El Dorado County
Solid Waste Management Plan

VOLUME I

Executive Summary

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Executive Summary

El Dorado County Environmental Management Department developed this Solid Waste Management Plan (Plan) to provide residents, businesses, and facility operators with a coordinated plan to meet the County's future solid waste program, infrastructure, and capacity requirements. This Plan provides a focused and coordinated approach to the County's future integrated waste management. This document provides strategies to move the County's integrated waste management system forward in a cost effective, systematic, cohesive, and strategic fashion.

This Plan is organized in two volumes. **Volume I, Executive Summary,** and **Volume II, Detailed Strategies and Support.** The Executive Summary provides the overall plan, and is organized in nine sections, as listed below:

A. Background
B. Discussion
C. Goals
D. Objectives
E. Strategies by Objective
F. Strategies by Phase
G. Strategy Cost Comparison
H. Cost Assessment of Major Facility Infrastructure Scenarios
I. Implementation Approach.

Volume II is intended to serve as a reference to Volume I. Volume II contains background information on the current solid waste system, El Dorado County population and waste projections to 2030, detailed descriptions of the 42 strategies, and supporting analyses.

A. Background

The mission of the El Dorado County Environmental Management Department is to "protect, preserve, and enhance the public health, safety, and environment through a balanced program of environmental monitoring and enforcement, innovative leadership, community education, customer service, and emergency response for the citizens of and the visitors to El Dorado County."[1] As an extension of the mission, the Department has the goal of providing "a safe, effective and efficient system for the collection and processing of recyclable and transformable materials and for the safe disposal of residual solid wastes which cannot otherwise be recycled or transformed."[2]

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[1] El Dorado County, http://www.edcgov.us/emd/index.html.

[2] El Dorado County General Plan.

Table 1
Summary of Recent Diversion Rates

Jurisdiction	Residential Pounds per Day Disposal Target[a]	2009 Residential Pounds per Day Disposed	2009 Equivalent Diversion Rate[b]	2010 Equivalent Diversion Rate[b]
City of Placerville	6.9	3.2	77%	75%
City of South Lake Tahoe	9.4	8.7	54%	54%
El Dorado County – Unincorporated	5.3	3.8	64%	65%
Total				65%

[a] The State's measure of meeting the AB 939 diversion goal is now based on a pounds per day target. The residential pounds per day target is based on the average pounds per day generated between 2003 and 2006 multiplied by 50 percent.

[b] The equivalent diversion rate is determined by the following calculation: 1 – [(annual pounds per day disposed)/(pounds per day disposal target x 2)].

El Dorado County (County) was the first rural California county to meet the California Integrated Waste Management Act Assembly Bill 939 (AB 939) 50 percent diversion goal.[3] The County and its waste management franchises achieved that goal by developing facilities and implementing several source reduction and recycling programs. These facilities and programs have served the County well.

In 2009, the two Cities and the County unincorporated area exceeded the State's established per resident disposal rate targets,[4] as illustrated in **Table 1,** above. The County as a whole is well on its way to a 75 percent diversion target. The City of Placerville exceeded 75 percent diversion in 2009 and 2010. The Countywide diversion rate was approximately 65 percent in 2010. The high diversion rates of the last two years may be related to economic conditions more than diversion activities. It is possible that diversion rates will decrease when economic conditions improve. Thus, the County cannot rest on its laurels. There is still much that can be done to improve diversion, sustainably manage waste and resources, reduce greenhouse gas emissions, comply with state laws and business codes, and modernize solid waste infrastructure.

The California waste management regulatory environment is evolving, and El Dorado County will need to expand capacity. Evidence of an evolving regulatory environment includes:

- *Global Warming Legislation* – In 2006 Assembly Bill 32 (AB 32) passed, setting new waste management requirements including mandatory commercial recycling and 50 percent diversion of organic waste. The County is not meeting these new requirements. Currently, commercial recycling is voluntary. Green waste collection programs are implemented only in portions of the County. The County's food waste collection is limited to a pilot commercial food waste program in South Lake Tahoe. The County's commercial recycling and organic waste programs must be upgraded to meet AB 32 requirements.
- *New Legislation* – The State recently considered several legislative bills that if passed would have increased the diversion goal from 50 to 75 percent. Many California jurisdictions have already set 75 percent diversion targets or "zero waste" goals. This Plan includes strategies to get to a 75 percent diversion goal.

[3] Unincorporated County exceeded the 50 percent goal in 2003, and the City of Placerville and City of South Lake Tahoe exceeded the 50 percent goal in 2004.

[4] These pounds per person per day (PPD) targets are essentially equivalent to a 50 percent diversion rate.

The County faces several waste management challenges, including:

- *Infrastructure, West Slope*: The West Slope waste management infrastructure cannot sufficiently handle current and future capacity needs. The West Slope Material Recovery Facility (MRF) is operating near capacity. It cannot process the single stream curbside recyclable materials now collected in much of the West Slope. These recyclable materials are consolidated, then shipped to Benicia, California for processing. The MRF faces construction and demolition (C&D) debris processing limitations. The MRF is located a considerable distance from the western end of the County where future growth is expected. Green and food waste make up a large share of materials yet to be diverted. However, green and food waste management infrastructure is insufficient to handle expanded diversion from these material streams.[5] The County must identify short and long-term facility needs (e.g., MRFs, composting facilities, Union Mine landfill, C&D processing, collection infrastructure, and alternative technologies).
- *Infrastructure, East Slope*: The South Lake Tahoe MRF/Transfer Station and Resource Recovery Facility (RRF) meets the South Lake Tahoe region's current needs. However, this facility will need to evolve over time to achieve higher diversion targets.
- *Management Consistency*: The current waste management approach is disjointed. The two community service districts, two cities and the unincorporated areas have different programs, services, participation requirements, rate structures, and franchise terms. Diversion efforts are hampered by this disjointed approach. If the County takes a more comprehensive, integrated waste management approach, economies of scale can be realized and jurisdictions will share a common vision during franchise negotiations.
- *Economic Climate*: The County does not have extensive resources to use for new facilities and programs. Current economic conditions and prudent government stewardship necessitates cost effective delivery of waste management services.
- *Waste Export*: Currently, the majority of waste generated in the County is recycled or disposed of in other jurisdictions. The County is not currently required to be entirely self-sufficient. However, the County is advised to take greater responsibility for and control of its waste in preparation for regulatory changes. As solid waste treatment technologies evolve, solid waste may become an asset. This Plan will assist jurisdictions in determining which waste streams can effectively and economically be managed in-County versus out-of-County.

The Plan's purpose is to overcome current and future challenges in a cost effective manner. The Plan provides a strategic roadmap for coordinated use by the County and/or Countywide agencies (e.g., Joint Powers Authorities (JPAs)). The Plan will assist jurisdictions in making informed solid waste facility, program, material flow, and financing decisions. The Plan addresses the entire County, however, many facility-related issues focus on the West Slope. While the East Slope recently upgraded their facilities, the West Slope still has significant infrastructure limitations. Long term infrastructure needs, and program and policy issues apply equally to both slopes of the County. The Plan is complementary to the Countywide Integrated Waste Management Plan (CIWMP), developed in 1995 in response to AB 939. The Plan supports the 1995 CIWMP goals, outlined in **Table 2,** on the next page.

[5] The State itself currently has only a limited number of facilities that are setup to process combined food waste streams. Approximately 15 facilities Statewide are permitted to accept postconsumer food scraps for processing.

Table 2
Countywide Integrated Waste Management Plan Goals (1995)

Goal
1. All jurisdictions within the County will implement source reduction, recycling, and composting in order to reduce the amount of solid waste that must be disposed of by land disposal and/or transformation.
2. The implementation of integrated waste management shall be a joint effort of the Cities and the County. New source reduction, recycling, and composting programs shall be coordinated or implemented on a multi-jurisdictional basis to the greatest feasible extent in order to ensure the least cost to ratepayers, the most effective programs, and to avoid unnecessary duplication of programs, efforts and administration.
3. The Cities and the County shall strive to strengthen markets for recycled and composted materials.
4. All residents of the County shall have access to a program that safely and effectively handles and disposes of household hazardous wastes. To the greatest extent possible, the Cities and County shall encourage a decrease in the production, consumption, use and disposal of hazardous household products. For those materials that are used and disposed, the goal shall be to reuse or recycle as much of the material as possible, and to dispose of the remainder in an environmentally safe manner.
5. The Cities and County will strive to reduce the amount and hazard of special wastes generated, to maximize recycling, reuse, and composting of special waste generated in the County, and to ensure environmentally safe disposal of the special waste generated which cannot be reused, recycled, or composted.
6. The County will have adequate landfill and/or transformation disposal capacity either within or outside the County for wastes which will need to be landfilled and/or transformed after maximizing source reduction, recycling and composting through existing or new programs.
7. The County will pursue the expansion of the Union Mine Disposal Site to provide adequate disposal capacity for western slope wastes for at least 15 years.

