers will provide vouchers for a limited number of self-haul visits, and continue to provide spring and fall clean up events.

Implementation Timing, Strategies, and Next Steps

County jurisdictions should work with haulers during franchise negotiations to establish more consistent rates and implement PAYT pricing programs. During the franchise negotiation process, the County jurisdictions should evaluate tiered PAYT rate structures of other similar jurisdictions, as well as revenue and cost projections, to determine a reasonable rate structure. The County jurisdictions should also work to encourage a more uniform Countywide PAYT rate structure.

Strategy 2.3 – Expand Use of Purchasing Preference Practices

Description and Rationale

The County should expand its environmentally preferable products purchasing program. Purchasing recycled content and other environmentally preferable products supports markets for recyclable materials, “closing the loop”. Environmentally preferable products (EPP) cover a range of product characteristics, including: recycled content, reusability, energy efficiency, water efficiency, low toxicity, and reduced air pollution impacts. The County should implement a formal EPP policy to support the purchase of EPPs by government offices within the County.

There are many resources the County jurisdictions can consult, and a range of alternatives to consider, in developing an EPP program. StopWaste.org has model policies, implementation guidelines, and product guidelines for a wide range of EPPs, from paper to building materials. The U.S. EPA has established minimum recycled content standard guidelines for paper, janitorial paper, construction,

Table 4-5
Comparison of Selected El Dorado County Residential Rates with PAYT Jurisdictions

El Dorado County Jurisdictions (cart based only)	32/35-gallon cart	64-gallon cart	96-gallon cart	64 to 32/35 Differential	96 to 64 Differential
Cameron Park CSD		$23.65	$30.19	NA	$ 6.54
El Dorado Hills CSD	22.00	23.70	33.20	1.70	9.50
City of Placerville	17.60	27.37	32.85	9.77	5.48
Unincorporated El Dorado County (average)	16.08	26.26	26.81	10.18	0.55
El Dorado County Average	$18.56	$25.25	$30.76	$6.69	$ 5.52

Selected PAYT Jurisdictions (cart based only, averages)	32-gallon cart	64-gallon cart	96-gallon cart	64 to 32 Differential	96 to 64 Differential
Monterey County	$23.83	$36.11	$49.24	$12.28	$13.13
Sutter County	22.55	33.56	44.57	11.01	11.01
Yuba County	22.72	33.82	44.92	11.10	11.10
San Luis Obispo County	20.60	31.81	43.01	11.21	11.20
Comparison PAYT Average	$22.43	$33.83	$45.44	$11.40	$11.61

non-paper office products, transportation products, and other commonly purchased items. These guidelines identify the highest post-consumer recycled content available. Most EPP policies also include a provision that EPP purchases should perform adequately, and be available at a reasonable price and within a reasonable period of time. These policies are not meant to result in a significant cost burden for the organization.

The EDSWAC recommended that the County approve the California Product Stewardship Council Pledge. This pledge could have resulted in the County incorporating product stewardship provisions into the County Procurement Ordinance. However, the ordinance does not currently incorporate any type of EPP. Language should be incorporated into the ordinance to direct the County to consider EPP factors in purchasing.

Cost/Benefits

Many EPP products are available for the same price as non-EPP products. In addition, certain products may have a higher initial purchase cost, but may require less maintenance or long-term costs over the life of the product. It is important that buyers consider short-term and long-term costs in comparing product alternatives, when feasible. Expanding EPP purchases in an important step in "closing the loop" to create markets for recycled materials.

Barriers/Challenges (and Potential Solutions)

When short-term costs are higher, it may present an immediate barrier to purchasing EPPs. The County jurisdictions should evaluate product prices over the long-term to reflect full costs. Some buyers may be skeptical about the quality of EPP products. The County jurisdictions should utilize other guidelines and certifications that demonstrate the quality of EPP products, such as U.S. EPA and Caltrans approved products.

Implementation Timing, Strategies, and Next Steps

The County jurisdictions should informally expand their environmentally friendly product purchases immediately, and establish a formal

EPP policy by 2014. During 2013, the County jurisdictions should work with current procurement officers and review model EPP policies to develop draft ordinances. County staff should present its draft ordinance to the Board of Supervisors for approval.

Recycling Collection and Processing

Strategy 2.4 – Implement Mandatory Commercial Recycling Program

Description and Rationale

County jurisdictions should implement a mandatory commercial recycling ordinance. The Institute for Local Government and CalRecycle have materials available on their web pages to assist jurisdictions in developing commercial recycling programs, including a sample ordinance and sector-specific educational materials. Key characteristics of successful mandatory commercial recycling programs include: conducting extensive and ongoing education and technical assistance by both haulers and agencies, implementing tiered rate structures, involving businesses in developing the program, customizing services to business types, and providing outdoor communal and interior bins to facilitate collection.

Commercial entities generate approximately one-half of all waste disposed in the County. Currently, El Dorado Disposal Services and South Tahoe Refuse Company provide voluntary assistance to businesses and provide free recycling services. The extent to which businesses are participating is unknown, but given the experience of other jurisdictions, there is significant opportunity for the County to increase diversion through commercial recycling programs. In addition, starting in July 2012, commercial recycling will be mandatory in California. CalRecycle and the Air Resources Board are currently developing regulations for mandatory commercial recycling as a strategy to reduce greenhouse gas emissions under AB 32 (the California Global Warming Solutions Act of 2006).

In 2009, when state legislation mandating commercial recycling appeared imminent, the EDSWAC discussed mandates, reviewed the City of Sacramento's ordinance, and considered enforcement and education options for mandatory commercial recycling. Placerville, the County, and South Lake Tahoe have, or are, considering commercial recycling mandates. Both Placerville and South Lake Tahoe are encouraging the majority of businesses to recycle voluntarily before further pursuing a mandate.

A mandatory commercial recycling program will be phased in, starting with larger businesses. The County has approximately 4,900 private business establishments and over 150 government establishments. Sectors with the largest number of businesses include: other services, construction, professional and business services, and trade, transportation, and utilities. In 2009, there were over 48,000 employees at these establishments. The County has a large share of sole proprietors and self-employed, accounting for 39 percent of all employed. Many sole proprietors likely recycle through their residential curbside programs, if available. Almost 75 percent of businesses have between one and four employees.

Cost/Benefits

A preliminary study by CalRecycle of commercial recycling costs provided an estimate of commercial recycling costs at approximately $50 per ton, with costs potentially higher in rural areas. Commercial recycling costs will be offset by reduced disposal and landfill fees. Because commercial waste makes up approximately one-half of the County's wastestream, the potential diversion benefits of this strategy are significant.

Barriers/Challenges (and Potential Solutions)

Businesses may be resistant to mandatory collection. To address resistance, County jurisdictions should emphasize cost savings to businesses by increasing recycling and reducing waste disposal. Reaching the County's many small businesses will be challenging. The County jurisdictions should work with the larger businesses first, and reach out to smaller businesses with education, and sector-specific programs. Implementing collection in rural areas may be costly. To the extent possible, the County jurisdictions should coordinate commercial recycling collection with existing routes.

Implementation Timing, Strategies, and Next Steps

The County begun developing a mandatory commercial recycling ordinance in 2011, and should provide education and technical assistance (starting with the largest business) in early 2012. The program will be implemented by the July 2012 State-established deadline.

In developing the ordinance, County jurisdictions should consider model commercial recycling ordinances, ordinances from other jurisdictions, and the CalRecycle requirements. County jurisdictions should draft an ordinance for approval prior to the July 2012 deadline.

Strategy 2.5 – Enhance and Enforce the Construction and Demolition (C&D) Ordinance

Description and Rationale

The County should strengthen requirements and enforcement of the construction and demolition recycling ordinance. The County passed a Construction and Demolition (C&D) Recycling Ordinance in 2003. This ordinance does not meet the new California Green Building Standards Code (CalGreen) that became effective January 1, 2011. CalGreen includes a series of mandatory measures within the building code for planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality.

The current ordinance requires that new construction or demolition projects with a footprint of over 5,000 square feet file a Debris Recycling Acknowledgement when obtaining a building permit, recycle at least 50 percent of their debris, and file a Debris Recycling Report to document recycling. In 2004, the first full year of implementation, there were over 1,000 permits subject to the ordinance, and almost 7,500 tons diverted. Over 94 percent of entities filed their Debris Recycling Reports. In 2009, due to the poor economy, only 61 permits were subject to the ordinance. Just over one-half of entities filed their Debris Recycling Reports in 2009, and diversion was less than 300 tons.

CalGreen's residential and non-residential mandatory measures include provisions to recycle at least 50 percent of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. CalGreen applies to all new construction, with no minimum square foot threshold.

There are opportunities for the County to increase overall diversion through C&D recycling. While construction has declined significantly over the last few years, it is likely to increase going forward. The high 5,000 square foot threshold in the existing ordinance has not captured the vast majority of single-family homes and other small projects. In addition, renovation and remodeling projects generate materials that could be readily diverted.

Cost/Benefits

Increased recycling costs at construction sites may be offset by reduced disposal fees. Because the new C&D requirements are part of a broader green building initiative, it will be important to consider long-term benefits such as reduced energy and water consumption, in addition to reduced disposal.

Barriers/Challenges (and Potential Solutions)

There is likely to be resistance by builders because more projects would fall under the amended ordinance. However, the State Building Code now requires diversion of 50 percent of C&D waste from all new construction projects. The County should work with builders to facilitate recycling opportunities and demonstrate potential cost savings by reducing disposal tonnage. In 2009, the County considered amending the C&D Ordinance. At the time, the El Dorado County Builder's Exchange did not support the amendments. The County should work closely with the Exchange to gain support for amendments to add renovation and remodeling to the ordinance.

Implementation Timing, Strategies, and Next Steps

The County should revise the ordinance in 2011, and work with builders to assist them in complying with the new requirements. To obtain compliance with CalGreen and increase C&D diversion, the County should eliminate the square foot threshold for new construction, and include renovations, as well as new construction, within the ordinance. The County should present the revised ordinance to the Board of Supervisors for approval. The County should also enhance education and outreach to builders and follow-up when reports are not received and/or diversion targets not met.

Strategy 2.6 – Expand Use of Curbside Recycling Programs (Targeted to Selected Areas)

Strategy 2.7 – Expand Residential Cart Collection Systems (Targeted to Selected Areas)

Description and Rationale

County jurisdictions should increase opportunities for residential recycling by providing recycling options to all residents. These recycling options (and yard waste collection) will be linked with refuse collection, so that as residents obtain refuse collection services, they are simultaneously provided with recycling services. Residential recycling options currently vary throughout the County, ranging from mandatory single-stream curbside collection, to no recycling collection.

There is an opportunity to increase the level of cart-based services in unincorporated County areas, and thus the efficiency and effectiveness of collection services. Currently, more than half of the customers in the unincorporated County subscribe to refuse collection (see Table 4-2). Many of these customers subscribe to cart-based service for refuse. Approximately 93 percent of these over 20,000 subscribers have recycling service. However, many of these customers do not have cart-based recycling, electing to use blue bag service. Just under 50 percent of the over 20,000 subscribers also have yardwaste services. However, many of these customers elect to use their own containers for yardwaste service.

Under these strategies, franchised haulers should provide all West Slope customers, that subscribe to service, with at least two carts: a refuse cart (with size options) and a 64 or 96-gallon recycling cart. Franchise haulers also should encourage customers, who require yardwaste services, to utilize a third company-provided 96-gallon cart for yard waste at no additional charge.

With the exception of STR service areas, the County jurisdictions should implement a single-stream curbside cart collection (biweekly, with a yard waste option on the alternate weeks) in the more populated regions first.

Cost/Benefits

The need to increase truck routes to cover new curbside cart collection may increase hauler costs. However, there would be significant increases in diversion with expanded recycling opportunities, particularly when implemented in combination with expanded PAYT rate-setting (see Strategy 2.2).

Barriers/Challenges (and Potential Solutions)

Increased costs due to carts and expanded truck routes will present a barrier, however, expanding the hauler's customer base will cover some of the increased costs. Expanding the customer base would spread costs; however, rate increases may be necessary to cover services. Low participation, particularly in the most rural areas, may be a concern. This would be addressed through increased education and outreach.

Implementation Timing, Strategies, and Next Steps

The County jurisdictions should work with haulers to incorporate language in new and extended franchise agreements to require cart-based collection for all current and new customers (See Strategy 1.3 for a discussion of franchise agreements). The County jurisdictions and haulers should immediately begin outreach and education on the importance of recycling, and provide carts to residents that request them. As mandatory refuse collection is implemented (see Strategy 1.4), the County jurisdictions should provide cart recycling to all residents. Full curbside cart recycling collection should be implemented throughout the County by 2014 where practical and feasible.

Strategy 2.8 – Enhance Existing School, Park, and Community Facility Recycling Programs (and implement where necessary)

Description and Rationale

County jurisdictions should increase both diversion and education by expanding school recycling programs, where appropriate. The program should include comprehensive hands-on technical assistance provided by the County jurisdictions and haulers, as well as educational resources for the classroom. Schools have opportunities to improve waste management through source reduction, recycling, composting (especially as part of a school garden program), and environmentally preferred purchasing. County jurisdictions and haulers should provide additional outreach through schools when new programs, such as mandatory recycling, are implemented in a particular community.

Currently, haulers in the County provide recycling services to schools if requested, and schools may conduct field trips to hauler facilities. For example, El Dorado Disposal has worked with the Buckeye, Rescue, and Mother Lode Union School Districts, and individual schools are saving between $500 and $1,500 per month on disposal fees.

South Lake Tahoe Refuse recently submitted a proposal to the SLT USD Superintendent of Schools to develop a uniform recycling program in the Lake Tahoe Unified School District. The school district received a grant to obtain bear-proof recycling bins for each school, and STR is providing a collection route to obtain the mixed recyclables that are generated. Most of the material collected consists of paper and cardboard, as the schools collect beverage containers separately.

In addition to an increased emphasis on school recycling programs, County jurisdictions should continue to work with haulers to ensure that recycling containers are placed (and serviced) in

public areas such as parks, pools, beaches, and soccer fields. Placing recycling bins at these locations provides County residents and visitors with convenient recycling opportunities, particularly for larger sized beverage containers.

Cost/Benefits

The haulers and County jurisdictions would incur costs due to staff time for school visits. School districts can reduce disposal costs by reducing waste and increasing diversion. These cost savings can be substantial, as demonstrated by the Buckeye, Rescue, and Mother Lode Union School Districts. Placement of recycling containers in parks may result in some additional costs, but will also increase diversion.

Barriers/Challenges (and Potential Solutions)

County jurisdictions and hauler staff time and costs may present a barrier. County jurisdictions should utilize the staff (e.g., from the commercial program) and apply for grants to support program and educational materials. Schools may not have the time, resources, or interest to initiate a program, even if there is a potential for savings. To address this issue, County jurisdictions should provide education and examples of cost savings to encourage participation.

Implementation Timing, Strategies, and Next Steps

Existing schools and parks recycling programs will continue. Outreach through schools will increase to coincide with implementation of strategies outlined in this planning document. During 2012, the County jurisdictions and haulers should meet and school district personnel to develop a consistent school recycling program. The program should be based on success of existing programs within the County. The County jurisdictions should ensure the haulers implement the program within each school district.

Strategy 2.9 – Expand Diversion Programs at Public Facilities

Description and Rationale

The County should serve as a model to El Dorado County business establishments by implementing comprehensive diversion programs. The County currently implements an office recycling program in Building C in Placerville, and the South Lake Tahoe office. Each work station is provided with a blue container for recyclables, and a smaller black container for trash. Employees were instructed (via email) on how to use the containers, and janitors keep recyclables and trash separate. There are recycling containers in group locations (printer room, break room), ink cartridge recycling containers, and a container for household batteries in Building C. Employees are also encouraged to use double-sided printing. Composting is less established, although there is a compost pile at the County fairgrounds, with the product used for County landscaping.

There are opportunities to expand recycling, composting, and other diversion efforts at secondary County buildings and facilities such as the Public Health, Social Services, and Mental Health offices, the County jail, and County fairgrounds. Also these opportunities exist at other County jurisdiction buildings.

Cost/Benefits

County jurisdictions would incur some start-up and education costs; however, these will be offset by reduced disposal and increased awareness of diversion benefits. A strong County diversion program should serve as an example to County businesses.

Barriers/Challenges (and Potential Solutions)

Expanding County diversion programs would require staff resources. These resource requirements would be offset by reduced disposal costs, and enhanced education, countywide.

Implementation Timing, Strategies, and Next Steps

Expansion of County programs should be implemented as a precursor to mandatory commercial recycling. The County jurisdictions should adopt a comprehensive diversion program. This program should include expanded recycling at major County jurisdictions office buildings, and education.

The County jurisdictions should conduct a waste audit of public facilities to identify waste generation patterns and opportunities for source reduction, recycling, and composting. Once these opportunities are identified, the County jurisdictions should create a team consisting of staff from each of the public facilities to support diversion programs. The team should review the waste audit findings, identify specific programs to implement, and conduct outreach to each facility. To highlight the benefits of diversion programs, the County jurisdictions should publicize results of their efforts in case studies and "how-to" guides.

Strategy 2.10 – Expand Multi-Family Recycling Program

Description and Rationale

The County jurisdictions should establish a mandatory multi-family recycling program. Within the County, eleven percent of housing units are multi-family, and six percent are mobile homes. While combined multi-family and mobile units are lower than the statewide average, they still represent a potential diversion source for the County. There is currently some multi-family recycling in the County, although services are limited, and focus primarily on cardboard.

The City of South Lake Tahoe received a grant to design and develop a standard enclosure for a recycling dumpster or totes at multi-family complexes. Space within current refuse container enclosures is a problem, and the concept is to improve the aesthetics of the enclosures. The grant provides for installing only twelve (12) enclosures; however, the City intends to incorporate the standard enclosure design more broadly over time.

Factors that lead to successful multi-family programs include: working with property managers and owners to develop the program, flexibility based on site characteristics, developing a site specific recycling collection plan, continuous and extensive education for property managers and residents, utilizing voluntary recycling leaders to advocate within buildings, and financial incentives.

Cost/Benefits

The haulers and County jurisdictions may incur costs due to expanded recycling routes and staff time for education. Multi-family complexes would reduce disposal costs by reducing waste and increasing diversion.

Barriers/Challenges (and Potential Solutions)

There are a number of barriers to multi-family recycling, including: low participation, high levels of contamination, scavenging, apartment manager resistance, and lack of space. Determining appropriate containers for multi-family collection can be problematic. There is often limited space for trash receptacles, and these bins are typically served by rear loader vehicles. If there is space to add recycling carts, servicing them may require new trucks. The County jurisdictions should address these barriers through ongoing and extensive education, site-specific recycling plans developed in partnership between haulers and apartment managers, and fines for excess contamination.

Implementation Timing, Strategies, and Next Steps

County jurisdictions should encourage multi-family recycling in the near-term, and implement a mandatory multifamily program by 2015 (or sooner, if mandated by State legislation). County

jurisdictions should develop a mandatory multi-family recycling ordinance based on model ordinances and other jurisdictions. County staff should present the ordinance to the Board of Supervisors for approval. Throughout the process, County jurisdictions should work with haulers and property managers to expand implementation of multi-family recycling.

Strategy 2.13 – Enhance Home Composting Programs

Description and Rationale

County jurisdictions should offer education and compost bins, through grant funding if available, as part of a comprehensive home composting program. In developing the program, the County jurisdictions should work with the University of California Cooperative Extension Master Gardener Program in El Dorado County and the UC Davis Master Composter. (Cooperative Extension already offers composting classes and the UC Davis Master Composter has approached the County about vermiculture). One model that has been successful in many jurisdictions is to provide "Master Composter" training classes to educate individuals in compost science, soil health, and natural gardening techniques. These individuals then go back to their communities to provide education and outreach. Distributing free composting bins to residents that participate in compost classes is another effective method of increasing home composting.

Home composting provides a low-cost alternative for diverting food waste and green waste at the source. Approximately 50 percent of single-family residential waste consists of food and other organic materials, much of it compostable. Programs to expand home composting have been successful in many jurisdictions.

Cost/Benefits

Funding may be required for staffing. Over time, as the program expands, diversion benefits could be significant.

Barriers/Challenges (and Potential Solutions)

Home composting in rural areas must address potential wildlife pest issues. There are techniques that can keep pests away from compost bins, but this issue may make composting more challenging in some areas. Harsher winters in the mountain areas mean that composting will be seasonal in some parts of the County.

Implementation Timing, Strategies, and Next Steps

County jurisdictions should begin working with Cooperative Extension and UC Davis Master Composter to expand compost classes and implement a program by 2013. The County jurisdictions should first contact Cooperative Extension and the UC Davis Master Composter to identify current participation and schedules for composting classes. County jurisdictions should increase publicity and outreach for home composting classes. County jurisdictions should provide educational materials to home compost class participants to distribute to neighbors to help increase home composting participation.

Public Education

Strategy 2.17 – Advance Outreach and Education Programs

Description and Rationale

County jurisdictions should expand diversion outreach and education programs. Education and outreach should be provided by both haulers and County jurisdictions, and include school programs, public service announcements, web-based information, fliers and brochures,

press releases, news stories, and business award programs. Education and outreach (including technical assistance) are critical to increasing commercial and resident participation in recycling, source reduction, green purchasing, and composting alternatives. CalRecycle, USEPA, StopWaste.org, the Institute for Local Government, and others have educational materials that County jurisdictions can utilize.

Cost/Benefits

Education and outreach programs should result in additional costs; however, these can be minimized by drawing on existing resources, rather than developing entirely new materials. In the longer-term, increased participation rates should reduce per-unit program costs and enhance program effectiveness.

Barriers/Challenges (and Potential Solutions)

Cost may be the primary barrier to expanding outreach and education. To address this barrier, County jurisdictions should ensure that education and outreach costs are covered within the existing rate structure, and draw on existing resources for educational materials, to the extent possible.

Implementation Timing, Strategies, and Next Steps

County jurisdictions, with haulers, should immediately begin to develop an education and outreach strategy that is aligned with roll-out of new program alternatives. County jurisdictions should enhance education programs over time to reflect current outreach needs. To the extent possible, County jurisdictions should draw on existing resources such as CalRecycle, US EPA, and other jurisdictions to obtain examples of successful outreach materials and approaches.

C. Objective 3 – Create Solid Waste Management Facility Infrastructure

Strategy 3.1 – Evaluate, Finalize, Plan and Initiate Facility Infrastructure Strategies

Description and Rationale

With the creation of a West Slope JPA, the member agencies would be in a strong position to evaluate and implement facility infrastructure improvements that will benefit all communities on the West Slope. This strategy consists of a planning effort for the JPA members to carefully evaluate the facility strategies outlined under Phases 2 and 3, and to plan and implement those strategies that contribute to solid waste management in the County.

Costs/Benefits

This strategy is essentially a planning effort to ensure a coordinated approach to long-term facility infrastructure needs in the County. As such, there are no costs. However, by pooling resources and waste streams, WSJPA member agencies will obtain better value for their infrastructure investments.

Barriers/Challenges (and Potential Solutions)

The potential for benefits across all jurisdictions that result from a coordinated approach to infrastructure development should minimize the likelihood of conflicts in planning infrastructure needs. The overall benefits to WSJPA member agencies should outweigh competing interests that may make the planning process more difficult.

Implementation Timing, Strategies, and Next Steps

Upon the creation of a West Slope JPA, potentially by December 2012, the WSJPA members should evaluate the facility infrastructure strategies outlined in this plan. The WSJPA should

begin implementation of selected infrastructure strategies during Phase 1, as appropriate.

During this evaluation, WSJPA members should consider the background information provided in this Plan, results of the Waste Characterization Study, current economic and population data and projections, and other relevant information to prioritize infrastructure improvements for the West Slope.

In the event that the cities and county do not form the WSJPA, the County should move forward with this interim infrastructure strategy planning.

Strategy 3.5 – Develop Small Volume Rural Transfer Facilities and Strategically Placed Debris Boxes on the West Slope

Description and Rationale

The WSJPA, County and/or Franchisees may develop rural transfer/buy-back facilities and/or strategically placed debris boxes on the West Slope. Potential locations include the north west side of the County (Georgetown/Divide area) and the south west side of the County (Somerset/Mt. Aukum). Small transfer stations could include:

1. Roll-off bins for refuse (periodic free customer usage as part of subscription service)
2. Yard waste collection areas (20 yard bins)
3. Recycling buy-back centers
4. White goods collection
5. E-waste collection
6. An antifreeze, battery, oil, and paint collection facility (ABOP).

The transfer station facilities should handle up to 15 tons per day, considered the “notification tier” for permitting purposes. The intent of these facilities is to minimize illegal dumping and afford residents the opportunity to avoid long distance travel for self hauling. **Appendix I** provides more detail related to these small volume transfer stations.

Strategically located debris boxes, at fire stations, for example, would be a simpler version of this strategy. These locations could include a refuse bin, a yard waste bin, and one or more recyclable bins placed in an easily accessible public location.

Costs/Benefits

Construction and equipment costs for these new small volume facilities are expected to be minimal. The requirements include a small office trailer, debris boxes, bins, and sufficient space to allow modest self-haul traffic levels. The costs are essentially associated with owning/ leasing the land. By providing convenient disposal and recycling to rural residents, small volume transfer stations may reduce illegal disposal in the County.

Costs for placing debris boxes would be very minimal, consisting primarily of the cost to the hauler to pick up the boxes when full. Availability of debris boxes would provide a convenient and low cost alternative to illegal disposal in the County.

Barriers/Challenges (and Potential Solutions)

Some residents may not want a transfer station/ buy-back facility near housing or commercial establishments (i.e., the NIMBY concern). The WSJPA, or the County, should be able to mitigate these concerns with the small volume nature of these facilities and rural location. There is potential for vandalism at debris box locations. Siting the debris boxes at locations such as fire stations or commercial businesses would help reduce vandalism.

Implementation Timing, Strategies, and Next Steps

If implemented, the WSJPA, or the County, should develop the two small volume transfer/ buy-back facilities during Phase 1. Timing for development of these facilities is provided in **Table 4-6,** on the next page. Locating debris boxes at fire stations could be done almost immediately, and pursued as an interim measure.

Table 4-6
Small Volume Rural Drop-Off Facility Timeline

Description	Timing
Environmental review – Initial Study Preparation and Completion of Negative Declaration or Categorical Exemption	18 months
Development and regulatory permitting, and project design	18 months
Financing and construction (includes site improvements, equipment, small office)	12 months
Tentative operational date	Within 4 years

To implement debris boxes, the WSJPA, or the County, should contact fire stations that could serve as potential locations for the debris boxes, and determine whether debris box placement would be feasible. The WSJPA, or the County, should contact the hauler and discuss placement of such boxes, and cost of providing the service.

To implement the small transfer stations, the WSJPA, or the County, should first conduct an environmental review. This process will include public hearings on transfer station sites. Once one or more sites have been identified, the WSJPA, or the County, should continue with the regulatory permitting and project design.

Strategy 3.9 – Develop West Slope C&D Processing Facility

Description and Rationale

The WSJPA, or the County, should develop a new West Slope Construction and Demolition (C&D) facility. A significant portion of the divertible material in the County's waste stream (on a weight basis) is C&D. This large component of the waste stream merits WSJPA or County consideration to ensure that this portion of the waste stream is managed properly. Further, a new dedicated C&D facility aligns with greater enforcement of the County's C&D ordinance (Strategy 2.5).

Ideally, the C&D facility should be located on the West Slope where most new County development is expected. This proximity to new development would facilitate easy disposal of large quantities of C&D materials which generators otherwise would transport to the WERS in Placerville.

The WERS, in its current configuration, is not ideally set up to manage and process large quantities of C&D materials. Currently, the WERS facility limitation is not problematic because County growth has significantly declined and construction activity is virtually non-existent. However, the County eventually may need a C&D facility to adequately accommodate future planned construction activity.

The WSJPA or the County should make every effort to utilize a public-private partnership for this C&D facility, whereby the WSJPA or the County, would plan to own the facility and contract with a private operator. This relationship should allow the County to control and measure diversion management activities from this important segment of the waste stream.

The C&D facility should include a relatively simple 10 to 12 station elevated sort line. The C&D facility should either use a positive sort (removing C&D materials into bunkers below) or a negative sort (removing items for disposal into bunkers below). The C&D facility should sort the following materials for recycling:

- Asphalt
- Cardboard
- Concrete
- Drywall
- Metal
- Paper
- Rigid plastics
- Porcelain

- Shingles
- Tile
- Wood (untreated, unpainted).

The C&D facility also should include wood chippers and grinders. The C&D facility also could include a reuse area for salvaged building materials.

Costs/Benefits

Depending on the land costs, and the type of building used (if any), facility construction costs could range between $2 and $4 million. Operating costs could range from $200,000 to $350,000 per year.

A significant portion of West Slope C&D material comes from self-haul customers who currently bring their C&D material to the WERS. The new C&D sort line should direct some of the self-haul traffic away from the WERS, thus easing traffic cueing problems at the WERS. The new C&D facility should provide adequate space to accommodate incoming and outgoing traffic.

Barriers/Challenges (and Potential Solutions)

Some residents may not want a new facility located next to their property, the not-in-my backyard (NIMBY) concern. The WSJPA, or the County, should proceed through a CEQA process before permitting and constructing a West Slope C&D facility.

Implementation Timing, Strategies, and Next Steps

Assuming the WSJPA, or the County, can obtain applicable facility permits and complete environmental documentation requirements, the WSJPA, or the County, should implement the C&D sort line toward the end of the Phase 1 timeframe, likely by 2015. The WSJPA, or the County, would thus be positioned to handle the possibility of increases in C&D activity occurring in the intermediate-term planning horizon.

D. Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services

Strategy 4.1 – Revise Rate System to Fund New Facilities and Programs

Description and Rationale

County jurisdictions may need to increase their residential and commercial collection rates to fund the new programs and facilities identified in this Plan. **Table 4-7,** on the next page, identifies the estimated costs for proposed strategies.

Costs/Benefits

This Plan is not without cost impacts. However, the new programs and services identified in this Plan provide the County a roadmap to manage its waste management needs for the next twenty-plus years and to meet expected future diversion requirements. These new programs and services meet Plan goals and allow County jurisdictions to minimize externalities, optimize its facilities and resources, and minimize long-term waste management infrastructure risks.

Barriers/Challenges (and Potential Solutions)

County jurisdictions have historically focused on minimizing rate increases to its residents and businesses. However, in order to meet the future waste management needs, the County jurisdictions recognize that rate increases may be unavoidable. County jurisdictions should consider phasing-in rate increases, in advance of actual construction of new facilities, to pre-fund facility construction. To mitigate rate impacts, where possible County jurisdictions also should amortize (rate fund) facility costs (e.g., financing costs) over the useful life of the facility.

Table 4-7
Estimated New Capital and Operating Costs and Diversion Potential

Strategy	Estimated One-Time Costs[g]	Estimated Annual Recurring Costs[g]	Potential Incremental New Tons Diverted	Percent Diversion[a]	Tons Diverted per $1000 Dollars Spent per Year[b]
1.1 Create West Slope JPA	$10,000 to $50,000	$0 to $150,000	Enhances diversion in other strategies	N/A	N/A
1.2 Conduct County Waste Characterization Studies	$150,000 (assume 3 studies over planning period)	$0	Enhances diversion in other strategies	N/A	N/A
1.3 Extend Use of and Modify WERS as Needed	$1 to $4 million[c]	$0 to $250,000	2,500 to 5,000	0.9%	10
1.4 Expand Mandatory Residential Collection Ordinance[f]	$35,000 to $50,000 (education, staff time, exclusions)	$150,000 to $300,000[d]	5,000 to 8,000 recyclables, 3,500 to 7,000 green waste[e]	3.1%	36
1.5 Create a Regional JPA	$10,000 to $50,000	$0	Enhances diversion in other strategies	N/A	N/A
2.1 Implement New Waste Reduction Actions	Minimal	$15,000 to $30,000 (3 to 5 large audits)	100 to 500	0.1%	13
2.2 Use Greater Pay-As-You-Throw (PAYT) Pricing Programs	$25,000 to $40,000 for a study	Minimal	500 to 1,000	0.2%	231
2.3 Expand Use of Purchasing Preference Practices	$5,000 to $7,500 (develop policy)	$2,000[h] (to update policies)	100 to 200	0.0%	57
2.4 Implement Mandatory Commercial Recycling Program[f]	$35,000 to $50,000 (education, staff time)	$250,000 to $500,000	2,000 to 3,500	0.6%	7
2.5 Enhance and Enforce C&D Ordinance	$5,000 to $10,000	$5,000 to $10,000	500 (in conjunction with Strategy 3.9)	0.1%	61
2.6 Expand Use of Curbside Recycling Programs[f]	$35,000 to $50,000 (education, staff time)	$250,000 to $750,000	2,500 to 4,000 recyclables, 2,000 to 3,500 green waste	1.6%	13
2.7 Expand Residential Cart System[f]	Minimal	Combined with 2.6	Combined with 2.6	N/A	N/A
2.8 Enhance Existing School, Park, and Community Facility Recycling Programs (and implement where necessary)	$25,000 to $50,000 (education, staff time)	$5,000 to $10,000	50 to 200	0.0%	11
2.9 Expand Diversion Programs at Public Facilities	$5,000 to $10,000 (staff time)	$5,000	Minor	N/A	N/A
2.10 Expand Multi-Family Recycling Program[f]	$15,000 to $20,000 (education, staff time)	$75,000 to $200,000	500 to 1,500	0.2%	5

[a] Based on midpoint of estimated incremental new tons diverted in 2020.

[b] Based on midpoint estimates of one-time costs, recurring costs, and tons diverted. Assumes 10-year amortization of one-time costs.

[c] Represents lower cost retooling option.

[d] Assumes most costs associated with new routes, labor, trucks, carts, and disposal covered by rates charged to new customers.

[e] Assumes majority of County areas have mandatory collection.

[f] Subject to franchise agreement amendment and/or negotiation with franchise hauler(s).

[g] Does not include the impact of in-kind contributions from the County, City, or CSDs. In-kind contributions could reduce those costs.

[h] There may be additional costs beyond the amount stated. These higher costs would be reflected in high priced products.

Table 4-7
Estimated New Capital and Operating Costs and Diversion Potential *(continued)*

Strategy	Estimated One-Time Costs[g]	Estimated Annual Recurring Costs[g]	Potential Incremental New Tons Diverted	Percent Diversion[a]	Tons Diverted per $1000 Dollars Spent per Year[b]
2.11 Expand Types of Recyclables Collected Curbside	$5,000 to $10,000 (for education)	$10,000 to $20,000	Minor	N/A	N/A
2.12 Develop Commercial Food Waste Collection Program[f]	$15,000 to $35,000 (education, staff time)	$200,000 to $300,000	1,000 to 2,000	0.3%	6
2.13 Enhance Home Composting Programs	$25,000 to $50,000	$10,000 to $20,000 (training classes and education)	200 to 500	0.1%	19
2.14 Prepare for Possible Elimination of Residential Yard Waste Burning on West Slope	$10,000 to $25,000	$5,000 to $10,000	N/A	N/A	N/A
2.15 Develop Community Composting Programs	$15,000 to $20,000 (education, staff time)	$5,000 to $10,000	Minor	N/A	N/A
2.16 Develop Residential Food Waste Collection Program[f]	$15,000 to $35,000 (education, staff time)	$100,000 to $300,000	4,500 to 7,000	1.3%	28
2.17 Advance Outreach and Education Programs	N/A	$15,000 to $20,000 (education, staff time)	Enhances diversion other strategies	N/A	N/A
3.1 Evaluate and Plan Facility Infrastructure Strategies	$15,000	$0	Enhances diversion other strategies	N/A	N/A
3.2 Develop a West Slope EcoPark	$24 to 39 million	$500,000 to $1,000,000	20,000 to 40,000	7%	8
3.3 Re-Open Union Mine Landfill	See Table 6				
3.4 Develop El Dorado County Composting Facility	$2 to $4 million	$200,000 to $300,000	5,000 to 10,000 (green waste material collected curbside is currently diverted and used for alternative daily cover)	1.7%	14
3.5 Develop Small Volume Rural Transfer Station Facilities, and Strategically Placed Debris Boxes on the West Slope	$750,000 to $1.5 million	$150,000 to $300,000	Minor additional diversion, but enhances convenience and reduces illegal dumping	N/A	N/A
3.6 Plan for Conversion Technologies, if Economically and Operationally Feasible	$25,000	Unknown, if applicable	Unknown	N/A	N/A
3.7 Enhance County Composting Facility	$1 to 3 million	$100,000 to $150,000	Contributes to strategies 2.12 and 2.16	N/A	N/A

[a] Based on midpoint of estimated incremental new tons diverted in 2020.

[b] Based on midpoint estimates of one-time costs, recurring costs, and tons diverted. Assumes 10-year amortization of one-time costs.

[f] Subject to franchise agreement amendment and/or negotiation with franchise hauler(s).

[g] Does not include the impact of in-kind contributions from the County, City, or CSDs. In-kind contributions could reduce those costs.