The Plan is guided by a vision, which is in turn supported by goals, objectives, and strategies. **Exhibit 1,** on page 5, outlines the Plan approach, as presented in this Executive Summary. The vision provides a concise statement that describes a "future state" for solid waste management in the County. The ten goals provide programmatic direction and general guidelines that describe what the County should seek to accomplish in achieving the future state vision. The five objectives define specific implementation steps that the County should take in order to achieve the goals.

The 42 strategies identified in this Plan describe specific activities that the County will undertake to achieve the objectives. For example, there are six specific strategies (or activities) that the County should implement in order to achieve Objective 1: *Develop authorities for future solid waste management*. Strategies come with a cost, and result in a certain diversion potential. The County should prioritize strategies based on the balance between cost and diversion potential, as well as other less tangible factors.

B. Discussion

Exhibit 2, starting on page 6, frames current solid waste discussion topics in a question, consideration and recommendation format. Questions were developed based on the specific issues and concerns identified by the County and Committee. Some of the questions are inherently controversial. These questions must be answered in order to move into the next phase of integrated waste management. There may be many viable answers and the correct answers may change over time. The recommended "answers" guide many of the specific strategies identified in the Plan, as illustrated in Exhibit 2. The detailed strategy descriptions in Volume II of the Plan provide additional support for the recommended answers.

Exhibit 1
Overview of El Dorado County Solid Waste Management Plan

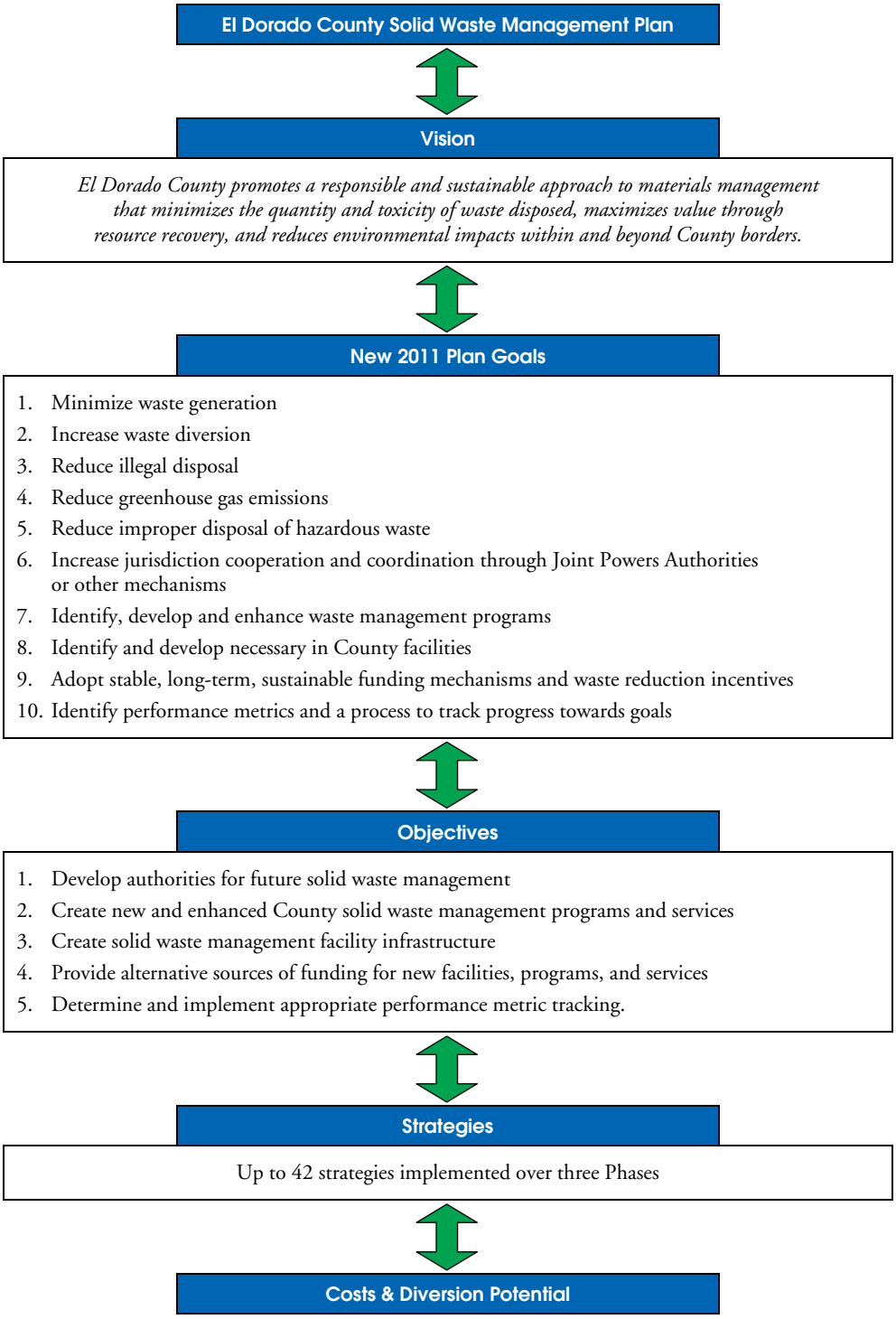

Exhibit 2
Discussion Questions, Considerations, Recommendations, and Related Strategies *Page 1 of 3*

Question	Considerations	Recommendation	Related Strategies
1. What is the role for a solid waste Joint Powers Authority (JPA)? Would the County benefit from a coordinated JPA approach?	■ A JPA would coordinate new programs, services and consolidate reporting. ■ A JPA would provide shared decision-making and facility financing. By combining resources and waste streams, a JPA would have greater bargaining power. ■ The South Lake Tahoe Basin Waste Management Authority, (est.1994) is a successful solid waste management JPA. ■ Each JPA member agency maintains its own identity and franchise agreement. ■ Negotiating a JPA agreement and determining appropriate jurisdiction balance could create challenges.	County, City of Placerville, El Dorado Hills CSD, and Cameron Park CSD should seek to develop a West Slope Waste Management JPA. Long-term, consider developing a regional JPA (West Slope, East Slope and potentially joining with other neighboring jurisdictions).	Strategy 1.1 Strategy 1.5
2. Should the County continue to rely on out-of-County facilities to manage solid waste?	■ Dependence on out-of-County facilities for waste stream management introduces uncertain costs and risks. The County has no control over operations of those facilities. The County also has no control over the fees charged over the long-term. Improper waste management could result in liability. ■ Developing in-County waste management facilities could reduce risk and provide opportunities to increase revenue. ■ In considering facility infrastructure investments (at either in-County or out-of-County locations), the County also must consider the most technically feasible and cost effective options in an effort to maximize ratepayer return on investment.	Reduce reliance on out-of-County waste management facilities by developing some level of in-County waste management infrastructure.	Strategy 1.5 Strategy 3.1 Strategy 3.2 Strategy 3.3 Strategy 3.4 Strategy 3.6 Strategy 3.7 Strategy 3.10
3. What types of in County facilities are most appropriate? MRF? Composting? C&D? Union Mine Landfill? Alternative technologies?	■ Types of facilities to consider range from relatively "low-tech" processing to sophisticated new technologies. ■ Currently, the County is constrained in pursuing alternative technologies due to high volume requirements, high cost, and technological uncertainties. ■ There are pros and cons to re-opening Union Mine Landfill. The facility is currently permitted, but the need for a new access road and environmental documentation may make reopening cost prohibitive. ■ The West Slope needs an improved MRF. This could range from upgrading the existing facility to handle single stream material to a comprehensive EcoPark. Considerations include costs, financing, siting, and size of waste stream. ■ There are C&D processing capabilities on the East and West Slopes. However the West Slope facility is not close to the western end of the County where most construction will occur. ■ Consider the economic viability of developing a compost facility to handle West Slope and potentially East Slope materials (including green and food wastes). ■ More involved facility infrastructure development may currently be cost prohibitive.	Potentially improve West Slope MRF to provide single stream processing. Develop a West Slope C&D processing line on the westernmost side of the County. Develop West Slope composting facility (potentially at Union Mine Landfill) that could be utilized by entire County (and perhaps other jurisdictions).	Strategy 3.1 Strategy 3.4 Strategy 3.5 Strategy 3.9 Strategy 3.10

Exhibit 2
Discussion Questions, Considerations, Recommendations, and Related Strategies *(continued)*

Question	Considerations	Recommendation	Related Strategies
4. What is the appropriate ownership structure for new facilities? Public? Private? Public-private partnership? For example, should the County own and/or operate a West Slope MRF?[1]	■ County is responsible for providing solid waste management services. ■ County does not have resources to fully finance and develop most new facilities over the near-term and intermediate-term. ■ Currently, the County owns the Union Mine Landfill property and the two MRFs are owned by private solid waste companies. ■ Under a public-private partnership (PPP), a government agency contracts with a private entity to provide service. In some cases, the government entity retains facility ownership and contracts for facility operations. In others, the private entity owns and operates the facility, while the government entity owns land and leases land to an operator. ■ PPPs can spread risk between government and the private sector, improve service efficiency, and provide capital resources. ■ Under a PPP, government agency retains responsibility for providing services and monitors private entity's performance. ■ Private entity assumes risks by investing capital and derives a reasonable profit.	County should seek PPP's for any new facility development. To encourage PPP's, the County should provide County owned property if possible, with an option for County ownership. Once needs are determined (compost facility, C&D line, MRF, EcoPark, etc.), specific PPP facilities, services and performance requirements should be identified in bidding process. County should thoroughly evaluate the option to own its own facilities where economically feasible (e.g., upfront at the time of construction or by using a purchase option at some later date in the facility's lifecycle).	Strategy 1.1 Strategy 1.5 Strategy 3.1
5. What facility siting issues must be considered? What should facility location criteria be, given legitimate concerns of nearby residents?	■ There are strong proponents and opponents of potential facility sites. ■ Ranking criteria and process (Appendix E) are appropriate for a first-level identification of potential sites, but do not identify a final location. ■ Location selection requires a public input process. Without all-inclusive public input, the process will be unsuccessful. ■ In an ideal situation, the community near the site will voluntarily accept the facility. Conditions can be negotiated to provide accountability and assurances.[2]	Although there is not likely to be total acceptance of a facility in any location, as a whole, a community must be given the opportunity to accept or reject a facility (for example through a referendum, commission, community panel, etc.).	Strategy 1.1 Strategy 1.5 Strategy 3.1
6. Should new franchise agreements include flow-control conditions?	■ Franchise agreements can specify where collected materials should be taken for processing or disposal. ■ Some of the current franchise agreements clearly include jurisdiction waste stream flow control authority while others do not.	If new solid waste management facilities (compost facility, C&D facility, MRF, EcoPark, Union Mine Landfill, or alternative technology) are to be developed, jurisdiction franchise agreements should specify that appropriate waste streams be directed to these facilities.	Strategy 1.1 Strategy 1.5 Strategy 3.1

[1] The current West Slope WERS MRF/transfer station property and facility is owned and operated by Waste Connections, a publicly-held waste management company. The current East Slope dirty MRF and Resource Recovery property and facility are owned and operated by South Tahoe Refuse, a privately-held waste management company. The County has no ownership in these two MRF/transfer station property or facilities so neither is a public-private partnership. The Union Mine Landfill is owned by El Dorado County.

[2] The County also can explore host fees paid to the impacted community.

Exhibit 2
Discussion Questions, Considerations, Recommendations, and Related Strategies *(continued)*

Question	Considerations	Recommendation	Related Strategies
7. Can East Slope and West Slope waste management be coordinated to take advantage of larger volumes of material?	■ The Sierra Nevada Mountains create a division between the East Slope and West Slope. Most of the County's population resides on the West Slope. ■ Recent upgrades to the South Lake Tahoe MRF provide the East Slope with C&D and recyclable processing capabilities, but MSW, green and food wastes are shipped to Nevada. ■ While materials have historically been transported from South Lake Tahoe to Nevada, these materials could be transported to the West Slope, if facilities were available.[3]	Should a West Slope composting or other facilities be developed, there would be an opportunity to receive East Slope materials. This could improve economies of scale, keep material in-County, and potentially reduce East Slope waste management costs. Transportation distances would have to be considered.	Strategy 1.5 Strategy 3.1 Strategy 3.4
8. Should waste from other jurisdictions be imported to support long-term infrastructure, such as alternative technologies?	■ The use of alternative technologies for solid waste management is in its infancy in the United States. The County should monitor alternative technology development over the next several years. ■ The current (and likely future) alternative technology economics require a larger volume of waste than is generated in the County. ■ If the County wishes to pursue alternative technologies, it will be necessary to work with regional jurisdictions to ensure adequate waste volumes. ■ A pilot program could demonstrate whether alternative technologies can be successful in the County.	Should a particular technology become viable, the County should consider working with jurisdictions in the region to share the financing, risks and ensure adequate flow of materials to the facility. This could involve the creation of a regional JPA.	Strategy 1.5 Strategy 3.1 Strategy 3.6
9. How can the self-haul component be addressed?	■ Approximately 45 percent of unincorporated County residents (excluding CSDs) do not subscribe to refuse collection services. These residents accumulate waste, self-haul to the transfer station/MRF, or dispose illegally. ■ Illegal disposal increases with factors such as high gas prices. There are many acres of accessible public land where illegal dumping occurs. ■ Mandatory collection, while appropriate for many small communities in the unincorporated County, is not economically or politically feasible in many remote parts of the County.	Mandatory collection should be adopted when at least 85 percent of potential customers in a community subscribe to collection services. Continued elimination of group collection areas with the use of smaller collection trucks should be used to increase customer subscription rates. In areas where subscription rates are unlikely to exceed 85%, small transfer facilities or debris boxes should be centrally located. These facilities would be open a few days a week to provide collection and recycling opportunities.	Strategy 1.4 Strategy 3.5

[3] Currently, East Slope greenwaste material is taken approximately 25 miles from the STR facility to either Full Circle Compost or Bentley Agrowdynamics, both in Minden, Nevada, for composting. While there are obvious economies of scale with more material entering a new West Slope Composting facility, the County will have to determine whether it is economically feasible to haul greenwaste material approximately 60 miles one way over the Sierra Nevada Mountains from the East Slope to the West Slope.

C. Goals

Based upon the forgoing discussion, this Plan is intended to achieve ten new goals.[6] The first five goals are general outcome goals. The second five are more specific program goals. These new 2011 goals are consistent with AB 939, the Global Warming Solutions Act of 2006 (AB 32), recent trends in the California legislature, and the County's 1995 CIWMP goals.

The 2011 goals are intended to promote sustainability. Sustainability refers to society's ability to meet present needs without compromising the ability of future generations to meet their own needs. Balancing environmental, economic, and social goals is a key tenet of sustainability. Sustainability includes accepting responsibility for one's environmental impacts, and managing those impacts to minimize harm.

Below, each goal is presented and briefly discussed. These goals define the "future state" of solid waste management in the County. The objectives and strategies in this Plan provide specific actions that will lead the County from the current state to this "future state."

1. Minimize waste generation

Source reduction and reuse are at the top of the solid waste management hierarchy. Minimizing waste generation is the most cost efficient and effective approach to increasing diversion. The County should continue to implement and expand source reduction and reuse policies and programs. Examples include encouraging customer use of thrift stores, reusable building supply stores, household hazardous waste (HHW) "give back" programs and implementing a business waste audit program.

2. Increase waste diversion

Legislation in each of the last several sessions has sought to direct the State and/or local jurisdictions to achieve a 75 percent diversion level. For example, Assembly Bill 341 (Chesbro) in the current 2011/12 legislative session would increase the State diversion rate to 75 percent by 2020 and implement mandatory commercial and multi-family recycling. In fiscal year 2009/10, the State legislature considered the following three (3) bills:

- Senate Bill 25 (Padilla) – Would have required CalRecycle to develop a strategic plan to increase the State diversion rate from 50 percent to 75 percent by an unspecified date.
- Assembly Bill 737 (Chesbro) – Would have required CalRecycle to ensure 75 percent diversion through source reduction, recycling, or composting, by January 1, 2020.
- Assembly Bill 479 (Chesbro) – Would have required a diversion goal of 60 percent for jurisdictions by 2015, and a Statewide diversion goals of 60 percent by 2015, and 75 percent by 2020. Commercial recycling programs also would have been required.

While none of these three bills became law, it is likely only a matter of time before the diversion mandate is increased from 50 to 75 percent. El Dorado County has an opportunity to "get ahead of the curve" by setting and working towards a voluntary diversion goal of 75 percent. Virtually all of the strategies identified in this Plan have the potential to increase County diversion.

3. Reduce illegal disposal

The County should continue to aggressively address illegal disposal. Illegally disposed waste, whether burned or dumped, poses environmental and economic risks. The County cannot simply

[6] These goals are different from those identified in the 1995 CIWMP (Table 2).

mandate refuse collection, it should also provide outreach/education and convenient disposal alternatives. Alternatives to illegal dumping, including containerized collection systems, must be offered to residents. Strategically placed small volume transfer stations and debris boxes will help minimize illegal dumping.