Table 4-7
Estimated New Capital and Operating Costs and Diversion Potential *(continued)*

Strategy	Estimated One-Time Costs[g]	Estimated Annual Recurring Costs[g]	Potential Incremental New Tons Diverted	Percent Diversion[a]	Tons Diverted per $1000 Dollars Spent per Year[b]
3.8 Renovate South Lake Tahoe MRF and Transfer Station to Accept Single Stream Recyclables	$2 to 5 million	Minimal change to MRF operating costs	1,500 to 2,500	0.5%	6
3.9 Develop West Slope C&D Processing Facility	$2 to $4 million (depending on land costs)	$200,000 to $350,000	8,000 to 12,000	2%	17
3.10 Develop Modern and Economical MRF/Transfer Station on the West Slope[f]	$10 to $15 million	$200,000 to $400,000	15,000 to 25,000	5%	13
Low End Total (does not include Strategy 3.2 EcoPark, Strategy 3.3 Union Mine Landfill, and Strategy 3.10 Modern MRF/T/S)		$2.6 to $6.2 million[c]	44,450 to 68,900	13.1%	
Low End Total Diversion by 2020 (without Strategies 3.2, 3.3, and 3.10)			10% to 16%		
High End Total (includes Strategy 3.2 EcoPark, does not include Strategies 3.3 and 3.10)		$5.5 to $11.1 million	64,450 to 108,900	20%	
High End Total Diversion by 2020 (with Strategy 3.2, without Strategies 3.3 and 3.10)			15% to 25%		

[a] Based on midpoint of estimated incremental new tons diverted in 2020.

[b] Based on midpoint estimates of one-time costs, recurring costs, and tons diverted. Assumes 10-year amortization of one-time costs.

[c] Includes the sum of estimated recurring costs and one-time costs amortized over 10 years.

[f] Subject to franchise agreement amendment and/or negotiation with franchise hauler(s).

[g] Does not include the impact of in-kind contributions from the County, City, or CSDs. In-kind contributions could reduce those costs.

Implementation Timing, Strategies, and Next Steps

As the facility enhancements are considered longer-term strategies, and they carry the bulk of the new costs, following construction of these new facilities (primarily in later Phases), West Slope customers could see a rate increase based on the new operating costs of these facilities. For the remainder of the programmatic changes, which generally have lesser cost impacts, all County ratepayers may see some smaller, more incremental, rate changes throughout the near-term, and longer-term, periods. The County, likely through the WSJPA and work with South Lake Tahoe, as appropriate, should carefully evaluate potential rate impacts of Plan alternatives.

E. Objective 5 –Determine and Implement Appropriate Performance Tracking

Strategy 5.1 – Identify Appropriate Performance Metric for Each Selected Strategy

Description and Rationale

To measure performance of this Plan, County jurisdictions should develop a performance metric for each strategy implemented. Each performance metric should be quantifiable and measurable. Without a way to measure the outcome of a strategy, County jurisdictions would not be able to justify program or service investments to its stakeholders and policy makers. Performance metrics allow the County jurisdictions to assess ongoing progress of Plan strategies so the County jurisdictions can make needed adjustments or modifications to the strategies.

For each new program that has an impact on diversion, County jurisdictions should attempt to isolate the incremental diversion resulting from that program. The performance metric for these diversion-related programs would be the quantity of material diverted by the program (either in pounds per day or tons).

Examples of selected performance metrics include:

- Diversion by program (tons, pounds per day)
- Diversion, Countywide (tons, pounds per day)
- Waste disposed (tons, pounds per day)
- Recycled materials sold (tons)
- Quantity of material, by material type, within the refuse cart (pounds of material)
- Total program or service costs, per ton managed
- Total program or service costs, per ton diverted
- Material processing cost per ton
- Number of households served per day
- Number of households served per route
- Self haul tons received at transfer station.

Costs/Benefits

The costs to develop performance metrics would be relatively nominal and likely would require some modest County or JPA analyst staff time and assistance by the franchised haulers. The benefits are significant in terms of being able to determine how successful a new program or service is and whether the new program or service was worth the investment.

Barriers/Challenges (and Potential Solutions)

As many factors influence diversion (economic conditions, other existing programs), County jurisdictions will be challenged to measure the exact level of diversion attributable a specific new program or service. County jurisdictions will be challenged to correlate the impact of new diversion-related programs on overall County diversion. To isolate the impacts of new diversion-related programs, where possible, County jurisdictions should sample the impacted material streams before and after program implementation. Additionally, to isolate diversion impacts from a new program or service, County jurisdictions should consider piloting the new program or service in selected areas and comparing differences in diversion levels of the piloted area and the non-piloted or “control” area.

Implementation Timing, Strategies, and Next Steps

County jurisdictions should implement performance metrics throughout all phases of the Plan. County jurisdictions should identify a performance measure for each new program or service in advance of implementation of that program or service.

Section 5

Phase 2: Intermediate-Term Strategies

5. Phase 2: Intermediate-Term Strategies

This section describes the intermediate-term strategies for the County's future solid waste management system. **Figure 5-1,** on page 5-2, summarizes a total ten (10) strategies to implement in the intermediate-term. The intermediate-term is defined as the period from 2017 through 2025. The specific strategies to be implemented will include continuation of Phase 1 strategies, and implementation of several new strategies. During Phase 2 the County jurisdictions should continue to expand programs, develop infrastructure, and seek new funding sources.

The ten Phase 2 strategies cover four of the five planning objectives:

- Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services
  - Strategy 2.1 – Implement New Waste Reduction Actions
  - Strategy 2.11 – Expand Types of Recyclables Collected Curbside
  - Strategy 2.12 – Develop Commercial Food Waste Collection Program
  - Strategy 2.15 – Develop Community Composting Programs
  - Strategy 2.16 – Develop Residential Food Waste Collection Program
  - Strategy 2.18 – Reduce Emissions from Collection Fleets
- Objective 3 – Create Solid Waste Management Facility Infrastructure
  - Strategy 3.4 – Develop El Dorado County Composting Facility
  - Strategy 3.10 – Develop Modern and Economical MRF/Transfer Station on the West Slope
- Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services
  - Strategy 4.5 – Create New Funding Sources and Rate Mitigation Strategies
- Objective 5 – Determine and Implement Appropriate Performance Tracking
  - Strategy 5.2 – Summarize, Report and Evaluate Metric Data.

The remainder of this section describes each of the ten strategies. The strategies are organized by objective. The following is provided for each strategy:

- A description of the strategy and rationale for the strategy
- Implementation timing for the strategy
- Preliminary high-level costs and benefits for the strategy
- Barriers/challenges (and potential solutions) for the strategy.

The right-most columns of Figure 5-1 show whether the strategy is designed to move the County toward a 75 percent diversion rate, or whether the strategy is currently a State-mandated requirement.

Figure 5-1
Phase 2 Strategies

Objectives and Strategies	East Slope	West Slope	Page Number	Strategy to Move to 75% Diversion	State-Mandated Requirement
Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services					
Source Reduction					
Strategy 2.1 – Implement New Waste Reduction Actions	X	X	5-2	X	
Recycling Collection and Processing					
Strategy 2.11 – Expand Types of Recyclables Collected Curbside	X	X	5-3	X	
Organics and Composting Practices					
Strategy 2.12 – Develop Commercial Food Waste Collection Program	X	X	5-4		X
Strategy 2.15 – Develop Community Composting Programs	X	X	5-5	X	
Strategy 2.16 – Develop Residential Food Waste Collection Program	X	X	5-6	X	
Evolve Collection Trucks and Equipment to Improve Carbon Emissions					
Strategy 2.18 – Reduce Emissions from Collection Fleets	X	X	5-7		
Objective 3 – Create Solid Waste Management Facility Infrastructure					
Strategy 3.4 – Develop El Dorado County Composting Facility	X	X	5-8	X	
Strategy 3.10 – Develop Modern and Economical MRF/Transfer Station on the West Slope		X	5-9	X	
Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services					
Strategy 4.5 – Create New Funding Sources and Rate Mitigation Strategies	X	X	5-10		
Objective 5 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services					
Strategy 5.2 – Summarize, Report and Evaluate Metric Data	X	X	5-11		

A. Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services

Source Reduction

Strategy 2.1 – Implement New Waste Reduction Actions

Description and Rationale

As part of the commercial recycling program and enhanced education and outreach, the County jurisdictions (with haulers) should implement a business waste audit program. This program would include on-site visits to businesses, starting with the largest businesses, to identify source reduction, recycling, and green purchasing opportunities, and to assist in implementing programs. This one-on-one contact would also be an important component of a commercial recycling program, and could lead to significant waste reduction opportunities.

A waste audit provides generators with an analysis of their waste stream, and can identify

what types of recyclable materials and waste a business generates, how much can be recycled, and opportunities to reduce waste at the source. Audits help businesses identify a customized set of cost-effective waste reduction strategies, determine potential for cost savings, and identify metrics to help businesses track success over time. Several organizations, including: CalRecycle, USEPA WasteWi$e, StopWaste.org, and the Institute for Local Government have business-sector specific materials that identify waste reduction opportunities.

County jurisdictions should also continue to work with thrift stores (Snowline Hospice, Goodwill) to encourage residents and businesses to donate, rather than dispose, usable items. Snowline Hospice has been a major contributor to waste diversion in the County.

Implementation Timing

County jurisdictions should begin implementing a waste audit program in 2017, as a follow-up to the mandatory commercial recycling ordinance (see Strategy 2.4).[1]

Cost/Benefits

County jurisdictions and haulers should incur costs to staff the audit program. There are significant potential diversion benefits, which can be quantified in follow-up efforts with participating businesses.

Barriers/Challenges (and Potential Solutions)

Costs and staffing may present barriers. The County jurisdictions may apply for grants to support the effort, and/or cover the costs within refuse rates.

[1] The WSJPA, or the County, could implement this strategy sooner if resources are available.

Recycling Collection and Processing

Strategy 2.11 – Expand Types of Recyclables Collected Curbside

Description and Rationale

County jurisdictions should expand curbside recycling to certain hazardous and electronic wastes. Currently, the South Tahoe Refuse Household Hazardous Waste Facility accepts hazardous waste from residents on Tuesdays and Saturdays. Residents may also place batteries and small electronics in a separate clear bag in their refuse containers, for sorting at the MRF. El Dorado Disposal's MRF near Placerville accepts household hazardous waste from residents on Fridays and Saturdays. The El Dorado Hills Fire Station accepts household hazardous waste from residents on the first and third Saturday of each month. Providing convenient curbside collection of certain hazardous materials can reduce illegal disposal.

County jurisdictions should add or continue curbside collection for three common household hazardous materials. Household batteries should be placed in a designated container, and put either into, or on top of, the recycling container. Currently, in most parts of the County, residents can call for used oil collection. Used motor oil should be placed in a special container, and set next to the recycling bin for collection. The haulers should provide homeowners with a container for used oil, free of charge. County jurisdictions should provide e-waste collection at the curb on special collection days, giving residents a convenient disposal option for old televisions, computers, printers, and similar equipment. County jurisdictions should continue to provide household hazardous waste collection at the MRF, and community clean up days to collect large items.

South Lake Tahoe Refuse and El Dorado Disposal offer residential curbside collection for

the typical range of paper, metals, glass, and plastic. While there may be some limited opportunities to add new materials as markets develop, the existing programs are fairly comprehensive, in terms of traditional recyclables.

Implementation Timing

County jurisdictions should add selected materials to curbside collection, with exact timing to be determined based on such factors as availability of markets and diversion potential.

Cost/Benefits

Collecting these materials at the curb may result in additional collection costs, as well as sorting and processing costs at the MRF. Actual costs would depend in part on participation rates. Costs should be balanced against the benefit of reducing toxic materials going to landfills, and thus reducing the potential for costly hazardous waste cleanup in the future.

Barriers/Challenges (and Potential Solutions)

Additional costs of collecting and handling these materials may be a barrier.

Organics and Composting Practices

Strategy 2.12 – Develop Commercial Food Waste Collection Program

Description and Rationale

County jurisdictions should develop a commercial food waste collection program as an extension of the mandatory commercial recycling ordinance. Businesses that generate a significant volume of food waste should be provided with containers to separate compostable food waste, and this material should be collected with (but kept separate from) other recyclables and/or waste.

On average, approximately 20 percent of waste from commercial businesses is food waste. In El Dorado County, this means over 16,000 tons of food waste is disposed each year. Much of this waste, particularly from restaurants and grocery stores, could be diverted and composted.

Starting in January 2010, South Tahoe Refuse Company piloted a food waste collection with three businesses in South Lake Tahoe (not all three businesses were in El Dorado County). STR provided three yard bins to each pilot customer, and once a week collected the material and drove to a food waste composting facility in Carson City, Nevada. The pilot collected 46 tons of food waste in the first year, with just three participants. STR will be expanding the program, but at this point will maintain only one truckload per week (up to ten customers). Because the tipping fee at the compost facility is currently higher than the landfill tipping fee, the program is relatively expensive. Participants are focusing on broader environmental benefits, not simply costs.

Under an expanded program, County businesses (e.g., grocery stores, restaurants, and garden centers) shall place organics inside a separate cart or bin. Where needed, the haulers shall provide businesses with carts to hold food scraps inside the establishment until they are placed in the outside bin. Food wastes accepted in this stream would include:

- Coffee grounds
- Dairy products
- Fruit and vegetables
- Food-soiled paper (napkins, towels, plates, tissue, cups, take-out containers)
- Food products (bones, pasta, bread, and dough)
- Paperboard milk cartons
- Plants
- Restaurant grease
- Waxed cardboard
- Wood scraps.

Implementation Timing

Commercial food waste collection should continue to be explored in South Lake Tahoe in 2011, and implemented in other portions of the County during Phase 2, if not sooner.

Costs and Benefits

A preliminary study by CalRecycle of commercial recycling costs estimates program costs at approximately $50 per ton, with costs potentially higher in rural areas. Commercial food waste collection costs may be offset by reduced disposal and landfill fees. The economics of food waste composting will improve as more companies participate. In addition, if the County jurisdictions develop a facility that can accept food waste, tipping fees would likely be substantially lower than the Carson City facility.

Barriers/Challenges (and Potential Solutions)

Businesses may be resistant to mandatory collection. County jurisdictions should emphasize environmental benefits and the potential for cost savings to businesses by reducing waste disposal. Implementing collection in rural areas may be costly. Thus, to the extent possible, County jurisdictions and haulers should coordinate commercial food waste collection along efficient routes to reduce costs.

Strategy 2.15 – Develop Community Composting Programs

Description and Rationale

County jurisdictions should promote and support community composting programs. Community composting programs cover a range of local, neighborhood-based, composting programs. Each location that develops community composting should customize the program to fit their needs. These programs are typically based around a central compost location where neighbors can bring green and food waste for small-scale composting. Waste may also be collected from homes of seniors or others with mobility issues.

Community composting is a step up in scale from backyard composting, but much smaller than a commercial scale facility. Residents may be provided with a container to bring food waste to the community site, and also encouraged to bring green waste to the site. Community composting locations may include a grinder to create fine particles conducive to composting quickly. Programs typically rely on volunteers to manage compost production. The completed compost product should be utilized in community green spaces, and/or provided to participants. Potential locations for community composting include, but are not limited to: community centers, County facilities, senior centers, community gardens, small farms, and schools. The community composting program should be promoted and organized in cooperation with the El Dorado County Cooperative Extension, building on the home composting program (Strategy 2.13).

Implementation Timing

County jurisdictions, with Cooperative Extension, should shift their focus from home composting to community composting as the "market" for home composting becomes saturated, by 2020 at the latest. Community composting is considered an intermediate-term strategy; however, County jurisdictions should support opportunities to establish community composting programs that occur during the first six years of the Plan.

Costs/Benefits

Community composting programs should build on the home composting program, including volunteer support, and thus not require significant new funding. These neighborhood composting programs provide diversion, education, and community-building benefits.

Barriers/Challenges (and Potential Solutions)

Community composting programs rely heavily on voluntary support and community enthusiasm. The County's role should be to promote and encourage these programs. Pest and odor concerns may dampen enthusiasm for community composting in some locations. There are techniques that can keep pests away from compost bins, but this issue may make community composting more challenging in some areas.

Strategy 2.16 – Develop Residential Food Waste Collection Program

Description and Rationale

Food waste represents a large portion of the County's waste stream. In 2010, the County estimates 31,658 tons, or 17.3 percent of the County's waste stream was food. County jurisdictions currently have no programs with franchised waste haulers for residential food waste collection, either on the West Slope or East Slope.

In this strategy, County residents would place food waste inside the yard waste cart, for a combined organics collection. The haulers should provide residents with a free seal-tight bin to hold food scraps until they are placed in the organics bin. Food wastes accepted in this stream should include:

- Coffee grounds
- Dairy products
- Fruit and vegetables
- Food-soiled paper (napkins, towels, plates, tissue, cups, take-out containers)
- Food products (bones, pasta, bread, and dough)
- Paperboard milk cartons
- Waxed cardboard.

Over the long-term, to advance its diversion, County jurisdictions should develop a collection program to capture residential food waste from its waste stream. In conjunction with the Western El Dorado County Composting Facility upgrade (described in Strategy 3.7), the WSJPA, or the County, should use this food waste in combination with collected greenwaste for a more robust composting material.

Implementation Timing

The County should implement a residential food waste collection program during the early years of Phase 2.

Costs/Benefits

The costs to add a residential food waste program could be approximately $0.50 to $1.00 per residential customer, per month. The County can realize additional diversion of approximately 3 to 5 percentage points of diversion from a residential food waste program. By composting the food waste, the County jurisdictions can "close-the-loop" for a large portion of the waste stream that currently goes to the landfill. Removing food waste (with its high water content), from the disposal stream, should reduce landfill leachate and methane gas generation levels. Some of the food waste program costs would be offset by disposal cost reductions.

Barriers/Challenges (and Potential Solutions)

Some residents will not want to separate food waste. Managing food waste necessitates some behavior change requirements for residents. County jurisdictions should perform outreach and education far in advance of implementing a food waste program. County jurisdictions should work with the haulers to pilot the program first. County jurisdictions should consider phasing the program for the more urban areas of the County first, and the more rural and remote areas second.

Evolve Collection Trucks and Equipment to Improve Carbon Emissions

Strategy 2.18 – Reduce Emissions from Collection Fleets

Description and Rationale

County jurisdictions should require that all collection vehicles used by its franchise haulers be California Air Resources Board (ARB) compliant. ARB compliance requires refuse collection trucks to meet performance requirements between 2011 and 2023. By January 1, 2023, all trucks must have a year 2010 model year engine or equivalent. Trucks can be retrofitted to meet this requirement.

As the collection vehicles used by franchised haulers are added or replaced within a fleet between 2011 and 2020, subject to the availability and cost-effectiveness of alternative fuels, County jurisdictions should require that the fleet use alternative fueled trucks and vehicles. Alternative fuels may include:

- Biodiesel (B5 and B20 forms)[2]
- Compressed natural gas (CNG)[3]
- Liquefied natural gas (LNG).

There is a trend to move away from diesel-powered refuse collection trucks. Recent studies suggest that the lifecycle costs of natural gas refuse trucks are on par economically with traditional diesel powered trucks. A California Natural Gas Vehicle Coalition report found natural gas fueled trucks "highly competitive" with diesel trucks. Projections for diesel truck costs are more highly variable than natural gas truck costs. Further, natural gas trucks emit less particulate matter (i.e., nitrogen-oxide emissions) and are significantly quieter than diesel trucks. A retail cost comparison between 2004 and 2009 also showed diesel fuel was approximately $1 per gallon more than compressed natural gas (CNG) during this six year period. While it may not make sense in the near-term for County jurisdictions to covert entire refuse collection fleets to alternative fueled ones, over the long-term, County jurisdictions may find that conversion to alternative fueled vehicles provides compelling economic and environmental benefits.

[2] Represents 5 percent and 20 percent biodiesel respectively.

[3] Generally costs 15 to 40 percent less than diesel fuel.

Implementation Timing

Over the intermediate-term, County jurisdictions should assess whether to require franchised haulers to either use alternative fueled trucks (in the case of a new franchise), or phase-in alternative fueled trucks with normal vehicle replacement schedules (in the case of an existing or extended franchise).

Costs/Benefits

The costs of alternative fueled collection trucks range from $250,000 to $300,000 per truck. For alternative-fueled trucks there will be an incremental additional purchase cost of 10 to 15 percent above the normal replacement cost of a truck. Also, alternative fueled vehicles are generally more costly to operate and maintain (10 to 15 percent higher O&M costs). Purchasing alternative fuel trucks would assist the County jurisdictions in reducing greenhouse gas emissions.

Barriers/Challenges (and Potential Solutions)

The performance of alternative fueled trucks is not completely proven relative to traditional diesel trucks (e.g., maintenance, breakdowns, operations in cold weather conditions). In some recent studies the costs of alternative fueled trucks are shown to be lower over the life of the truck based on lower fuel costs (under the assumption that the fuel sources are available and fuel prices can be negotiated to be fixed over longer periods of time). County jurisdictions should continually explore factors affecting alternative fueled truck performance and cost effectiveness to determine if an alternative fueled vehicle strategy continues to be a good one.

Table 5-1
West El Dorado County
Composting Facility Specifications

Description	Initial Design Specification
Permitted capacity	20,000 tons/year
Throughput	16,000 tons/year
Acreage	5 to 7 acres
Equipment requirements	Horizontal grinder, rubber-tired loader, trommel screener, scarab windrow turner

B. Objective 3 – Create Solid Waste Management Facility Infrastructure

Strategy 3.4 – Develop El Dorado County Composting Facility

Description and Rationale

County jurisdictions do not currently have any in-County composting facilities. On the West Slope, franchised haulers transport between 15,000 and 16,000 tons of yard waste per year out-of-County for use as compost, or as alternative daily cover, at out-of-County landfills. Organic material on the East Slope is transported to Nevada. This material use provides the County with full diversion credits, however the material is not re-used within the County, ending up instead being composted at a facility in the Central Valley (or Nevada). County jurisdictions see an opportunity to utilize this material within the County and minimize the externalities of transporting and processing the material at out-of-County facilities.

The WSJPA, or the County, should evaluate development of a new West El Dorado County Composting Facility. The WSJPA, or the County, could locate the West El Dorado County Composting Facility on the Union Mine Landfill, at the potential West Slope EcoPark facility, or on another County-owned property. While the facility would be located on the West Slope, it is possible that organic material could be transported to the facility from the East Slope, depending on the economics of transport and composting in Nevada versus in-County.

Initially, the West El Dorado County Composting Facility should process (1) yard waste loads collected by franchised haulers, and (2) clean yard waste loads delivered by self haulers and landscapers. Composting facility specifications are identified in **Table 5-1,** left.

For yard waste composting, the West El Dorado County Composting Facility process should consist of:

- Cleaning incoming materials so they are free of trash, debris, and waste
- Grinding the materials (using a horizontal grinder)
- Using windrows for the composting process over 14 to 18 weeks (applying water and turning one to two times per week)
- Removing oversized particles following composting process (using a screen)
- Selling or providing the finished product to County residents.

The WSJPA, or the County, should use finished composted materials in the following ways:

- Bulk commercial sale to nurseries and materials yards
- Sale to landscapers
- Provide free to residents
- Use by County crews for parks and planting.

The facility would require: (1) a solid waste facility permit, (2) CEQA compliance, (3) conformance to the County's Non Disposal Facility Element, (4) meeting Regional Water Quality Control Board waste discharge requirements, and (5) air quality permits potentially required following passage of Assembly Bill 32 (Global Warming Bill).

Table 5-2
West El Dorado County Composting Facility Timeline

Description	Timing
Environmental review – Initial Study Preparation, Completion of Environmental Impact Report (EIR)	18 months
EIR public review and comment	6 months
Development and regulatory permitting, and project design	18 months
Financing and construction (includes site improvements, equipment, buildings	18 months
Tentative operational date	Within 5 years*

[a] Depending on permits and available funding.

On the East Slope, the composting infrastructure is set up to handle organic materials through at least the intermediate term of this Plan. STR uses its Resource Recovery Facility to manage organic materials collected from self haul customers. STR currently consolidates and transfers compostable materials to a nearby composting facility, the Bently Agrowdynamics Compost Facility, located in Douglas County, Nevada for processing to compost.

Implementation Timing

If implemented, the WSJPA, or the County, should develop the West El Dorado County Composting Facility during Phase 2. Tentative timing for development of the composting facility is provided in **Table 5-2,** above, and is predicated on successful completion of facility siting, permitting, and construction.

Costs/Benefits

Estimated permitting and equipment costs for the West El Dorado County Composting Facility are approximately $2 million to $4 million. Land costs would vary, but costs to lease a 7-acre site likely approach several hundred thousand dollars per year.

The WSJPA, or the County, would benefit from increased diversion and less environmental impacts (from long-hauling the material). The WSJPA, or the County, should provide the compost product to County residents, parks, and businesses.

Barriers/Challenges (and Potential Solutions)

Some residents will not want a composting facility near housing or commercial establishments (i.e., the NIMBY concern). There also are odor control issues. Further, there are times when a facility cannot sell the compost material.

Strategy 3.10 –Develop Modern and Economical MRF/Transfer Station on the West Slope

Description and Rationale

Over the intermediate term, the WSJPA, or the County, should consider constructing an economical alternative West Slope MRF/transfer station to the current WERS facility. Features of this new economical MRF/transfer station could include:

- 7 to 15 acre parcel
- Covered building
- Dedicated self-haul area
- A modern single stream sort line
- C&D management area (and small sort line)
- A buy-back center
- An HHW/ABOP facility
- An e-waste drop off area
- A material re-use area.

The WSJPA, or the County, should seek a public-private partnership for this facility, with WSJPA, or the County, ownership of some/all of the facility, and a private sector operator. The overall approach for the facility would be to keep costs to a minimum with inexpensive land, minimum facility requirements, lower cost equipment options, and an efficient design.

The modern and economical MRF location could eventually be upgraded and expanded to an EcoPark, as described in Strategy 3.2. Building on this MRF site-selection process would reduce costs and impacts of an eventual EcoPark.

Implementation Timing

This facility construction process would follow a similar 5-year development timeline to that shown for the West El Dorado County Composting Facility in Table 5-2.

Costs/Benefits

Depending on the features of the new economical West Slope MRF/transfer station, construction costs could range from $10 to $15 million with annual operating costs (over and above the current WERS operating costs) ranging from $200,000 to $400,000 per year.

Barriers/Challenges (and Potential Solutions)

Some residents will not want a new facility located next to their property, the not-in-my backyard (NIMBY) concern. The WSJPA, or the County, should proceed through a CEQA process before permitting and constructing a new West Slope MRF/transfer station facility.

While this strategy is designed to provide a lower-cost alternative to a full-scale West Slope EcoPark (identified as a long-term strategy (Strategy 3.2)), the WSJPA, or the County, may not be in a position to afford an economical new MRF/ transfer station. If this strategy is determined economically feasible (e.g., following a bid process), to mitigate potential cost impacts of this new facility, the WSJPA, or the County, should begin to identify ways to establish alternative funding mechanisms for the facility (such as low-interest facility financing, public-private partnerships, and rate funding in advance of construction).

C. Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services

Strategy 4.5 – Create New Funding Sources and Rate Mitigation Strategies

Description and Rationale

With the higher cost waste management system, the WSJPA, or the County, may seek out additional funding sources, or rate mitigation tactics, in the form of:

- Capturing additional waste streams from out-of-County areas, which serve to offset new infrastructure costs
- Creating markets for recycled and composted products locally within the County, so the materials do not have to be shipped long distances
- Negotiating franchise agreements with rate stability mechanisms built into the rate setting methodology (rate caps, rate freezes, maximum targeted profit levels)
- Providing franchise agreements with incentives to reduce costs
- Seeking State or federal grants for new facilities and programs
- Using existing low-interest facility financing available from the California Pollution Control Financing Authority (CPCFA).

Implementation Timing

The WSJPA, or the County, should continually seek these sources and strategies throughout the intermediate and long-term planning horizon.

Costs/Benefits

Where possible, these strategies should minimize rate increases that may be required to fund new facilities, programs, and services identified in this Plan. The WSJPA, or the

County, should also seek to implement fee structures that create economic incentives for diversion activities.

Barriers/Challenges (and Potential Solutions)

There are minimal barriers to generating additional revenues sources.

D. Objective 5 –Determine and Implement Appropriate Performance Tracking

Strategy 5.2 – Summarize, Report and Evaluate Metric Data

Description and Rationale

County jurisdictions should summarize and report on the progress of strategies implemented. The County jurisdictions, or JPAs, should summarize Plan outcomes when they become available in a bi-annual (every other year) report provided to constituents, policymakers, and stakeholders. This report should provide a linkage between costs and outcomes of new Plan programs and services. The report should demonstrate Plan progress and provide an opportunity to adjust Plan strategies if necessary. The County jurisdictions, or JPAs, should provide these data analyses and evaluations in an effort to provide accountability for past and future solid waste management program investment decisions.

Costs/Benefits

The costs to collect, summarize, and report metric data would be modest and likely would require County jurisdictions or JPA analyst staff time. There may be some moderate costs for the franchised haulers or facility operators to assist with collecting and reporting program data. The benefits are significant in terms of being able to conclude whether a new program or service has met its intended objective and was worth the investment. In addition, County jurisdictions can utilize the performance information gathered in the reporting process to refine and improve these new programs and policies.

Barriers/Challenges (and Potential Solutions)

County jurisdictions may be faced with the challenge of explaining why a program or service didn't meet its intended objective or is not performing well. County jurisdictions also may be faced with the challenge of not being able to collect a sufficient amount of data, or having to make conclusions from poor quality data. County jurisdictions should make every effort up front (before strategy implementation) to develop performance metrics that are reasonably measurable. County jurisdictions should develop the data collection design early in the process so that it can avoid potential data collection or integrity issues.

Implementation Timing, Strategies, and Next Steps

County jurisdictions should report metric data as it is collected in Phases 2 and 3.

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Section 6

Phase 3: Long-Term Strategies

6. Phase 3: Long-Term Strategies

This section describes the long-term strategies of the County's future solid waste management system. **Figure 6-1,** on page 6-2, summarizes a total of eleven (11) strategies to implement in the long-term. The long-term is defined as the period from 2026 through 2040. The strategies implemented in Phase 3 should reflect the evolution of solid waste management infrastructure and programs over the next fifteen years (2011 to 2026). The specific strategies to be implemented during Phase 3 may include a mix of Phase 1 and Phase 2 strategies, as well as new approaches to solid waste management, to be determined over time. A likely focus during Phase 3 would be regional solid waste management to support alternative technologies and infrastructure.

The eleven Phase 3 strategies support four of the five objectives, as follows:

- Objective 1 – Develop Authorities for Future Solid Waste Management
  - Strategy 1.5 – Create a Regional Joint Powers Authority
- Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services
  - Strategy 2.14 – Prepare for Possible Elimination of Residential Yard Waste Burning on West Slope
  - Strategy 2.19 – Use Advanced Technologies for Collection Trucks and Vehicles
- Objective 3 – Create Solid Waste Management Facility Infrastructure
  - Strategy 3.2 – Develop a West Slope EcoPark
  - Strategy 3.3 – Re-Open Union Mine Landfill
  - Strategy 3.6 – Plan for Conversion Technologies, if Economically and Operationally Feasible
  - Strategy 3.7 – Enhance County Composting Facility to Manage Diverted Food Waste and Other Organics
  - Strategy 3.8 – Renovate South Lake Tahoe (SLT) Material Recovery Facility and Transfer Station to Accept Single Stream Recyclables
- Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services
  - Strategy 4.2 – Develop South Lake Tahoe Transfer Station/MRF, West Slope EcoPark and Union Mine Landfill Fees
  - Strategy 4.3 – Add Administrative Fee to Future Union Mine Landfill Tipping Fee
  - Strategy 4.4 – Increase Union Mine Landfill Methane Gas Production.

The right-most columns of Figure 6-1 show whether the strategy is designed to move the County toward a 75 percent diversion rate, or whether the strategy is currently a State-mandated requirement.

Figure 6-1
Phase 3 Strategies

Objectives and Strategies	East Slope	West Slope	Page Number	Strategy to Move to 75% Diversion	State-Mandated Requirement
Objective 1 – Develop Authorities for Future Solid Waste Management					
Strategy 1.5 – Create a Regional Joint Powers Authority	X	X	6-3	X	
Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services					
Organics and Composting Practices					
Strategy 2.14 – Prepare for Possible Elimination of Residential Yard Waste Burning on West Slope		X	6-3		
Evolve Collection Trucks and Equipment to Improve Carbon Emissions					
Strategy 2.19 – Use Advanced Technologies for Collection Trucks and Vehicles	X	X	6-8		
Objective 3 – Create Solid Waste Management Facility Infrastructure					
Strategy 3.2 – Develop a West Slope EcoPark		X	6-9	X	
Strategy 3.3 – Re-Open Union Mine Landfill		X	6-14		
Strategy 3.6 – Plan for Conversion Technologies, if Economically and Operationally Feasible	X	X	6-16		
Strategy 3.7 – Enhance County Composting Facility to Manage Diverted Food Waste and Other Organics		X	6-18	X	
Strategy 3.8 – Renovate South Lake Tahoe (SLT) Material Recovery Facility and Transfer Station to Accept Single Stream Recyclables	X		6-19	X	
Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services					
Strategy 4.2 – Develop South Lake Tahoe MRF/Transfer Station, West Slope EcoPark and Union Mine Landfill Fees	X	X	6-20		
Strategy 4.3 – Add Administrative Fee to Future Union Mine Landfill Tipping Fee		X	6-21		
Strategy 4.4 – Increase Union Mine Landfill Methane Gas Production		X	6-21		

The remainder of this section describes each of the eleven strategies. The strategies are organized by objective. The following is provided for each strategy:

- An overview description of the strategy and rationale for the strategy
- Implementation timing for the strategy
- Preliminary high-level costs and benefits for the strategy
- Barriers/challenges (and potential solutions) for the strategy.

A. Objective 1 – Develop Authorities for Future County Solid Waste Management

Strategy 1.5 – Create a Regional Joint Powers Authority

Description and Rationale

In this strategy, the WSJPA would have the option to evolve into a Regional JPA. The WSJPA would obtain Regional Agency certification from CalRecycle. The WSJPA also would assess whether to expand its membership to potentially include areas outside of the County. Certain neighboring jurisdictions, including the City of Folsom and Amador County, could potentially be integrated into a regional JPA.

At the discretion of the WSJPA, the West Slope jurisdictions also should evaluate whether to become a Regional Agency (RA) in accordance with Public Resources Code (PRC) Section 40970. An RA must be certified by CalRecycle. As an RA, the WSJPA can submit required State of California annual reports, disposal reports, and other reporting data to CalRecycle as one unit without reporting information for each jurisdiction. Several of the West Slope jurisdictions have expressed an interest in exploring this RA designation.

At this time, the WSJPA also should review the JPA Joint Powers Agreement to determine if the agreement meets the needs of the participating member agencies.

In the event that the WSJPA does not evolve into a Regional JPA, the WSJPA should continue to move forward with this Plan.

Implementation Timing

The WSJPA and additional jurisdictions should consider forming a Regional Agency by December 31, 2026.

Costs/Benefits

There is a cost (staff time, legal review) for the parties to apply for RA designation with CalRecycle. The regional agency benefits include further economies of scale with expanded membership, consolidated diversion reporting efforts to CalRecycle, and the continuing ongoing benefits described for the WSJPA in Strategy 1.1.

Barriers/Challenges (and Potential Solutions)

Neighboring out-of-County members may already have long-term agreements to use other facilities, or may have negotiated lower cost options than the WSJPA can provide. The WSJPA would need to provide these potential regional member agencies with compelling reasons to join from both an economic and diversion standpoint.

B. Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services

Organics and Composting Practices

Strategy 2.14 – Prepare for Possible Elimination of Residential Yard Waste Burning on West Slope

Description and Rationale

While the County already has restrictions on yard waste burning, this practice may ultimately be phased out of all but the most rural areas for health, fire safety, and environmental (air quality) concerns. Elimination of yard waste burning may be decided at the State level, potentially driven by air quality and greenhouse gas emission reductions. Because this issue is highly controversial, this section provides a detailed discussion of issues to consider should the County be required to, or choose to, eliminate yard waste burning.

There is currently a County Ordinance[1] allowing regulated yard waste burning during certain hours, on certain days, during certain times of year. Burning may only be conducted on allowable burn days. The County specifies that the materials to be burned must originate from within 100 feet of a single or two family dwelling, must be burned on the premises it originated from, and be limited to: waste from trees, vines, brush, leaves, lawn clippings, and dry plants. A free burn permit must be obtained from the El Dorado County Air Quality Management District for burn piles over four feet by four feet in size. These permits are valid for a calendar year.

In 2009, the County issued 480 yard waste burning permits. Burn permits are not required for burning piles less than four feet by four feet. Such smaller burn piles are common; however, the County does not have an estimate of the frequency of smaller burn piles. The Air Quality Management District receives approximately forty complaints about yard waste burning each year, with most complaints occurring between October and February (when most burning occurs).

Yard waste burning is more common in the most rural portions of the unincorporated County. There is no yard waste burning allowed in the Tahoe Basin. The Cameron Park CSD only allows two weeks of burning in the spring, and two weeks in the fall. The City of Placerville does not allow any open burning during the fire season – May 1st through October or November.

Open burning of yard waste produces particulate matter, hydrocarbons, and carbon monoxide. These materials are associated with acute and chronic health impacts. Yard waste burning results in air pollution and smoke particles also pollute water and soil. Yard waste fires that get out of control can cause wildfires. Thus, yard waste burning imposes health, financial, and environmental costs in the community. Because yard waste burning has been commonplace in the County, a ban will not be effective unless there are viable alternatives. The County should establish yard waste collection (Strategy 2.7), yard waste drop-off facilities in rural locations (Strategy 3.5), chipping (at MRFs and mobile chippers), and home composting alternatives (Strategy 2.13). The County should also launch an outreach program to educate residents on the impacts of yard waste burning, as well as alternatives (Strategy 2.17).

California Health and Safety Code, Sections 41802 to 41805, address yard waste burning. Essentially, the Code allows Air Quality Management Districts (AQMDs or districts) to "authorize the disposal, by open outdoor fires, of such waste [wood waste from trees, vines, or bushes], on the property where it was grown" under the following conditions:

- The district finds that it is more desirable to dispose of green waste by burning than other available means, such as sanitary landfills
- The district has developed criteria, approved by the state, for yard waste burning to reduce smoke levels
- The district shall issue a permit, and no burning shall be allowed on days during which agricultural burning is prohibited.

The Code has a provision that the state may make a finding that "an alternative method of disposal has been developed which is technologically and economically feasible." Thus, at some point the State may ban yard waste burning, but currently, it is up to localities to determine yard waste policies, within State guidelines.

[1] Represents local ordinance, not a State Air Resources Board requirement.

There are basic requirements of yard waste burning that are similar in all areas where it is allowed. For example, piles may be no larger than four feet by four feet in size, must be at least ten feet away from other combustibles, and must be attended by an adult. The resident must provide adequate water and a shovel, burn only dry vegetation, avoid burning when smoke will impact neighboring properties, and only burn materials on the property where they grew. An important consideration is that individuals are liable for damages if their fire escapes. Burning any other garbage, and use of burn barrels, are illegal in California. During fire season (April or May through October or November), the California Department of Forestry and Fire Protection (CalFire) requires permits for all yard waste burning. Permit requirements in the remainder of the year vary by county. All counties that allow burning limit yard waste burning to designated "burn days" when wind and weather conditions are appropriate.

Although state law allows yard waste burning, many districts do not. For example, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has not allowed yard waste burning since the district was formed in 1992, and many of the counties in the district have not allowed yard waste burning since the 1970s or 1980s. The SJVAPCD includes valley and mountain counties with rural characteristics: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern. The SJVAPCD enforces the ban, and issues a number of tickets each year to residents that violate the restriction.

Comparison with Other Counties

We assessed yard burning policies at several other counties that are adjacent to El Dorado County, and/or similar in terms of population characteristics. We selected four counties that had not only similar total populations, but that had a relatively large percent of the population in unincorporated areas, as does El Dorado County.[2] All four counties currently allow some yard waste burning, during portions of the year, and in portions of the County. Below, we briefly describe yard waste burning policies in each county.

Nevada County has a population of 98,680, with 67 percent of residents residing in unincorporated areas. Like El Dorado County, Nevada County ranges from the Sacramento Valley to the State of Nevada border. Nevada County encourages residents to "attempt a clean approach" such as composting, green waste pick-up, or chipping before utilizing burning. Similar to El Dorado County, the Nevada County Fire Safe Council has a free shipping and shredding program in Western Nevada County. Because of smoke, Western Nevada County restricts burning of leaves and pine needles to those "where the leaves or pine needles are dry and attached to branches or make up no more than 20 percent by volume of any burn pile." In addition, open burning cannot be conducted within 50 feet of any structure.

Placer County has a population of 347,102, with 32 percent of residents residing in unincorporated areas. Placer County does not require a burn permit for "residential allowable burning", which includes materials from a single or two family dwelling, limited to dry tree trimmings, dry leaves and pine needles, and dry plants and weeds. The county does not allow lawn clippings to be burned. Placer County encourages alternatives to burning, and does not allow burning on federal holidays. Within the county, the cities of Rocklin, Roseville, and Lincoln do not allow burning. Because of adverse health impacts, the county

[2] In 2010, El Dorado County had a population of 182,019, with 147,503 in unincorporated areas. However, subtracting out EDHCSD and CPCSD, which operate more like incorporated areas, approximately 52 percent of the County population resides in unincorporated areas.

issued a Colfax Neighborhood Residential Burning Advisory requesting residents near Colfax Elementary and Colfax High Schools to voluntarily refrain from burning when children are present.

Within the county, the City of Auburn allows burning only on burn days between November 1 and May 31, and reserves the right to suspend burning during that period. Residents must obtain a permit from the City of Auburn Fire Department, and follow the same guidelines as the county.

The community of Granite Bay implemented additional restrictions on yard waste burning. In 2000, the number of complaints related to yard burning in Granite Bay was increasing. In March 2002, the Granite Bay Municipal Advisory Committee (MAC) created a "Residential Burn Compromise Committee" to "determine the desire of the community and to recommend a compromise policy that would satisfy the citizens on both sides of the issue (suburban and rural)." The committee's name reflects the nature of discussions on the topic. In March 2003, the committee's recommendations were endorsed by the MAC. The Granite Bay policies affect residents in only two zip codes (95746 and 95661). Residents must obtain a burn permit from the South Placer Fire Protection Council, and may only burn on designated burn days between the 1st and 15th of each month, and between 8 a.m. and 5p.m. (extended to 7p.m. in May).

San Luis Obispo County is larger than El Dorado County, with a population of 273,231, but with a similar 44 percent of residents living in unincorporated areas. The Air Pollution Control District of San Luis Obispo County (District) began phasing out backyard burning of green waste material in developed portions of the county in 2000. In urbanized areas of the county where alternatives to burning are available, burning is prohibited. The county has previously well-defined "Urban Reserve Lines" (URL) and "Village Reserve Lines" (VRL) separating urban/suburban and rural land uses, and utilized these boundaries to specify areas where burning is allowed. The county has banned green waste burning within URL or VRL zones. Yard waste burning is more restrictive than El Dorado County in those areas where it is allowed. Where burning is allowed, county provisions include:

- Burn hours between 10 a.m. and 4 p.m.
- A permit (including $25 fee) is required for all backyard burning
- Burning of grass clippings, piled leaves, and piled pine needles is prohibited
- No burning is allowed within five days of measurable rainfall
- Specific minimum drying times
- Larger clearance zones from structures.

San Luis Obispo County's efforts to ban yard waste in most areas began prior to 2000, and took approximately three years. Today, only 20 percent of the county's residents live in rural areas where burning is allowed. The process of eliminating burning in the rest of the county was involved. Initially, the District, local governments, the County solid waste coordinator, and Solid Waste Authority met and developed a strategy. The county also worked with CalFire and the local Fire Safe Committee throughout the transition period. A key step was to obtain the support of the air district board, and the county Board of Supervisors. In addition, the district obtained support of the County Health Commission, due to the negative health impacts of burning.

The second step was to ensure that local governments could work with solid waste franchisees to provide alternatives – i.e. yard waste collection. Yard waste collection needed to be both financially and technically feasible. The district implemented extensive education and outreach, including education at schools, and for rural advisory councils. To reduce resistance to

the ban, the District started with incorporated cities, and more suburban areas, gradually extending the ban to less populated towns. The county allowed some communities to keep yard burning in place, but made the communities responsible for developing fire hazard reduction programs, permits, etc. Another initiative was to give away home chippers, and to provide free chipping days in some neighborhoods.

The county enforces the yard waste burning restrictions. Over the first few years, residents that received tickets were required to attend a class on alternatives to burning (composting, chipping). While the county developed a multi-year plan for the effort, there was still public objection. A key factor in changing opinions was education about the health impacts of burning.

Butte County is slightly larger than El Dorado County, with a population of 221,768. Approximately 38 percent of residents live in unincorporated areas of the county. In unincorporated areas, the county does require a permit (but no fees) during fire season, but no permit from the end of fire season (October of November) through April 30th. There are no burn hour restrictions from November 1st to April 10th, but burn hours are restricted to 6 a.m. to 11 a.m. after May 1. The City of Biggs has restrictions on burn hours, 6 a.m. to 11 a.m. and 6 a.m. to 2 p.m., depending on the time of year. The City of Chico does not allow residential yard waste burning. The Town of Paradise allows burning only between March 1st and May 31st, and during a special fall burn period, typically November through December. Burn hours in Paradise are limited to between 9 a.m. and 2 p.m., and the community is split, with some portions burning only during the first half of the month, and others in the second half of the month. This provision, implemented several years ago, reportedly improved conditions for residents, who could plan outdoor activities around burn days.

In February 2010, the Butte County Air Quality Management District (District) proposed amendments to the open burning regulations. These amendments, although relatively minor, have been controversial, and as of November 2010, have not been adopted. The intent of the amendments was to reduce the emissions (particular matter) from open burning, and the potential for smoke impacts surrounding the City of Chico. The initial proposed regulations eliminated burning in the "Chico Sphere of Influence", and added restrictions in the Magalia/Upper Ridge area to match the Town of Paradise periods. In addition, within the Magalia/Upper Ridge area, the proposed regulations restricted burning in one portion to allowable burn days in the first half of the month, and in the remaining area, to allowable burn days in the second half of the month.

The District has held several public hearings on the proposed regulations, and has amended them during the course of 2010. The regulations may continue to be amended based on public comment. As of November 2010, the District revised the proposed regulations to extent the Magalia/Upper Ridge burning months to January through June, and expanding the burn hours to 8:45 to one hour before sunset, consistent with the rest of the unincorporated county. Staff rejected a request to lower the lot size of the Magalia/Upper Ridge restrictions from one acre to one-half acre. Burning in the Chico Sphere of Influence will be restricted only in lots under one acre in size. In response to public comments, staff also removed a provision to restrict the amount of pine needles and leaves to be burned. Time restrictions for burning will match those for agricultural burning, a change which has the support of the agricultural community.

One of the factors that Butte County is evaluating is the need to allow some burning on larger properties for fire hazard reduction. This

may also be an issue in El Dorado County. Any burn restrictions may need to make a distinction between burning as a disposal method, and burning for fire hazard. The experience in Butte County illustrates the challenges inherent in reducing or restricting yard waste burning options in rural areas. As with other regions that have implemented restrictions, extensive public outreach is a critical component.

Implementation Timing

The County may be required to implement a yard waste burning ban if such a policy is implemented at the State level. The County should provide education on yard waste burning alternatives, and implement alternatives to burning, over the next several years, prior to eliminating yard waste burning.

Implementation should require a multi-faceted plan for each region, including:

- Conducting a series of meetings with agencies and entities involved in implementing the strategy. For example, the yard waste burning policy would involve a number of entities, including: the El Dorado County Air Quality Management District, West Slope franchisees, County Environmental Management Department, Fire Districts, Fire Safe Council, CalFire, and County Public and Environmental Health Departments. The purpose of these start-up meetings would be to refine the implementation plan and ensure that all relevant organizations are aware of the policy changes, and would provide support (and resources)
- Developing an outreach program that identifies policy benefits. These benefits include: improved air quality, reduced health impacts from smoke, reduced fire danger, and reduced environmental contamination from ash
- Meeting with residents in affected communities to present outreach programs, discuss new policies, answer questions, obtain input on implementation details, and address concerns
- Developing a County Ordinance to codify the new requirements; amend existing ordinances, as necessary. The Country should work with the Board of Supervisors to approve the ordinance changes.

Costs/Benefits

As an alternative to yard waste burning, providing and servicing rural drop-off facilities and yard waste cart collection would increase system costs. These service increases would be reflected in rates. Eliminating yard waste burning reduces health and environmental costs, as well as fire risks.

Barriers/Challenges (and Potential Solutions)

There may be opposition, particularly in more rural areas, to eliminating the burn option. Education and outreach can help address opposition, as discussed in the implementation strategy. County jurisdictions should implement alternatives to burning prior to a ban on yard waste burning.

Evolve Collection Trucks and Equipment to Improve Carbon Emissions

Strategy 2.19 – Used Advanced Technologies for Collection Trucks and Vehicles

Description and Rationale

County jurisdictions should explore options over the long-term for advanced fuel, hybrid, and/or electric trucks and vehicles to be part of the franchise hauler's collection fleet and support vehicles. As new truck and vehicle technologies evolve, County jurisdictions should incorporate these fuel-saving or lower emitting trucks and vehicles into the franchised haulers operations.

Implementation Timing

This strategy should be phased-in with truck and vehicle replacement schedules over the 2026 to 2040 timeframe. The City of South Lake Tahoe received a grant to purchase an alternative fuel garbage truck as part of their multi-family recycling grant; however, it is not certain when this truck would be purchased.

Costs/Benefits

Unknown costs at this time.

Barriers/Challenges (and Potential Solutions)

Unknown barriers at this time. These new technologies may be more costly.

C. Objective 3 – Create Solid Waste Management Facility Infrastructure

Strategy 3.2 – Develop a West Slope EcoPark

Description and Rationale

The existing materials recovery and transfer station facility on the West Slope of the County is owned and operated by Western El Dorado Recovery Systems California, a Waste Connections subsidiary. Virtually all West Slope franchised and self-haul materials pass through the WERS facility.[3]

El Dorado Disposal Service, also a Waste Connections subsidiary, provides refuse, recycling, and yard waste collection services to most West Slope areas. El Dorado Disposal Service provides these services under franchise agreements with the City of Placerville, Cameron Park Community Services District, El Dorado Hills Community Services District, and El Dorado County.

[3] With the exception of material collected by American River Disposal Service. This material is transferred to the South Tahoe Refuse facility in the City of South Lake Tahoe.

Table 6-1
West Slope EcoPark Specifications

Description	Initial Design Specification
Designation	Large volume transfer station/ processing facility (LVTSPF)
Permitted Acreage	15 to 20 acres
Building Size	100,000 to 200,000 square feet
Source Separated Tons per Day Capacity	200 T/d
Solid Waste Tons per Day Capacity	500 T/d
Green Waste Tons per Day Capacity	150 T/d
Construction and Demolition Tons per Day Capacity	100 T/d

The current franchise agreement with Waste Connections, the owner/operator of the WERS facility, expires on December 31, 2012. The franchise agreement allows the County to extend the term an additional two years until December 31, 2014. The timing of this Plan effort provides the County an opportunity to plan for a new West Slope facility that meets the County's needs for the next twenty (20) to thirty (30) years or longer.

To meet evolving long-term waste management needs, the WSJPA, or the County, could develop a new West Slope EcoPark. Specifications for the West Slope EcoPark facility are shown in **Table 6-1.**

The new EcoPark concept would be a vibrant and dynamic source separation system that would continuously evolve to accommodate the flexibility, adaptability, and expansion of new products (e.g., textiles and small electrical appliances). The EcoPark would address the County's solid waste management challenges into the future. The following is a list of the facility's elements:

- A fully enclosed building to mitigate noise, odor, and vector issues.

- A full-scale transfer station to service public self-haul and commercial haulers with a capacity of 500 tons per day, with potential for some growth.
- *A proposed Materials Recovery Facility (MRF) designed to accommodate peak self-haul traffic and incorporate newer technologies to recover more recyclable materials* – An EcoPark would have twelve (12) to fifteen (15) self-haul bays to facilitate vehicle flow and provide space to sort and manage individual self-haul loads. The design of the facility would allow for vehicles to easily enter and exit the tipping area.
- *State-of-the-art MRF sort line for processing source separated materials and/or mixed waste with a capacity of 200 tons per day* – An EcoPark would have a MRF sort line capable of processing commingled single stream recyclables (i.e., those collected in the residential, multi-family residential, and commercial recycling programs). The materials sort line also would have the capability to sort recyclable materials from the refuse stream as the WERS does now ("dirty MRF"). This dual purpose MRF sort line would allow the County to maximize its diversion. As the recycling programs mature and County diversion increases, the County would use the sort line less as a "dirty MRF."

  The sort line would provide a "continuous feed" so that materials could be re-run through the system multiple times, and residuals minimized.

  Appendix C provides a discussion of dirty versus clean MRFs, including the strengths and weaknesses of both types and a framework for deciding which facility type the community should include within the West Slope EcoPark.
- *A full scale, state-of-the-art Construction and Demolition (C&D) processing operation with a capacity of 100 tons per day* – The C&D sort line would allow the County to manually remove materials from C&D loads. With this new sort line, sorters would remove materials from an elevated sort line and deposit materials, by material type, into debris boxes located below the sort line.

  The operator would sort discrete materials in advance of materials being delivered to the line. The operator would use front-end loaders and/or excavators to directly separate and deposit larger items requiring little or no processing into debris boxes, by material type.

  Materials sorted by the C&D line would include used building materials (e.g., scrap lumber, doors, windows, plumbing fixtures, and ceramics), concrete, asphalt, roofing materials, bricks, and mixed demolition debris (i.e., metals, wood waste, and bulky material).
- *A full scale green/wood material chipping and grinding operation with a capacity of 150 tons per day* – An EcoPark would have the capability to process incoming green and wood material with chipping and grinding operations. The EcoPark would have a wood grinder for this purpose. The County would use the ground material for alternative uses, including as Alternative Daily Cover (ADC), pressed board, and other uses.
- *A household hazardous waste collection area* – Consistent with the current offerings at the WERS MRF, the EcoPark facility would have a permanent Household Hazardous Waste (HHW) facility with the capability to accept the following materials:
  - Automobile and household batteries
  - Cleaners
  - Fluorescent lights
  - Gasoline
  - Microwave ovens
  - Oils and oil filters
  - Pesticides
  - Pool supplies
  - Propane tanks (small).

- *An e-waste drop off collection area* – Consistent with the current offerings at the WERS MRF, the EcoPark would have a separate designated drop off area for:
  - Answering machines
  - Cathode ray tubes (CRTs)
  - Computers, monitors, and peripherals
  - Copiers
  - CD and DVD players
  - Fax machines
  - Radios
  - Stereo equipment
  - Telephones (standard and cordless)
  - Televisions.
- *A recycling "buy back" center* – the site would have a certified recycling center (RC) with the State of California. The site would buy back various materials, including glass, metals, paper, and plastic.
- *A material re-use area* – The EcoPark would have a designated re-use area with bins and areas to store drop off materials that County customers could come and pickup at no charge (e.g., clothing, furniture).
- *Space for future conversion technologies*
- *A public education center* – The center would allow visual observation of materials management and MRF sort line activities. The County would use the center for school field trips and teaching children about recycling. The County would provide facility tours to the public.
- *An administration building and parking for staff*
- *Scales and scale house*
- *A truck/equipment maintenance center*
- *Adequate parking for rolling stock (transfer trailers and commodity trucks)*
- *Space for a detention pond (bioswale)*
- *Visitor parking*
- *Landscaping*
- *Circulation and maneuverability*
- *An LEED certified design* – The EcoPark would be constructed using sustainable practices and materials, and will be eligible for Leadership in Energy and Environmental Design (LEED) certification. Where possible, the County should use recycled construction materials for the facility including base rock, fiberglass and/or cellulose insulation, wall paneling, bathroom tiles, bathroom partitions, and floor coverings.

Appendix D provides a discussion of the material processing and handling operations for a West Slope EcoPark. This appendix includes a detailed discussion of the operations related to the transfer station, materials recovery, green/wood material chipping, C&D facility, the reuse area, future conversion technologies, hazardous waste facility, self haul areas, and buy back center. The appendix also provides an overview of the ancillary facility requirements (e.g., roads, circulation) and permitting requirements.

The WSJPA, or the County, should have some ownership of the West Slope EcoPark, and contract with a private vendor to operate the facility. Under this public-private model, the WSJPA, or the County, can balance costs and have control over the management and operations of the facility. The WSJPA, or the County, also would have facility continuity into the future, should the operating contract change from vendor to vendor.

If the WSJPA, or the County, is unable to finance the West Slope EcoPark, the WSJPA, or the County, should contract with a private vendor to construct, own, and operate the West Slope EcoPark. Under this scenario, the WSJPA, or the County, would explore opportunities for the private vendor to design and build this facility on County land (similar to the Eastern Resource Recovery Facility in Eastern Placer

County). This scenario would provide the WSJPA, or the County, with some ownership involvement in the property, but leave the facility design, construction, and management to the private sector. In this County land ownership scenario, the WSJPA, or the County, would lease the land to the vendor.

Appendix E provides an overview of a site selection process conducted to identify potential locations for the West Slope EcoPark. The appendix provides a structured process used to identify a short list of eight (8) potential locations for a West Slope EcoPark. Section 2.1 in Appendix E characterizes these eight (8) potential locations as either highly compatible, very compatible, or moderately compatible with County objectives.

Implementation Timing

A West Slope EcoPark likely would take a minimum of approximately five (5) years to complete from the date the WSJPA, or the County, began to prepare an Environmental Impact Report (EIR). If implemented, the WSJPA, or the County, would complete the West Slope EcoPark during Phase 3. **Table 6-2,** above, provides approximate time periods for development phases of a West Slope EcoPark.

Costs/Benefits

The WSJPA, or the County, is in a situation where it will be cautious with expenditures for a new West Slope EcoPark for the following reasons:

- The amount of expected material throughput (e.g., 200 tons per day for recycling) for a West Slope EcoPark is not sufficient to justify over-designing a facility (e.g., one capable of accepting regional flow beyond the County)
- Given the recent recession, and the poor economic conditions, the County wants to minimize ratepayer impacts

Table 6-2
West Slope EcoPark Timeline

Description	Timing
Environmental review – Initial Study Preparation, Completion of Environmental Impact Report (EIR)	18 months
EIR public review and comment	12 months
Development and regulatory permitting, and project design	12 months
Financing and construction	18 months
Tentative operational date	Within 5 years

- The County's population is stable and, based on current trends, is not expected to grow as rapidly as it has in the past.

The WSJPA, or the County, desires the means necessary to effectively manage its integrated waste management needs for the next approximately twenty (20) years. The WSJPA, or the County, faces a challenging balance of developing a fully functional, but relatively affordable, West Slope EcoPark.

Construction costs for a new West Slope EcoPark, even using a cost-effective design, are estimated to be between $24 and $39 million. Total operating and maintenance (O&M) costs for a West Slope EcoPark are estimated to be between $50 and $70 per ton. O&M costs include labor, equipment maintenance, and disposal costs for residue.

The WSJPA, or the County, does not want to overspend on a "white elephant" facility that fails to "pencil out" economically. The WSJPA, or the County, does not necessarily need to invest in a gold-plated "state-of-the-art" facility. A summary of pros and cons of a new West Slope EcoPark are shown in **Table 6-3,** on the next page.

The WSJPA, or the County, likely would need to increase customer rates, and tipping fee charges (for self haul customers), to fund

construction of a West Slope EcoPark. For example, for the recent construction of the $15 million South Tahoe Refuse Resource Recovery Facility (RRF), customer rates increased approximately 12 to 15 percent over three years to fund the facility construction costs.

Currently the WERS facility has a diversion rate of about 33 percent. Over time, the West Slope EcoPark facility diversion could approach approximately 45 to 50 percent of incoming materials. Based on the quantities and composition of disposed waste from West County jurisdictions, a potential increase in recovery of recycled materials of more than 20,000 tons, per year, is possible.

Barriers/Challenges (and Potential Solutions)

Some residents will not want a new facility located next to their property, the not-in-my-backyard (NIMBY) concern. The WSJPA, or the County, would proceed through a comprehensive EIR and permitting process before constructing a West Slope EcoPark.

There are significant costs associated with funding a new West Slope EcoPark. For example, the County has examined the capital requirements for a new West Slope facility in the past, and has yet to commit to such a facility.

To mitigate the capital outlay requirements, facility financing is available through the California Pollution Control Financing Authority (CPCFA). Over the past several years, the CPCFA has loaned approximately $350,000,000 per year on similar California waste management facility projects. Financing rates for CPCFA loans are favorable, with current rates approximately four (4) percent (not including loan origination and other fees).

Table 6-3
West Slope EcoPark
Pros and Cons

Pros	Cons
Increases diversion from the waste stream	Creates challenge with siting a new MRF location
Accommodates potential long-term County growth	Requires $24 to $39 million in new construction costs
Provides additional space for future conversion technologies (a 15 acre site versus the current 10 acre WERS site)	Carries operating costs of $50 to $75 per ton
Improves access for self-haul customers	Depending on future participation, material quantities may be inadequate to justify the capital investment
No longer relies on third-party to process recyclable materials	Potentially duplicates alternative technologies in use (e.g., waste-to-ethanol conversion technology)
Matches facility processing design with predominate future recycling collection method (i.e., cart-based recycling)	Ties facility payback to commodity markets (with cyclical commodity prices, it is difficult to ensure that the County will completely recoup facility costs)
	Necessitates relatively high cost to transport recyclables to end markets once sorted (without the presence of local markets)

In late 2008, commodity prices for recycled materials sales declined significantly. Since that time, commodity prices have recovered to some degree. However, this dramatic fluctuation in commodity prices creates uncertainty in the future markets for recycled materials. As recycled materials sales would be a significant revenue source for the West Slope EcoPark, the WSJPA, or the County, should carefully weigh the future risks of this commodity pricing uncertainty into the economics of the West Slope EcoPark.

With respect to the East Slope, the County jurisdictions recognize that the facility infrastructure on the East Slope is not in need of change through at least the intermediate term planning horizon of this Plan. At this time, the

County is discussing a possible franchise extension with South Tahoe Refuse (STR) for service to unincorporated areas in the Tahoe Basin. The City of South Lake Tahoe has a franchise agreement with STR through 2028.

The County also recognizes that County areas served by Tahoe-Truckee Sierra Disposal Company (TTSD) use an existing Eastern Regional Landfill and Transfer Station in Placer County (a facility with a MRF).

Strategy 3.3 – Re-Open Union Mine Landfill

Description and Rationale

The Union Mine Landfill is the only active, permitted, landfill on the West Slope of El Dorado County. The Union Mine Landfill ceased operating as a public disposal facility in 1996 due to a landslide on the access road. Beginning in 1998, County jurisdictions stopped using the facility for franchised waste disposal. Since that time, the Union Mine Landfill has remained open for disposal of on-site sludge only. The Union Mine Landfill has an active solid waste facility permit (SWFP). A profile of the Union Mine Landfill is shown in **Table 6-4,** above.

Currently, the Union Mine Landfill accepts "sludge cake" from an on-site wastewater treatment plant. The County also collects methane gas from the Union Mine Landfill.

County jurisdictions currently export all of their waste to out-of-County landfills for disposal. For virtually all West Slope areas, franchised haulers consolidate and transfer waste to Potrero Hills Landfill in Solano County. The trip distance is 180 miles roundtrip to Potrero Hills Landfill.

Table 6-4
Union Mine Landfill Profile

Description	Acres	Permitted Capacity (cubic yards)	Status
Class II Expansion	6.0	195,000	Active
Proposed Expansion (1994)	26.5	5,200,000	Proposed
Class III Closed	36.3	–	Closed

County jurisdictions could internalize their waste stream, reduce disposal costs, and minimize environmental impacts from long-hauling refuse to out-of County facilities. In an effort to internalize solid waste, and utilize the existing landfill capacity already present within the County, County jurisdictions should evaluate re-opening the Union Mine Landfill to accept waste transported from the current Western El Dorado Recovery Systems, Inc. (WERS) material recovery facility/transfer station, and/or eventually from a new MRF/transfer station.

Appendix F provides a detailed discussion of the potential use of the Union Mine Landfill. This appendix includes the regulatory requirements, permitting requirements, expansion potential, geotechnical considerations, excavation/fill requirements, site life, facility improvements, access road requirements, and conceptual engineering drawings associated with use of the Union Mine Landfill.

In 2009, following a request for proposal process, the County selected STI Engineering of Silverado to develop a landfill gas utilization project at the Union Mine Landfill. The Environmental Management Department was directed to negotiate a contract for the project to include electricity generation, usage, and revenue sharing. If a contract can be successfully negotiated, STI will use a steam injection process to increase methane gas production at the

landfill. The methane will be used to generate electricity to supply the onsite wastewater treatment plant. It will also be used to generate commodities that will be marketed. Those commodities may include electricity, frozen carbon dioxide/dry ice, and liquid hydrocarbon products. STI Engineering will pay the County royalties on the sale of the commodities. Should the County reopen Union Mine Landfill, the amount of gas collected and converted will substantially increase.

Implementation Timing

In order to use Union Mine Landfill for disposal, the County could:

1. Initially utilize the Unit 1 area "active" area (150,000 cubic yards of capacity)
2. Obtain permits for and begin to utilize, the Unit 2 area (currently closed) to use when the Unit 1 area is full. This additional capacity could take the County through 2040 and beyond. The Union Mine Landfill obtained CEQA clearance for this expansion in 1994
3. Consider other expansion capabilities for the landfill. The Union Mine Landfill has substantial increased capacity potential
4. Evaluate access road improvement or new alternatives
5. Conduct environmental review and design a new access road
6. Construct road improvements or a new access road.

Costs/Benefits

A summary of pros and cons of a reopening the Union Mine Landfill are shown in **Table 6-5.** There are costs associated with obtaining additional permitted capacity for the Union Mine Landfill (permit, design, engineering, construction). There are costs associated with designing and constructing a new access road.

Table 6-5
Re-Opening Union Mine Landfill
Pros and Cons

Pros	Cons
Results in lower overall tipping fee (including combined transfer, transport, and landfill disposal)	Requires access road improvements which could cost between $5 to $10 million
Provides County with greater control over costs, fees, and risks associated with managing the County's solid waste system	Necessitate costs to improve and expand the Union Mine Landfill of between approximately $13 and $76 per ton of landfill capacity depending on the scenario (see Table F-4 in Appendix F)
No longer relies on third-party to accept landfill County waste, and charge tipping fee	Requires regulatory and permitting hurdles (e.g., EIR process)
Eliminates long-haul transportation costs for transporting refuse to out-of-County facility (problematic with current diesel fuel prices of $4 per gallon)	Increasing overall system operations and maintenance costs for Union Mine Landfill
Would enhance gas-to-energy capabilities (STI Engineering)	Creates potential risk of liability to County from operating and managing an active landifll
Provides ability of County to generate usage fees	
Avoids future potential requirement to pay for green house gas emission credits for long-haul emissions (not in affect yet)	

County jurisdictions likely would be able to fund some recycling programs through tipping fees charged on waste entering Union Mine Landfill. The County jurisdictions would increase methane gas collection using the system already onsite, a potential source of revenue to offset facility operating costs.

Also, County jurisdictions would not be beholden to other landfill owner/operators fees for disposal. The County may be able to market the facility to other jurisdictions to realize some economies of scale at the Union Mine Landfill.

By keeping the waste disposal local, the County jurisdictions would: (1) save costs to consolidate material at the transfer station, and (2) save long-haul transportation costs (of particular importance in light of recent fuel prices). County jurisdictions also would minimize environmental impacts (i.e., pollution) currently associated with long-hauling the waste out-of-County. Finally, the County jurisdictions should expect to employ additional workers to operate the re-opened landfill.

Barriers/Challenges (and Potential Solutions)

There is a high school on Union Mine Road, the current access road to the Union Mine Landfill. This access road is a two-lane rural road that is narrow, steep, and winding. The access road is not ideally suited for heavy truck use. Use by collection trucks would conflict with high school vehicle traffic and other neighborhood vehicle traffic. To mitigate for these access road limitations, the County should design and construct a new access road to Union Mine Landfill.

As another measure for mitigating traffic congestion in the area, the County jurisdictions should not use Union Mine Landfill for self-haul loads. The County jurisdictions also should carefully plan traffic patterns to limit the number of trucks per hour entering the facility.

The County should use cells with sophisticated liner and leachate collection systems in conformance with Subtitle D requirements. As another protective measure, the County should continue to plug on-site mines to minimize the potential for accidental discharges of contaminated groundwater to mine openings located on the site.

Waste Connections currently uses Potrero Hills Landfill. On a per ton basis, this larger regional landfill may provide lower landfill tipping fees in comparison to the landfill tipping fees the County may have to charge at Union Mine Landfill. This landfill tipping fee difference may be most evident during periods when the County jurisdictions are amortizing new capital outlays for Union Mine Landfill upgrades. The County jurisdictions would need to demonstrate that the net overall system costs (including consolidation, transportation, and disposal) are more favorable to the County jurisdictions over the long-term.

As the County jurisdictions currently export all of their waste, the County jurisdictions do not have to manage the potential environmental impacts of continued use of Union Mine Landfill. However, out-of-County residents may object in the future to taking another County's waste which may jeopardize the export option for El Dorado County.

Strategy 3.6 – Plan for Conversion Technologies, if Economical and Operationally Feasible

Description and Rationale

The County is working towards being able to take advantage of increases in methane gas-to-energy conversion at Union Mine Landfill. If a contract is established with STI Engineering, the County should periodically reevaluate the contract to determine if the company is meeting the County's intended methane gas conversion goals.

The County jurisdictions should consider additional options for conversion technologies throughout the 20-year planning horizon. At this time, there are a range of different conversion technologies in the early stages of development and acceptance in California. The County jurisdictions believe that conversion technologies have a place within the County's solid waste management system over the long-term should these technologies become more cost-effective than they are today, and when these technologies are shown to work for small to medium-sized waste management systems in California.

The County jurisdictions should consider a range of different conversion technologies in the following areas:

Thermal chemical

- Combustion
- Gasification
- Pyrolysis

Biochemical

- Anaerobic digestion
- Anaerobic digestion/composting
- Fermentation

Physiochemical

- Biodiesel.

In evaluating each conversion technology option, the County jurisdictions should consider the following factors:

- AB 32 greenhouse gas reductions
- Community support
- Cost-benefits compared with traditional disposal methods
- Level of technology development (pilot phase, demonstration phase, or commercial phase)
- Permitting
- Power generation/value of electricity (e.g., for technologies generating electricity)
- Risks
- Site availability and size
- Waste diversion credits
- Waste stream flow control.

At this time, the County jurisdictions are closely monitoring the following conversion technology efforts in California:

- City of Los Angeles – considering an 800 tons per day plant
- County of Los Angeles – considering three conversion technology plants ($200 million following impending closure of Puente Hills Landfill; three vendor finalists for alternative technologies
- Salinas Valley Waste Management Authority – negotiating with two vendors.

As an example of one technology the County jurisdictions are interested in, County jurisdictions recently reviewed a proposal from Organic Energy Corporation (OEC) to use a "landfill in a box" system whereby black bin post-source separated waste (i.e., mixed municipal solid waste) is sorted into nineteen (19) constituent streams for processing. The processing includes both a wet stream (processed with anaerobic digestion) and dry stream. Each constituent stream is processed using proven, available technologies. The OEC believes that about two-thirds of the waste stream can be diverted. Under its proposal, the OEC fully finances the facility costs and only requires that the jurisdiction furnish its waste. Currently the size of the County's West Slope waste stream (300 tons per day) is not sufficient to make this technology economically viable (the OEC targets 1,000 to 1,500 tons per day); however, the County jurisdictions should closely monitor how this technology matures over time and whether the "landfill in a box" concept becomes an option.

In December 2010, Waste Connections announced that they will provide sorted municipal solid waste from the WERS facility in the County to a planned conversion facility near Reno, Nevada. The proposed Sierra BioFuels facility will convert 90,000 tons of organic waste material into 10.5 million gallons of ethanol per year. The facility is reportedly finalizing funding sources, and plans to be operational in 2012. This facility could significantly impact solid waste management in the County, potentially utilizing a third, or approximately 100 tons per day, of material captured by Waste Connections.

To keep up with this rapidly evolving field, the County jurisdictions should update the conversion technologies portion of this Plan at five (5) year intervals to ensure that the Plan reflects the most current thinking on conversion technologies. **Appendix G** provides a more detailed discussion of the current status of conversion technologies. A key alternative to consider, in the event that the WSJPA, or the County, pursues the EcoPark facility described in Strategy 3.2, would be to co-locate future green-fuel preparation facilities, such as shredders and driers, at the EcoPark to facilitate future conversion technologies at or near the EcoPark.

Implementation Timing

The County views use of these technologies as a long-term waste management option, potentially for use during the 2026, and beyond, timeframe.

Costs/Benefits

Conversion technology facilities can cost tens of millions of dollars, depending on the technology. Operating costs are between $15 and $100 per ton, depending on the size of the facility and the technology. Based on the size of the waste management system on the West Slope (300 tons per day), operating costs likely would be on the higher end of this range, making use of alternative technologies prohibitive in the short-term. For the County jurisdictions to use alternative technologies to manage its waste in the future, the unit operating costs would need to decrease, substantially.

Conversion technologies have the benefit of minimizing the potential impacts from landfill disposal and minimizing the costs associated with consolidating and hauling materials from a transfer station to a landfill. Conversion technologies can also provide a revenue source (e.g., from sale of electricity).

Barriers/Challenges (and Potential Solutions)

One of the critical factors for use of conversion technologies today is the size, or scale, of the waste management system. For larger systems, there are greater “economies of scale” for which to spread the capital and operating costs of these conversion technology facilities.

Other countries have demonstrated use of conversion technologies for waste management. However, in many cases these conversion technology facilities have some form of subsidy to facilitate their development and use (e.g., higher prices than market rates paid for electricity generated by the facility).