4. Reduce greenhouse gas emissions

AB 32 directed the California Air Resources Board (ARB) to develop actions to reduce greenhouse gases. AB 32 includes a number of provisions directed toward solid waste management, including mandatory commercial recycling. Jurisdictions will be required to implement mandatory commercial recycling programs beginning on July 1, 2012. In addition, the AB 32 implementation scoping plan requires local governments to divert at least 50 percent of organic waste from landfills by 2020. CalRecycle and the ARB will be finalizing regulations for these and other similar solid waste emission reduction actions in the near future.

Local governments have influence and authority over many activities that contribute to greenhouse gas emissions. The County has an opportunity to promote emission reductions through early implementation of the mandatory and voluntary provisions outlined in the State's scoping plan. Other areas where the County can reduce greenhouse gas emissions include eliminating green waste burning on the West Slope. Also, the County can require the use of alternative fuels (compressed or liquefied natural gas), or advanced technologies, for collection vehicles should these options be cost-beneficial. Reducing transportation of waste and recyclables to out of County facilities may also reduce greenhouse gas emissions (if travel distances are shorter than to in-County facilities).

5. Reduce improper disposal of hazardous waste

Improper disposal of hazardous, universal and household hazardous waste (HHW) can result in health impacts and costs to El Dorado County citizens. The County is responsible for providing alternatives to effectively and safely manage HHW and universal wastes. The County should enhance its facility infrastructure to maximize the types and quantities of HHW materials collected at HHW facilities. The County should provide Antifreeze, Battery, Oil, and Paint (ABOP) drop off facilities located at proposed new small volume transfer stations. These facilities will allow customers to safely and efficiently dispose of small quantities of these materials.

6. Increase jurisdiction cooperation and coordination through Joint Powers Authorities or other mechanisms

The County's solid waste management systems are currently fractured, with six haulers (with three parent companies) serving two cities, two community service districts, and the unincorporated County. The County is further divided by the Sierra Nevada Mountains, creating a "West Slope" and "East Slope" division. A more coordinated approach to solid waste management will provide economies-of-scale for facilities, promote more efficient diversion strategies, and enhance the County's ability to meet the greenhouse gas emission reduction goal. The County and West Slope jurisdictions should seek to create a West Slope Joint Powers Authority for joint facilities and program planning.

7. Identify, develop and enhance waste management programs

The County should increase the level of potentially economically viable waste management alternatives by developing food waste collection programs (both residential and

commercial), creating community composting programs, and enhancing existing already in-place diversion programs such as school programs, multi-family recycling programs and the County's construction and demolition debris (C&D) ordinance.

8. Identify and develop necessary in County facilities

The County should determine and develop the optimum mix of in-County and out-of-County solid waste management facilities. This Plan provides a starting point for identifying which facility options to pursue in the near, intermediate and long term. The mix of in-County facilities will depend on the answers to all nine questions presented in Exhibit 2. Facility alternatives include:

- Reopening Union Mine Landfill
- Upgrading the existing West Slope MRF/Transfer Station
- Upgrading the South Lake Tahoe MRF/ Transfer Station/Resource Recovery Facility
- A new West Slope MRF/Transfer Station or EcoPark
- A new C&D processing line in the western end of the County
- Small volume transfer stations and/or drop-off centers in rural locations
- A compost facility to process green and food waste
- An organic processing facility (such as anaerobic digestion) for green and food wastes
- Alternative technologies.

The ultimate mix of in-County and out-of-County facilities should reflect what is economically viable and can be supported by materials flow. Economic viability will depend on financing and facility ownership structures and JPAs or other agreements between jurisdictions in and outside of the County. The County alone may never be large enough to be fully self-supporting, in terms of waste management facilities. However, the County should take responsibility for final disposition of at least a portion of the waste stream.

The County currently is entirely dependent on other jurisdictions (including facilities in the State of Nevada) for disposal of solid waste. While reasonable in the short-term, dependence on out-of-County landfills introduces uncertain costs and consequences. By managing more of the County's solid waste in-County, the County can assume greater control of the costs, risks, uses and management of its waste. In-County waste management must be balanced with reasonable use of close, viable facilities.

Solid waste management approaches will evolve over time as new technologies become economically feasible. The County should continue to evaluate and consider implementing advanced conversion technologies, green approaches to resource utilization, expanded and enhanced diversion programs, and new opportunities to reduce greenhouse gas emissions. Conversion technologies convert MSW into a fuel that can be used to produce energy. These technologies include anaerobic digestion, thermal processing, hydrolysis, chemical processing, mechanical processing, and waste-to-energy facility options (currently waste-to-energy facilities are virtually non-existent in California at a commercial scale).

9. Adopt stable, long-term, sustainable funding mechanisms and waste reduction incentives

Systems to collect, process, reuse, recycle, or dispose of wastes should be designed and operated to minimize costs and maximize effectiveness. Community solid waste management should be self-supporting and sustainable. Transfer station

and/or landfill per ton fees should be considered to fund programs when waste is disposed either in-County or out-of-County. The County also can use potential offsetting reductions in disposal costs to fund new programs and services. Fee systems can be designed to create incentives for waste management companies to support County programs and maximize the amount of waste diverted. For example, assessing a fee on the tonnage of material leaving a MRF/Transfer Station creates a strong incentive to divert waste from landfilling.

10. Identify performance metrics to track progress towards goals

Performance metrics are an essential component of successful programs. Metrics help determine if programs are meeting goals and are cost effective. Beyond simply calculating state-mandated diversion totals, metrics can measure how new waste management programs are working. For example, by tracking diversion by material or program type, metrics can illustrate whether new programs, facilities, and policies are effective. Conducting periodic waste characterizations also will help determine the extent to which programs, facilities, and policies are addressing problem materials.

Examples of performance metrics include the percentage change in tons of materials diverted on a program-specific basis. Examples of economic metrics include overall system costs per ton, program costs per ton, material processing costs per ton, and disposal costs per ton. Efficiency metrics may include the number of households served per worker, per vehicle, or per day. Service metrics may include processing plant capacity and throughput. Metrics for monitoring should be established for all new and current programs.

D. Objectives

The strategies that support the County's Solid Waste Management Plan can be organized into five planning objectives, described below. Objectives are specific and measureable activities that support the County's goals for advancing the current solid waste system. Because of the interrelated nature of solid waste planning, each objective supports multiple goals.

The planning objectives provide a link between the more visionary goals and the strategies. The 42 strategies identified in this Plan provide specific activities that support each objective. The numbering of strategies is linked to the related objective. For example, the six strategies that support Objective 1 are numbered Strategy 1.1 through Strategy 1.6. The strategies to achieve each objective are presented in the subsequent sections. The suggested strategies are first described in matrix format (Exhibit 3) and then in tabular format by implementation time phase (Exhibit 4). Objectives include:

- *Objective 1 – Develop Authorities for Future Solid Waste Management.* This objective addresses the legal, contractual, informational, and administrative structures for solid waste management activities in the County. By implementing the strategies under Objective 1, the County should lay the structural groundwork necessary to meet the solid waste planning goals. There are six strategies under Objective 1.
- *Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services.* This objective covers a range of programmatic strategies including source reduction, recycling collection and processing, organics and composting practices, public education, and improvements to collection vehicles. There are nineteen strategies under Objective 2.
- *Objective 3 – Create Solid Waste Management Facility Infrastructure.* This objective addresses new infrastructure

requirements for the County. The strategies under Objective 3 include a wide range of facilities, from placement of debris boxes in rural areas to conversion technologies and other innovative technologies. The strategies are intended to address the critical near-term facility needs and to advance the County's solid waste capabilities over time. There are ten strategies under Objective 3.

- *Objective 4 – Provide Alternative Sources of Funding for New Facilities, Programs, and Services.* Objective 4 addresses funding strategies to support the County's solid waste management infrastructure and programs. The strategies under Objective 4 include new rate and fee structures and funding sources that will be necessary to implement the Plan. There are five strategies under Objective 4 .
- *Objective 5 – Determine and Implement Appropriate Performance Metric Tracking.* Objective 5 involves determining and implementing metric tracking for the strategies selected from Objectives 1 through 4. Objective 5 will allow the County to measure progress in achieving the goals and objectives of this Plan. There are two strategies under Objective 5.

E. Strategies by Objective

The following strategies were developed to overcome the challenges and meet the Plan goals and objectives. In developing the strategies, this Plan also seeks to answer the nine (9) key questions, discussed in Exhibit 2. **Exhibit 3,** starting on the next page, includes a brief description of each strategy, a rationale for the strategy, related goals, and identifies the page number in Sections 4 through 6 of Volume II that provides a detailed description of the strategy.