The County does not have such a large scale system, nor does it enjoy subsidies for these facilities, making current use of conversion technology facilities economically challenging. Where possible, the County jurisdictions should consider combining the waste stream with other waste streams in the County (e.g., from the waste water treatment facility) and waste streams outside of the County to increase economies of scale.

The WSJPA, or the County, may build a new West Slope MRF/transfer station at some point in the next ten (10) years, if the WSJPA, or the County, determines this is the most cost effective long-term facility solution. This large capital outlay over the intermediate-term conflicts with funding another similar-sized investment in a new conversion technology facility. Where possible, the WSJPA, or the County, should provide physical locations on the West Slope EcoPark, or Union Mine Landfill, to place future scalable conversion technology systems should they become feasible and cost-effective. The WSJPA, or the County, also should continuously explore public-private partnerships for alternative facility development to mitigate the future need for overlapping large capital outlays.

Strategy 3.7 – Enhance County Composting Facility to Manage Diverted Food Waste and Other Organics

Description and Rationale

In February 2011, CalRecycle released a *Draft Program Environmental Impact Report (EIR) for Statewide Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste*. This EIR is part of CalRecycle's broader effort to reduce the amount of organics in the wastestream by 50 percent by 2020, support AB 32 measures related to the use of anaerobic digestion, and assist local governments and state agencies by providing analyses that will assist in the eventual development of anaerobic digester facilities.

As identified in Strategy 2.12 and Strategy 2.16, County jurisdictions should implement residential and commercial food waste collection programs. To process food waste material, the WSJPA, or the County, should modify its proposed Western El Dorado County Composting Facility to accept food waste in addition to green waste for composting.

For this future upgrade to the proposed composting facility, the WSJPA, or the County, should evaluate the availability and cost-competitiveness of using in-vessel aerobic or anaerobic composting technologies versus traditional windrows technologies. In particular, the WSJPA, or the County, should keep apprised of CalRecycle efforts related to anaerobic digesters.

Implementation Timing

The WSJPA, or the County, should consider upgrading the proposed Western El Dorado County Composting Facility during Phase 3.

Costs/Benefits

The capital costs to add upgrades to the Western El Dorado County Composting Facility to accept food waste are estimated at $1 to $3 million. Offsetting the costs, the County should minimize landfilling of foodwaste. The County would increase its diversion levels. The facility would allow the WSJPA, or the County, to create a high-quality, and rich, composting material, and potentially fuel, for use by County residents and businesses.

Barriers/Challenges (and Potential Solutions)

Upgrading the Western El Dorado County Composting Facility to accept food waste creates some challenges. Food waste generates offensive odors and can attract vectors such as flies, birds, bears, or vermin. Food wastes have higher water content. Consequently, the WSJPA, or the County, should:

- Revisit its CEQA documentation
- Resubmit its Solid Waste Facilities Permit (Compostable Materials Handling Permit), including its Odor Impact Minimization Plan (OIMP)
- Revisit Waste Discharge Requirements from the regional water quality control board
- Revisit air quality permits
- Revisit NPDES permits.

Strategy 3.8 – Renovate South Lake Tahoe (SLT) Material Recovery Facility and Transfer Station to Accept Single Stream Recyclables

Description and Rationale

When the South Lake Tahoe (SLT) Material Recovery Facility (MRF) and Transfer Station was developed in 1995, and expanded starting in 2002, South Lake Tahoe Refuse Company (STR) determined that a mixed waste or "dirty" MRF

was the most effective alternative for the South Lake Tahoe market region. STR has implemented blue bag recycling at their current facility, and currently recovers approximately 4,000 tons of recyclable materials per year from their California operations (unincorporated and incorporated South Lake Tahoe). Within the Phase 3 time period, the County and STR may consider shifting to a single stream collection system for recyclable materials, with carts.

Implementation Timing

During Phase 3, STR should evaluate the current collection infrastructure, sorting technologies, material quality, and other relevant factors and determine whether shifting to a cart-based single stream recycling would be more effective, and/or more economical.

Costs/Benefits

There would be additional processing costs to shift to a single stream collection processing line of approximately $2 to $5 million for a new sort line. Single stream recycling has been shown to result in increased diversion as well as increased quality of diverted materials as compared to mixed waste processing.

Barriers/Challenges (and Potential Solutions)

The primary challenge related to this strategy is the cost of modifying the current MRF line to handle single stream material. There would also be expenses related to shifting to cart-based collection. To the extent that these changes are implemented to replace aging equipment, these expenses would be minimized.

D. Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs and Services

Strategy 4.2 – Develop South Lake Tahoe MRF/Transfer Station, West Slope EcoPark and Union Mine Landfill Fees

Description and Rationale

In addition to rate funding the new programs and services (described in Strategy 4.1), the County may develop or modify facilities, such as updating the South Lake Tahoe MRF/Transfer Station, developing a West Slope EcoPark, and re-opening Union Mine Landfill. Should the County (or private partners) undertake these major infrastructure improvements, the County should implement new tipping fees.

These tipping fees should fully reflect the cost of service to manage materials from tipping at the new facilities, to consolidation, and finally transfer to the Union Mine Landfill (or other landfill), or for material other than refuse, to other markets and end users. The County should develop these fees for self-haul customers and franchised customers.

Implementation Timeline

The South Lake Tahoe Basin Waste Management Authority would establish a new South Lake Tahoe MRF/Transfer Station tipping fee when (and if) the facility is upgraded to handle single stream recyclables.

The County should establish a Union Mine Landfill tipping fee if (and when) the facility is open to accept waste for disposal. The County should charge a calculated per ton rate to franchised haulers using the facility.

The WSJPA, or the County, should establish a West Slope EcoPark tipping fee if (and when) the facility is open to accept material for

processing. The County should charge a calculated per ton rate to all customers (franchised and self-haul) using the facility.

Costs/Benefits

These fees are necessary to operate these facilities. These fees essentially would be reflected in the rates charged to County customers.

There are offsetting cost-savings resulting from a new focus on internalizing the solid waste managed within the County. Currently, West Slope area refuse in transferred into long-haul trailers and then transported 180 miles roundtrip to Potrero Hills in Solano County. The County could save an estimated $5 to $10 per ton in hauling costs by direct hauling refuse from collection routes to Union Mine Landfill (avoiding use of transfer trailers and long-haul trip costs).

Barriers/Challenges (and Potential Solutions)

The County has historically focused on minimizing rate increases to its residents and businesses. However, in order to meet the future waste management needs, the County recognizes that rate increases may be unavoidable. The County should consider phasing-in rate increases, in advance of actual construction of new facilities, to pre-fund facility construction. To mitigate rate impacts, where possible the County also should amortize (rate fund) facility costs (e.g., financing costs) over the useful life of the facility.

Strategy 4.3 – Add Administrative Fee to Future Union Mine Landfill Tipping Fee

Description and Rationale

The County envisions that it may develop an administrative fee charged on all waste disposed at the SLT or West Slope EcoPark, should these facilities be developed. For example, if the Union Mine Landfill is re-opened, the County initially could set the administrative fee at approximately $1.00 per each ton of refuse sent to the Union Mine Landfill.

Implementation Timeline

The County should establish these fees only if the accompanying facilities are developed. Such development is not likely to occur until Phase 3.

Costs/Benefits

The County should use this administrative fee as an offset to the costs of some of the diversion-related programs proposed in this Plan. This fee revenue should allow the County to manage programs (e.g., outreach and education) with a clear nexus to waste management programs and services identified in this Plan.

Barriers/Challenges (and Potential Solutions)

The County has historically minimized the magnitude, and extent, of additional fees charged to County customers. This administrative fee should only be used for activities identified in this Plan and will not be used for County general fund purposes.

Strategy 4.4 – Increase Union Mine Landfill Methane Gas Production

Description and Rationale

If Union Mine Landfill were reopened to the maximum extent possible and accept 100,000 tons of refuse per year for disposal, an additional estimated 0.08 MW of electricity or 43,000 cubic feet per day of landfill gas (LFG) could be generated.

Union Mine LFG is currently incinerated in a flare and microturbines. The microturbines produce electricity used by the wastewater treatment plant. The County currently contracts with Field Solutions to maintain the landfill gas collection system. If a contract is established with STI Engineering, STI would maintain the LFG collection system.

Implementation Timeline

The Union Mine Landfill is already set up to collect landfill gas so this could be source of revenue with a relatively minimal cost.

Costs/Benefits

The costs and benefits of increased methane gas collection would depend on the relevant economics at that time.

Likely additional revenues could offset power costs for the neighboring County wastewater treatment plant and potentially also the operating costs of the Union Mine Landfill.

Barriers/Challenges (and Potential Solutions)

There are no significant barriers for maximizing this revenue source.

Appendix A

Background for El Dorado County Population and Waste Projections 2010 to 2030

Appendix A
Background for El Dorado County Population and Waste Projections 2010 to 2030

This Appendix provides additional detail on the population projection methodology, as well as waste projection data and results.

A. Population Projection Methodology

The population projections provided in Tables 2-1 and A-1 are based on four data sources:

- The 2010 California Department of Transportation (Caltrans) El Dorado County Economic Forecast
- SACOG Regional Analysis District population projections
- El Dorado Hills Community Services District population estimates and master plan build-out
- California Department of Finance (DOF) population data for the county and for South Lake Tahoe.

The projection methodology utilized several different approaches. As a starting point, the 2005 total county population is based on DOF actual population, with regional population in 2005 based on SACOG and Tahoe Basin data. Total county population in 2010 is also based on actual DOF population data.

Next, total county population growth is based on Caltrans projections for county population through 2030. These data are based on a demographic model used by Caltrans and prepared by the California Economic Forecast Project (CEFP). The CEFP has prepared forecast data for Caltrans for planning purposes for the last ten years. Because the Caltrans data is more recent (2010), it takes the impact of the recession into account, and is more conservative than DOF or SACOG projections that date back to 2007.

The Caltrans data projects that by 2030 total county population will be 209,923. The projections utilize actual DOF county population data in 2005 and 2010, with 2010 population at 182,019.

The overall county growth figures cannot be applied equally to each region of the county, because some regions are expected to grow rapidly, and others to have minimal growth. The projections use three different approaches to project growth within each region.

1. For El Dorado Hills, the projection utilizes actual SACOG 2005 population of 31,222, EDHCSD estimate of 36,000 in 2010, EDHCSD Master Plan estimate

of 60,000 for total build out (plus some additional build out), and compound annual growth rates (CAGR) calculated from the SACOG and actual data. The projections apply the CAGR of 2.89 percent from the period 2005 to 2010 to estimate population through 2017, and then apply a slightly lower 2.0 percent CAGR from the SACOG data for the period from 2018 to 2030. This figure results in a population of 57,344 for El Dorado Hills in 2030

2. For the South Lake Tahoe region, the projections calculate an actual CAGR for the ten years 2001 to 2010, using DOF data for the City of South Lake Tahoe and apply that rate going forward. South Lake Tahoe's population has been relatively stable over the last few years, and is expected to grow just slightly, going forward
3. For the Tahoe Basin Area, the projections draw on Tahoe Basin data to estimate 2010 population at 7,000, and use the SACOG growth rates for Mt. Aukum-Grizzly Flat to project growth
4. For the remaining six[1] regions, the projections utilize the SACOG data to determine each region's share of county growth within the SACOG data for three time periods covered in the SACOG data: (1) 2005 to 2013, (2) 2013 to 2018, and (3) 2018 to 2035. The projections then determine the amount of growth between each of our projection years (2005 to 2010, 2010 to 2015, etc.), subtracted out the growth for the three pre-determined regions (El Dorado Hills, Tahoe Basin Area, and South Lake Tahoe), and then split the remaining growth between the six regions based on the percentage share of growth for the closest SACOG data. For example, between 2010 and 2015, the amount of growth not accounted for by the three pre-determined regions is 769. Greater Placerville is estimated to account for just under 16 percent of the growth in that time period (using SACOG 2005 to 2013 data), for a population increase between 2010 and 2015 of 123 (123 = 15.98% × 769). The projections apply this method to each of the six regions to project population in 2010, 2015, 2020, and 2030.

B. Waste Disposal and Diversion

Waste disposal estimates for the County were based on tons per person for the unincorporated county,[2] City of Placerville, and City of South Lake Tahoe, calculated from the average of CIWMB (now CalRecycle) waste disposal data divided by DOF population data for 2004 through 2008. The projections then multiply tons per person by population estimates for each region and are summed to determine total projected waste disposal. Pounds per person per day at 50 percent were calculated from CalRecycle targets, using these figures to calculate targets at 60 percent and 75 percent diversion, and then determining waste generation at those levels based on the estimated populations.

Table A-2, on page A-3, provides the pounds per person per day targets for each region for the three diversion targets. **Table A-3,** on page A-3, provides the corresponding tons per person and total tons at disposed targets at 60 percent diversion in 2015, and 75 percent diversion in 2020 and beyond. Based on these estimates, all regions exceed the 50 percent diversion requirement in 2010.

[1] For Cameron Park, which has an estimated current population of "over 15,000", and a master plan projection of 600 additional units, we compared a population projection using specific CPCSD calculations to the method described here. The two methods resulted in similar population projections for 2030, thus we utilized the same method as for the other five remaining regions.

[2] We determined a separate tons per person for the Tahoe Basin Area based on unincorporated County exports, as only Tahoe Basin Area waste is exported out of state (to Nevada).

Table A-1
El Dorado County Population Estimates By Region (2005 to 2030)

Region	2005	2010	2015	2020	2025	2030	Growth 2010 to 2020	Growth 2020 to 2030
Northwest County	21,092	21,136	21,203	21,413	21,581	21,598	1.3%	0.9%
El Dorado Hills	31,222	36,000	41,511	47,042	51,938	57,344	30.7%	21.9%
Cameron Park	13,629	14,786	14,988	15,620	15,770	15,786	5.6%	1.1%
West Central County	40,635	43,025	43,402	44,582	45,462	45,553	3.6%	2.2%
Mt. Aukum-Grizzly Flat	13,950	13,993	13,999	14,017	14,268	14,294	0.2%	2.0%
Greater Placerville	18,415	18,818	18,941	19,326	19,852	19,906	2.7%	3.0%
El Dorado High Country	3,147	3,174	3,168	3,151	3,263	3,275	-0.7%	3.9%
Tahoe Basin Area	6,993	7,000	7,033	7,055	7,076	7,098	0.8%	0.6%
South Lake Tahoe	23,904	24,087	24,329	24,573	24,820	25,069	2.0%	2.0%
Total	172,987	182,019	188,574	196,779	204,030	209,923	8.1%	6.7%

Table A-2
Pounds per Person per Day Diversion Targets by El Dorado County Region

Region	Pounds per person per day at 50%	Pounds per person per day at 60%	Pounds per person per day at 75%
Northwest County	5.3	4.2	2.7
El Dorado Hills	5.3	4.2	2.7
Cameron Park	5.3	4.2	2.7
West Central County	5.3	4.2	2.7
Mt. Aukum-Grizzly Flat	5.3	4.2	2.7
Greater Placerville	6.9	5.5	3.5
El Dorado High Country	5.3	4.2	2.7
Tahoe Basin Area	5.3	4.2	2.7
South Lake Tahoe	9.4	7.5	4.7

Table A-3
Disposal Targets and Tons by El Dorado County Region (50% in 2010; 60% in 2015; and 75% 2020 and later)

Region	Tons per person at 50%	Tons per person at 60%	Tons per person at 75%	2010 @65%	2010 @50%	2015 @60%	2020 @75%	2025 @75%	2030 @75%
Northwest County	0.97	0.77	0.49	14,044	20,443	16,251	10,550	10,632	10,641
El Dorado Hills	0.97	0.77	0.49	23,922	34,821	31,819	23,180	25,593	28,256
Cameron Park	0.97	0.77	0.49	9,826	14,302	11,488	7,697	7,771	7,779
West Central County	0.97	0.77	0.49	28,591	41,616	33,268	21,968	22,402	22,446
Mt. Aukum-Grizzly Flat	0.97	0.77	0.49	9,299	13,535	10,731	6,907	7,031	7,044
Greater Placerville	1.26	1.00	0.64	11,068	23,697	19,012	12,345	12,681	12,715
El Dorado High Country	0.97	0.77	0.49	2,109	3,070	2,428	1,553	1,608	1,614
Tahoe Basin Area	0.97	0.77	0.49	7,378	6,771	5,391	3,476	3,487	3,498
South Lake Tahoe	1.72	1.37	0.86	33,484	41,321	33,300	21,078	21,289	21,503
Total				139,721	199,576	163,688	108,754	112,494	115,496

Table A-4
Additional Diversion by Region to achieve 60% in 2015 and 75% in 2020 and beyond

Region	2015	2020	2025	2030
Northwest County		3,688	3,718	3,720
El Dorado Hills		8,103	8,946	9,878
Cameron Park		2,690	2,716	2,719
West Central County		7,679	7,831	7,847
Mt. Aukum-Grizzly Flat		2,415	2,457	2,462
Greater Placerville				
El Dorado High Country		542	562	564
Tahoe Basin Area	2,022	3,960	3,971	3,983
South Lake Tahoe	517	13,079	13,211	13,343
Total	2,539	42,157	43,413	44,517

Table A-4, above, estimates the additional diversion, by region, to meet the 60 percent and 75 percent diversion targets. Meeting a 75 percent diversion target in 2020 will require that the County divert over 42,000 tons of waste, as compared to 2010.

Exhibit A-1, on the next page, provides diversion summaries for the County overall, and various jurisdictions. These data are based on DOF population data for the City of Placerville, El Dorado Unincorporated, City of South Lake Tahoe, and the total County. The El Dorado Hills and Cameron Park per person data are based on NewPoint Group population estimates for those regions. The disposal and diversion data are based on CalRecycle data and diversion/ disposal reports provided by El Dorado Disposal and South Tahoe Refuse Company from the MRF/Transfer Station facilities.

Exhibit A-1 provides actual green waste, C&D, and recycling diversion estimates for each region. These estimates, and the resulting percent diversion, are lower than the 50 percent diversion mandate because they reflect actual physical materials diverted at County facilities. These facility diversion rates do not incorporate waste reduction activities. The County's equivalent diversion rate percentage, based on per capita waste generation, is higher.

Exhibit A-1
El Dorado County Diversion Summaries (2007 to 2009, in tons)

Total County

Category	2007	2008	2009
Green Waste	15,753	16,226	15,175
C&D	43,066	39,550	32,507
Recycling	23,033	22,914	21,782
Total Material Diversion	81,852	78,690	69,464
Population	177,712	179,373	180,713
Diversion/person	0.46	0.44	0.38
GW/person	0.09	0.09	0.08
C&D/person	0.24	0.22	0.18
Recycling/person	0.13	0.13	0.12
Disposal	162,573	173,725	144,083*
Total Actual	244,425	252,415	213,547
% Material Diversion	33%	31%	33%
Disposal tons/person	0.91	0.97	0.80

*2009 disposal figure is preliminary

City of South Lake Tahoe

Category	2007	2008	2009
Green Waste	–	–	–
C&D	30,097	22,792	14,218
Recycling	3,237	3,530	3,235
Total Material Diversion	33,334	26,322	17,453
Population	23,814	23,919	23,966
Diversion/person	1.40	1.10	0.73
GW/person	–	–	–
C&D/person	1.26	0.95	0.59
Recycling/person	0.14	0.15	0.13
Disposal	48,021	46,767	37,923
Total Actual	81,355	73,089	55,376
% Material Diversion	41%	36%	32%
Disposal tons/person	2.02	1.96	1.58

El Dorado Hills (using population estimates)

Category	2007	2008	2009
Green Waste	6,703	5,766	4,799
C&D	2,132	2,542	1,997
Recycling	6,866	7,123	4,397
Total Material Diversion	15,701	15,431	11,193
Population	33,133	34,089	35,044
Diversion/person	0.47	0.45	0.32
GW/person	0.20	0.17	0.14
C&D/person	0.06	0.07	0.06
Recycling/person	0.21	0.21	0.13
Disposal	18,685	17,174	12,623
Total Actual	34,386	32,605	23,816
% Material Diversion	46%	47%	47%
Disposal tons/person	0.56	0.50	0.36

Unincorporated County (Including El Dorado Hills and Cameron Park)

Category	2007	2008	2009
Green Waste	15,067	15,464	13,656
C&D	12,368	15,208	15,943
Recycling	18,698	18,063	15,942
Total Material Diversion	46,133	48,735	45,541
Population	143,617	145,109	146,345
Diversion/person	0.32	0.34	0.31
GW/person	0.10	0.11	0.09
C&D/person	0.09	0.10	0.11
Recycling/person	0.13	0.12	0.11
Disposal	106,454	117,307	100,150
Total Actual	152,587	166,042	145,691
% Material Diversion	30%	29%	31%
Disposal tons/person	0.74	0.81	0.68

Exhibit A-1
El Dorado County Diversion Summaries (2007 to 2009, in tons) *(continued)*

Cameron Park (using population estimates)

Category	2007	2008	2009
Green Waste	1,750	1,870	2,304
C&D	919	1,126	1,161
Recycling	3,144	2,649	2,548
Total Material Diversion	5,813	5,645	6,013
Population	14,952	15,184	15,416
Diversion/person	0.39	0.37	0.39
GW/person	0.12	0.12	0.15
C&D/person	0.06	0.07	0.08
Recycling/person	0.21	0.17	0.17
Disposal	15,485	15,743	10,661
Total Actual	21,298	21,388	16,674
% Material Diversion	27%	26%	36%
Disposal tons/person	1.04	1.04	0.69

Unincorporated County (Excluding El Dorado Hills and Cameron Park)

Category	2007	2008	2009
Green Waste	6,614	6,024	6,552
C&D	9,318	11,540	12,745
Recycling	8,697	8,291	8,997
Total Material Diversion	24,629	25,855	28,294
Population	95,532	95,836	95,885
Diversion/person	0.26	0.27	0.30
GW/person	0.07	0.06	0.07
C&D/person	0.10	0.12	0.13
Recycling/person	0.09	0.09	0.09
Disposal	72,284	84,390	76,866
Total Actual	96,913	110,245	105,160
% Material Diversion	25%	23%	27%
Disposal tons/person	0.76	0.88	0.80

City of Placerville

Category	2007	2008	2009
Green Waste	686	763	1,529
C&D	600	1,550	2,345
Recycling	1,098	1,321	2,605
Total Material Diversion	2,384	3,634	6,479
Population	10,281	10,349	10,402
Diversion/person	0.23	0.35	0.62
GW/person	0.07	0.07	0.15
C&D/person	0.06	0.15	0.23
Recycling/person	0.11	0.13	0.25
Disposal	8,098	9,651	6,010
Total Actual	10,482	13,285	12,489
% Material Diversion	23%	27%	52%
Disposal tons/person	0.79	0.93	0.58

Sources: DOF for population data for City of Placerville, El Dorado Unincorporated, City of South Lake Tahoe, and County. NPG Estimates for Cameron Park and El Dorado Hills. El Dorado Disposal Service MRF Diversion Reports and South Lake Tahoe Refuse Company Diversion by Material Reports for diversion data. CalRecycle Disposal by Jurisdiction Reports for disposal for unincorporated El Dorado County, Placerville, and City of South Lake Tahoe, and El Dorado Disposal Service MRF Diversion Reports for Cameron Park and El Dorado Hills.

Appendix B

Future West Slope EcoPark
Facility Size and Conceptual Layout

Appendix B
Future West Slope EcoPark Facility Size and Conceptual Layout

Table B-1, on page B-2, provides a square footage breakdown for the proposed EcoPark facilities and ancillary amenities. The total facility area requirement for the MRF/Transfer Station[1] is 80,000 square feet (sq. ft.), which includes, but is not limited to, an 8,300 sq. ft. MSW tipping area, a 2,500 sq. ft. tipping area for recyclables, and a self-haul tipping area with 15 stalls totaling approximately 27,000 sq ft. The facility area requirement for the Construction and Demolition (C&D) facility is 23,000 sq. ft., which includes a 500 sq. ft. tipping area. The facility area requirement for the green/wood material chipping and grinding operation is 30,000 sq. ft. The conceptual plan also includes flexibility in planning for additional services in the future.

The EcoPark site needs to be at least 15 acres to accommodate all of the features described in Strategy 3.2. **Figure B-1,** on page B-3, provides a draft conceptual site layout with space for circulation, operations maneuverability, and potential expansion. The primary purpose of this conceptual plan layout is to determine the amount of land required for the EcoPark. Figure B-1 represents a conceptual scenario for use in high-level budgeting and planning purposes. Further design would be necessary to finalize the site layout once additional details, and a suitable site, are available.

[1] The EcoPark would include a "clean" MRF.

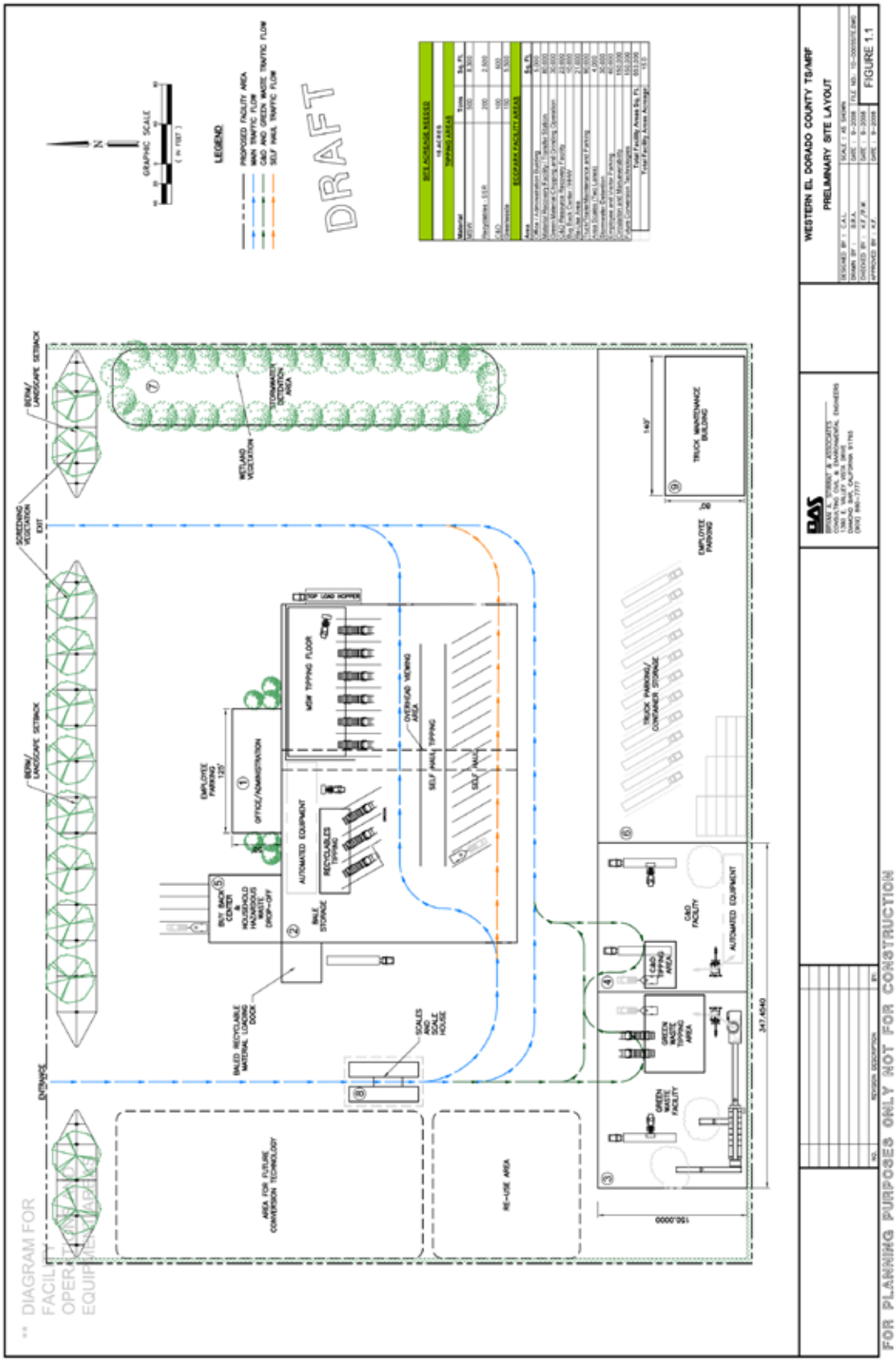
Table B-1
Western El Dorado County
Future West Slope EcoPark Requirements
Facility Area Requirements

Site Acreage Needed	15 Acres

	Material	Tons Per Day	Sq. Ft.
Tipping Areas	MSW	500	8,300
	Greenwaste	150	5,500
	Recyclables	200	2,500
	C&D	100	500

	Area	Sq. Ft.
EcoPark Facility Areas	Circulation and Manueverability	150,000
	Future Conversion Technologies	150,000
	Truck/Trailer Maintenance and Parking	90,000
	Material Recovery Facility / Transfer Station	80,000
	Employee and Visitor Parking	60,000
	Green Material Chipping and Grinding Operation	30,000
	Stormwater Detention	30,000
	C&D Resource Recovery Facility	23,000
	Re-Use Area	21,000
	Buy Back Center / HHW	10,000
	Office / Administration Building	5,000
	Area Scales (Two Lanes)	4,000
	Total Facility Areas Sq. Ft.	653,000
	Total Facility Areas Acreage	15.0

Figure B-1
Preliminary Site Layout



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Appendix C

Clean Versus Dirty Material Recovery Facilities

Appendix C
Clean Versus Dirty Materials Recovery Facilities

A. Overview of Clean Versus Dirty Materials Recovery Facilities

Material Recycling Facilities (MRFs) are facilities where waste is deposited, sorted, and separated. MRFs sort and separate materials to create products that meet defined specifications, which are then marketed. This is achieved, particularly in a clean MRF, by sorting the collected material into specific waste streams and removing contaminant materials. MRFs are classified as either "clean MRFs," which process source-separated material to recover recyclables, or "dirty MRFs," which recover recyclable materials, and/or a compostable fraction from unsorted municipal solid waste (MSW).

A "clean MRF" accepts commingled recyclables that have already been separated at the source from MSW. Clean MRF configurations vary depending on the incoming flow levels, the sizing requirements, and degree of mechanical or manual processes desired. The most common clean MRF is a "single stream" clean MRF, where all of the mixed recyclables are processed together through a series of separation steps. A "dual stream" MRF processes source-separated recyclables using different steps depending on the type of materials delivered (i.e., in the case where containers are source-separated from fiber materials).[1]

Generally, a clean MRF can recover more than 90 percent of the incoming recyclable material. Differences in clean MRF recovery percentages generally are driven by citizen participation levels and the capabilities of the MRF separation processes. Residuals, or the non-recyclable materials, remaining from a clean MRF process are typically transferred to a landfill for disposal.

A "dirty MRF" processes a mixed, non source-separated, municipal solid waste stream (called residual waste or "black bin" or "black bag" waste). A dirty MRF separates recyclable materials from the mixed MSW stream using manual and mechanical sorting techniques.[2] A dirty MRF can recover up to 45 percent of the incoming MSW material. The remaining residuals from the dirty MRF process are typically transferred to a landfill for disposal.

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[1] Dual stream systems require customers to separate recyclable materials into more than one container or a two-sided container.

[2] Sorted recyclable materials may undergo further processing to meet end user technical specifications.

B. Clean MRF and Dirty MRF Strengths and Weaknesses

A dirty MRF is theoretically capable of higher recovery rates than a clean MRF, since the dirty MRF ensures that 100 percent of the waste stream is subject to sorting. In some cases, the dirty MRF can target more materials for recovery than may be accommodated from sorting at the source. A dirty MRF process is, however, more labor-intensive than a clean MRF. Strengths and weaknesses of both clean and dirty MRFs are provided in **Table C-1,** on the next page.

Materials processed through a clean MRF usually weigh between 50 and 100 pounds per cubic meter. Alternatively, materials processed through a dirty MRF usually weigh about 350 pounds per cubic meter. Consequently, dirty and clean MRF weigh designs will vary significantly.

C. Community Decision Making Regarding Clean Versus Dirty Materials Recovery Facility

The County faces an important decision regarding the type of MRF it uses for the EcoPark – either a clean or dirty MRF. On the West Slope, the County has a residential collection system characterized by collection of source-separated recyclables from many of its residents in carts or bags. There also are some residents who may subscribe to collection services, but do not yet use the curbside recycling services or self haul their MSW. The County has invested in an infrastructure oriented toward collection of source-separated recyclables.

As a result, the County currently has needs for both clean MRF and dirty MRF processing capabilities. The County could benefit from a clean MRF that separates the source-separated residential curbside recycling materials and source-separated commercial sector materials. The County also could benefit from a dirty MRF that separates recyclables from the MSW waste stream.

Currently, the WERS only has dirty MRF capabilities, due to equipment and volume of material. Source-separated recyclable materials are transferred to Benicia, California for processing. Based on the limitations of the current facility, the County may decide that its best investment for the new EcoPark is in a clean MRF, under the assumption that there will be a growing number of residents that source-separate recyclable materials. The County may not want to be limited by a dirty MRF alone, at the new EcoPark, as this option will not improve the sorting capabilities beyond those available under the current system.

In comparing the diversion potential for a clean MRF versus a dirty MRF, there is empirical data to suggest that a dirty MRF has a maximum diversion potential of approximately 45 percent from the residential MSW stream for a given community.[3] Alternatively, the diversion potential for a source-separated curbside program can range between 40 and 60 percent depending on the community.[4] Given that the potential diversion rates are higher for a high performing source-separated program combined with a clean MRF, and the marketability of the material is greater due to the higher quality product, there is an argument that the County should employ a clean MRF over a dirty MRF.

The County also may consider a hybrid version of the MRF, which employs both clean and dirty MRF sorting capabilities. In this option, during the period of time when the County transitions toward a greater emphasis on a source-separated collection system, the County

[3] The South Tahoe Refuse dirty MRF currently diverts approximately 38 percent from the total waste stream entering the facility (including residential, commercial, and self-haul materials).

[4] In a 2006 survey of sixteen (16) Alameda County jurisdictions, the residential diversion rate for a source-separated curbside recycling program ranged from 40 to 64 percent, and averaged 51 percent.

Table C-1
Strengths and Weaknesses of
Clean and Dirty Materials Recovery Facilities

Strengths and Weaknesses of Clean MRFs

Strengths	Weaknesses
1. Relatively high material processing efficiencies	1. Exposure to commodity market variability
2. Recyclables separated generally are high quality	2. Reliant on residential and commercial customers to participate in the program and separate the materials
3. Potential for significant revenues from sale of materials	3. Dependent on the efficiency and reliability of mechanical equipment
4. Significant contributor toward meeting higher recycling goals	4. Requires storage and security of separated recyclable materials
5. Materials collected from both residential curbside collection and the commercial sector	5. Potential dust emissions and worker safety and health issues
6. Use of proven technology	6. Requires an additional collection truck for each route to collect source separated materials

Strengths and Weaknesses of Dirty MRF

Strengths	Weaknesses
1. Part of an integrated system that can recover materials value out of a residual waste stream	1. Lower quality recyclables can limit market value (often recyclables have been in contact with other materials, particularly food scraps)
2. Generally lower capital costs compared to clean MRFs	2. Without sufficient separation, much of the incoming material stream ultimately must be landfilled
3. Reduces need to source separate recyclable materials	3. Where materials are divided into other commingled material streams, the facility relies on other waste management and/or sorting operations (thus reducing overall value)
4. Use of a proven technology	4. Potential dust emissions, odor problems, and worker safety and health issues
5. Eliminates separate collection of source separated materials (routes, trucks, and personnel)	
6. Recovery/recycling rate determined by sorting effort at the MRF, rather than by public participation	

can continue to process its MSW stream using a dirty MRF sort line. Additionally, the County will have the ability to process source-separated recycled materials using the clean MRF sort line.

A hybrid clean and dirty MRF is not common in California. Usually, California communities select either a clean or dirty MRF that aligns with their collection system design. However, due to the County's urban/rural mix, the varied subscriber levels, large self haul volumes, and the non-mandatory collection service, the County may benefit from such a hybrid MRF design.

Finally, the County also may consider two separate MRF sort lines for the EcoPark, one clean MRF and one dirty MRF. This alternative would be significantly more expensive, but would afford the County the "best of both worlds." Dual lines also would provide the County with a degree of MRF sort line redundancy should one of the sort lines break down or require maintenance.

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Appendix D

EcoPark Material Processing Operations and Facility Features

Appendix D
EcoPark Material Processing Operations and Facility Features

This appendix provides an overview of EcoPark operations, design elements, and other facility characteristics. This appendix is organized as follows:

A. Transfer station
B. Materials recovery facility (MRF)
C. Green/wood material chipping and grinding operation
D. Construction and demolition (C&D) facility
E. ReUse area
F. Household hazardous waste (HHW) drop off location
G. Buy back facility
H. Self haul operations
I. Future conversion technologies
J. On-site education center
K. Ancillary facilities
L. Parking
M. Circulation
N. Roads
O. Signage
P. Odor management
Q. Noise management
R. Aesthetics and sustainability
S. Architecture
T. LEED designation
U. Landscaping
V. Permitting and Approvals.

A. Transfer Station

The EcoPark will serve as a transfer station, providing the flexibility to consolidate materials from smaller collection trucks into higher capacity transfer trailers. This materials consolidation capability will allow the County to conserve energy and minimize the number of vehicle trips made to other facilities.