F. Strategies by Phase

This section schedules strategies in three time phases:

- **Phase 1 – Implement Near-Term Strategies:** Phase 1 will cover the period from 2011 to 2016. During this time the County should implement several key strategies, and may begin planning for additional strategies. The emphasis during Phase 1 is on comprehensive program implementation, combined with facility upgrades and future facility planning.
- **Phase 2 – Implement Intermediate-Term Strategies:** Phase 2 covers the 2017 to 2025 time period. The specific strategies to be implemented include continuation of Phase 1 strategies, and implementation of several new strategies, including compost and MRF facilities, and programs focused on green and food waste.
- **Phase 3 – Implement Long-Term Strategies:** Phase 3 covers the 2026 to 2040 time period. The strategies implemented in Phase 3 reflect the evolution of solid waste management infrastructure and programs planned for 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 will be regional solid waste management to support alternative technologies and infrastructure.

Solid waste management strategy programs should be evaluated at the completion of each phase. Strategy efforts may be adjusted and refocused at these junctures. **Exhibit 4,** starting on page 25, provides a summary of 42 strategies by objective, phase, and West or East Slope location.

Exhibit 3
Strategies, Rationale, and Related Goals

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 1 - Develop Authorities for Future Solid Waste Management			
Strategy 1.1 – Create a West Slope Joint Powers Authority (JPA) A JPA allows two or more public agencies to jointly exercise any power held in common.	■ Creating a JPA will help West Slope jurisdictions implement a unified and coordinated solid waste management system. ■ A JPA will allow the West Slope to coordinate new programs and services, finance new and/or improved facilities, and consolidate AB 939/SB 1016 reporting. ■ A JPA will provide a forum for shared decision-making and facility financing among jurisdictions. By combining resources and wastestreams, a JPA will create greater bargaining power. ■ A JPA will provide the West Slope jurisdictions with the potential opportunity to take some ownership of a West Slope C&D facility and/or West Slope composting facility. ■ The South Lake Tahoe Basin Waste Management Authority, established in 1994 on the East Slope of the County, is an example of a successful solid waste management JPA. ■ Negotiating the JPA agreement and determining an appropriate balance between jurisdictions could create some challenges.	**Goals 1,2, 6, 8** **December 2012**	Page 4-4
Strategy 1.2 – Conduct County Waste Characterization Studies A waste characterization study provides data on the types and quantities of materials disposed.	■ Conducting a waste characterization study every five to ten years will allow the County to identify waste streams to target for future diversion programs and infrastructure development. ■ A new waste characterization study will provide a baseline for the current planning effort. ■ Future waste characterization studies will allow the County to monitor program and facility performance.	**Goals 2, 8, 10** **2012**	Page 4-13
Strategy 1.3 – Extend Use of and Modify WERS Facility as Needed The WERS facility is important to West Slope waste management, and should be maintained until a viable alternative has been developed.	■ The current franchise for the West Slope WERS facility ends in 2014, providing an opportunity to work with the owner/operator to make upgrades to the WERS to meet West Slope program and diversion planning needs. ■ The County, City of Placerville, Cameron Park Community Services District, and El Dorado Hills Community Services District will likely need to utilize the existing WERS facility over the next several years. ■ Depending on economic conditions, the hauler may elect to implement a low cost option in which the County redesigns the existing WERS dirty MRF sort line as a clean MRF sort line so that the hauler can sort single stream recyclables only. ■ The current WERS facility configuration is not adequate for managing the West Slope waste stream, and could be upgraded (within its existing configuration) to handle single stream recyclables.	**Goals 2, 8** **Current**	Page 4-14

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 1 - Develop Authorities for Future Solid Waste Management *(continued)*			
Strategy 1.4 – Expand Mandatory Residential Collection Ordinance Unincorporated County areas located on the West Slope and portions of the East Slope do not currently have mandatory refuse collection (see Table 4-2, on page 4-18 of Volume II, for a status of the current subscription levels).	■ Most County jurisdictions already have mandatory refuse collection. ■ Phasing in mandatory collection in those areas in which 85 percent of potential customers already subscribe to collection will improve waste management in the County by improving collection efficiency, increasing diversion, reducing illegal disposal, eliminating need to self-haul, and providing rate stability.	**Goals 2, 3, 4** **2012/2013**	Page 4-16
Strategy 1.5 – Create a Regional Joint Powers Authority The County should consider the option of creating a regional JPA. This expanded JPA could include South Lake Tahoe as well as nearby jurisdictions outside the County.	■ As a Regional Agency (RA) certified by Cal Recycle, the JPA 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. ■ Certain neighboring out-of-County jurisdictions could potentially be integrated into a regional JPA. ■ A regional JPA could improve County and regional waste management coordination, financing, and alternatives.	**Goals 6, 11** **2026**	Page 6-3
Strategy 1.6 – Conduct Procurement(s) to Obtain Franchise Service Provider(s) In light of expiring franchise agreements, County jurisdictions may consider conducting a procurement process to select a franchisee.	■ Several County jurisdiction franchise agreements expire in 2014. ■ County jurisdictions may want to competitively bid the franchises, if for example they cannot reach agreement with the existing franchised service providers on new terms and conditions. ■ New franchise agreements developed through the competitive bid process provide County jurisdictions with the opportunity to specify new service requirements consistent with those identified in this Plan, as well as new or updated rate setting processes.	**Goals 2, 7, 9, 10** **2012**	Page 4-21
Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services			
Strategy 2.1 – Implement New Waste Reduction Actions The County should implement a business waste audit program. The County should also continue to work with thrift stores to encourage donations, rather than disposal, of usable items.	■ One-on-one contact with County businesses through a waste audit program will be an important aspect of a commercial recycling program and can lead to significant waste reduction opportunities. ■ Supporting thrift stores and other re-use activities can contribute to diversion in the County.	**Goals 1, 2, 5, 7** **2017**	Page 5-2

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services *(continued)*			
Strategy 2.2 – Use Greater Pay-As-You-Throw (PAYT) Pricing Programs The County should implement consistent PAYT rate structures to encourage waste reduction.	■ PAYT creates an incentive for residents to reduce waste by charging higher rates for larger waste disposal containers. ■ Currently, some jurisdictions in the County with cart-based collection have modest PAYT rate structures, while others do not. ■ With greater rate differentials, there is increased incentive to adopt a smaller cart size and reduce waste generation.	**Goals 1, 2** **2012-2014**	Page 4-21
Strategy 2.3 – Expand Use of Purchasing Preference Practices The County should expand its EPP purchasing program.	■ Purchasing recycled content and other environmentally preferable products (EPP) supports markets for recyclable materials, "closing the loop".	**Goals 4, 7** **2014**	Page 4-22
Strategy 2.4 – Implement Mandatory Commercial Recycling Program The County should begin implementing mandatory commercial recycling with larger businesses in the near-term, and expand to all businesses by the July 2012 deadline.	■ Commercial entities generate approximately one-half of all waste disposed in the County. Currently, County haulers provide voluntary assistance to businesses and provide free recycling services. ■ There is significant opportunity for the County to increase diversion through commercial recycling programs. ■ Mandatory commercial recycling will be required statewide in July 2012.	**Goals 1, 2, 3, 4, 7** **July 2012**	Page 4-24
Strategy 2.5 – Enhance and Enforce the Construction and Demolition Ordinance The County should strengthen requirements and enforcement of the C&D ordinance to comply with State law and increase diversion of C&D materials.	■ The County's C&D ordinance does not meet the new California Green Building Standards Code, effective January 1, 2011. ■ 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 in future years.	**Goals 1, 2, 3, 7** **2011**	Page 4-25
Strategy 2.6 – Expand Use of Curbside Recycling Programs The County should increase opportunities for residential recycling by providing recycling options to all residents, linked with refuse collection.	■ Residential recycling options currently vary throughout the County, ranging from mandatory single-stream recycling collection to no recycling collection. ■ Expanding recycling will result in significant increases in diversion, particularly when implemented in combination with expanded PAYT rate-setting (Strategy 2.2).	**Goals 1, 2, 3, 7** **2014**	Page 4-26
Strategy 2.7 – Expand Residential Cart Collection Systems (Targeted to Selected Areas) West Slope residents that subscribe to waste collection services should be provided with a three-cart collection system for refuse, green waste, and single stream recyclables.			