County franchise hauler(s) will deliver materials (i.e., refuse or recyclables) to the EcoPark and tip the materials onto a designated tipping area. Once unloaded, the EcoPark operator will push the materials to a transfer area, through openings in the floor, and into

the top of transfer trailers parked below. Once consolidated, the EcoPark operator will arrange to transfer the waste to a landfill or the recyclables to a processing facility (e.g., in cases where the recyclable materials are not processed on the MRF sort line).[1]

B. Material Recovery Facility (MRF)

The EcoPark will have a material recovery facility (MRF) sort line. The EcoPark operator will use the MRF sort line to separate incoming "source separated" recyclables into various material types (called a "clean MRF"). Depending on the County's preference, the MRF sort line also may have the capability to recover recyclables from mixed municipal solid waste (MSW). This functionality is known as a "dirty MRF." See Appendix C for a discussion of the pros and cons of a clean versus dirty MRF.

The clean MRF sort line will combine hand sorting with the following automated equipment:

- Air Classification
- Air Knives
- Conveyors
- Disk Screens
- Eddy Currents
- Hand Sorting
- Magnetism
- Screens
- Trommel Screens
- Vertical Air Clarifiers.

Once separated, the EcoPark operator will bale recyclable materials and arrange to transport them to a recyclable processing facility.

[1] For example, when the MRF sort line is being repaired.

C. Green/Wood Material Chipping and Grinding Operation

Recycling green and wood material represents a sustainable practice that serves to divert waste from landfills. The EcoPark operator will chip, grind, and compost green and wood materials. The EcoPark operator will use a Bobcat loader to load the green and wood materials into a tub grinder. Once chipped and ground, the EcoPark operator will stockpile the green and wood materials prior to transfer. The EcoPark operator will arrange to transfer the chipped/ground material to a composting facility or final destination facility (e.g., as fuel for a co-generation facility or as alternative daily cover (ADC) for a landfill). The EcoPark will process the following green and wood material types:

- Bark
- Brush
- Leaves
- Logs
- Lumber (clean, not painted)
- Pallets
- Shipping containers
- Stumps
- Tree trimmings
- Wood construction and demolition material.

D. Construction and Demolition (C&D) Facility

Approximately 29 percent of the waste generated in the County is Construction and Demolition (C&D) debris. C&D material can be diverted either through recycling, repurposing, and reprocessing. Using a C&D sort line, the EcoPark operator will sort C&D materials generated by the construction industry. The EcoPark operator will use a combination of automated equipment, and manual labor, to separate C&D materials into

materials for eventual re-use. C&D materials separated will include:

- Concrete
- Wood
- Greenwaste
- Drywall
- Metals
- Inerts
- Other recyclables.

A C&D sort line at the EcoPark is consistent with West County C&D policies in effect. On September 30, 2003, the Construction and Demolition (C&D) Debris Recycling Ordinance took effect in El Dorado County. This Ordinance requires individuals or businesses demolishing or constructing projects, with structure footprints exceeding 5,000 square feet in area, to recycle at least fifty (50) percent of the C&D debris created. Prior to issuing a permit, the County requires the permit applicant to submit a debris recycling acknowledgment (DRA).

E. ReUse Area

The EcoPark will include a reuse area, consisting of open air compounds with bunkers and roll-off containers positioned around the periphery. Users will drive to the EcoPark with their materials and place them in the proper bunkers or containers. Reused materials may include:

- Bulk metals
- Cardboard
- Furniture
- Greenwaste
- Inerts (concrete, asphalt)
- Lumber
- White goods (large appliances).

In conjunction with the chipping and grinding operation, County users also can pick up mulch or compost for their landscaping needs. Reuse facilities provide a valuable public service; however, they are only a small contributor of material diversion as compared to other diversion programs and facilities.

F. Household Hazardous Waste (HHW) Drop-Off Location

The EcoPark will include a household hazardous waste collection (HHWC) center. The HHWC will be permitted by the State of California, Department of Toxic Substance Control (DTSC). The HHWC will be located adjacent to the scale house, so the scale house attendant can monitor the operation.

The HHWC will accept: paints, pesticides, automotive fluids, pool chemicals, home generated sharps, electronic waste (e.g., computers, televisions, and stereos) and universal waste (e.g., fluorescent lights, batteries, and aerosol cans). The EcoPark will accept HHW from county residents “free of charge.” The EcoPark will also accept hazardous wastes from commercial Conditionally Exempt Small Quantity Generators at fee rates set by the County Board of Supervisors.

Household and other hazardous wastes segregated from incoming wastes through the EcoPark’s load checking program, or found at other EcoPark operations, which the EcoPark operator cannot return to the transporter, will be taken directly to the HHWC for temporary storage. The EcoPark operator also will store hazardous waste generated by on-site equipment maintenance activities (i.e., changing lubricating oils) at the HHWC until transported off-site for disposal.

G. Buy Back Facility

The EcoPark will provide a buy back facility, which will allow Community residents to sell reusable materials, instead of paying for their disposal. The buy back facility will accept a variety of materials including: aluminum, cardboard, glass, plastics, newspapers, magazines, scrap metal, and all types of steel. The buy back facility also may accept stoves, refrigerators, washers, and dryers.

H. Self Haul Operations

The new EcoPark will provide separate commercial truck, and self haul, tipping areas. The EcoPark will separate commercial trucks and transfer truck traffic from self-hauler traffic for safety reasons. The EcoPark's self-haul tipping area will accommodate twelve (12) to fifteen (15) vehicles tipping at a time with twelve (12) to fifteen (15) separate indoor unloading lanes.[2] The EcoPark's entrance and queuing areas will include sufficient space to allow vehicle queuing on busy days and for efficient vehicle circulation. The facility also will accommodate overflow traffic on busy weekends.

To encourage self-haulers to use the EcoPark during off-peak times, the County and EcoPark operator will consider reducing tipping fee rates charged to self haul customers on weekdays. This incentive may lessen the impact of peak weekend EcoPark usage. To increase self-haul diversion, the County will:

- Design the EcoPark drop-off areas to promote pre-sorting
- Educate self-haulers on waste reduction, recycling, and presorting materials
- Implement tipping fees that clearly differentiate between recyclable loads and non-recyclable loads.

[2] Assuming an average of ten (10) minutes per vehicle for disposal, the self-haul tipping area will be capable of handling approximately 70 to 90 trips per hour (or 560 to 720 trips in an 8-hour day).

I. Future Conversion Technologies

The County has left open the option of incorporating conversion technologies into its long-term waste management strategy. The EcoPark will include an area for potential future conversion technology development, when and if these technologies become a viable option for solid waste management in the Community.

Conversion technologies have the potential to provide the Community with several benefits, including: enhanced recycling and beneficial use of waste; diversion of waste from landfill disposal; environmental benefits, including reduction in greenhouse gases and other emissions; and production of renewable products with strong, year-round markets (e.g., electricity, gas, fuels).

Conversion technologies include a wide array of thermal, biological, chemical, and mechanical technologies capable of converting MSW into energy such as steam and electricity; fuels such as hydrogen, natural gas, ethanol, and biodiesel; and other useful products and chemicals. Europe, Israel, Japan, and other countries in Asia, use conversion technologies to manage solid waste. The U.S. has not developed larger-scale demonstration facilities, or commercial facilities, that demonstrate the capabilities or potential benefits. **Appendix G** provides a discussion of the current state of conversion technologies.

J. On-Site Education Center

Community education is an important component to the overall strategy of waste reduction and recycling. The EcoPark will include an education center with a designated room to accommodate at least 30 people. This education

center will be used to provide information and training regarding solid waste processing, reduction, reuse, recycling, composting and other education and demonstration information.

The EcoPark facility also will have an overhead viewing area where student, and visitor, tour groups can observe recycling processes. On the second story of the building, a gallery-bridge will span the truck corridor below and lead into the MRF.

K. Ancillary Facilities

The EcoPark site will have adequate area for on-site roads, utilities, surface water drainage, and ancillary facilities. Ancillary facilities may include:

- Drainage control
- Employee/visitor parking
- Office area
- Sanitary facilities
- Temporary hazardous material storage areas
- Truck and roll-off parking
- Truck maintenance facility
- Truck tarping area.

The proper location of these areas is the key to the EcoPark's success. It is important to also design the EcoPark to allow for potential layout modifications that may be necessary to accommodate new recycling and/or conversion technology equipment as it becomes viable.

L. Parking

The EcoPark will have adequate off-street parking areas. The EcoPark will provide parking for visitors, employees, collection vehicles, debris box haulers, and transfer vehicles. The EcoPark will provide separate parking areas for visitor parking, and for employee parking, both located away from main vehicle circulation areas.

The EcoPark will have space for overnight storage of the refuse, recycling, and yardwaste collection fleet. The EcoPark also will have adequate on-site (off public streets) parking for transfer vehicles.

M. Circulation

All EcoPark traffic will pass through the facility's main entrance. The EcoPark will have a scale house, and an automated scale, located several hundred feet from the entrance to allow vehicle queuing to remain within the facility and off of public streets.

The EcoPark operator will control traffic flow to limit interference with public streets, avoid safety hazards, and restrict conflicts with on-site materials handling operations. Traffic patterns will flow counterclockwise, which results in fewer crossing traffic patterns.

The EcoPark will have a separate loading dock area for loading recyclables. This recyclable loading area will include a ramp that descends down 15 to 19 feet so that the operator can top load transfer trucks. Transfer vehicles will be separated from recyclable material haulers.

N. Roads

All roads and driveways at the EcoPark will be designed and constructed to withstand daily loading and to minimize dust generation. The EcoPark operator will promptly repair potholes or other damage to paved surfaces. The EcoPark operator will regularly clean paved surfaces as part of the facility cleaning and housekeeping procedures.

O. Signage

The EcoPark will have signs posted at public street access points. The EcoPark will have prominently posted signs describing traffic flow,

prohibited materials, and cautions. Signs will be large enough so that vehicle drivers entering the site can see them. Entry signs will provide the following information:

- Acceptable materials
- Circulation patterns
- Emergency telephone numbers
- Facility operating hours
- Non-acceptable materials
- Recyclable buy-back prices
- Tipping fees.

The EcoPark also will post speed limits, the location of tipping and parking areas, and the direction of traffic flow.

P. Odor Management

The EcoPark will employ odor control measures. Odor control measures will include processing of waste (putrescible municipal solid waste and recyclables) within the enclosed processing building. The EcoPark operator will further control odor with rapid processing and transportation of materials after unloading.

The EcoPark construction will attempt to have all facilities located in completely enclosed structures that provide odor, dust, and litter control. The EcoPark operator will control odors within the building using good housekeeping methods. EcoPark odor control measures will include a misting system at roof exhaust ports,[3] regular inspections, odor hotlines, and redirection of loads that may create off-site odor nuisances. EcoPark operations will be conducted so that no residuals, or MSW, are retained on-site for more than forty eight (48) hours.

The EcoPark operator will use the following additional mitigation measure to minimize air quality impacts:

- Design ventilation systems to accommodate installation of air scrubbers
- Place air intake louvers at the opposite end of the building from exhaust fans
- Set traffic patterns to eliminate wind tunnel effects when truck doors open.

Q. Noise Management

The EcoPark will have noise control measures. Most material handling and transfer operations will be conducted within the buildings. EcoPark facilities will be completely enclosed, thereby, significantly reducing off-site noise. The EcoPark operator will restrict excessive noise outside of buildings. Where possible, on-site vehicles will be muffled and operating equipment soundproofed.

The EcoPark will include berms and walls in landscaped areas around the site to further reduce noise. The EcoPark may consider use of high-speed roll-up doors to keep the facility enclosed as much as possible. EcoPark workers will have ear protection, where necessary.

R. Aesthetics and Sustainability

To achieve community acceptance of a waste management facility, the EcoPark designer will pay close attention to aesthetics and overall appearance. The EcoPark will blend into its surroundings in an innovative and sustainable way. Utilizing cutting-edge architectural, green-technologies, and native landscaping processes, the EcoPark will be designed to obtain a “green building” designation.

[3] Misters spray a safe and nontoxic odor-neutralizing solution that chemically reduces odors.

S. Architecture

The EcoPark will involve the community in designing the exterior appearance of the facility. The EcoPark will have a pleasing façade. The EcoPark will be designed such that individuals driving by the facility will not hear, smell, or see the operations from the street. The buildings will be designed to look like an industrial/commercial building that blends into its surroundings.

T. LEED Designation

The EcoPark will incorporate green design features endorsed by the U.S. Green Building Council (USGBC). The facility design will incorporate feasible design features required to obtain Leadership in Energy and Environmental Design (LEED) certification. The EcoPark will use recycled materials throughout the building. For example, the EcoPark will increase energy efficiency through use of translucent panels and skylights. The EcoPark will increase water efficiency using low flow devices and possibly by re-circulating grey-water to use for cleaning the tipping floor and other areas of the facility.

U. Landscaping

Landscaping serves multiple purposes by providing a screen to reduce visual and noise impacts from facility traffic. The EcoPark will use extensive landscaping to enhance the overall appearance of the site. The EcoPark also will have earthen berms to mitigate visual impacts.

The EcoPark will design site contours and vegetation to collect direct storm water runoff in detention areas. Where possible, the EcoPark will use wetland plants (e.g. grasses, bamboo) and inert soils (e.g., sand and silt) to reduce contaminates and suspended particles in runoff water before they are discharged.

V. EcoPark Permitting and Approvals

In order to operate the Eco Park facility in the State of California, the project proponent must obtain various permits from local and state agencies with jurisdiction over the handling and disposal of non-hazardous solid waste. Solid waste facilities must have a Solid Waste Facilities Permit (SWFP) issued by the local enforcement agency (LEA), and concurred on by the California Department of Resources Recycling and Recovery (CalRecycle). The EcoPark operator will have to provide a full SWFP that accurately reflects the various material handling operations at the facility.

The following list includes responsible agencies with jurisdiction over the proposed EcoPark, and its various ancillary facilities. The list identifies permits required to operate the facility in accordance with the California Code of Regulations, Title 14 (14 CCR), Sections 18221.6 and 18223.5:

- County of El Dorado Development Services Department
  - Conditional Use Permit
  - California Environmental Quality Act
    - Initial Study
    - Environmental Impact Report
  - Building/Occupancy Permits
- Placer County Health and Human Services, Department of Environmental Health (LEA)/ California Department of Resources Recycling and Recovery (CalRecycle)
  - Solid Waste Facilities Permit
  - Non-Disposal Facility Element (NDFE) amendment concurrence
- Central Valley Regional Water Quality Control Board
  - Storm Water Pollution Prevention Plan
  - Monitoring Plan

- El Dorado County Air Quality Management District
  - Permits to Operate (e.g., facility equipment with combustion engines)
- California Environmental Protection Agency, Department of Toxic Substances Control
  - Hazardous Waste Generator Permit
- El Dorado County Solid Waste Advisory Committee
  - NDFE review and approval
- El Dorado County Board of Supervisors
  - NDFE amendment formal approval/adoption and incorporation in the Countywide Integrated Waste Management Plan
- El Dorado County Fire District.

The timeframe for obtaining these permits varies from site to site but is expected to range from three (3) to five (5) years.

Appendix E

Alternative Potential Locations for a West Slope EcoPark

Appendix E
Alternative Potential Locations for a West Slope EcoPark

This appendix presents results of a siting analysis used to assess locations for a new EcoPark on the Western Slope of the County. This appendix describes a two-step process used to identify potential EcoPark sites. The first step was to short-list property parcels using "primary" site selection criteria intended to eliminate parcels not meeting basic minimum requirements. Once a short list was developed, the next step was to rank sites using "secondary" site selection criteria, including various site development and operational factors. Following this two-step process, sites were grouped into three (3) general categories:

- Highly compatible with County objectives
- Very compatible with County objectives
- Moderately compatible with County objectives.

The primary site selection criteria included population center of mass, vacant parcels, zoning and land use, parcel size, proximity to rivers and creeks, proximity to fault lines, and proximity to U.S. Highway 50. The secondary site selection criteria included development concerns, land use compatibility, transportation impacts, biological impacts, and economics.

Source data used in this analysis included Geographical Information Systems (GIS), census, Environmental Systems Research Institute (ESRI) data, and Cal-Atlas geospatial clearinghouse data.

A. Primary Site Selection Criteria

Below are the criteria and evaluation methods used for primary site selection. Except where noted, primary site selection criteria were applied absolutely, meaning sites that did not meet the primary criteria did not advance to the secondary site selection analysis.

Primary site selection criteria included:

- Central location
- Vacant and industrial
- Within industrial use and industrial zoning
- Site acreage greater than 15 acres
- Away from rivers and creeks
- A minimum of 200 feet away from Holocene fault
- Five miles from U.S. Highway 50

1. Central location

The site should be located near the center of the West Slope population and/or areas with high projected growth.

Using 2000 Census block data, provided by the U.S. Census Bureau, a population distribution map was developed (see **Figure E-1,** on page E-5).[1] Graduated colors symbolize populated areas with red the most populated and yellow the least populated. Figure E-1 also shows a 10 mile radius around the West County's population center of mass.

The West Central County region is currently the most populated area in the County. The current population is approximately 43,000 and is projected to grow to approximately 46,000 by 2030. Northwest County, and Greater Placerville, are the next two most populated West County regions, each projected to grow to approximately 21,000.

Although the El Dorado Hills area was outside the center of mass, it remained through the primary analysis due to its large population and high projected growth. El Dorado Hills has the greatest projected growth rate, at approximately 31 percent over the next ten years, slowing somewhat to approximately 22 percent between 2020 and 2030. El Dorado Hills' population is projected to grow from 31,222 to approximately 57,000 in 2030. El Dorado Hills also has a relatively high diversion rate.

2. Vacant and industrial

The site should be a vacant parcel and one designated for industrial use. From parcel data provided by the County, 247 vacant and industrial parcels were indentified (see **Figure E-2,** on page E-7).[2]

3. Within industrial use and industrial zoning

The site should be within the County's current 2004 General Plan Industrial Use designation. Additionally, the site also should be within an Industrial zoned area of the County's current Zoning Ordinance. Using land use and zoning data provided by the County, parcels completely within an industrial use/zoning designation for both the General Plan, and the Zoning Ordinance, were identified. This analysis narrowed the number of parcels to 40 (see **Figure E-3,** on page E-9).

4. Site greater than 15 acres

The site should be at least 15 acres to accommodate the requirements identified in Appendix B and the conceptual size requirements defined in Table B-1.

Parcels were analyzed to identify those greater than 5 acres. Parcels greater than 5 acres were then reviewed to identify combinations of parcels that could provide the required 15 acre site acreage. This analysis identified 26 potential parcels.

5. Away from rivers and creeks

The site should not be located within the limits of an existing river or creek (as identified by the USGS Blue Line data).

Using a hydrology shape file, provided by CAL-Atlas, rivers and creeks were overlaid on the remaining 26 parcels. Six parcels were eliminated due to either a river or creek bisecting a parcel, or because they did not meet the minimum acreage requirements after a parcel was removed due to a river or creek (isolated parcels less than 15 acres were removed). This process identified 20 potential parcels.

[1] The latest available data provided in the Cal-Atlas.

[2] The County provided a shape file called parcel_data.shp. Parcel data contained attributes under USECDTYPE and USECDCLASS that were queried to identify vacant parcels with industrial use designation.

6. A minimum of 200 feet away from Holocene fault

The site cannot be within 200 feet of a Holocene fault. Using data provided by CAL-Atlas, Halocene faults were overlaid on the remaining sites, and a buffer of 200 feet created. This analysis did not eliminate any of the 20 previously identified potential parcels.

7. Five miles from U.S. Highway 50

The site should be within five miles of U.S. Highway 50. Using data provided by CAL-Atlas, Highway 50 was used to determine five-mile proximity. This analysis did not eliminate any of the 20 previously identified potential parcels.

8. Conclusions from Primary Site Selection

The primary site selection analysis identified 20 potential parcels for the EcoPark. Some of these parcels were those described as adequate only if combined with adjacent qualifying parcels. Treating each combination of parcels as one potential site, eight (8) potential sites were identified among the 20 parcels.

Table E-1, on page E-13, lists the sites considered in the secondary site selection criteria of this analysis. Additionally, a map identifying the eight (8) potential sites is shown on **Figure E-4,** on page E-11.

The existing Western El Dorado Recovery Systems, Inc. (WERS) MRF location on Throwita Way, and the Union Mine Landfill, were included even though these sites did not meet all of the primary site selection criteria.[3] The existing WERS site was kept because it is an already approved site with a history of MRF operations. The Union Mine Landfill site has previously been identified by citizen's groups as a potential place for a new EcoPark. The Union Mine Landfill site also is already owned by the County and operates under a full Solid Waste Facilities Permit.

B. Secondary Site Selection Criteria

Secondary site selection included ranking criteria important to the siting, permitting, and operation of the EcoPark. The secondary analysis considered land use compatibility, development concerns, transportation impacts, impacts to biological resources, and site economic criteria as follows:

- **Land use compatibility** – including adjacent land use, the physical configuration of site, site access, and room for future expansion
- **Developmental concerns** – including property slope, geology for buildability, proximity to floodplains and surface waters, utility access, fire protection, and water conservation
- **Transportation impacts** – including secondary site access, local road conditions, proximity to major arterials, capacity of nearby roads and intersections, road miles from Hwy 50, local road improvements, and regional capital improvements
- **Impacts to biological resources** – including important biological corridors, rare plant preserves/plant recovery, and proximity to Oak Woodland Conservation Area
- **Site economic criteria** – including publicly-owned and relative development costs.

[3] The existing WERS MRF is not on 15 acres and the Union Mine Landfill does not have 15 acres of level land.

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Figure E-1
Population Density

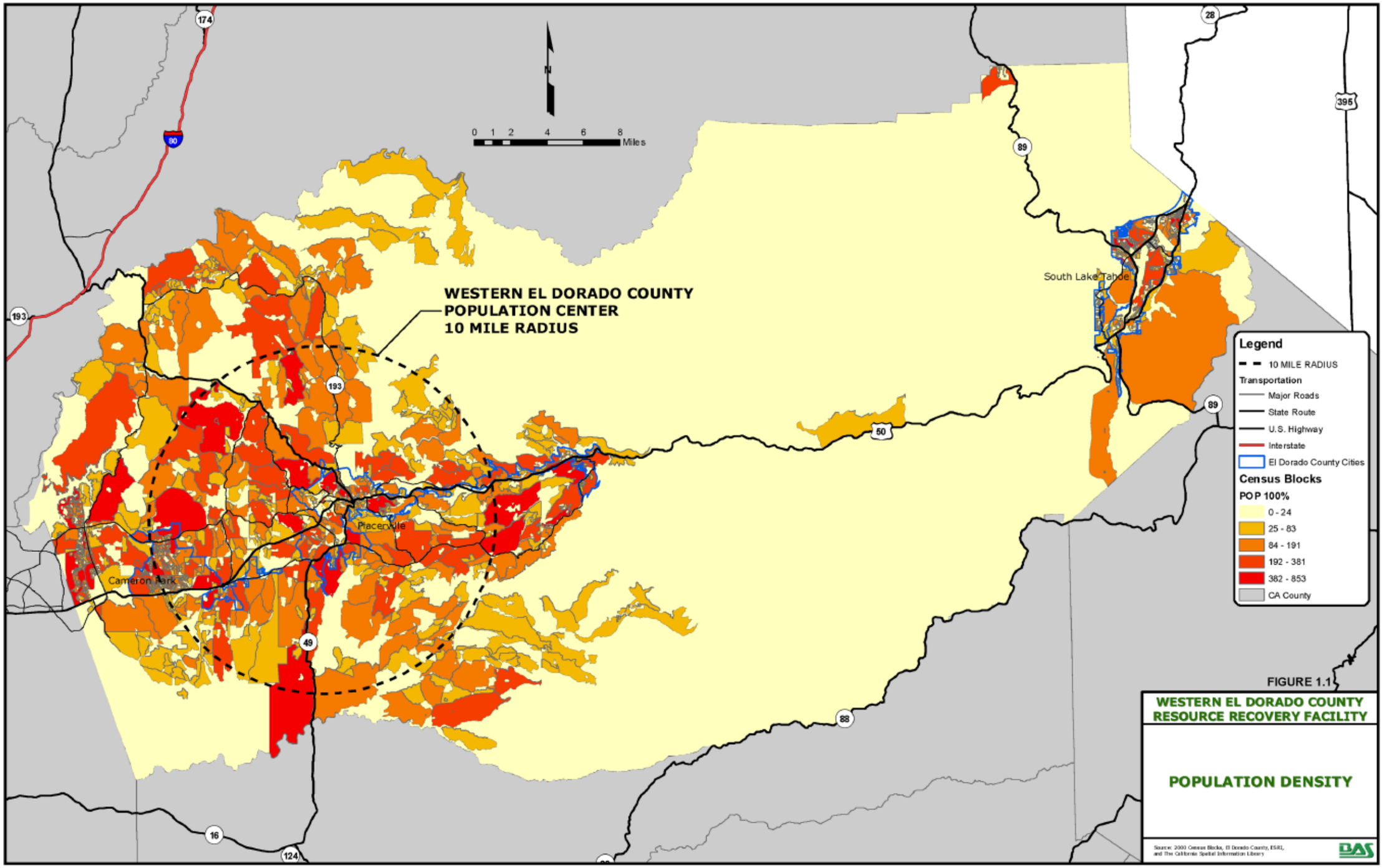

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Figure E-2
Vacant Industrial Land Parcels

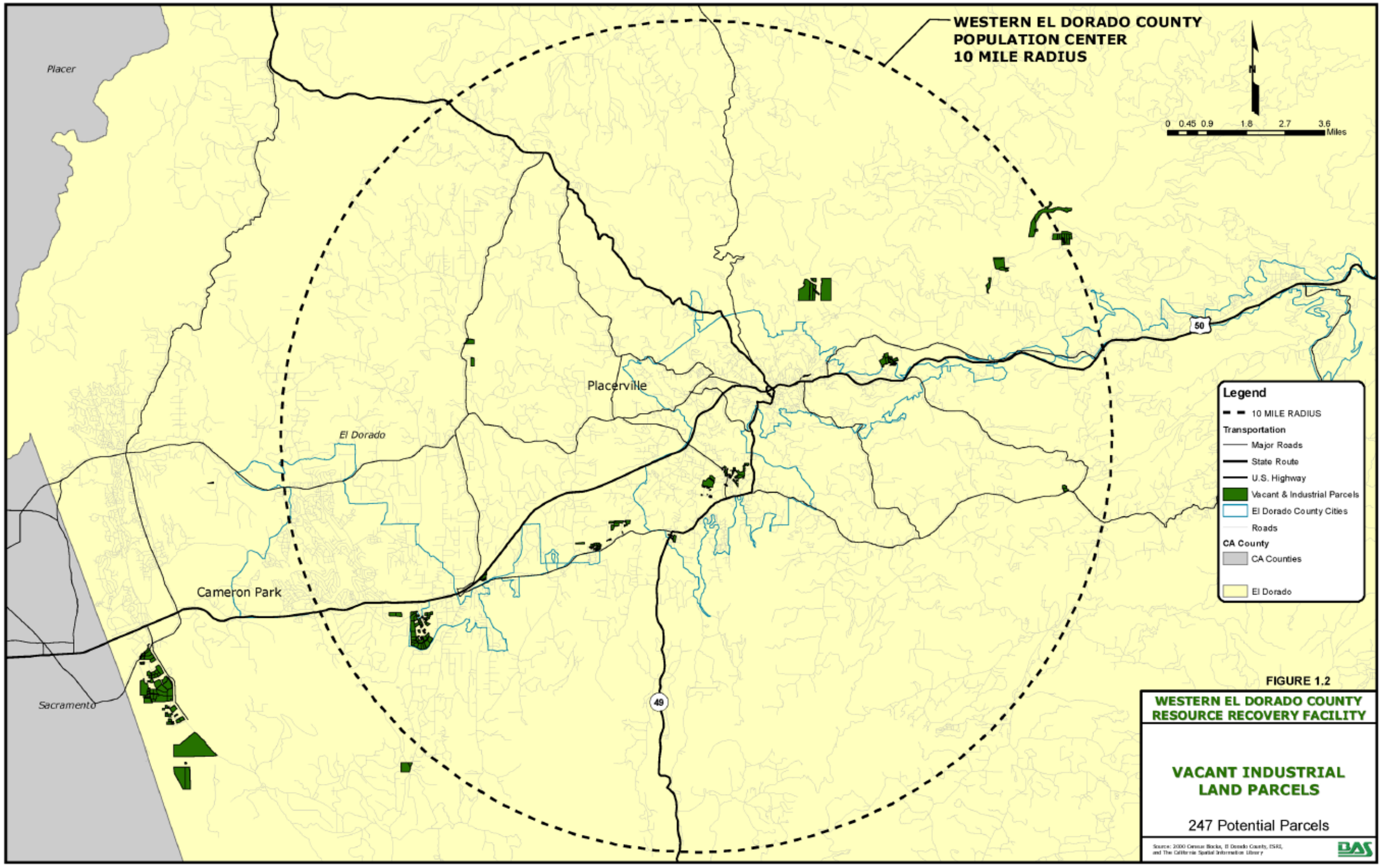

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Figure E-3
Parcels Within General Plan & Zoning Industrial Use Designation

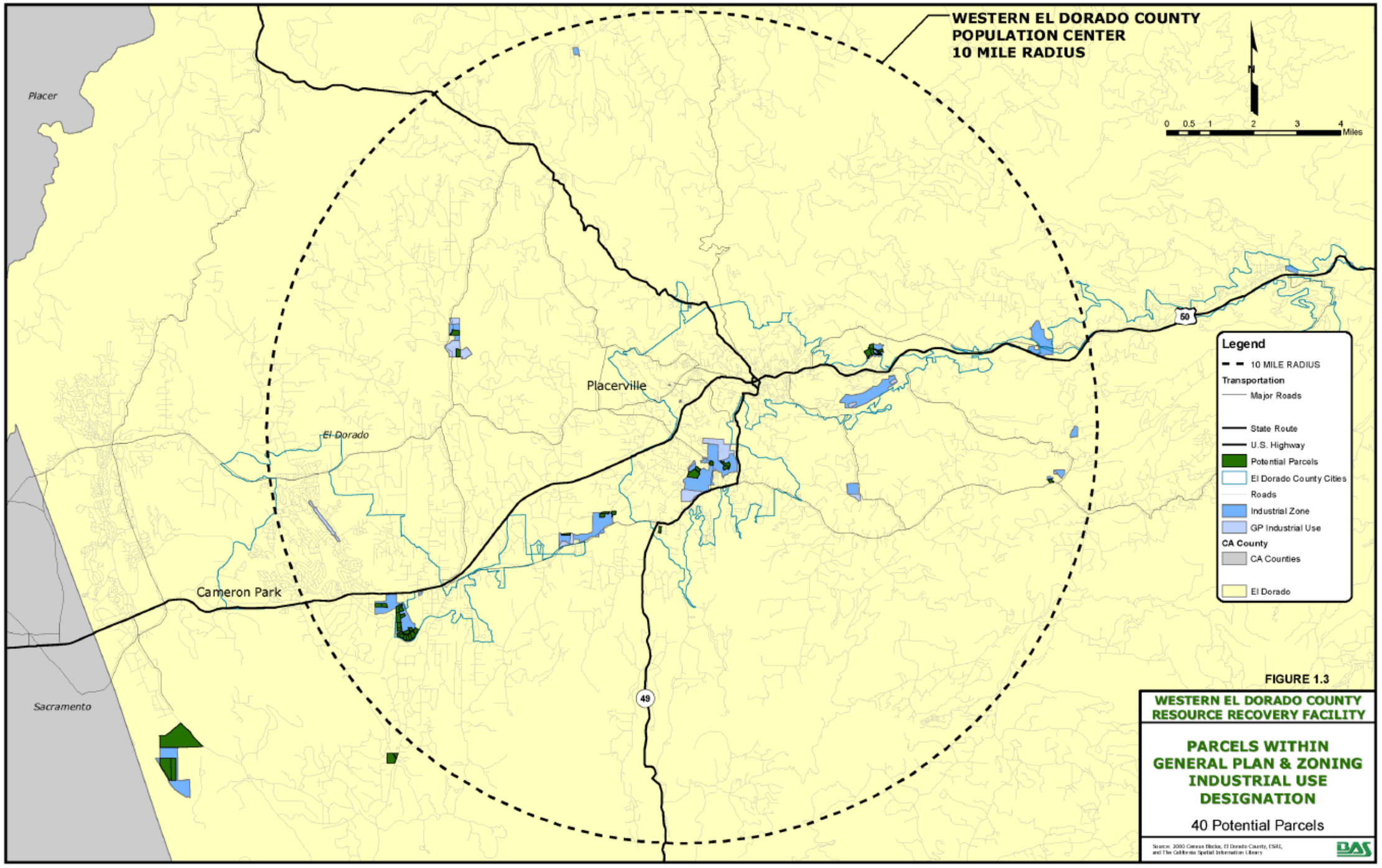

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Figure E-4
Secondary Criteria Index Sheet

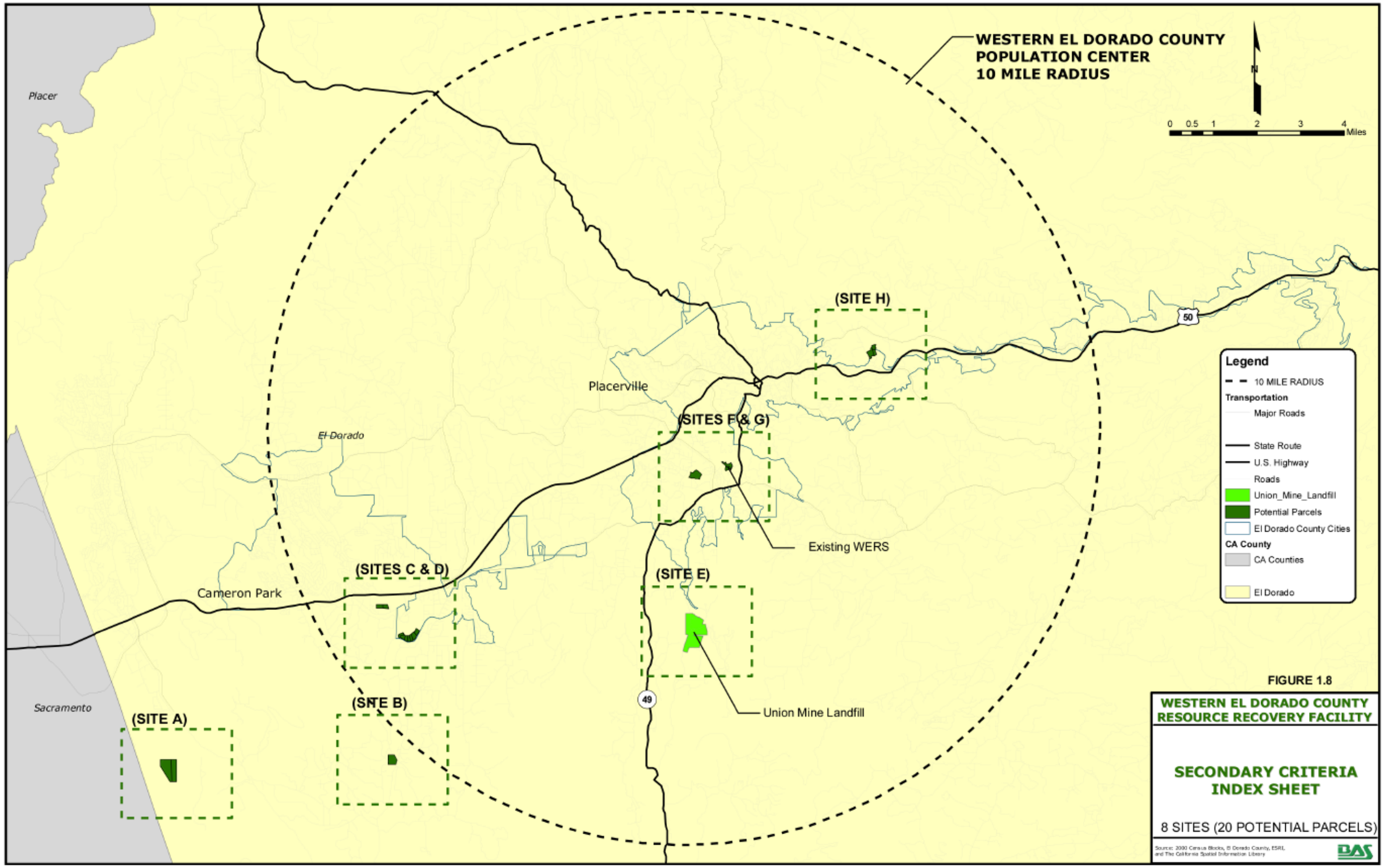

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Table E-1
El Dorado County SWMP
Primary Site Selection Analysis
Sites Selected

SITE ID	PRCL - ID	OWNER NAME	ACRES	PRCL - NAME
A	11702009	EL DORADO INVESTMENT CO LLC	36.5677	Latrobe
	11702008	EL DORADO INVESTMENT CO LLC	57.3856	Latrobe
B	08729042	SOUTH SHINGLE BUS PARK CA LLC	26.8149	South Shingle
C	10923010	N C BROWN DEVELOPMENT INC	7.9712	Cameron Park 1
	10923009	N C BROWN DEVELOPMENT INC	7.9593	Cameron Park 1
D	10948007	HELEN GRAHAM TRUST A CA GP	7.2097	Cameron Park 2
	10948002	ROTTER BRADLEY N	9.0315	Cameron Park 2
	10948025	KFRD INVESTMENTS INC	5.0004	Cameron Park 2
	10948021	BARNETT LOT 1 A CA LLC	5.1104	Cameron Park 2
	10948024	KFRD INVESTMENTS INC	5.6929	Cameron Park 2
	10948022	KFRD INVESTMENTS INC	5.0055	Cameron Park 2
	10948023	KFRD INVESTMENTS INC	5.0040	Cameron Park 2
E	09201120	COUNTY OF EL DORADO	208.6000	Uniion Mine LF
F	32924055	CALDWELL CAROL JEAN TR	24.1996	Greater Placerville
G	05125047	WASTE CONNECTIONS INC., CA. CORP.	10.1500	Existing WERS
	05125054	LINDEMAN MICHAEL D TR	9.3241	Adjacent WERS
	05125051	LINDEMAN MICHAEL D TR	6.2039	Adjacent WERS
H	04821039	MACKAY EDWARD	5.8399	Camino/Apple Hill
	04821040	MACKAY EDWARD	5.7420	Camino/Apple Hill
	04821038	MACKAY EDWARD	13.7519	Camino/Apple Hill

EXISTING MRF
UNION MINE LANDFILL SITE
SELECTED PARCELS AFTER PRIMARY SCREENING

The secondary site selection criteria used two scoring methods to evaluate each of the eight (8) short-listed sites. Each criterion was weighted equally. Each criterion was evaluating using one of two scoring methods:

1. Sites meeting specific criterion received the maximum score of "3" and sites not meeting the criterion receive the minimum score of "1"; or
2. Weighing relative differences among the sites within a criterion. Scoring values for relative differences were:
   a. Favorable – 3 points
   b. Satisfactory – 2 points
   c. Poor – 1 point.

A description of the secondary site selection is provided below.

1. Secondary Site Selection Analyses

1.1. Land Use Compatibility

Adjacent Land Use

The proposed EcoPark should be sited in an area with compatible land uses. Sites located adjacent to land zoned for residential uses or other incompatible zones were considered unsatisfactory.[4] Sites surrounded by commercial and industrial land with potential buffer zones were ranked (3), sites with adjacent land use that contained limited

[4] There are design alternatives that can alleviate land use conflicts. These include fully enclosing EcoPark operations and providing adequate buffer property to mitigate impacts. However, these alternative design alternatives must evaluated on a case-by-case basis and were beyond the scope of this site selection process.

residential land use were ranked (2), and sites surrounded by residential zoning were ranked (1).

Physical Configuration of Site

The EcoPark site should accommodate access, circulation, and efficient site use. Long and narrow or oddly shaped sites were considered poor sites, while square-shaped sites were favorable. Sites with a rectangular shape, maximum circulation potential, and the potential to house future new technologies were ranked (3), sites with more limited space, but able to accommodate facility requirements and circulation were ranked (2), and odd-shaped sites were ranked (1).

Site Access

The site should have easy access for commercial users and self-haulers. A review of the County circulation element was used to rank site access for each site. Sites that were easily accessed were ranked (3), sites with limited and/or indirect points of access were ranked (2), and sites far removed from local roads and/or with a significant elevation differential were ranked (1).

Room for Future Expansion

Sites that had 20 or more usable acres were ranked (3), sites with 15 to 19 usable acres were ranked (2), and sites with less than 15 usable acres were ranked (1).[5]

1.2. Development Concerns

Geology for Buildability

Some areas in the County are geologically underlain by layers of soft lime and limestone formations. These formations can create small sinkholes when exposed to water. The existing MRF is located on a former lime quarry and has a history of structural problems with the MRF foundation.

Sites not on ground with lime were considered favorable. Sites with no known geological challenges were ranked (3), and sites with known geological challenges were ranked (1).

Proximity to Floodplains and Surface Waters

The site should not be located in FEMA flood zones, or have surface water bodies on the property. Sites located away from floodplains and surface waters were considered favorable. Sites outside of the 100 year flood plane were ranked (3), and sites that were identified near a 100 year flood plain, or adjacent to surface waters, were ranked (1).

Utility Access

Locations with utility access were considered more favorable than sites without easy utility access. Developing or extending utilities to a potential EcoPark site could be costly and time consuming. Sites near other developments, and those determined to have utilities in the general area (based on visual inspection), were ranked (3), sites with some utility capabilities but not all (i.e. water, sewer, power) were ranked (2), and sites removed from existing development with limited utilities in the area were ranked (1).

Fire Protection

Potential EcoPark sites should be located in an area with good fire protection. Sites identified in a moderate fire hazard area were ranked (3), sites in a high hazard area were ranked (2), and sites in a very high hazard area were ranked (1).

1.3. Transportation Impacts

Secondary Site Access

Potential EcoPark sites with more than one road, or access point, to the site are preferred. Secondary site access is important for fire safety and circulation. Sites with multiple access

[5] Sites larger than 20 acres were considered available for future expansion.

points, or significant frontage where the secondary access point does not have the potential to conflict with the primary access were ranked (3), sites with challenging access (i.e., elevation or indirect roadways) but where a secondary access point could be created were ranked (2), and sites where a secondary access point was not available ranked (1).

Local Road Conditions

Local roads that would be used to access the EcoPark site should be designed to accommodate the proposed EcoPark traffic. A preferable site would not require substantial modifications or improvements to local road conditions and would meet the following four (4) criteria:

1. Two, 12 foot wide lanes and shoulders
2. Alignment capable of handling 35 mph traffic
3. A pavement section that can handle truck traffic
4. On a public road.

Sites with local roads that meet at least three of the criteria noted above were ranked (3), sites where local roads only met two of the criteria above and may require improvements were ranked (2), and sites only meeting one of the criteria items above were ranked (1).

Proximity to Major Arterials

Sites located in close proximity to major arterials are preferred over sites without major arterial access. Areas in close proximity to a major arterial generally have better road access for EcoPark users. Sites within one mile of a major arterial ranked (3), sites within two miles of a major arterial or one mile of a minor arterial were ranked (2), and sites more than two miles from a major or minor arterial were ranked (1).

Capacity of Nearby Roads and Intersections

Ideally, the EcoPark would be on a transportation route with sufficient capacity to handle traffic volumes and patterns generated by the EcoPark. Sites with insufficient road and intersection capacities would require expensive upgrades, which could include a lengthy process of right-of-way acquisitions and road/intersection realignments. Sites within an existing roadway network capable of handling the EcoPark traffic were ranked (3), sites where the existing roadway network would require some improvements were ranked (2), and sites where the existing roadway network is at or over capacity, and would require significant improvements to handle EcoPark traffic, were ranked (1).

Proximity to Highway 50

Highway (Hwy) 50 is the main route that traverses El Dorado County. The closer the EcoPark is to Hwy 50, the better access the community will have. Sites less than two (2) miles from Hwy 50 were ranked (3), sites that were two (2) to four (4) miles from Hwy 50 were ranked (2), and sites greater than 4 miles from Hwy 50 were ranked (1).

Local Road Improvement Costs

This criteria includes rough cost estimates of potential improvements needed to address existing deficiencies in local road conditions and capacity. Sites with minimal local road improvement requirements ranked (3), sites with average local road improvement requirements ranked (2), and sites with significant local road improvement requirements ranked (1).

Regional Road Capacity Improvement Costs

his criteria includes rough cost estimates of potential improvements needed to address existing deficiencies in regional road conditions and capacity. Sites where minimal regional road capacity improvements are required ranked (3),

sites where average regional road capacity improvements are required ranked (2), and sites where significant regional capacity improvements are required ranked (1).

1.4. Biological Resources Impacts

Important Biological Corridors

Sites not near an important Biological Corridor (based on inventory for the Integrated National Resources Management Plan for El Dorado County) were ranked (3); and sites near an important Biological Corridor were ranked (1).

Pine Hill Areas/Recovery Plan Area

Sites identified as Pine Hill Areas with no recovery plan area (based on inventory for the Integrated National Resources Management Plan for El Dorado County) were ranked (3); and sites within Pine Hill Areas and within a recovery plan area were ranked (1).

Proximity to Oak Woodland Conservation Areas

Locating a potential EcoPark within Oak Woodland Conservation Areas should be avoided due to the potential for environmental impacts. Based on a review of the Oak Woodland Priority Conservation Areas (PCA's), sites not located near the designated conservation areas were ranked (3); sites located in the vicinity of a designated conservation area were ranked (2);and sites located within a designated conservation area were ranked (1).

1.5. Site Economic Criteria

Publicly Owned

Publicly owned parcels are considered most favorable. No acquisition costs are involved if the parcel is County-owned, and reduced or minimal costs are involved for City-owned parcels. Developing a publicly-owned site also shortens the development schedule as no lengthy real estate transactions are required. Sites publicly owned were ranked (3), and sites not publicly owned were ranked (1).

Development Cost

Sites that are easy to develop are preferred over sites which require substantial improvements to slopes, grading, drainage, and clearing. Based on visual inspections, sites with minimal necessary improvements were ranked (3), sites requiring moderate improvements were ranked (2), and sites requiring significant improvements were ranked (1).

In addition to the physical improvements considered for the sites evaluated, economics were indirectly taken into consideration in each of the other ranking criteria evaluated (i.e., sites with costly transportation and permitting issues were ranked lower than those without).

2.1. Conclusions from Secondary Site Selection

The following eight (8) sites were carried through the primary ranking criteria then ranked based upon the secondary criteria discussed above. The sites for the potential new EcoPark location are grouped below, based on their compatibility with overall County objectives.

Highly compatible with County objectives

- Cameron Park 2 (Durock Road)
- Greater Placerville (Industrial Drive)
- Cameron Park 1 (Durock Road)

Very compatible with County objectives

- Latrobe
- Camino / Apple Hill

Moderately compatible with County objectives

- Existing WERS (Throwita Way)
- Union Mine Landfill
- South Shingle.

Appendix F

Union Mine Landfill Site Utilization Assessment

Appendix F
Union Mine Landfill Site Utilization Assessment

The Union Mine Disposal Site and Septage Treatment Facility (UMDS) is the only active, permitted landfill on the West Slope of El Dorado County. In order for the County to internalize its waste stream, reduce disposal costs, and minimize environmental impacts from long-hauling refuse to out-of-County facilities, the County will evaluate re-opening the UMDS to accept Class II municipal solid waste. This appendix discusses the likely regulatory, design, and operational requirements for re-opening the UMDS for disposal of Class II municipal solid waste.

A. Current Status of Union Mine Landfill

The UMDS is operated by the County of El Dorado Environmental Management Department (County). UMDS is a fully permitted solid waste disposal facility. Main operations include an approximately 42.3 acre landfill footprint, made up of a closed 36.3-acre Class III old landfill area, and an active 6.0-acre Class II landfill area. The remainder of the facility is used for a Class II surface impoundment, leachate and septage treatment facility, and for spray fields.

The UMDS is not currently open to the general public. The 6.0-acre Class II landfill area is presently used on an as-needed or contingent basis, and is permitted to receive up to 300 tons per day of non-hazardous-general; non-hazardous sludge; designated waste; and hazardous-friable asbestos under Solid Waste Facilities Permit (SWFP) No. 09-AA-0003 and Waste Discharge Requirements Order No. R5-2006-0020.

UMDS facilities include:

- A scale and scale house
- A closed Class III landfill
- A Class II surface impoundment
- A household hazardous waste storage (HHWS) and transfer facility
- An active Class II landfill
- Gas and groundwater monitoring and control facilities
- Leachate/septage treatment facilities
- Sedimentation basins (north, south and west)
- Soil stockpile
- Spray fields (north and south)
- Other support structures and facilities.

The site plan shown as **Figure F-1,** on page F-3, provides the site's current general configuration.

B. Historic Overview of Union Mine Landfill

In 1994, the County hired a consultant to redesign the UMDS final grading plan so that it included a 26.5-acre expansion area, in addition to the existing 36.3-acre Class III old landfill area. This final grading plan proposed a maximum landfill elevation of 1,500 feet above mean sea level (msl).

This UMDS expansion design was presented in an Environmental Impact Report (EIR) which the County Board of Supervisors certified in May, 1994. However, in 1997, the Union Mine Road was closed due to a minor landslide. Subsequently, the County began to direct all municipal solid waste formerly hauled to the UMDS out-of-County.

In 2004, the County modified the proposed UMDS landfill expansion design to include 6.0 acres of the proposed 26.5 acres, for disposal of Class II waste. At that time, the County also began phased closure of the 36.3-acre Class III old landfill area.

According to the latest UMDS SWFP, the 6.0-acre Class II landfill expansion area has a total design capacity of approximately 195,000 cubic yards. As of June 2011, the remaining capacity of the 6.0-acre expansion are was approximately 102,145 cubic yards.

C. Regulatory Requirements for Potential Expansion of Union Mine Landfill

Operation of a Class II/III landfill in the State of California requires approvals from the State and local agencies with jurisdiction over the handling and disposal of non-hazardous solid waste. This subsection lists responsible agencies with jurisdiction over the UMDS.

California Department of Resource Recovery and Recycling (CalRecycle)/Placer County Health and Human Services

All Class II/III solid waste facilities must have a SWFP issued by the local enforcement agency (LEA). The LEA for UMDS is the Placer County Health and Human Services, Department of Environmental Health. The SWFP must be "concurred on" by CalRecycle.

The SWFP places conditions on general design parameters, operations, and closure of the solid waste facility. The SWFP includes monitoring requirements. UMDS operates under SWFP No. 09-AA-0003. A proposed UMDS expansion requires a revised SWFP application to update permit terms and conditions so they reflect the expansion design and new or changed operations.

The primary supporting document used for a SWFP revision is the Joint Technical Document (JTD). The JTD combines technical information required under a Report of Disposal Site Information required by the LEA and CalRecycle; and Report of Waste Discharge (ROWD) required by the State of California Regional Water Quality Control Board. The JTD contains information on a site's operation, engineering design, and site and surrounding area characteristics.[1]

In addition to the JTD, 27 CCR requires submittal of a Preliminary Closure/Post-Closure Maintenance Plan (PCPCMP) in support of the SWFP application. The PCPCMP provides information used to prepare closure and post-closure maintenance cost estimates. These estimates, in turn, are used to annually fund the closure account to provide for an environmentally sound closure and thirty (30) years of post-closure maintenance.

[1] The JTD is prepared in accordance with content requirements mandated in Title 27 of the California Code of Regulations (27 CCR), Sections 21590 and 21600.

Figure F-1
Union Mine Disposal Site and Septage Treatment Facility
Site Plan

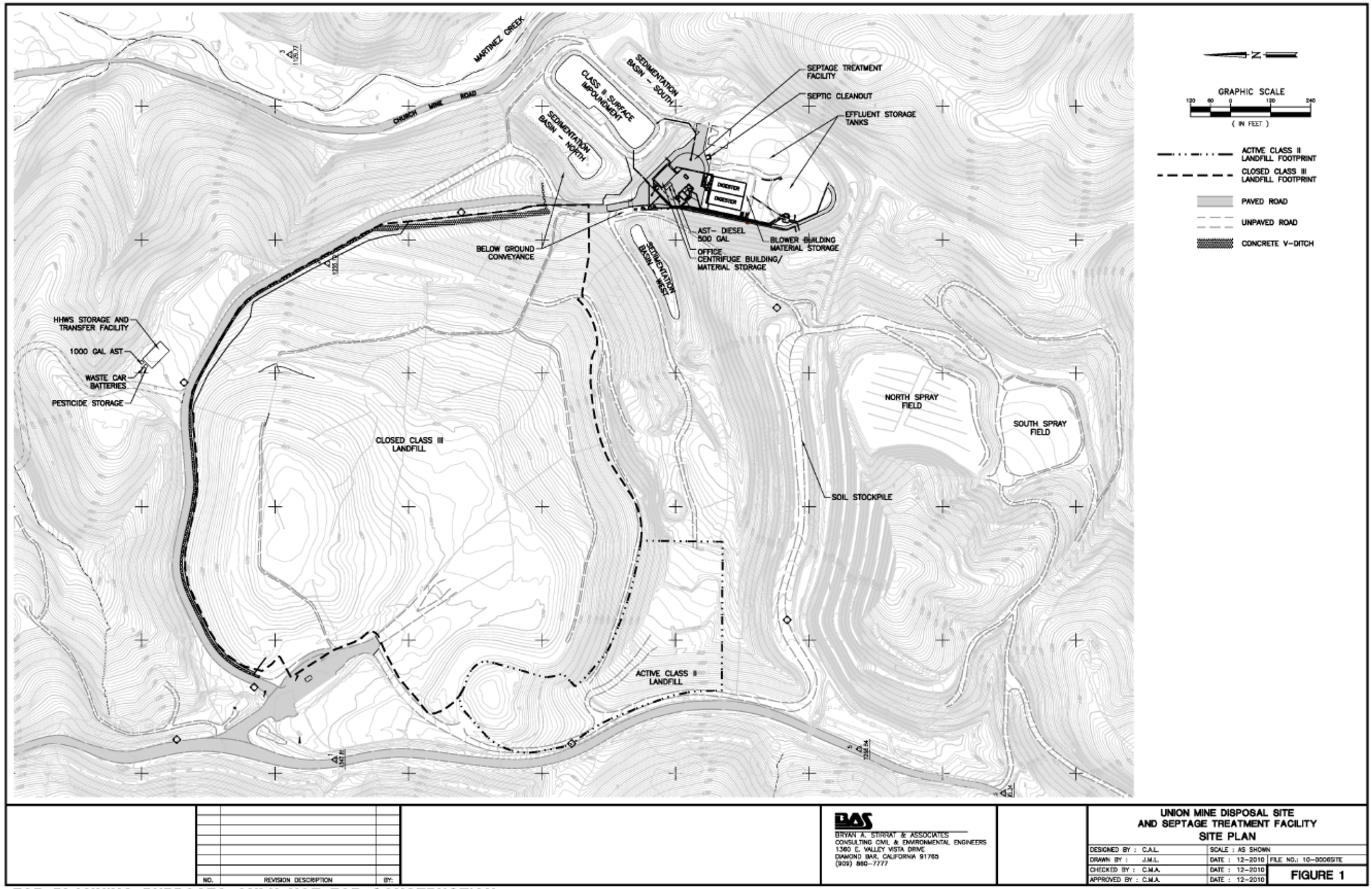

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Table F-1
Union Mine Landfill
Diminishing Capacity Existing 6-Acre Class II Landfill

INITIAL AVERAGE TPD:	3	MAXIMUM TPD:	300	REMAINING NET AIRSPACE	
WORKING DAYS PER YEAR:	307			PERMITTED FOOTPRINT (CY):	195,000
COVER RATIO:	4:1			EXPANSION AREA (CY):	-
IN-PLACE DENSITY:	1,000			INITIAL AIRSPACE (CY):	135,000
TONNAGE GROWTH OF1:	0.74%	STARTING	1/1/04	TOPO DATE:	Jan. 2004
INITIAL AVERAGE TPD TRANSFERED:		0			

YEAR	SOLID WASTE (TONS)	TOTAL WASTE (TONS)	TOTAL WASTE (TPD)	TOTAL WASTE (CY)	DAILY COVER (CY)	TOTAL VOLUME (CY)	CUMULATIVE VOLUME (CY)	REMAINING CAPACITY (CY)
2004								135,000
2004	1,037	1,037	3	2,074	519	2,593	2,593	132,408
2005	1,222	1,222	4	2,444	611	3,055	5,648	129,353
2006	1,328	1,328	4	2,656	664	3,320	8,968	126,033
2008	1,362	1,362	4	2,724	681	3,405	12,373	122,628
2008	1,250	1,250	4	2,500	625	3,125	15,498	119,503
2009	1,327	1,327	4	2,654	664	3,318	18,815	116,185
2010	1,337	1,337	4	2,674	668	3,342	22,157	112,843
2012	1,347	1,347	4	2,693	673	3,367	25,524	109,476
2012	1,357	1,357	4	2,713	678	3,392	28,916	106,084
2013	1,367	1,367	4	2,733	683	3,417	32,332	102,668
2014	1,377	1,377	4	2,754	688	3,442	35,774	99,226
2016	1,387	1,387	5	2,774	694	3,468	39,242	95,758
2016	1,397	1,397	5	2,795	699	3,493	42,735	92,265
2017	1,408	1,408	5	2,815	704	3,519	46,254	88,746
2018	1,418	1,418	5	2,836	709	3,545	49,799	85,201
2020	1,429	1,429	5	2,857	714	3,571	53,371	81,629
2020	1,439	1,439	5	2,878	720	3,598	56,968	78,032
2021	1,450	1,450	5	2,900	725	3,624	60,593	74,407
2022	1,460	1,460	5	2,921	730	3,651	64,244	70,756
2024	1,471	1,471	5	2,943	736	3,678	67,922	67,078
2024	1,482	1,482	5	2,964	741	3,705	71,628	63,372
2025	1,493	1,493	5	2,986	747	3,733	75,361	59,639
2026	1,504	1,504	5	3,008	752	3,760	79,121	55,879
2028	1,515	1,515	5	3,031	758	3,788	82,909	52,091
2028	1,527	1,527	5	3,053	763	3,816	86,726	48,274
2029	1,538	1,538	5	3,076	769	3,845	90,570	44,430
2030	1,549	1,549	5	3,098	775	3,873	94,443	40,557
2032	1,561	1,561	5	3,121	780	3,902	98,345	36,655
2032	1,572	1,572	5	3,144	786	3,931	102,276	32,724
2033	1,584	1,584	5	3,168	792	3,960	106,235	28,765
2034	1,596	1,596	5	3,191	798	3,989	110,224	24,776
2036	1,607	1,607	5	3,215	804	4,018	114,243	20,757
2036	1,619	1,619	5	3,239	810	4,048	118,291	16,709
2037	1,631	1,631	5	3,263	816	4,078	122,369	12,631
2038	1,643	1,643	5	3,287	822	4,108	126,477	8,523
2040	1,656	1,656	5	3,311	828	4,139	130,616	4,384
2040	1,668	1,668	5	3,336	834	4,169	134,786	214
								June 2040

1 - Growth rate from Solid Waste Management Plan for years 2010 to 2020 (8.1%) and 2020 to 2030 (6.7%) - averaged

An approved financial assurance mechanism that demonstrates financial responsibility for operating liability claims (environmental impairment liability) also is required.[2]

California Regional Water Quality Control Board (RWQCB)

The State Water Resources Control Board (SWRCB) requires Class III solid waste disposal facilities to obtain Waste Discharge Requirements (WDRs). The RWQCB-Central Valley is the local agency under the SWRCB with jurisdiction and authority to issue site-specific WDRs for the UMDS.

The UMDS currently operates under WDR Order No. 2006-0019, including a Monitoring and Reporting Program. As previously discussed, the JTD, containing information required for an ROWD, will be the primary support document for amending UMDS's WDRs to include expansion operations. This JTD will be the permit document used to revise the existing UMDS WDRs.

[2] The financial assurance mechanism must be updated annually pursuant to 27 CCR, Section 22215.

The RWQCB also regulates municipal and industrial stormwater discharge requirements under the National Pollutant Discharge Elimination System (NPDES) program. To obtain authorization for industrial stormwater discharges, a landfill must comply with a General Permit to Discharge Stormwater Associated with Industrial Activity. A Stormwater Pollution Prevention Plan (SWPPP) and Stormwater Monitoring Plan (SMP) (dated October 2010) were prepared for the UMDS. This monitoring is performed under WDR Order No. 2006-0019 and Order No. 97-03-DWQ.

The SWPPP will need to be amended, as necessary, to reflect any changes in construction, operations, or maintenance procedures which may cause the discharge of significant quantities of pollutants to surface water, groundwater, or a local agency's storm drain system.

California Environmental Quality Act (CEQA) documentation

The UMDS has the following approved CEQA and CEQA related documents:

- Final Environmental Impact Report (EIR), dated January, 1992
- Special Use Permit Application and Findings/Conditions of Approval for S91-28, approved by the El Dorado County Planning Commission on February 27, 1992
- Addendum to the EIR for the Expansion/ Closure of the Union Mine Disposal Site, El Dorado County, California, prepared by County of El Dorado, Planning Department, dated April 1994
- Conformed agenda certifying Addendum to the EIR, County of El Dorado Board of Supervisors, dated May 10, 1994.

Although the above documents allow for expansion of the UMDS to a maximum elevation of 1,500 feet msl, and a total disposal acreage of 59.5 acres; the documents are dated and the County will need new/updated analyses of special study areas. Special study areas will include, but not be limited to: biological resources, water resources, geology/soils, air quality, traffic and circulation, hazardous materials/infectious waste, human health and safety, noise, public services, aesthetics/visual resources, land use, and cultural resources.

Other Permits

The UMDS operates under the following additional permits:

- Air Pollution Permit, Permit to Operate, issued by the El Dorado County Air Quality Management District to operate a landfill gas collection and control system with a wastewater injection system
- Notification No. II-413-93, Agreement Regarding Proposed Stream or Lake Alteration, Martinez Creek, El Dorado County, California, approved by the State of California Department of Fish and Game on August 26, 1993.

The County will need to review and update the above permits, as appropriate, for a proposed UMDS expansion.

D. Operational Requirements

The UMDS is designed and operated in compliance with Class II and Class III landfill standards set forth in 27 CCR regulations and in Federal regulations, known as Subtitle D, promulgated under 40 CFR, Parts 257 and 258. One of the most important aspects of Subtitle D (40 CFR, Section 258.40) requires municipal solid waste landfill operators to construct a composite or approved engineered alternative liner system.[3]

[3] Required in new waste management units, lateral expansions, or areas within a previously permitted waste management unit which had not had refuse placed in it as of October 9, 1993

Subtitle D defines a composite liner as a system consisting of two low-permeability components, in lieu of previous State requirements for a one-component system. The upper component must consist of a minimum 30-mil flexible membrane liner (FML) and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no greater than 1 x 10^{-7} cm/sec.[4] Additionally, the County will need to install a leachate collection and removal system (LCRS) above the composite liner system with the design capability to maintain less than a 30 cm (12 inches) depth of leachate over the liner.

The UMDS's closed Class III landfill area was developed prior to the requirements for a liner system in Class III landfills. However, when the UMDS 6-acre Class II expansion area was constructed, this area included an engineered alternative liner.[5]

For a proposed expansion area, which goes beyond the existing footprint, the County will need to install a composite liner and LCRS. Current WDRs do not allow expansion of the current approved alternative liner system, unless the County submits a liner performance demonstration.[6] The WDR also requires that new UMDS landfill units have a composite liner with (1) a 60 mil HDPE FLM and (2) either two feet of compacted soil with a hydraulic conductivity of no greater than 1 x 10^{-7} cm/sec, or a geocomposite clay liner (GCL).

[4] FML components consisting of high-density polyethylene (HDPE) must be at least 60-mil thick.

[5] In place of the two-foot layer of compacted soil, the 6 acre expansion area has a geocomposite clay liner (GCL) with a hydraulic conductivity of no greater than 1 x 10^{-7} cm/sec.

[6] Should the liner performance demonstration indicate that the alternative liner is performing equivalent to the prescriptive requirement, then it may be possible to propose and design the same liner for an expansion.

E. Potential Union Mine Landfill Expansion Scenarios and Logistics

An evaluation was performed for adding capacity to the UMDS with a future landfill expansion. The County will consider the following two potential UMDS expansion scenarios:

- Expansion Scenario 1: Use the remaining lateral fill area previously approved in the 1994 EIR. Closed portions of the UMDS would remain closed, and fill would continue from below the closed southern slopes to the drainage channel south of the landfill footprint. **Figures F-2** and **F-3,** beginning on page F-9, show excavation and fill plans for this scenario.
- Expansion Scenario 2: Remove the final cover on the closed portions, and fill the entire footprint to a maximum elevation of 1,500 feet above msl as proposed and approved in the 1994 EIR. Figure F-2 and **Figure F-4** (on page F-13) show excavation and fill plans for this scenario.

The remainder of this subsection provides a discussion of the general geologic conditions of the site and the excavation, fill, and protective and daily cover requirements proposed for these expansion scenarios.

1. Geotechnical Conditions at Union Mine Landfill Site

The UMDS site is located in the western Sierra Nevada foothills in an area known as the Western Metamorphic Belt, an elongated band of metamorphosed sedimentary and volcanic rocks that were strongly deformed by uplift of the Sierra Nevada mountains. The site is underlain by Jurassic-age metamorphic rocks of the Mariposa formation consisting of slate, phyllite, and minor sandstone layers.

The principal planes of weakness in the Mariposa Formation are foliation, essentially

relict bedding from the source sedimentary rocks. The foliation is steeply dipping (reported in the JTD at 85 degrees east) and oriented north-south. This very steep orientation is generally favorable for slope stability because the foliation does not "daylight" in conventional graded slopes. The foliation is particularly favorable for the east-west trending cut slope proposed along the south side of the expansion area.

Another type of weakness plane in the Mariposa Formation, "joints," is crudely described in the JTD. There is no comprehensive geology map showing distribution and specific attitudes of the described joints.

There also is a shear zone shown crossing the site from north to south on the UMDS Site Plan, prepared by Youngdahl & Associates. The width, and characteristics, of this likely zone of weak deformed rock were not provided in the Site Plan.

Surface soils on the Mariposa formation are typically thin. Surface soils are generally up to several feet on slopes and thicken at the base of slopes or in drainages. Based on experience with the Mariposa formation, the soil generally consists of a mixture of silt and clay with platy slate fragments produced by the weathering of the underlying slate.

Based on the JTD, the Mariposa formation is described as weathered to depths of 20 to 30 feet. It is expected that the weathered bedrock will become progressively more difficult to excavate with depth, and that the unweathered bedrock will be extremely difficult to excavate and may require blasting.

Based on experience with the Mariposa Formation near Yosemite Junction, when excavated, the weathered slate bedrock breaks down to sandy gravel with silt. Due to the foliated nature of the rock, excavated slate fragments are typically flat and angular with sharp edges. The excavated rock can be expected to become coarser grained as the excavation proceeds into less weathered rock.

The site is located in close proximity to the Melones fault, approximately ½ mile east of the site, which is part of the Foothills Fault system. The Melones Fault is considered conditionally active by the State of California, with an estimated maximum credible earthquake of 6.5 Richter Magnitude and a maximum probable earthquake of 5.5 Richter Magnitude.

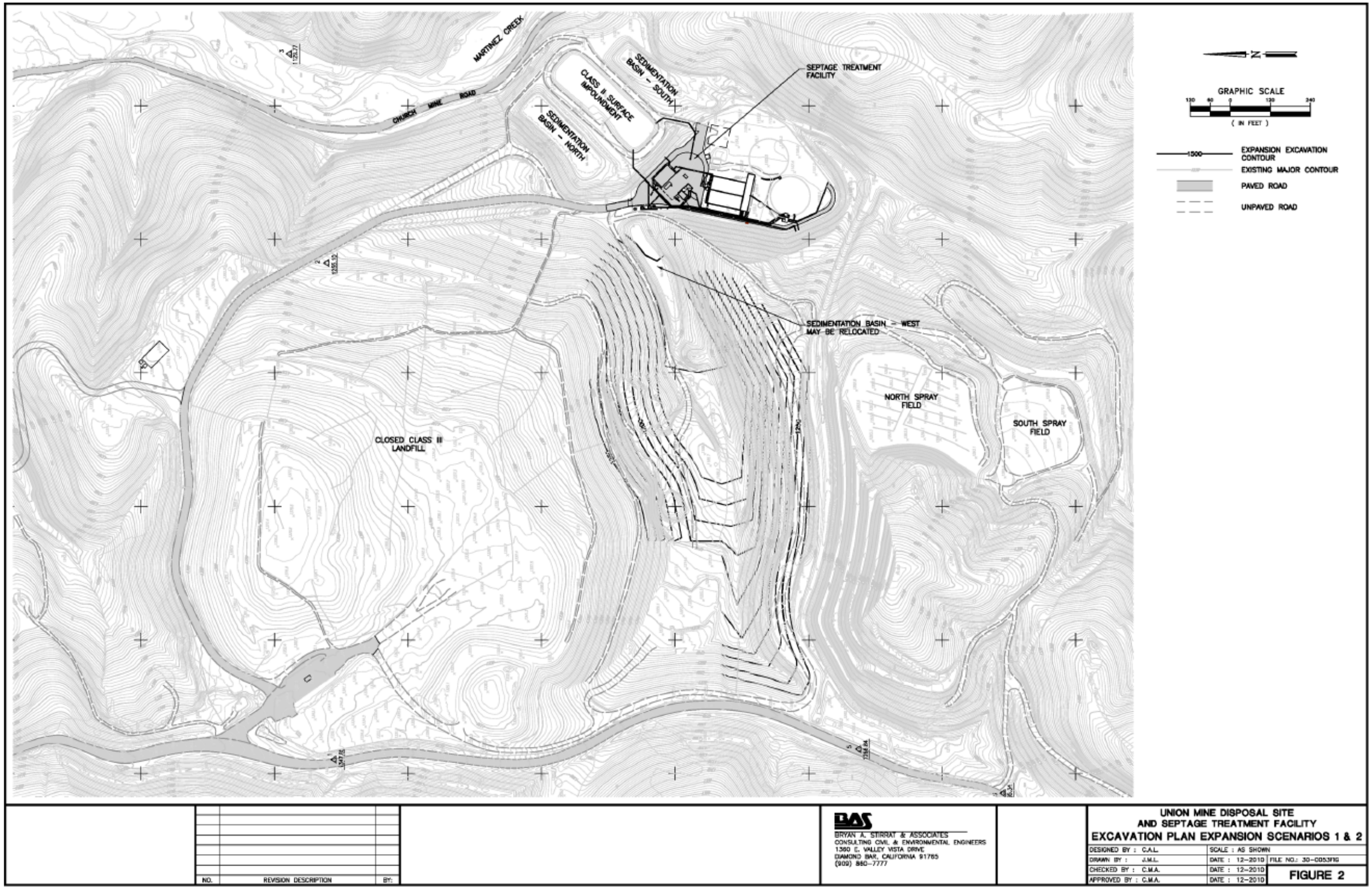
This general review of the UMDS geotechnical conditions provided background information necessary to consider the site's expansion potential.