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services *(continued)*			
Strategy 2.8 –Enhance Existing School, Park, and Community Facility Recycling Programs (and implement where necessary) The County should increase both diversion and education by expanding school and park recycling programs, where appropriate.	■ School districts can reduce disposal costs by reducing waste and increasing diversion. ■ School recycling and composting programs provide both educational and diversion benefits. ■ Providing recycling programs in public parks will increase diversion in the County. ■ Providing recycling carts and bins to other community facilities (e.g., fairgrounds, locations that must obtain a County permit) will increase diversion in the County.	**Goals 1, 2, 7** **2012**	Page 4-27
Strategy 2.9 – Expand Diversion Programs at Public Facilities The County should expand the availability of recycling containers to all appropriate facilities and develop composting and waste reduction programs at County facilities.	■ The County will serve as a model to El Dorado County business establishments by implementing a comprehensive diversion program. ■ There are opportunities to increase diversion of both recyclable and organic materials at County facilities.	**Goals 1, 2, 7** **2011**	Page 4-28
Strategy 2.10 – Expand Multi-Family Recycling Program The County 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. Residents in most of these housing units do not have access to recycling. ■ A multi-family recycling program will increase diversion opportunities in the County.	**Goals 1, 2, 7** **2015**	Page 4-29
Strategy 2.11 – Expand Types of Recyclables Collected Curbside The County should work with haulers to expand curbside recycling for selected materials, including certain hazardous and electronic wastes, as appropriate.	■ Providing convenient and safe recycling for certain hazardous and electronic wastes will reduce improper disposal of these materials (e.g., batteries, light bulbs). ■ As markets for recyclable materials evolve over time, providing recycling opportunities for new materials will increase diversion.	**Goals 1, 2, 3, 5, 7** **TBD**	Page 5-3
Strategy 2.12 – Develop Commercial Food Waste Collection Program The County should develop a commercial food waste collection program as an extension of the mandatory commercial recycling ordinance. The program will build on the experience of the food collection pilot in South Lake Tahoe.	■ Approximately 20 percent of waste from commercial businesses is food waste, and certain sectors have significantly higher volumes of food waste. ■ Composting commercial food waste can significantly increase diversion in the County.	**Goals 1, 2, 4, 7** **2017**	Page 5-4
Strategy 2.13 – Enhance Home Composting Programs The County should offer education and compost bins as part of a comprehensive home composting program.	■ Approximately 50 percent of single-family residential waste consists of food and other organic materials, and much of it is compostable. ■ Home composting provides a low-cost alternative for diverting yard and food waste.	**Goals 1, 2, 4, 7** **2013**	Page 4-30

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services *(continued)*			
Strategy 2.14 – Prepare for Possible Elimination of Residential Yard Waste Burning on West Slope Should this occur, the County should expand alternatives to burning, and gradually implement a yard waste burning ban.	■ Yard waste burning may ultimately be phased out of all but the most rural areas for health, fire safety, and air quality concerns. ■ If and when this occurs, the County should be prepared to implement the ban, and to provide robust yard waste diversion alternatives such as cart-based collection, chipping services (e.g., currently available from Fire Safe Council), and drop-off facilities (see Strategy 3.5)	Goal 4 TBD	Page 6-3
Strategy 2.15 – Develop Community Composting Programs The County should implement community composting programs, which include a range of local, neighborhood-based composting programs.	■ These programs provide diversion, education, and community-building benefits. ■ Community composting depends on volunteer support, and will not require significant new funding. ■ The community composting program would include a central composting location (e.g., community center, community garden, small farm) where the community can bring green and food waste for composting. The location would be used for smaller scale composting efforts. Compost could be offered back to the community.	Goals 1, 2, 4, 7 2020	Page 5-5
Strategy 2.16 – Develop Residential Food Waste Collection Program The County should develop a food waste collection program (in conjunction with strategy 3.4 to process food waste) to allow residents to place food waste inside the yard waste cart for a combined organics collection.	■ Food waste represents a significant portion of the County's waste stream. The County could realize additional diversion of approximately 3 to 5 percentage points through residential food waste collection.	Goals 1, 2, 4, 7, 8 2018	Page 5-6
Strategy 2.17 – Advance Outreach and Education Programs The County and haulers should expand diversion and outreach programs.	■ Education and outreach (including technical assistance) are critical to increasing commercial and residential participation in recycling, source reduction, green purchasing, and composting alternatives.	Goals 1, 2 2011	Page 4-31
Strategy 2.18 – Reduce Emissions from Collection Fleets The County should require that all collection vehicles used by its franchise haulers be California Air Resources Board (ARB) compliant.	■ There is a trend to move away from diesel powered refuse collection trucks, particularly during this recent period of high diesel fuel costs. Recent studies suggest that the lifecycle costs of natural gas refuse trucks are on par economically with traditional diesel powered trucks. ■ ARB has implemented emission performance requirements for collection vehicles, to be implemented between 2011 and 2023.	Goal 4 2017-2019	Page 5-7

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 2 – Create New and Enhanced County Solid Waste Management Programs and Services *(continued)*			
Strategy 2.19 – Use Advanced Technologies for Collection Trucks and Vehicles The County should explore options for advanced fuel, hybrid, and/or electric trucks and vehicles to be part of the County and franchise hauler's collection fleet and support vehicles.	■ While the exact technologies are unknown at this time, it is likely that new truck and vehicle technologies will be available over the Plan's horizon and that these technologies will provide opportunities for the County collection fleet to reduce its carbon footprint. ■ As new truck and vehicle technologies evolve, the County should incorporate these fuel-saving or lower emitting trucks and vehicles into the franchised haulers operations, as well as other County-owned vehicles. ■ The County should consider whether to make these upgrades or replacements in conjunction with County and franchise fleet replacement cycles (e.g., every 7 to 8 years).	**Goal 4** **2026**	Page 6-8
Objective 3 – Create Solid Waste Management Facility Infrastructure			
Strategy 3.1 – Evaluate, Finalize, Plan and Initiate Facility Infrastructure Strategies Upon creation of a West Slope JPA, the members will carefully evaluate the facility infrastructure strategy recommendations outlined in this Plan (including a more in-depth cost analysis) and begin implementing selected strategies deemed feasible.	■ Coordinated facility infrastructure strategies will include JPA member commitments of material flows so that facilities can be financed and supported into the future. ■ This strategy provides JPA member jurisdictions the opportunity to provide input and direction on development of future West Slope facilities. ■ It will be important that all County jurisdictions are involved in decisions related to financing, siting, and utilizing new waste management infrastructure.	**Goals 2, 7** **2013**	Page 4-31
Strategy 3.2 – Develop a West Slope EcoPark The County could develop an EcoPark. This facility would include state-of-the-art processing for recyclables, C&D waste, green waste, special wastes, and refuse.	■ Subject to the availability of funding (which presently is not available), a new West Slope facility would meet the County's needs for twenty (20) to thirty (30) years. The new EcoPark would be designed to accommodate all of the material handling and processing needs of the West Slope. ■ The County would use a CEQA process to carefully select a location. ■ The County should have some ownership of the West Slope EcoPark, and contract with a private vendor to operate the facility. ■ A new EcoPark should include space on the property for alternative technologies, should they become available.	**Goals 2, 7, 8** **To Be Determined (TBD)**	Page 6-9

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 3 – Create Solid Waste Management Facility Infrastructure *(continued)*			
Strategy 3.3 – Re-Open Union Mine Landfill The County could re-open Union Mine landfill to accept both in-County and out-of-County refuse, if a detailed cost study of road improvement requirements results in this option being more cost effective than exporting waste.	■ The Union Mine Landfill is the only active, permitted, landfill on the West Slope of El Dorado County. ■ The County currently exports all of its 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 (180 miles round trip.) ■ The County could internalize its waste stream, reduce disposal costs, and minimize environmental impacts from long-hauling refuse to out-of County facilities. In an effort to internalize its solid waste, and utilize the existing landfill capacity already present within the County, the County could re-open the Union Mine Landfill to accept waste transported from the current Western El Dorado Recovery Systems, Inc. (WERS) material recovery facility/transfer station. ■ The County already awarded STI Engineering of Silverado a contract to install and operate a gas-to- electricity facility at the Union Mine Landfill (in 2009).	**Goals 4, 8** **TBD**	Page 6-14
Strategy 3.4 – Develop El Dorado County Composting Facility The County should develop a facility to process and utilize green waste within the County. The facility should initially process yard waste loads, and could eventually process food waste.	■ The County does not currently have any in-County composting facilities. Organic material on the East Slope is transported to Nevada. This material 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). If economical, this material could be transported to a new West El Dorado composting facility. ■ The County could locate a West El Dorado County composting facility on the Union Mine Landfill, at the potential West Slope EcoPark facility, or on another County-owned property. ■ A West El Dorado County composting facility could process (1) yard waste loads collected by franchised haulers, and (2) clean yard waste loads delivered by self haulers and landscapers.	**Goals 2, 4, 8** **2017**	Page 5-8