2. Excavation Requirements for Union Mine Expansion

The excavation plan, as shown on Figure F-2, was developed based on the following considerations:

- Using knowledge of the general geology of the UMDS area, it appears possible to grade the UMDS southerly slope at a final grade of 1.5:1, with 15 foot wide benches placed at each 40 foot elevation. Further geotechnical analysis may indicate that a steeper grade of 1:1, and an increase in the number of benches, is possible.
- The limit of the south slope is within 20 to 40 feet of an existing diversion channel. By locating the top of slope near the diversion channel, it will be possible to maximize the airspace volume, generate a modest amount of excavated soil material, preserve the diversion channel for current and future use, and provide continued access along the top of slope.
- The northerly slope is proposed at a 2:1 slope, with 15 foot wide benches at approximately 40 foot vertical spacing. The northern slope will have a minimum elevation of 1,150 feet above msl. The geology would likely support a steeper slope incline; however, consideration was given to maintaining a stable base below the Class III area to

Figure F-2
Union Mine Disposal Site and Septage Treatment Facility
Excavation Plan Expansion Scenarios 1 & 2



NO.	REVISION DESCRIPTION	BY:

BRYAN A. STIRRAT & ASSOCIATES
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DIAMOND BAR, CALIFORNIA 91765
(909) 860-7777

UNION MINE DISPOSAL SITE AND SEPTAGE TREATMENT FACILITY
EXCAVATION PLAN EXPANSION SCENARIOS 1 & 2

DESIGNED BY : C.A.L.	SCALE : AS SHOWN	
DRAWN BY : J.M.L.	DATE : 12-2010	FILE NO.: 30-C053F1G
CHECKED BY : C.M.A.	DATE : 12-2010	FIGURE 2
APPROVED BY : C.M.A.	DATE : 12-2010	

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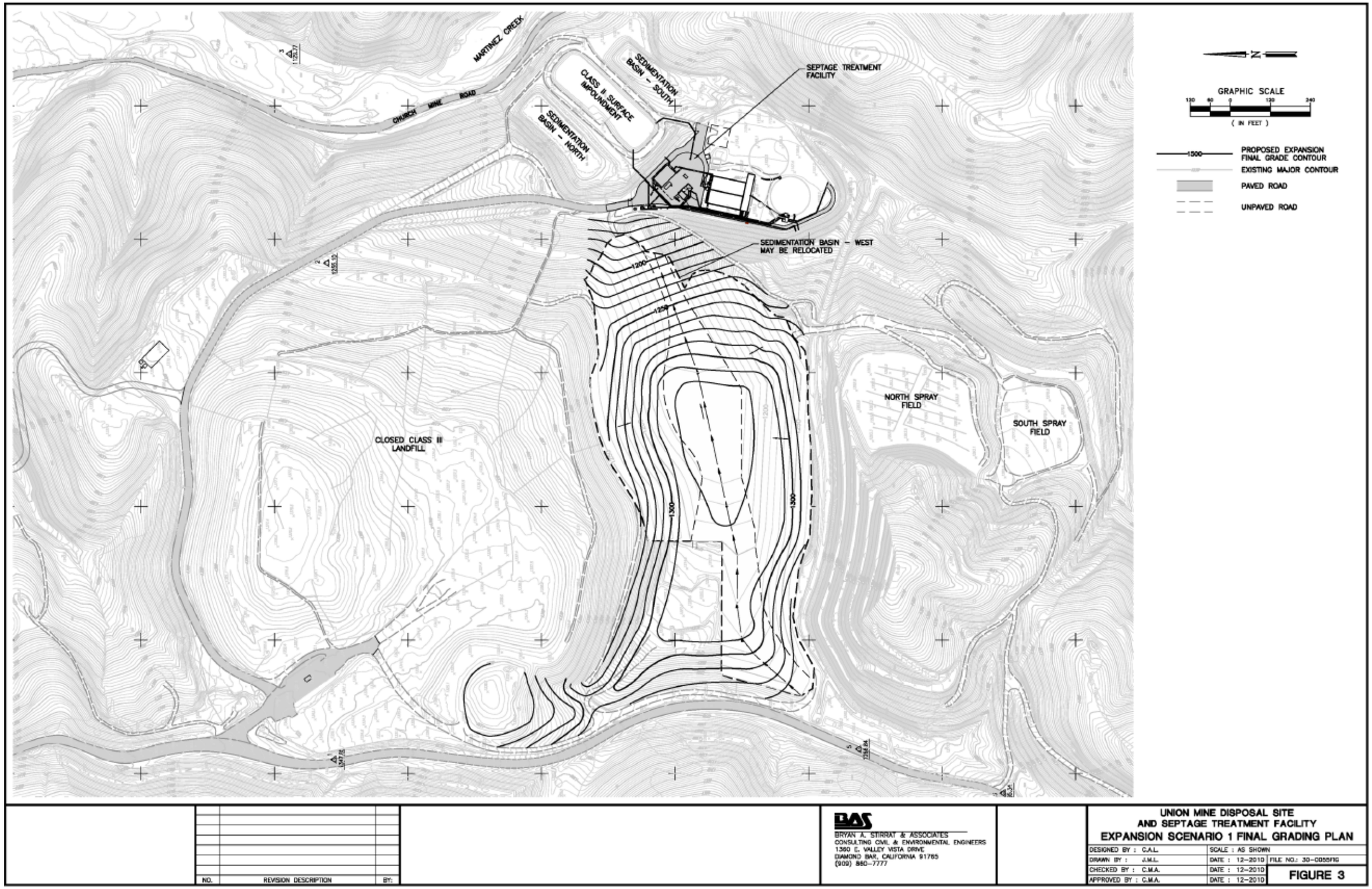
Figure F-3
Union Mine Disposal Site and Septage Treatment Facility
Excavation Scenario 1 Final Grading Plan



NO.	REVISION DESCRIPTION	BY:

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UNION MINE DISPOSAL SITE AND SEPTAGE TREATMENT FACILITY
EXPANSION SCENARIO 1 FINAL GRADING PLAN

DESIGNED BY : C.A.L.	SCALE : AS SHOWN	
DRAWN BY : J.M.L.	DATE : 12-2010	FILE NO.: 30-C05FIG
CHECKED BY : C.M.A.	DATE : 12-2010	FIGURE 3
APPROVED BY : C.M.A.	DATE : 12-2010	

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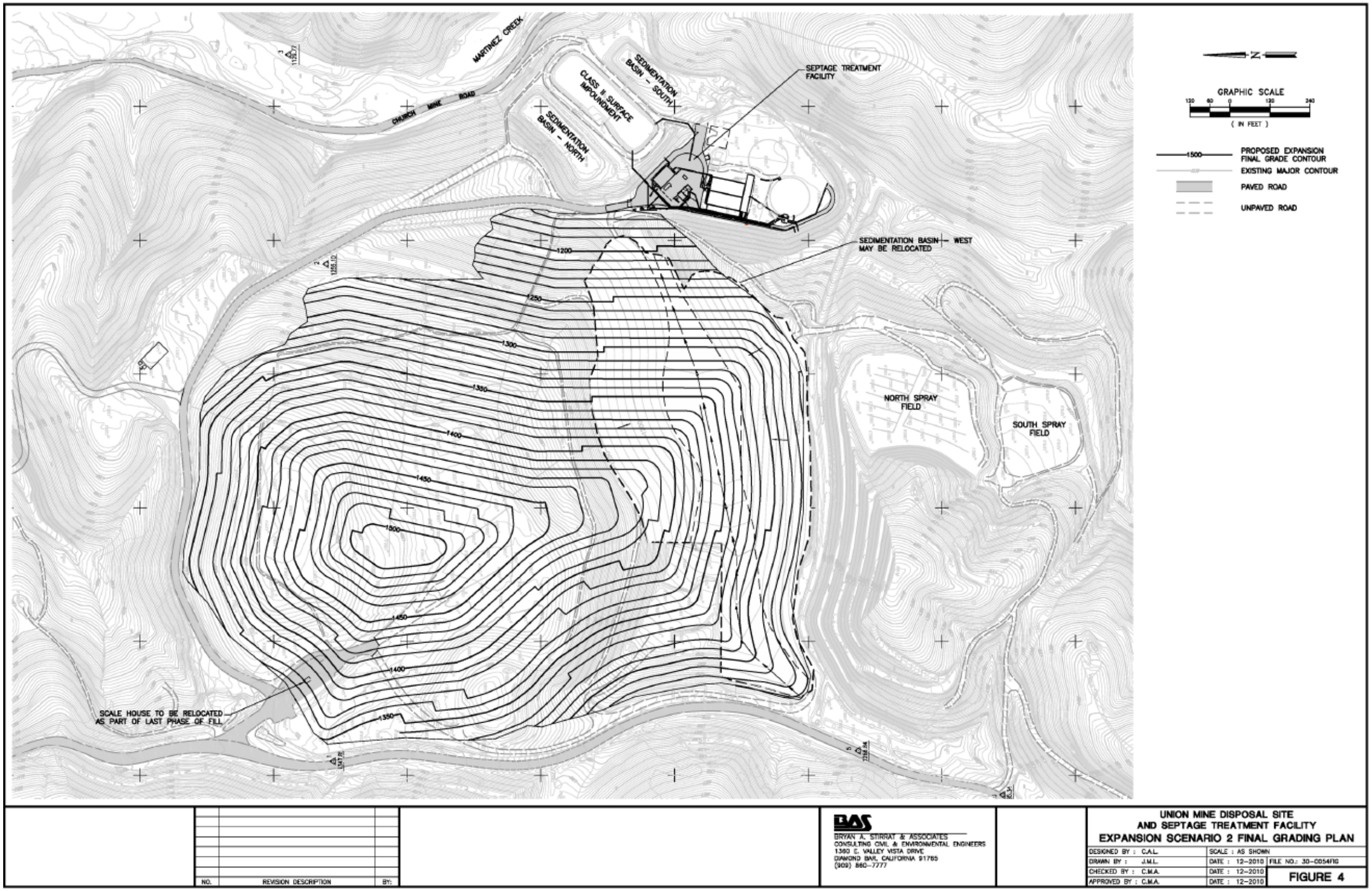
Figure F-4
Union Mine Disposal Site and Septage Treatment Facility
Excavation Scenario 2 Final Grading Plan



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support the existing loads placed on the slope due to the existing Class III area adjacent to the northerly slope. Further cutting could reduce the ability of the slope to support the existing fill.[7]

- An important consideration in evaluating the potential UMDS expansion is the presence of abandoned underground mine tunnels and shafts. An underground gold mine, which operated from the 1860s through the 1940s, underlies part of the facility. According to the UMDS WDRs, three mine tunnels, one mine adit, one stope, and one mine shaft are in the vicinity of the Class II and III landfill areas.

  The Monitoring & Reporting Program for WDR Order No. R5-2006-0020 requires monitoring of surface discharges from mine workings. Based on the preliminary layout of the excavation plan, and the known general vicinity of these shafts and tunnels, excavation may impact the plug and cap on several of these mine features as well as several monitoring wells. The Springfield Shaft and Adit, the Golden Gate Tunnel, and the Pendar Tunnel are all located within the boundary of the conceptual proposed excavation limits. Also located within these limits are groundwater monitoring well UM-3, and monitoring points for groundwater drains and surface water. The County will need to conduct additional research, investigation and field exploration to clearly define the potential impacts, and design mitigation measures, necessary for permitting and final design of the lateral expansion in this area.

  The Class II area was left out of the expansion excavation as it has substantial capacity to continue receiving sludge and; therefore, the need to site and permit an expanded Class II area for receiving sludge will be postponed.

3. Fill Requirements for Union Mine Expansion

Expansion Scenario 1 proposes filling to a maximum elevation of 1,323 feet above msl at an approximate 2.5:1 slope, with 15-foot wide benches spaced every 50 vertical feet. Expansion Scenario 1 avoids the closed Class III area, providing a low-end capacity potential with additional capacity gained by filling against the entire Class III southerly slope.

Expansion Scenario 2 proposes filling the entire footprint to a maximum elevation of 1,500 feet above msl at approximate 2.6:1 to 2.75:1 slopes, with 15-foot wide benches spaced every 50 vertical feet. This scenario provides a high-end range of capacity potential for the site.

For Expansion Scenario 2, some existing final cover material, placed during closure of the old Class III area, likely will be removed due to the potential instability of additional fill material placed over the existing geomembrane (GCL) final cover. There is the potential that differential settlement could cause low spots along the GCL if it is left in place. Cover soil will be removed to a thickness of one foot, then stockpiled, and used during the expansion activities.[8]

4. Protective and Daily Cover Requirements

Due to the area geology, and the amount of rock contained in it, the County will need a borrow source to provide suitable protective and daily cover. The County will maximum use of alternative daily covers (e.g., tarps or dried sludge in combination with suitable soils) in order to reduce the required amount of daily cover. A primary goal of daily cover is to limit percolation. Thus, daily cover should have a significant clay content.

[7] This would also need to be substantiated with additional geotechnical analysis. Given an adequate factor of safety for the cut slope with existing fill adjacent to it, a steeper slope incline could be employed.

[8] Existing cover material should be removed sequentially, as required by the filling operation, to minimize areas exposed to percolation, and reduce the required stockpile area.

Since the bottom of the expansion area will be lined, it will be necessary to cover rock exposed in the excavation process with suitable material prior to placement of the protective liner system. Therefore, the County will need to conduct a survey of suitable soil materials in the area, including both on and off-site locations. The survey should identify sources of clay to be possibly used in the liner system, as well as soils suitable for daily or protective cover. The County owns adjacent land previously identified as a potential borrow source, but the County will need to investigate these areas based on the difficulty in excavating unweathered bedrock formation to a sufficient depth. A lack of suitable soils within close proximity to the UMDS could potentially limit the expansion capacity.

F. Remaining Site Life

The current 6-acre Class II expansion area has a remaining capacity of 102,145 cubic yards. Using the current limited usage of the UMDS, the average fill rate is approximately 1,350 tons per year. Based on this current limited usage level, the projected useful life of the 6 acres of the UMDS is approximately 10 years, with closure in 2021.

Expansion Scenario 1 will provide approximately 2.20 million cubic yards (mcy) (see **Figure F-5,** on page F-19) and Expansion Scenario 2 will provide approximately 5.97 mcy (see **Figure F-6,** on page F-21) of additional landfill capacity. Below are assumptions used in calculating the additional site life for the two scenarios:

- An average of 300 tons per day (tpd) as shown in Table F-2.
- An average annual growth rate of 0.74 percent, based on population data for years 2010 to 2020 (8.1 percent in total) and for years 2020 to 2030 (6.7 percent in total).

Expansion Scenarios 1 and 2 provide approximately 10 and 28 years of site life from 2015, respectively. With a start date of 2015, the projected closure dates are 2025 and 2043 for Expansion Scenarios 1 and 2, respectively. Table F-1 shows the projected site life for the existing permitted facility. **Tables F-2** and **F-3** provide the projected site life the two expansion scenarios, respectively.

G. Facility Improvements

The County will need to make improvements to the following UMDS facilities and systems should it re-open, and expand, the UMDS:

- Access and scales/scale house
- Drainage control system
- Groundwater monitoring system
- Landfill gas migration control and monitoring systems.

H. Access Road Improvements and Scale House Upgrades

One major facility improvement which the County must consider is the improvement, or relocation, of the UMDS access road, Union Mine Road. There are several issues related to Union Mine Road. The County will improve site access using one of the two options presented below.

Union Mine Road Improvements

In the first option, the County will improve Union Mine Road and bring it up to County Department of Transportation (DOT) standards. A previous investigation was performed on Union Mine Road (approximately three miles in length) and the investigation determined road improvements would cost an estimated eight (8) million dollars.

Table F-2
Union Mine Landfill
Diminishing Capacity Expansion Scenario 1

INITIAL AVERAGE TPD[1]:	300	MAXIMUM TPD:	500	**REMAINING NET AIRSPACE**	
WORKING DAYS PER YEAR:	307			PERMITTED FOOTPRINT (CY):	-
COVER RATIO:	4:1			EXPANSION AREA (CY):	-
IN-PLACE DENSITY:	1,250			INITIAL AIRSPACE (CY):	2,200,000
TONNAGE GROWTH OF[2]:	0.74%	STARTING	1/1/15	TOPO DATE:	Jan. 2004
INITIAL AVERAGE TPD TRANSFERED:		0			

YEAR	SOLID WASTE (TONS)	TOTAL WASTE (TONS)	TOTAL WASTE (TPD)	TOTAL WASTE (CY)	DAILY COVER (CY)	TOTAL VOLUME (CY)	CUMULATIVE VOLUME (CY)	REMAINING CAPACITY (CY)
2015								2,200,000
2016	92,100	92,100	300	147,360	36,840	184,200	184,200	2,015,800
2016	92,782	92,782	302	148,450	37,113	185,563	369,763	1,830,237
2017	93,468	93,468	304	149,549	37,387	186,936	556,699	1,643,301
2019	94,160	94,160	307	150,656	37,664	188,320	745,019	1,454,981
2020	94,857	94,857	309	151,771	37,943	189,713	934,732	1,265,268
2020	95,559	95,559	311	152,894	38,223	191,117	1,125,849	1,074,151
2021	96,266	96,266	314	154,025	38,506	192,531	1,318,380	881,620
2023	96,978	96,978	316	155,165	38,791	193,956	1,512,336	687,664
2024	97,696	97,696	318	156,313	39,078	195,391	1,707,728	492,272
2024	98,419	98,419	321	157,470	39,367	196,837	1,904,565	295,435
2025	99,147	99,147	323	158,635	39,659	198,294	2,102,859	97,141

November 2025

1 - Initial average tons per day from Table 2.2 of Solid Waste Management Plan from franchise that would deliver to Union Mine from WERS.
2 - Growth rate from Solid Waste Management Plan for years 2010 to 2020 (8.1%) and 2020 to 2030 (6.7%) - averaged

Table F-3
Union Mine Landfill
Diminishing Capacity Expansion Scenario 2

INITIAL AVERAGE TPD[1]:	300	MAXIMUM TPD:	500	**REMAINING NET AIRSPACE**	
WORKING DAYS PER YEAR:	307			PERMITTED FOOTPRINT (CY):	-
COVER RATIO:	4:1			EXPANSION AREA (CY):	-
IN-PLACE DENSITY:	1,250			INITIAL AIRSPACE (CY):	5,970,000
TONNAGE GROWTH OF[2]:	0.74%	STARTING	1/1/15	TOPO DATE:	Jan. 2004
INITIAL AVERAGE TPD TRANSFERED:		0			

YEAR	SOLID WASTE (TONS)	TOTAL WASTE (TONS)	TOTAL WASTE (TPD)	TOTAL WASTE (CY)	DAILY COVER (CY)	TOTAL VOLUME (CY)	CUMULATIVE VOLUME (CY)	REMAINING CAPACITY (CY)
2015								5,970,000
2016	92,100	92,100	300	147,360	36,840	184,200	184,200	5,785,800
2016	92,782	92,782	302	148,450	37,113	185,563	369,763	5,600,237
2017	93,468	93,468	304	149,549	37,387	186,936	556,699	5,413,301
2019	94,160	94,160	307	150,656	37,664	188,320	745,019	5,224,981
2020	94,857	94,857	309	151,771	37,943	189,713	934,732	5,035,268
2020	95,559	95,559	311	152,894	38,223	191,117	1,125,849	4,844,151
2021	96,266	96,266	314	154,025	38,506	192,531	1,318,380	4,651,620
2023	96,978	96,978	316	155,165	38,791	193,956	1,512,336	4,457,664
2024	97,696	97,696	318	156,313	39,078	195,391	1,707,728	4,262,272
2024	98,419	98,419	321	157,470	39,367	196,837	1,904,565	4,065,435
2025	99,147	99,147	323	158,635	39,659	198,294	2,102,859	3,867,141
2027	99,881	99,881	325	159,809	39,952	199,761	2,302,620	3,667,380
2028	100,620	100,620	328	160,992	40,248	201,239	2,503,859	3,466,141
2028	101,364	101,364	330	162,183	40,546	202,729	2,706,588	3,263,412
2029	102,114	102,114	333	163,383	40,846	204,229	2,910,816	3,059,184
2031	102,870	102,870	335	164,592	41,148	205,740	3,116,556	2,853,444
2032	103,631	103,631	338	165,810	41,453	207,263	3,323,819	2,646,181
2032	104,398	104,398	340	167,037	41,759	208,796	3,532,615	2,437,385
2033	105,171	105,171	343	168,273	42,068	210,341	3,742,957	2,227,043
2035	105,949	105,949	345	169,518	42,380	211,898	3,954,855	2,015,145
2036	106,733	106,733	348	170,773	42,693	213,466	4,168,320	1,801,680
2036	107,523	107,523	350	172,036	43,009	215,046	4,383,366	1,586,634
2037	108,318	108,318	353	173,310	43,327	216,637	4,600,003	1,369,997
2039	109,120	109,120	355	174,592	43,648	218,240	4,818,243	1,151,757
2040	109,927	109,927	358	175,884	43,971	219,855	5,038,098	931,902
2040	110,741	110,741	361	177,186	44,296	221,482	5,259,580	710,420
2041	111,560	111,560	363	178,497	44,624	223,121	5,482,701	487,299
2043	112,386	112,386	366	179,818	44,954	224,772	5,707,473	262,527
2044	113,218	113,218	369	181,148	45,287	226,435	5,933,908	36,092

July 2043

1 - Initial average tons per day from Table 2.2 of Solid Waste Management Plan from franchise that would deliver to Union Mine from WERS.
2 - Growth rate from Solid Waste Management Plan for years 2010 to 2020 (8.1%) and 2020 to 2030 (6.7%) - averaged

Additionally, a school was constructed along Union Mine Road near SR-49. This school location complicates traffic control issues since the County expects that most traffic traveling to the landfill will be large transfer trucks. These trucks are in direct conflict with school traffic, during certain portions of the day, and this could cause a safety issue in the vicinity of the school. However, the County will set waste delivery times to prohibit access by transfer trucks during school drop-off and pick-up times.

Based on the existing pavement width (estimated at approximately 22 feet (+/-)),Union Mine Road does not provide sufficient room for traffic to pass in the event of a vehicle breakdown. This could affect school, and residential, traffic in the area as well as pose safety risks for traffic that will need to get around a broken down vehicle.

Another design consideration is that Union Mine Road has hairpin turns which, in their current configuration, do not accommodate a 65 to 70 foot long transfer truck at any speed.

Increasing Union Mine Road to a desirable width (between 35 and 40 feet in total) requires modifying existing property access roads and driveways, relocating existing power poles, and reconstructing existing fences at new locations. Some of these efforts are relatively substantial, on the west side of the road, due to grade differentials between the existing Union Mine Road grades and proposed grades. At this time, it is unknown how substantial property acquisition efforts would be, but it is likely this roadway modification effort would be substantial.

There are additional concerns regarding public acceptance of landfill traffic on Union Mine Road due to the rural atmosphere of the area. Property owners against the project could hold up the project until an acceptable agreement is negotiated. Therefore, the required timing for this option could be very lengthy.

Due to the concerns outlined above, and the time and money required to deal with the property issues mentioned, rendering a comprehensive cost estimate to improve the existing Union Mine Road is difficult. An estimate for pavement costs to improve the road to a width of 40 feet, and a pavement section capable of handling transfer truck loads placed on the road is approximately $3,000,000. An estimate for additional costs to address all of the other issues mentioned above likely would bring Union Mine Road improvement costs to within the $5 to $10 million dollar range.

New Union Mine Landfill Access Road

The second option involves constructing a "new" dedicated access road (see **Figure F-7,** on page F-23) with the location of SR-49 approximately one mile due west of the landfill. Obstacles to this alternative access are adjacent property owners and hilly terrain.

A preliminary conceptual road alignment shows it would be possible to construct a two-lane road, approximately 40 feet in total width over the hill while maintaining a gradient of 6 percent or less. This design uses a combination of 2:1 and 1:1 cut and fill slopes along the edges of the road.[9]

This new UMDS access road would be a dedicated road for the sole use of very large transfer trucks. The road width, turning radii, and pavement section must handle the load of these large trucks. The road width, proposed at 40 feet, provides a 12 foot wide traffic lane and an 8 foot wide breakdown lane/shoulder in each direction. This configuration will minimize traffic safety concerns in the event of a breakdown.

To keep earthwork costs down, the proposed UMDS access road design maintains a maximum centerline grade of 6 percent. Also, to determine the radii in corners that accommodates a 69-foot

[9] Actual slopes would need to be determined by geotechnical analysis.

Figure F-5
Union Mine Disposal Site and Septage Treatment Facility
Capacity For Scenario 1

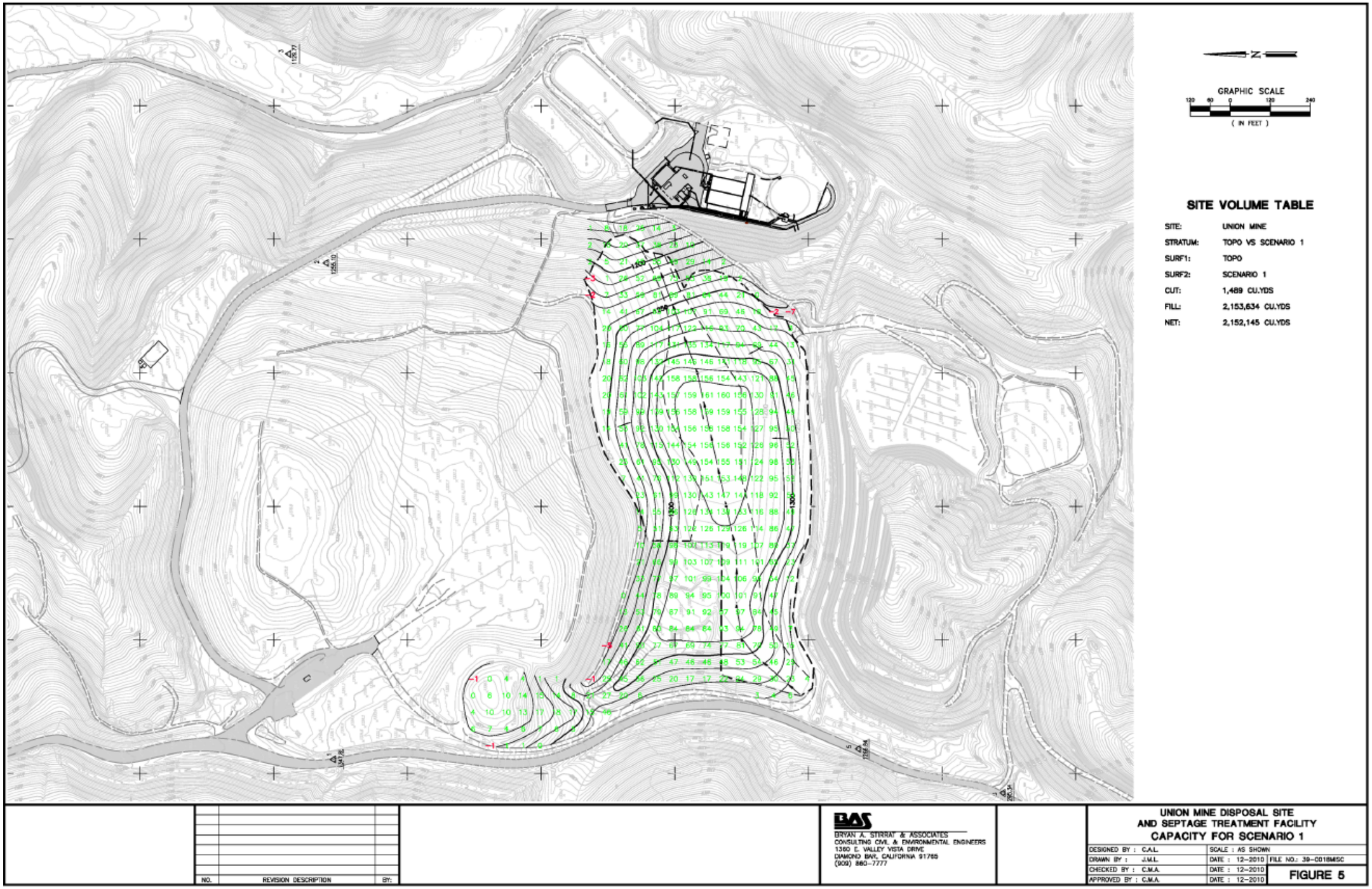

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Figure F-6
Union Mine Disposal Site and Septage Treatment Facility
Capacity For Scenario 2

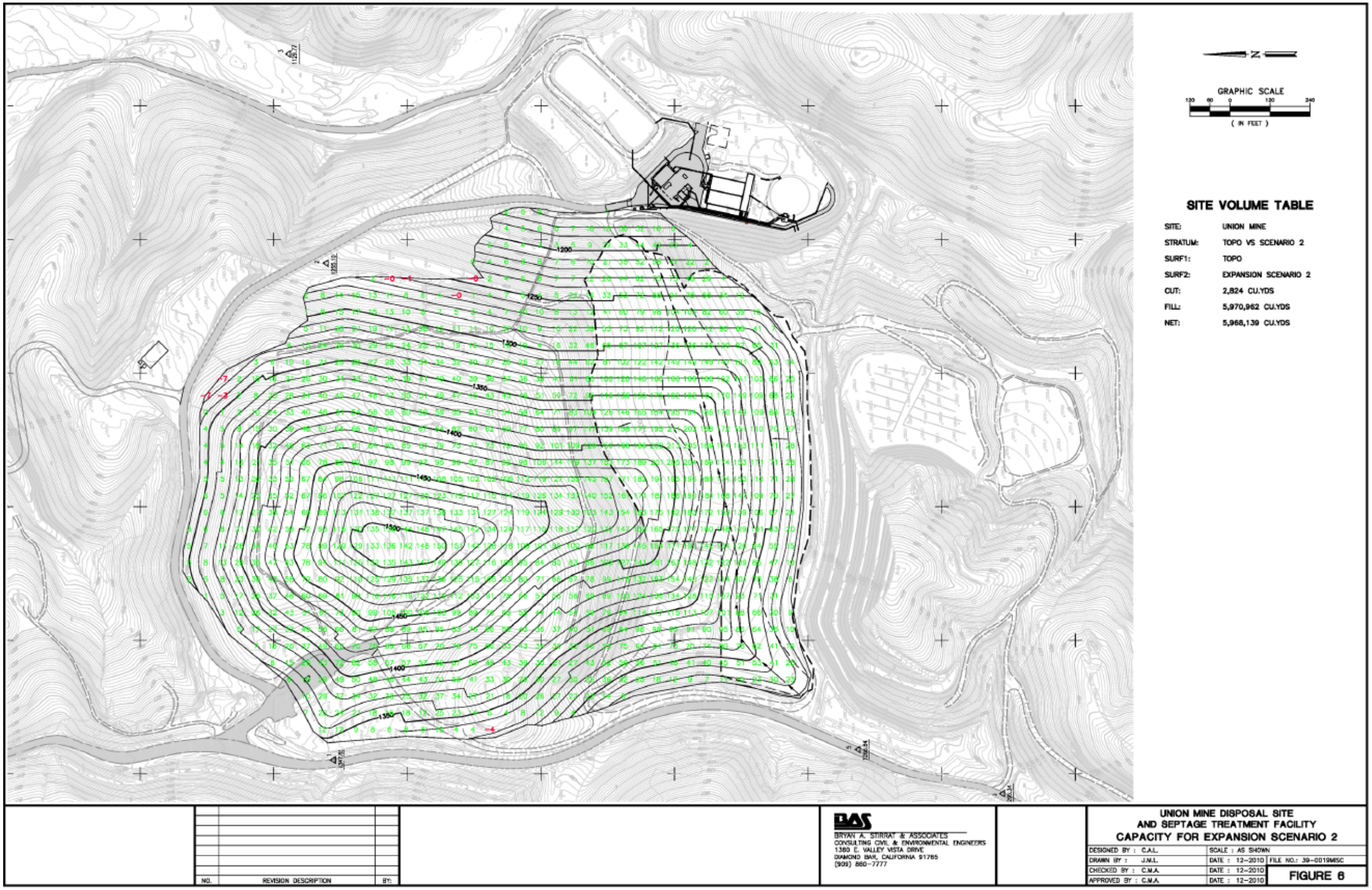

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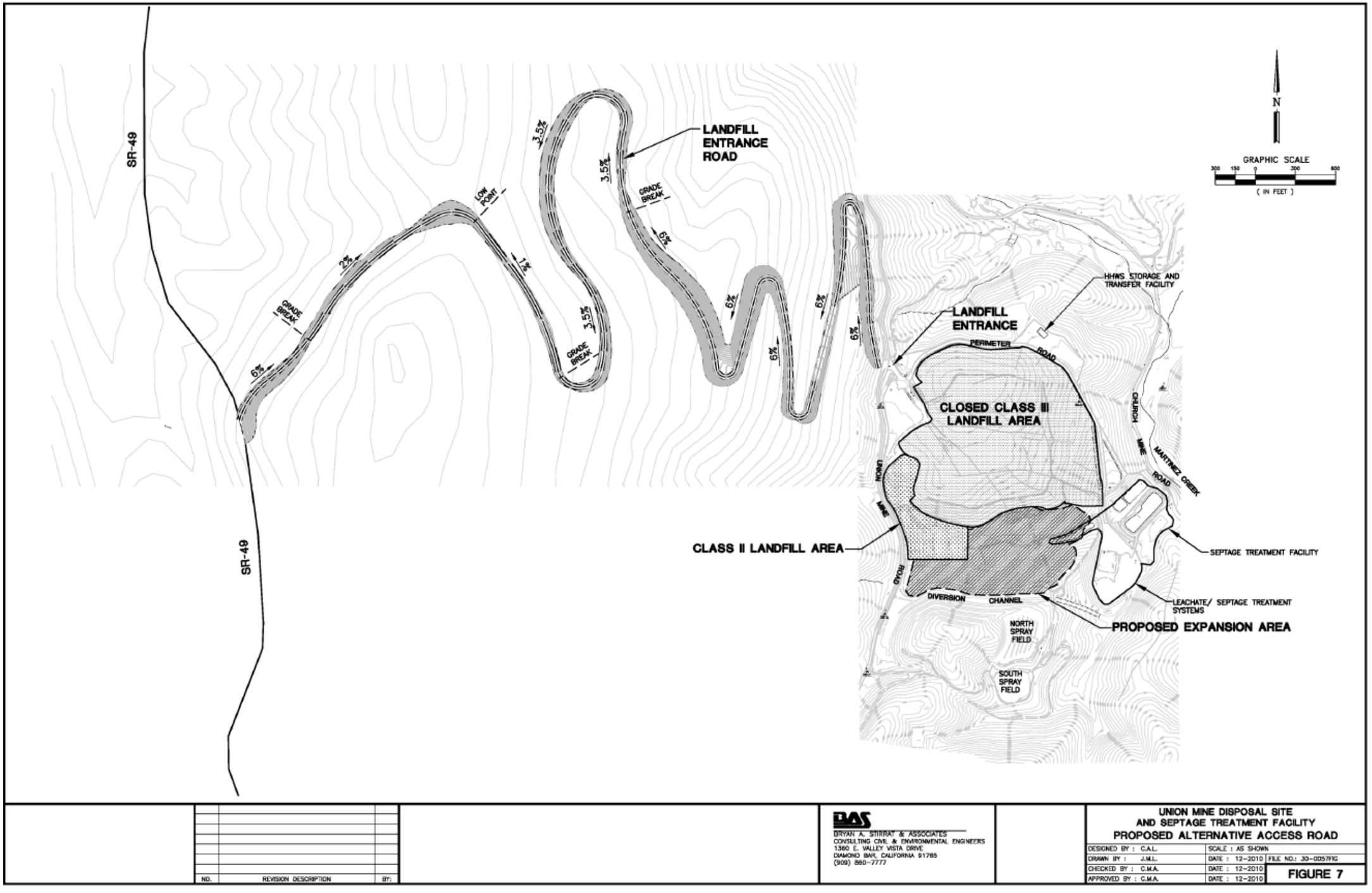
Figure F-7
Union Mine Disposal Site and Septage Treatment Facility
Proposed Alternative Access Road



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long transfer truck, the road configuration reflects a design speed of 15 mph. Increasing the design speed incrementally increases these radii, and increases the earthwork and associated road construction costs.

Total estimated construction costs for the new UMDS access road are between $6.5 and $8.5 million dollars.[10] This estimate reflects approximately 1 million cubic yards (cy) of earth that the County will need to excavate at an approximate cost of $3.00 per cy. The road also will require the County to place approximately 63,000 cy of fill at an approximate cost of $3.00 per cy. The proposed pavement section was 4 inches AC over 6 to 8 inches of CAB, for the entire length (2.87 miles) and width (40 foot), at an estimated cost of $5.50 per square foot. Much of the road length would require k-rail type concrete barriers, or three beam guard rails, at an approximate cost of $50.00 or $23.00 per linear foot, respectively.

Property acquisition issues are unknown in this area. However, the number of properties affected is substantially less than the number of properties affected by improving Union Mine Road. Also, the approximate construction costs of this new access road likely could be affected with more accurate topography, different design speeds, reduced transfer truck length, or alternative pavement section thicknesses. The cost estimates provided above likely are conservative.

To obtain more accurate construction costs, the County will need to conduct further research and make design refinements. This research will include an updated topographic map of the proposed roadway area, evaluation of discussions with local property owners to determine cooperation levels, and discussion between the County and potential haulers to determine design speeds and truck length options.

This new access road design assumes termination at the existing UMDS scales. The County also could incorporate a new and/or improved entrance area as part of this new access road alignment. In this case, the existing scale area could be utilized, but with new improvements for traffic flow and efficiency.

The scales/scale house would, however, need to be relocated as part of the final phase of fill for Expansion Scenario 2. Expansion Scenario 2 includes fill in the northwest corner of the landfill expansion which is the current location for the scales/scale house facilities.

I. Landfill Gas Migration Control and Monitoring System Improvements

The County will expand the existing landfill gas (LFG) migration control and monitoring system under either expansion scenario. In the expansion areas, the County will develop a series of horizontal and vertical extraction wells, perimeter collection trenches, and collection laterals, connected to a main header pipe leading to the flare station and/or a gas-to-energy facility.

During active operations, the County will use a combination of vertical and horizontal collection pipes installed incrementally to provide ongoing environmental control. Extracted gas will be transported to a flare station, and/or gas-to-energy facility, through gas headers. Requirements for the number of flares, as well as the possibility of operating a gas-to-energy facility, will depend on the amount of LFG generated. Perimeter gas migration monitoring probes also will be required.[11]

[10] Construction costs of the proposed access road would be estimated more closely based on a refined design.

[11] Per current 27 CCR requirements, probes are required at 1,000 foot spacing, and the depth of the deepest probe must be at the maximum depth of refuse.

J. Groundwater Monitoring System

Re-opening, and expansion, of the UMDS will require review of the existing groundwater monitoring system. The UMDS groundwater system was developed to comply with 27 CCR, Article 1, requirements as implemented through site-specific WDR Order No. 2006-0019, issued by the Central Valley RWQCB. Specifically, the water quality protection standards include: establishment of monitoring systems for groundwater, surface water and the unsaturated or vadose zone, including background and compliance monitoring points for each medium; constituents of concern; monitoring parameters; and a monitoring protocol and compliance period.

Overall objectives of the water quality monitoring system are to:

- Characterize background groundwater quality
- Detect changes in water quality that may result from changes in groundwater recharge or possible landfill leakage or landfill gas impacts
- Monitor groundwater elevations and gradients to determine groundwater flow directions and velocities.

K. Drainage Control System

The existing surface water drainage control system at the UMDS will be expanded and improved under either expansion scenario. The drainage system will be designed to accommodate 100-year, 24-hour storm event run-off volumes, in accordance with 27CCR. Interim drainage and erosion control features and procedures will be instituted during active disposal operations and will include fill area grading, down drains, earthen berms and sedimentation basins.

These upgrades will provide ongoing storm water collection and conveyance in a controlled manner and will minimize erosion, ponding, and the potential for excess leachate generation and surface water contamination. Most of the interim drainage control system facilities (e.g., perimeter storm drains, sedimentation basins) will be utilized as part of the final drainage control system for the site.

L. Facility Utilization Analysis

1. Franchise/Commercial Collection Vehicles and Self-Haul Customer Utilization

County waste will be initially delivered to the EcoPark for processing, and then the residual municipal solid waste transferred to the UMDS via 20-ton transfer trailers. No franchised or commercial collection vehicles will access the site. The County will direct self-haul customers to the EcoPark, and residual wastes from these customers will be loaded into transfer trailers. Limiting access to transfer trailers streamlines the disposal process at the UMDS, and the County will have more control over site traffic and unloading operations.

2. Union Mine Landfill Vs. Long-Haul Disposal

In consideration of re-opening the UMDS, it is important to compare the benefits of disposing in-County or continuing with long-haul disposal out-of-County. Currently, waste from the West Slope of the County, which would come to the UMDS, is delivered to Potrero Hills Landfill in Solano County. Potential benefits of continuing this option are:

- Lower operational/maintenance costs
- No improvement costs for the UMDS.

Potential cons of continuing long-haul disposal are:

- Costs/fees/risks because the facility is not under the County's control
- High fuel costs to long-haul refuse

- Higher tipping fees
- Future requirement purchase green house gas emission credits for impacts to environment from long haul emissions.

Re-opening and expansion of the UMDS provides the following potential benefits:

- Provides the County control over costs/fees/risks associated with managing the County's solid waste
- Provides host fee revenues for the County.

Potential cons to re-opening and expanding the UMDS are:

- Costs to improve/expand the UMDS
- Increased operational/maintenance costs.
- Regulatory and permitting hurdles

M. Land Use Impacts

Current existing land uses at the UMDS include the following:

- A 6.0-acre Class II landfill area
- A 36.3-acre Class III old landfill area
- A Class II surface impoundment
- El Dorado County shooting range
- Household hazardous waste storage (HHWS) and transfer facility
- Leachate/septage treatment facility
- Spray fields
- Three sedimentation basins.

Re-opening, and expanding, the UMDS will only impact the landfill footprint itself. Existing on-site roads, and ancillary facilities, can remain in-place and continue to function as they do now. The Class II surface impoundment, leachate/septage treatment facility, spray fields, and shooting range also can remain as they are now, and continue operating. As part of the proposed expansion, the County will excavate and fill the west sedimentation basin with waste. The County will need to evaluate the need to replace and/or relocation this basin. The County will also need to evaluate the capacity of the two remaining basins in light of the proposed expansion.

N. Development Costs

Table F-4, on the next page provides a summary of preliminary estimated Union Mine Landfill development costs. Costs are expressed on a per ton of capacity basis for each of the two scenarios. Total costs reflect a landfill development cost portion and a road improvement cost portion. Costs are shown for a low and high cost range. For scenario 1, the costs range from $24.93 to $76.29 per ton of additional landfill capacity and for scenario 2, the costs range from $13.37 to $32.30 per ton of additional landfill capacity. These landfill costs do not include landfill operating costs. Also, for meaningful interpretations of these data, these landfill development costs will need to be included in a total system cost comparison (including landfill operating costs, transfer, and transport) and compared to the current total system costs.

Table F-4
Union Mine Landfill Development Costs
(Not Inclusive of Operating Costs)

Expansion Scenario	Landfill Development Cost[1]	Road Improvement Costs[2]		Total Cost[3]	
	($/ton)	Range	($/ton)	Low ($/ton)	High ($/ton)
Scenario 1 (1.1 million ton capacity)	8.11	–	–	–	–
Existing Road	–	Low	32.73	40.84	76.29
		High	68.18		
Alternative Road	–	Low	16.82	24.93	44.93
		High	36.82		
Scenario 2 (3 million ton capacity)	7.17	–	–	–	–
Existing Road	–	Low	12.06	19.23	32.30
		High	25.13		
Alternative Road	–	Low	6.20	13.37	20.74
		High	13.57		

Notes:

[1] Development costs include liner construction, liner design/support, final closure, final closure design/support, gas collection/ monitoring system expansion, groundwater monitoring system expansion, and permitting (CEQA, SWFP and WDRs).

[2] Road improvement costs include two options 1) improve existing road and 2) construct alternative road. Both options include improvement costs for Highway 49. High and low cost options are presented due to uncertainty in property acquisition costs and right-of-way fees.

[3] Total costs are presented as a development cost/ton of capacity for each scenario including each road option and the high and low range for each road option. The total cost is the sum of the landfill development cost and the road option cost.

Appendix G

Alternative Technologies for Disposal and Diversion

Appendix G
Alternative Technologies for Disposal and Diversion

This appendix provides an overview and background information on alternative technologies for disposal and diversion of municipal solid waste (MSW). El Dorado County is considering options for alternative waste management technologies within the planning horizon of this 2011 Solid Waste Management Plan. Alternative technologies can include traditional Waste-to-Energy (WTE) facilities or newer state-of-the-art Conversion Technologies (CT) which are comprised of thermal, biological, chemical, and mechanical processes.

WTE facilities have been widely used in the United States since the 1980s. Public sector interest in conversion technologies has increased in recent years, based on the desire to enhance recycling and the beneficial use of waste materials, reduce dependence on landfills and imported fossil fuels, and reduce greenhouse gas (GHG) emissions.

This appendix provides information on the current state of WTE and CT and the potential utilization of such facilities in El Dorado County. The remainder of this appendix is organized as follows:

A. Waste-to-Energy
B. Conversion Technologies
C. Current County Considerations
D. Conclusion.

A. Waste-to-Energy

Introduction

Worldwide, there are 776 WTE facilities processing approximately 140 million tons per day of waste. WTE is common in overseas locations that have high population densities, limited available landfill space, and high energy demands. Western Europe has 388 WTE plants and Asia has 301 WTE plants.[1]

Conventional WTE is the most commonly used municipal solid waste volume reduction technology in the United States. Nationwide, there are 87 WTE facilities operating in 25 states, disposing of nearly 29 million tons of MSW per year. These facilities also generate over 2,700 megawatts of electricity, enough to power more than 2.4 million homes. These WTE facilities are commonly constructed with two or three

[1] WSA, 2007 Directory of Waste-to-Energy Plants.

combustion trains, with the majority of facilities (over 70 percent) having design capacities of 500 tons per day or greater. There are more than a dozen existing WTE facilities in the United States with design capacities of 2,000 tons per day or greater. The largest facilities are designed to process 3,000 tons per day of MSW, including facilities in Miami, Florida; Pinellas, Florida; and Fairfax, Virginia.[2] WTE technology has a strong track record in the United States, with several decades of operating experience. Most of the WTE facilities in the United States began operating in the late 1980s or early 1990s.

In California there are three (3) WTE facilities:

- Commerce Refuse-to-Energy Facility (Commerce). This facility consists of one unit with a MSW capacity of 350 tons per day. It began operation in 1987 and generates approximately 10 megawatts of electricity. The facility is owned by the Commerce Refuse-to-Energy Authority and operated by the Sanitation Districts of Los Angeles County.
- Southeast Resource Recovery Facility (SERRF) (Long Beach). This facility consists of three (3) units, each with a capacity of 460 tons per day, for a total MSW capacity of 1,380 tons per day. It began operation in 1988 and generates approximately 37.5 megawatts of electricity. The facility is owned by the City of Long Beach and operated by Montenay Pacific Power Corporation.
- Stanislaus County Resource Recovery Facility (Crow's Landing). This facility consists of two (2) units, each with 400 tons per day capacity, for a combined MSW capacity of 800 tons per day. It began operation in 1989 and generates approximately 22 megawatts of electricity. The facility is owned and operated by Covanta Stanislaus, Incorporated.

[2] WSA, 2007 Directory of Waste-to-Energy Plants.

Description of WTE Technology

Conventional WTE facilities utilize two basic types of technology: mass burn or refuse-derived fuel (RDF). Units can be field-erected or modular. Mass burn plants combust unprocessed mixed municipal waste in furnaces. Mass burn is the most common technology for existing WTE facilities in this country, and is in use in more than 70 percent of facilities. RDF facilities pre-process waste by removing non-combustible materials and shredding the remaining waste to create a more uniform fuel. The resulting RDF can be burned on-site or transported for use a fuel in off-site boilers.

Economics of WTE

The per-unit cost for development, design, and construction of conventional WTE facilities ranges from approximately $150,000 to $200,000 per tons per day of design capacity. Thus, a one-unit 400 tons per day facility would cost between $60 million and $80 million. Typically, larger facilities have a lower unit-price cost than smaller facilities. Unit-price operating costs (which are not the same as tipping fees) are typically on the order of $50 to $70 per ton of waste processed, depending on the size of the facility. These costs are partially offset with revenues from the sale of steam and/or electricity and revenues from the sale of secondary products (e.g., recovered ferrous metal). The average tipping fee for WTE plants in the capacity that would be used for the County is in the $100 per ton range. The current median cost for landfill disposal in El Dorado County is approximately $76 per ton.

Hurdles to WTE in California

There are several hurdles to development of new WTE facilities in California. In addition to public opposition and strict air quality standards, new WTE facilities are not currently eligible for renewable energy or diversion credits. Under current state laws and regulations, WTE facilities are categorized as

"combustion facilities" not "conversion facilities." Diversion credits are allowed for existing facilities only.

B. Conversion Technologies

Introduction

Conversion Technologies are for the most part a subset of WTE, in that they produce a fuel that can be converted to energy and may also produce additional products like compost and feedstock chemicals for industry. Conversion technologies include thermal, biological, chemical, and mechanical processes that can convert MSW into steam, electricity, hydrogen, natural gas, ethanol, biodiesel, chemicals and other useful products.

Conversion technologies offer many potential benefits, including: enhanced recycling and beneficial use of waste; diversion of significant amounts of waste from landfills; reduction in greenhouse gases and other emissions, and production of needed renewable products with strong year-round markets (electricity, gas, fuels). Conversion technologies are successfully used to manage solid waste in Europe, Israel, Japan, and Asia.

Status of Conversion Technologies

Public sector interest in conversion technologies is increasing in the United States. Many wide-ranging jurisdictions, such as: New York City; Lake County, Indiana; St. Lucie County, Florida; Taunton, Massachusetts; and in California, Los Angeles, Santa Barbara, and Sacramento have conducted, or are in the midst of conducting, investigations and initiatives. Many earlier investigations focused on identifying new and emerging technologies and compiling technical, environmental and financial information for such technologies.

While there have been pilot demonstration of biological and thermal CT in the United States, the absence of larger-scale commercial facilities in North America has been an obstacle to demonstrating the capabilities and benefits of these technologies for processing MSW. Currently, the first such commercial thermal demonstration plant (Plasco – plasma arc gasification) is now in full operation in Ottawa, Ontario, Canada after an extensive two-year start-up and retrofit period.

Several jurisdictions in California (i.e., City of Los Angeles, County of Los Angeles, City of Paso Robles, City of San Diego, County of San Bernardino, City and County of Santa Barbara, Glendale, the Salinas Valley Solid Waste Authority, and the County of Orange) are either undertaking feasibility studies or are in various procurement stages for developing CT projects.

On the commercial scale, only two CT vendors are able to provide a commercial plant as small as 100 to 150 tons per day: GEM America and Adaptive ARC. Other vendors could accommodate a 100 ton per day site by constructing only one module; however these vendors typically prefer to build at least two modules for redundancy and better economies of scale. Other vendors, such as, ArrowBio, could build a plant at a slightly higher 150 ton per day range, but caution that the cost is significantly higher than for a 300 ton per day two line plant. El Dorado County would need to partner with other entities in the region to support a larger waste stream, for a CT facility.

Challenges to Development of Conversion Technologies

Current challenges to conversion technology development in California (and the United States) include:

- Lack of commercial demonstration
- Lack of development and acceptance
- Regulatory hurdles for product use
- Inconsistent qualifications for renewable energy credits

- Unclear, problematic or non-existent regulatory permitting pathways
- Ineligibility (potentially) for diversion credits under AB 939 for conversion technologies that burn waste
- Need to educate public on conversion technology benefits.

Conversion technology projects described below are addressing these challenges.

Identification and Description of Conversion Technologies

The development of new and emerging conversion technologies, and particularly the presence of corporate sponsors and teaming partners for such technologies, is growing. **Exhibit G-1,** on page G-5, lists conversion technology suppliers that have been identified in the most recent research efforts, including those conducted by New York City and the County and City of Los Angeles, California.

As shown in Table F-1, conversion technologies can be categorized as follows:

- *Thermal Processing.* Thermal processing includes gasification, plasma gasification, and pyrolysis, which use or produce heat, to convert MSW into a synthesis gas (syngas) producing fuel, electricity and other usable products (aggregate, carbon-based char, metal).
- *Biological Processing*. Biological processes can be used to reduce the organic fraction of MSW through controlled decomposition by microbes. Anaerobic digestion, occurring in the absence of oxygen, produces a biogas that can be combusted to generate electricity. Aerobic digestion, occurring in the presence of oxygen, produces compost or a solid fuel. Biological technologies are often combined with mechanical pre-processing systems, which allow for the recovery of traditional recyclables.
- *Hydrolysis.* Hydrolysis reactions combine water and acid with cellulose (e.g., paper, food waste, yard waste) to produce sugars. The sugars are then converted to ethanol or other products.
- *Mechanical Processing.* Mechanical processing technologies employ physical processing, such as steam classification (autoclaving), to recover recyclables and separate organic from inorganic MSW. Mechanical processing technologies are typically followed by other conversion processes.
- *Chemical Processing.* Chemical processing technologies use one or a combination of chemical means to convert MSW into usable products, often uniquely encompassing other conversion processes (e.g., biological, thermal). Hydrolysis is a subset of chemical processing technologies.

Conversion technologies are at various stages of development, as summarized in Table G-1, on page G-6.

Economic Review of Advanced Conversion Technologies

A key consideration in determining the commercial viability of conversion technologies, and their feasibility as alternatives to continued landfilling, is the tipping fee. This review considered the following factors relating to economics:

- *Information Sources.* In the past few years, several studies have generated conversion technology cost and revenue data for small and large facilities in the United States, including: ARI Technology Incorporated's (ARI's) September 2004 and March 2007 studies and reports for New York City; ARI's October 2007 study for Los Angeles County, California; BAS's December 2008 study for the City of San Diego; and BAS's May 2010 study for the City of El Paso Robles. This appendix summarizes information from these reports, as well as other published information.

Exhibit G-1
Conversion Technology Suppliers by Technology Category

Thermal Processing	Biological Processing
Gasification	**Anaerobic Digestion**
Bioengineering Resources, Inc.	Arrow Ecology and Engineering
Dynecology	Canada Composting
Ebara Corporation	Ecocorp
Ecosystems Projects	KAME/DePlano
Entech Solutions	New Bio
Global Alternative Green Energy	Orgaworld
Global Energy Solutions	Organic Waste Systems
Global Recycling Group	Vagron
Green Energy Corporation	Waste Recovery Systems, Inc. (Valorga)
ILS Partners/Pyromex	**Composting**
Interstate Waste Technologies (Thermoselect)	Bedminster
KAME/DePlano	Conporec
Primenergy	Herhof
Taylor Recycling Facility	Engineered Compost Systems
Thermgenics	**Chemical Processing**
Waste Gasification Systems/Allan Environmental	**Hyrdolysis**
Zeros Technology Holding	Arkenol Fuels/Blue Fire Ethanol
Zero Waste Energy Systems	Biofine/BioMetics
Plasma Gasification	Genahol Powers/Ineous Bio
AdaptiveARC	Masada OxyNol
Alter NRG/Westinghouse[3]	**Other**
EnviroArc Technologies/Nordic American Group	Changing Word Technologies
Global Environmental Technologies	**Mechanical Processing**
GSB Technologies	CES Autoclaves
Integrated Environmental Technologies	Cleansave Waste Corporation
Peat International/Menlo International	Comprehensive Resources
Plasco Energy Group	EnerTech Environmental
Solena Group	Herhof Gmbh
Startech Environmental	Recycled Refuse International
Pyrolysis	Tempico
Bioconversion Technology LLC (Emerald Power)	WET Systems
Eco Waste Solutions	World Waste Technologies
Entropic Technologies Corporation	
GEM America	
International Environmental Solutions	
Pan-American Resources	

[3] Several project developers have proposed or are engaged in projects with the Westinghouse plasma gasification technology, including Geoplasma and Rigel Resource Recovery

Table G-1
MSW Conversion Technology Development Status

Technology	Commercial Use Outside U.S.	Pilot Testing in U.S.	Additional Research and Testing Required	Desirable for Monitoring
Anaerobic Digestion	P	P		
Thermal Processing	P	P		
Hydrolysis		P		
Aerobic Digestion/Composting		P		
Chemical Processing			P	P
Mechanical Processing		P		

- *Planning Perspective.* Since technologies considered in this report are not yet in commercial operation in the United States, information on capital and operating costs is generally available only on a planning-level basis. These cost projections are instructive to the degree that the analyses result in order-of magnitude cost and tipping fee estimates. Although such estimates should not be considered definitive, they are useful in providing estimates of what reasonably could be expected of individual technologies and are one factor in determining which technologies may be appropriate for further consideration.
- *Analytical Assumptions.* In the studies referenced above, participating technology suppliers were asked to provide capital and operating cost estimates, as well as performance data such as net energy produced for sale and the types and volumes of materials that could be recovered and sold. The amount of electricity generated and the volume of materials recovered for each technology were confirmed through ARI's independent reviews. These analyses show that the amounts of products (i.e., the energy generated and the secondary materials recovered) – and therefore project economics – vary between the technologies.
- *Cost/Benefit Considerations.* In considering alternatives to landfilling, direct costs are only one aspect of a cost/benefit analysis. Additional considerations include:
  - Statutory imperatives, local policies and objectives regarding environmental concerns such as recycling, renewable energy generation, and diversion
  - Long-term reliability of conversion technologies considered
  - Actual costs derived from a formal Request for Interest or Request for Proposal process
  - Long-term outlook for energy and materials markets,
  - The future prospect of continued landfilling as influenced by regulatory, economic and policy matters.

On strictly a tipping fee basis, CT is currently more expensive than landfill disposal. As shown in the table below, the current landfill tipping fee is approximately $76 per ton, whereas CT tipping fees for smaller size plants range from $70 to $140 per ton. The small size of the waste stream in El Dorado County eliminates economies of scale that are critical for some of the CT technologies. With such a small waste stream, costs for CT can be expected to be in the higher range rather than the lower.

Technology Type	Current Tipping Fees (dollars per ton)
Landfill (El Dorado County)	$76
Anaerobic Digestion	$70 to $100
Thermal Conversion	$70 to $140

Current County Considerations

The County recently reviewed a proposal from a technology vendor, Organic Energy Corporation (OEC), to use a "landfill in a box" system whereby black bin post-source separated waste (i.e., mixed municipal solid waste) is sorted into nineteen (19) constituent streams for processing. The processing includes both a wet stream (processed with anaerobic digestion) and dry stream. Each constituent wastestream is processed using proven, available technologies. The OEC believes that about two-thirds of the waste stream can be diverted. Under its proposal, the OEC fully finances the facility costs and only requires that the jurisdiction furnish its waste. Currently the size of the County's total West Slope waste stream (300 tons per day) is not sufficient to make this technology economically viable (the OEC targets 1,000 to 1,500 tons per day); however, the County will closely monitor how this technology matures over time and whether the "landfill in a box" concept becomes an option for the County in the future.

D. Conclusion

Due to increasing regulatory restrictions on landfilling solid waste and the current energy situation in the United States, research and development of conversion technologies is rapidly progressing. Many new technologies are currently being developed and put into operation by numerous companies on a trial basis.

Technologies such as WTE and CT will need to be further evaluated to determine if renewable energy from these technologies is feasible for the County's waste stream. An assessment will need to determine if such technologies are generally practical and feasible for the County. Key issues that will need to be evaluated in such an assessment include:

1. Site Evaluation
2. Waste Stream Flow Control
3. Permitting
4. Waste Diversion Credits
5. Support for CT in the Community
6. Risk
7. Power Generation/Value of Electricity
8. Alternative Fuels
9. Pilot, Demonstration, or Commercial Scale CT
10. AB 32 Greenhouse Gas (GHG) Reductions
11. Cost/Benefit of CT versus Disposal

The El Dorado County EcoPark design concept includes approximately five (5) acres for a potential future CT facility. An economically viable, state-of-the-art waste facility incorporating both MRF and CT would produce the highest benefit to El Dorado County residents and the environment.

At this point, the small volume of the County's waste stream is an impediment. There is no economy of scale, and the current volume falls at the very lowest range of commercial feasibility for both CT and WTE. In fact, for most of the technologies on the market today to be cost effective; the minimum waste stream is 150 to 200 tons per day.

Economics of CT are likely to evolve over the next several years, improving the potential for applications in the County. Even now, there are two promising thermal technologies designed for

smaller communities (with wastestreams 100 to 150 tons per day) that could be appropriate for El Dorado County. The first commercial applications of these technologies are currently in start-up mode; the County will monitor these, and other, new CT applications over time.

Next Steps

CT and WTE may be feasible in El Dorado County. In order to pursue a project in the near future, the County should implement the following steps:

1. Monitor the development of ongoing CT projects in Los Angeles, Santa Barbara, Salinas and other areas of California and Nevada.
2. Monitor and support legislation in Sacramento that would support development of CTs in California, such as the recently vetoed AB 222.
3. Pursue discussion with other local jurisdictions related to aggregating their waste streams for a potential regional CT project Need to consider transportation costs.
4. Conduct a specific analysis of the following:
   a. WTE: Modular combustion units generating steam or electricity.
   b. CT: The two vendors that can develop a commercial scale plan at 100 tons per day.
   c. CT: Vendors that would be willing to develop a “demonstration” 50 tons per day plant.

Appendix H

El Dorado County GIS Map – Unincorporated Parcels

Appendix H
El Dorado County GIS Map – Unincorporated Parcels

Exhibit H-1, on page H-3, provides an example GIS map identifying the number of developed residential parcels by zip code for the unincorporated County. This map excludes El Dorado Hills Community Service District, Cameron Park Community Service District, and the Cities of Placerville and South Lake Tahoe. The number of parcels refers to the number of developed residential parcels, as shown by the yellow boxes. The number of units refers to residential units on parcels; there may be multiple units on a particular parcel. The preliminary analysis of percent of potential customers in Table 4-2 is based on units.

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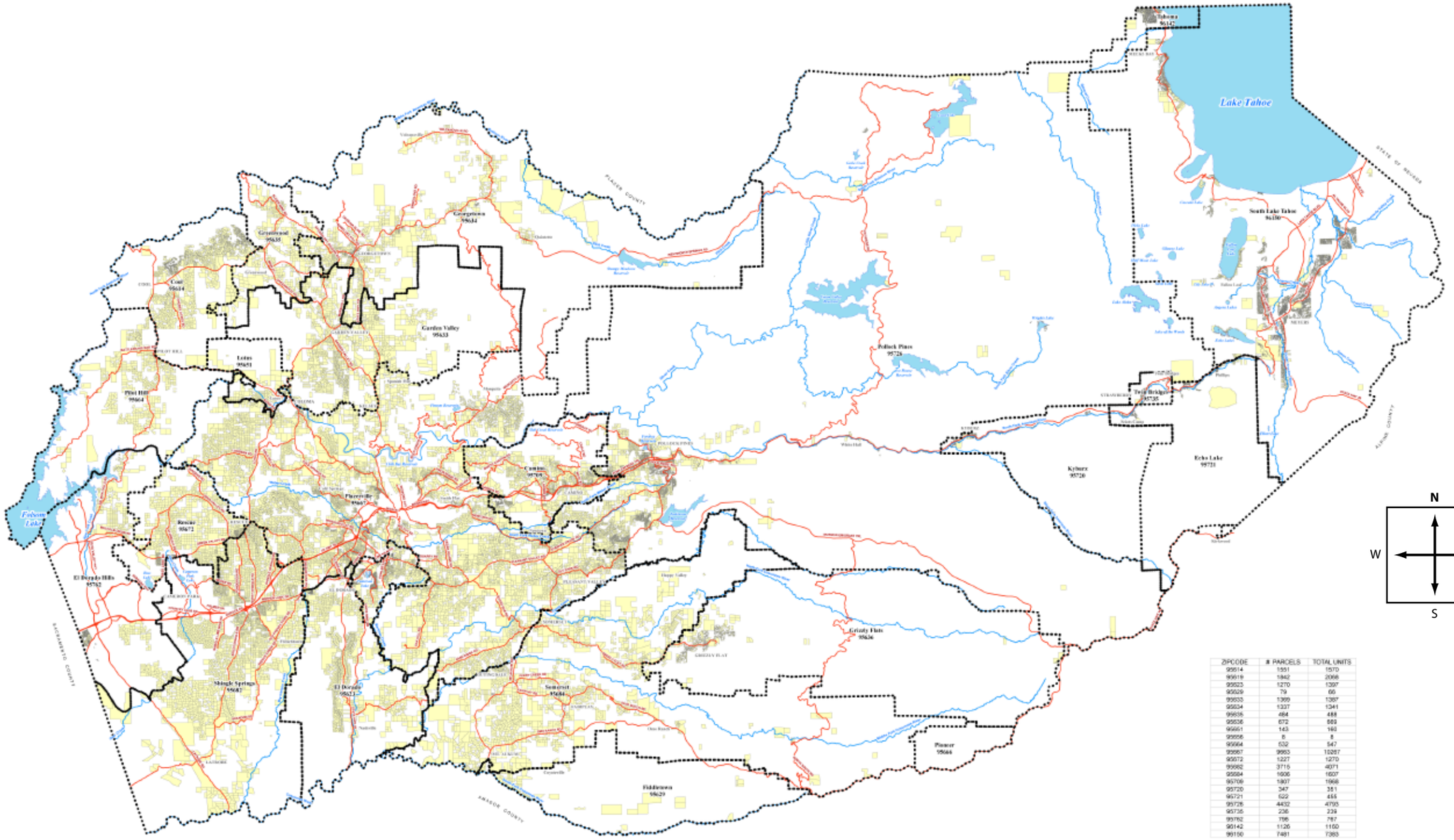
Exhibit H-1
El Dorado County Unincorporated Developed Residential Parcels



ZIPCODE	# PARCELS	TOTAL UNITS
95614	1551	1570
95619	1842	2066
95623	1270	1397
95629	79	86
95633	1369	1387
95634	1337	1341
95635	464	468
95636	672	869
95651	143	160
95656	8	8
95664	532	547
95667	9953	10287
95672	1227	1270
95682	3715	4071
95684	1606	1627
95709	1807	1968
95720	347	351
95721	522	555
95726	4432	4785
95735	236	239
95762	756	787
96142	1126	1150
96150	7491	7383

ZIPCODE BOUNDARIES
W/ SELECTED PARCELS
County of El Dorado
State of California

®

Legend
- Residential Developed Parcels
- Zipcode Boundary
- Major Roads
- Rivers & Creeks

0 1 2 4 6 Miles

Map displayed in State Plane Coordinate System (NAD 1983 California Zone 2, feet)

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Appendix I

Small Volume Transfer Stations

Appendix I
Small Volume Transfer Stations

The Western Slope of El Dorado County is diverse in its combination of urban and rural communities. The County is challenged to site and design effective Material Recovery Facilities (MRFs) that serve this urban and rural mix, and also meet County diversion goals.

The West Slope includes a large number of self-haulers from the various rural communities. Examples of rural areas include Georgetown, Quintette, Cool, Spanish Flat, Somerset, Mt. Aukum, Grizzly Flat, and Avinsino Corner. These rural areas are relatively far away from the existing WERS facility, and the conceptual EcoPark locations identified in Appendix E. The distance from these rural communities to the existing WERS, and the conceptual EcoPark locations, create the potential for illegal dumping, prompt higher self-haul traffic volumes at the central facility location, and limit rural area accessibility to full resource recycling centers/facilities.

Developing two (2) Limited Volume Transfer Operations (LVTOs) to serve the needs of the rural West Slope communities could address illegal dumping, lower self-haul volumes at the current WERS facility and/or EcoPark, and increase County diversion rates. The remainder of this appendix presents permitting requirements of an LVTO, West County rural service areas, throughput analysis, and the potential increase in diversion by self-haulers.

A. Limited Volume Transfer Operation (LVTO)

The requirements for siting, permitting, and operating a limited volume transfer station are minimal relative to a large full-scale MRF or transfer station. According to Title 14, California Code of Regulations (14 CCR), Section 17402(a) (9), a “Limited Volume Transfer Operation” is defined as:

> An operation that does not conduct processing activities and accepts less than 15 tons per day (tpd) or 60 cubic yards per day (cy/day) for the purpose of waste storage prior to the transfer of waste to another solid waste operation or facility. This would allow the facility to receive a maximum of 4,605 tons per year, based on a 307 day per year operation.

For an LVTO, the only requirements are that prior to commencing operations the operator (1) submit a Notification to the Local Enforcement Agency (LEA) of its intent to operate, and (2) verify compliance with local planning ordinances, which includes compliance with the California Environmental Quality Act (CEQA) (14 CCR, Section 17403). The operator also must prepare a Storm Water Pollution Prevention Plan (SWPPP) and a Storm Water Monitoring Program (SWMP).

Moreover, LVTO's would only be inspected by the LEA as necessary to verify compliance with State Minimum Standards. There are minimal regulatory requirements governing LVTO's, making them a very feasible option for the County to implement.

B. Potential Service Areas

For planning purposes, the County is divided into nine regions as shown in Table 2-1. West County includes seven of the nine regions. These regions are based on the Sacramento Area Council of Governments (SACOG) Regional Analysis Districts (RADs).

Potential locations for the LVTOs were determined using a geographic analysis which included a review of population densities and use of Google Earth to identify site accessibility (terrain and roads) and proximity to targeted rural communities. Service areas identified for the proposed LVTOs include two general areas: one in the north area (Georgetown/Divide, north of Highway 50), and one in the south area (Somerset/Mt. Aukum, south of Highway 50). The potential north area LVTO would provide service to the following RADs:

- **Northwest County Region** – a heavily rural area consisting of three RADs (Coloma-Lotus, Georgetown, and Pilot Hill)
- **El Dorado High Country Region** – a heavily rural area consisting of the El Dorado High Country RAD, and covering much of the northern County, including some of the East Slope.

The potential south area LVTO would provide service to the following RADs:

- **Mt. Aukum-Grizzly Flat Region** – a heavily rural area consisting of the Mt Aukum-Grizzly Flat RAD, covering most of the southern region of the County
- **West Central County Region** – a primarily rural area consisting of the southern half of the Cameron-Park-Shingle Springs RAD, plus two additional RADs: Diamond Springs and Pollock Pines. This region covers much of the area south of Placerville and east of El Dorado Hills. There would be relatively minor use of the south LVTO by this area, because a majority of the self-haulers from this region likely would use the existing WERS facility, or if constructed, the EcoPark.

C. Facility Throughput Estimates

Table 3-3 in Section 3 provides waste disposed, by sector (including commercial, residential, and self-haul sectors). The self-haul sector, which would be the primary user of the proposed LVTOs, compromises approximately 20 percent of the total waste disposed in the County (38,584 tons in 2010).

Table 3-2 provides waste disposed for each RAD. Each of the two selected general areas for LVTOs, (1) Georgetown/Divide, and (2) Somerset/Mt. Aukum, include two RADs each.

Georgetown/Divide includes the Northwest County and El Dorado High Country RADs, with a combined projected total waste disposal of 21,637 tons in 2030. Therefore, the maximum throughput for the northern LVTO would equal approximately 4,327 tons per year, or 20 percent of 21,637 tons (equal to the estimated self haul portion of waste disposed).

Somerset/Mt. Aukum includes the West Central County (39,632 tons in 2030) and Mt. Aukum-Grizzly Flat (12,436 tons in 2030) RADs, with a total combined projected waste disposal of 52,068 tons in 2030 (39,632 + 12,436), of which an estimated 20 percent, or 10,414 tons, would be self-hauled. It is expected that most (approximately 80 percent) of the self-haulers from the West Central County RAD will use the WERS facility leaving 20 percent using the southern LVTO. As such, the maximum

throughput capacity of the southern LVTO would equal 4,072 tons per year (i.e., for West Central County: 39,632 x 20 percent self hauled x 20 percent using the southern LVTO; plus for Mt. Aukum-Grizzly Flat: 12,436 x 20 percent self hauled and all using the southern LVTO).

Both facilities would have to be open 307 days per year to accommodate maximum projected tonnages. The County potentially could modify the number of operating days once the County obtains sufficient usage data, and tonnage data identifying material types and quantities.

Diverting rural self-haulers to LVTOs would lessen traffic impacts and improve circulation at the existing WERS or future EcoPark. For example, based on 2007 data, self-haul trips on any one day at the WERS facility peaked at more than 600 vehicles (Source: Waste Connections).

C. Diversion Efforts at LVTOs

In an effort to increase diversion amongst self-haulers it is recommended that the conceptual LVTOs provide additional services including a buy-back center and roll-offs to collect Construction and Demolition (C&D) materials, commingled recyclables, and green/wood materials. The County should charge a lower tipping fee for commingled materials (e.g., C&D and commingled recyclables) than that charged for municipal solid waste (MSW).

The County could potentially accept green/wood material free of charge. This would require implementation of a Pay-As-You-Throw (PAYT) program as discussed below. As for buy-back centers, they are relatively easy to establish and frequently accepted within the community. Buy-back centers provide a convenient drop off point for recyclable materials, and enhance diversion, while providing a cost saving incentive to LVTO patrons. The County could easily accommodate a buy-back center, and additional roll-off bins, at the LVTO's.

The following case studies identify rural community efforts to increase self-haul diversion:

- **Chittenden, Rutland County, Vermont** – The Solid Waste District of Rutland County operates seven low volume transfer stations (LVTS) in addition to the main transfer processing facility. These smaller drop-off centers allow residents to dispose of refuse, recyclables, and universal waste. LVTS's located in rural communities, as well as in urban communities, range from minor, limited-use facilities to full-service facilities. Overall, the facilities provide an alternative to curbside refuse pick-up.

  An attendant in a booth operates the LVTS facilities, managing incoming self-haul customers. After checking in with the attendant, customers drive forward and deposit each material into assigned tilt carts or open-top/closed-top containers. The facility charges: $2 for a 30-gallon bag of refuse, $1 for a 15-gallon bag of refuse, and does not charge for recyclables. At the larger LVTSs, bagged trash is placed in 40-cubic-yard compactors; and bulky waste is placed in 40-cubic-yard, open-top containers. The smaller LVTSs only have 40-cubic-yard open-top containers.

- **San Luis Obispo County, California** – Due to the challenges of recycling among residents who self-haul their waste, Cold Canyon Landfill implemented a resource recovery park (RRP) to accommodate self-haul customers. The RRP, designed to promote pre-sorting by the self-haul community, contains different areas to separate various material types anticipated from self-haul customers. This led to a diversion rate of nearly 67 percent.

- **Yakima County, Washington** – To encourage more recycling amongst self-haulers, Yakima County raised refuse tipping fees, which in turn provided funds for more drop-off locations. The County raised tipping fees due to the negligible tipping fee difference that had existed between recyclable and non-recyclable loads. Recyclable loads are usually free or lower in cost. The County also is considering increasing mandatory curbside collection services.

- **Clark County, Washington –** Clark County implemented a "Recycling Rebate" program where self haul customers receive a $2 rebate when they deliver 30 gallons or more of recyclables which are separated, sorted, and identifiable from loads of mixed waste.

D. Pay-As-You-Throw (PAYT) at the LVTOs

Pay-As You Throw (PAYT) is a program that encourages recycling and could be incorporated into the County's LVTOs self-haul program. In a PAYT program, residents would be charged by volume for trash. Separated recyclables would be charged at a reduced cost (or free).

Benefits of a PAYT program at the LVTOs include:

- Decreased waste: The Environmental Protection Agency has stated that municipalities often see a 25 to 35 percent reduction in waste.
- Increased recycling: If residents pay for trash disposal, and recycling is free or charged at a greatly reduced fee, then they are much more inclined to recycle.
- Control of costs: Residents have control of the direct costs that they spend on disposal fees.
- There would be no significant cost impact to the LVTO facility operation.

E. Conclusions

Based upon a high-level review of the West Slope self-hauler origins and participation rates for residential curbside garbage collection services, siting LVTOs in the West Slope northern and southern areas would relieve some traffic and congestion at the WERS, or EcoPark, may reduce illegal dumping, and may increase self-haul recycling. While there is potential value of these small volume transfer stations, the County will need to conduct additional study and analysis to fully identify economic, environmental, NIMBY, and public benefit impacts.

The County will need to weigh the costs of these facilities in light of its potential investments in the primary MRF/transfer station (either the WERS upgrades/modernizations, or the new EcoPark). For example, the County may conclude that a new EcoPark is sufficient to address all West Slope self haul needs, without any LVTOs.[1]

[1] The EcoPark would improve some of the circulation issues of the current WERS related to self haul traffic because the EcoPark would provide more tipping lines for self-haul traffic.

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