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 3 – Create Solid Waste Management Facility Infrastructure *(continued)*			
Strategy 3.5 – Develop Small Volume Rural Transfer Facilities and Strategically Placed Debris Boxes on the West Slope Small transfer stations and/or strategically placed debris boxes will provide rural West Slope residents with convenient self-haul alternatives.	■ The intent of these facilities is to minimize illegal dumping and afford residents the opportunity to avoid long distance travel for self hauling. ■ 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 easily accessible public locations. ■ Potential locations include the north west side of the County (Georgetown/ Divide area) and the south west side of the County (Somerset/Mt. Aukum). ■ To keep costs down, the transfer facilities could be open once or twice per week and on weekends.	**Goals 3, 4, 8** **2012/2013**	Page 4-32
Strategy 3.6 – Plan for Conversion Technologies, if Economically and Operationally Feasible The County should periodically consider options for conversion technologies, particularly when these technologies are shown to be cost-effective for small to medium-sized waste management systems in California.	■ 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). ■ The County believes that conversion technologies have a place within the County's solid waste management system over the long-term. ■ To keep up with this rapidly evolving field, the County will 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.	**Goals 4, 7, 8** **TBD**	Page 6-16
Strategy 3.7 – Enhance County Composting Facility to Manage Diverted Food Waste and Other Organics To process food waste materials, the County could modify the proposed Western El Dorado composting facility (developed in Strategy 3.4) to accept food waste, in addition to green waste, for composting.	■ To process food waste material, the County would need to modify the proposed Western El Dorado County Composting Facility to accept food waste in addition to green waste for composting. ■ To avoid problems with typical windrow technologies, the County should evaluate the availability and cost-competitiveness of using in-vessel aerobic or anaerobic composting technologies. ■ Recent CalRecycle efforts *(Draft Program Environmental Impact Report (EIR) for Statewide Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste, 2009)* are intended to assist local governments in the eventual development of anaerobic digester facilities.	**Goals 4, 8** **2026**	Page 6-18

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 3 – Create Solid Waste Management Facility Infrastructure *(continued)*			
Strategy 3.8 – Renovate South Lake Tahoe (SLT) Material Recovery Facility and Transfer Station to Accept Single Stream Recyclables The County may consider shifting the blue bag recyclable collection system and associated MRF processing capacity to a single stream recycling system with carts.	■ A single stream, cart based system could provide greater diversion levels and cleaner recycled materials (resulting in higher recycled materials sales). ■ The County and company may determine that shifting to a cart-based single stream recycling would be more effective, and/or more economical. ■ The County and company would need to consider the costs and benefits of additional recycling collection routes in snow conditions.	**Goals 2, 8** **2026**	Page 6-19
Strategy 3.9 – Develop West Slope C&D Processing Facility The County should develop a C&D facility on the far West Slope, where most new County development is expected. This facility should provide easy disposal of large quantities of C&D materials which generators would otherwise transport to the WERS in Placerville.	■ 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 County consideration to ensure that this portion of the waste stream is managed properly. ■ A new dedicated C&D facility aligns with greater enforcement of the County's C&D ordinance (Strategy 3.5). ■ The WERS, in its current configuration, is not ideally set up to manage and process large quantities of C&D materials. The West Slope has limited C&D processing capacity. ■ The County would benefit from additional capacity located close to the projected center of new construction, near El Dorado Hills.	**Goals 2, 4, 8** **2015**	Page 4-33
Strategy 3.10 – Develop Modern and Economical MRF/Transfer Station on the West Slope The County will develop a modern MRF/Transfer station on the West Slope to replace the current WERS facility.	■ To meet the current economic challenges faced by the County, the overall approach for this facility would be to keep costs to a minimum with inexpensive land, minimum facility requirements, lower cost equipment options, and an efficient design. ■ This cost-effective option would be as an alternative to the higher cost EcoPark. ■ The County should seek a public-private partnership for this facility, with County ownership of some/all of the facility, and a private sector operator. ■ The new MRF could economically provide necessary services.	**Goals 2, 4, 8** **2017**	Page 5-9

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
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 The County may need to increase residential and commercial rates to fund new programs and facilities identified in this Plan.	■ Most jurisdictions that implement new services and programs fund them through rate increases, applied equitably across impacted customers. ■ Collection rates are the primary source of revenues for new programs and services. ■ If planned properly, the County may be able to mitigate large rate increases by spreading costs and amortizing capital investments over time into the rate base.	Goals 8, 9 2013	Page 4-34
Strategy 4.2 – Develop South Lake Tahoe MRF/Transfer Station, West Slope EcoPark and Union Mine Landfill Fees As facilities are developed, the County will establish tipping fees to fully reflect the cost of service to manage materials at these new locations. (This strategy will be implemented in Phases 2 and 3, as appropriate.)	■ Facility tipping fees are the primary method for recovering new facility capital and operating costs. ■ The County may need to revise its tipping fees to reflect recovery of new facility and equipment investments as well as changes in facility operating costs. ■ The County will develop new tipping fees to reflect the costs of service to manage materials from the tipping floor to final disposal. ■ New tipping fees will need to be developed for both self-haul customers and franchised customers.	Goals 6, 8, 9 TBD	Page 6-20
Strategy 4.3 – Add Administrative Fee to Future Union Mine Landfill Tipping Fee If reopened, the County should develop an administrative fee charged on all waste disposed of at Union Mine landfill.	■ The separate fee charged per ton of waste will offset the costs of some of the diversion-related programs proposed in this Plan.	Goals 8, 9 TBD	Page 6-21
Strategy 4.4 – Increase Union Mine Landfill Methane Gas Production The County will expand existing collection of methane from Union Mine Landfill, generating both electricity and revenue.	■ Should the County use Union Mine Landfill for West Slope disposal, the County has the potential to generate 0.08 MW of electricity or 43,000 cubic feet per day of landfill gas (LFG). ■ The County has an operating contract with STI Engineering to collect landfill gas at Union Mine Landfill. ■ The County can claim this energy source as a renewable source.	Goals 8, 9 TBD	Page 6-21
Strategy 4.5 – Create New Funding Sources and Rate Mitigation Strategies The County will seek additional funding sources and rate mitigation strategies such as: fees on out-of-County wastes to offset higher costs of the expanded waste management system, franchise agreement incentives, grants, and low-interest facility financing.	■ The County will need to explore every possible source of new funding for the facilities, programs and services proposed in this Plan (e.g., California Pollution Control Financing Authority (CPCFA) low-interest financing for new facilities and programs).	Goals 6, 8, 9 2017	Page 5-10

Exhibit 3
Strategies, Rationale, and Related Goals *(continued)*

Strategy	Rationale	Related Goals Implementation Date	Volume II Analysis
Objective 5 – Determine and Implement Appropriate Performance Metric Tracking			
Strategy 5.1 – Identify Appropriate Performance Metric for Each Selected Strategy Determine and implement monitoring and data collection for each selected strategy that can be quantified	■ Implementation of performance metrics will help the County monitor progress toward 75 percent diversion, determine the most effective policies and programs, and identify changes needed to improve programs.	**Goals 2, 10** **TBD**	Page 4-38
Strategy 5.2 – Summarize, Report and Evaluate Metric Data The County will prepare periodic reports to monitor progress in achieving Plan goals and objectives.	■ Tracking and reporting on Plan progress will assist the County in identifying the most effective and efficient approach to meeting those goals and objectives.	**Goals 2, 10** **TBD**	Page 5-11

Exhibit 4
Strategies by Phase

Objectives and Strategies	Phase 1 (2011-2016)	Phase 2 (2017-2025)	Phase 3 (2026-2040)	East Slope	West Slope
Objective 1 – Develop Authorities for Future Solid Waste Management					
Strategy 1.1 – Create a West Slope Joint Powers Authority (JPA)	X				X
Strategy 1.2 – Conduct County Waste Characterization Studies	X*			X	X
Strategy 1.3 – Extend Use of and Modify WERS Facility as Needed	X				X
Strategy 1.4 – Expand Mandatory Residential Collection Ordinance	X			X	X
Strategy 1.5 – Create a Regional Joint Powers Authority			X	X	X
Strategy 1.6 – Conduct Procurement(s) to Obtain Franchised Service Providers	X			X	X
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	X
Strategy 2.3 – Expand Use of Purchasing Preference Practices	X			X	X
Strategy 2.1 – Implement New Waste Reduction Actions		X		X	X
Recycling Collection and Processing					
Strategy 2.4 – Implement Mandatory Commercial Recycling Program	X			X	X
Strategy 2.5 – Enhance and Enforce the Construction and Demolition Ordinance	X			X	X
Strategy 2.6 – Expand Use of Curbside Recycling Programs	X			X	X
Strategy 2.7 – Expand Residential Cart Collection Systems (Targeted to Selected Areas)	X		X	X (Phase 3)	X (Phase 1)
Strategy 2.8 – Enhance Existing School, Park, and Community Facility Recycling Programs (and Implement Where Necessary)	X			X	X
Strategy 2.9 – Expand Diversion Programs at Public Facilities	X			X	X
Strategy 2.10 – Expand Multi-Family Recycling Program	X			X	X
Organics and Composting Practices					
Strategy 2.13 – Enhance Home Composting Programs	X			X	X
Strategy 2.11 – Expand Types of Recyclables Collected Curbside		X		X	X
Strategy 2.12 – Develop Commercial Food Waste Collection Program		X		X	X
Strategy 2.15 – Develop Community Composting Programs		X		X	X
Strategy 2.16 – Develop Residential Food Waste Collection Program		X		X	X
Strategy 2.14 – Prepare for Possible Elimination of Residential Yard Waste Burning on the West Slope			X		X
Public Education					
Strategy 2.17 – Advance Outreach and Education Programs	X			X	X
Evolve Collection Trucks and Equipment to Improve Carbon Emissions					
Strategy 2.18 – Reduce Emissions from Collection Fleets		X		X	X
Strategy 2.19 – Use Advanced Technologies for Collection Trucks and Vehicles			X	X	X

* Strategy 1.2 also conducted in later phases, as appropriate.

Exhibit 4
Strategies by Phase *(continued)*

Objectives and Strategies	Phase 1 (2011-2016)	Phase 2 (2017-2025)	Phase 3 (2026-2040)	East Slope	West Slope
Objective 3 – Create Solid Waste Management Facility Infrastructure					
Strategy 3.1 – Evaluate, Finalize, Plan, and Initiate Facility Infrastructure Strategies	X			X	X
Strategy 3.5 – Develop Small Volume Rural Transfer Facilities and Strategically Placed Debris Boxes on the West Slope	X				X
Strategy 3.9 – Develop West Slope C&D Processing Facility	X				X
Strategy 3.4 – Develop El Dorado County Composting Facility		X		X	X
Strategy 3.10 – Develop Modern and Economical MRF/Transfer Station on the West Slope		X			X
Strategy 3.2 – Develop a West Slope EcoPark			X		X
Strategy 3.3 – Re-Open Union Mine Landfill			X		X
Strategy 3.6 – Plan for Conversion Technologies, if Economically and Operationally Feasible			X	X	X
Strategy 3.7 – Enhance County Composting Facility to Manage Diverted Food Waste and Other Organics			X		X
Strategy 3.8 – Renovate South Lake Tahoe (SLT) MRF and Transfer Station to Accept Single Stream Recyclables			X	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	X
Strategy 4.5 – Create New Funding Sources and Rate Mitigation Strategies		X		X	X
Strategy 4.2 – Develop South Lake Tahoe MRF/Transfer Station, West Slope EcoPark and Union Mine Landfill Fees			X	X	X
Strategy 4.3 – Add Administrative Fee to Future Union Mine Landfill Tipping Fee			X		X
Strategy 4.4 – Increase Union Mine Landfill Methane Gas Production			X		X
Objective 5 – Determine and Implement Appropriate Performance Metric Tracking					
Strategy 5.1 – Identify Appropriate Performance Metric for Each Selected Strategy	X	X	X	X	X
Strategy 5.2 – Summarize, Report and Evaluate Metric Data		X	X	X	X

G. Strategy Cost Comparison

Table 3, starting on page 28, summarizes estimated capital and recurring costs for Strategies 1.1 through 3.10. Preliminary high level diversion estimates are also provided for each strategy. This combination of costs and diversion estimates should allow Plan stakeholders to assess strategies for reasonableness, compare strategies, consider strategy costs and benefits, and prioritize strategies for implementation.

Broad cost ranges are provided for each strategy as a reflection of the following uncertainties associated with implementing any one of these strategies:

- Availability of revenues to offset incremental costs (e.g., rate revenues)
- Level or degree of effort applied by the County jurisdictions to a strategy
- Extent of a strategy's implementation throughout the County
- Extent of participation by County residents and businesses in a strategy
- Types and pricing of equipment (e.g., new or used)
- Time to implement a strategy
- Where applicable, the level of participation by jurisdictional staff (e.g., in-kind contributions).

For these reasons, the estimated costs in Table 3 have a relatively large potential degree of variability.

Additionally, the estimated costs could be significantly reduced if a County jurisdiction(s) can negotiate with a franchise hauler to absorb some or all of the costs of a new service or program within an existing agreement at existing rates. For example, the franchisee could agree to implement certain programs as part of a franchise extension at no additional cost to the ratepayer. As another example, the County and franchisee may be able to time the franchisee's purchase of a new equipment item, or facility investment, to coincide with the end of the useful life of an asset that had a similar cost.[7] In these franchisee negotiation scenarios, which are unpredictable, the incremental costs of the strategies could be significantly lower than those shown in Exhibit 3.

Similarly, broad ranges for diversion figures also are shown in Table 3. This diversion variability is provided for the same reasons as noted above for the strategy cost variability.

Each increase in diversion of 1,000 tons results in an estimated 0.2 percentage point increase in the County's diversion rate. With implementation of all strategies identified in this Plan, the potential diversion rate increase is between 15 and 25 percentage points. With implementation of strategies except for (1) the Eco Park (strategy 3.2), (2) reopening Union Mine landfill (strategy 3.3), and (3) the Economical MRF/TS (strategy 3.10), the potential diversion rate increase is between 10 and 16 percentage points. The County's current effective diversion rate is approximately 65 percent. With all strategies in Table 3 except 3.2, 3.3, and 3.10, diversion could potentially be increased to well over 75 percent (approximately 81 percent) by 2020. This outcome does not include potential additional non-quantifiable diversion impacts resulting from these strategies, and continued improvement of existing in-place programs.

At the end of Table 3, following Strategy 3.10, there is a summary of total costs and diversion levels for the strategies combined. Table 3 provides a low end cost and diversion estimate (based on implementation of all of the strategies with the exception of strategy 3.2, the West Slope EcoPark, Strategy 3.3, the Union Mine Landfill re-opening, and Strategy 3.10, a Modern MRF/Transfer Station) and a high end cost and diversion estimate (based on implementation of all of the strategies with

[7] If rates are set using a cost-based methodology, the timing of a new asset's purchase could align with the last year that an asset is depreciated or amortized within the rate charged.

Table 3
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 3
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 3
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.

the exception of Strategy 3.3, the Union Mine Landfill re-opening, and Strategy 3.10, a Modern MRF/Transfer Station). The low end estimate is based on the assumption that the major elements of the County's facility infrastructure will remain status quo. Under this low end estimate, the County potentially could realize an increase of 10 to 16 percent in its diversion rate for an annual system cost increase of between $2.8 and $6.5 million. Based on the high end estimate, in the case where the County implemented the West Slope EcoPark, the County could realize an increase in the diversion rate of between 15 and 25 percent for an annual system cost increase of between $5.7 and $11.4 million.

Each annual increase in system costs of $1 million results in a residential customer monthly bill increase of approximately $1.00 per month. A $1 million investment in the Country's waste management system would raise a typical average residential customer's bill from approximately $28 to $29 per customer per month.

Table 4
Estimated Incremental Cost Increases and Diversion Impacts of Various West County Facility Modification Scenarios

Option/Strategy	Net Estimated Increase in Total System Costs Per Ton[a]	New Capital Cost Estimates	Estimated Potential Increase in Diversion (on a Percentage Basis, Countywide)
Option 1 – Use Existing WERS Facility with Retooling Upgrades to Accommodate Single Stream Sort Line *(Strategy 1.3)*	$1 - $4	$1 to $4 million	1% to 5%
Option 2 – Build New C&D Sort Line At Different Location from WERS *(Strategy 3.9)*	$2 - $4	$2 to $4 million (depending on land costs)	1% to 3%
Option 3 – Build New Composting Facility At Different Location from WERS *(Strategy 3.4)*	$2 - $4	$2 to $4 million	1% to 2% (greenwaste is currently diverted as ADC)
Option 4 – Develop Modern and Economical MRF/Transfer Station at New Location *(Strategy 3.10)*	$8 - $12	$10 to $15 million	3% to 7%
Option 5 – Develop a West Slope EcoPark *(Strategy 3.2)*	$18 - $30	$24 to $39 million	5% to 10%

[a] Based on costs spread over a total of 158,180 tons managed on the West Slope (includes tons both diverted and disposed). Includes recurring costs identified in Table 3 and assumes 10 year amortization of capital costs.

H. Cost Assessment of Major Facility Infrastructure Scenarios

As an expansion of the cost analyses presented in the prior subsection, this subsection provides additional analyses and conclusions related to the larger facility infrastructure investment decisions that the County is facing as of the time this Plan was written. This analysis addresses various facility options for a West Slope MRF/transfer station and for the Union Mine Landfill, two critical facility infrastructure considerations faced by the County at this time.

Table 4, above, compares costs for five (5) West Slope facility enhancement options. Table 4 also shows the estimated impacts to Countywide diversion for each option. Based on this high-level cost assessment, the optimal course for West County jurisdictions would be incremental implementation of Options 1 through 3. The total net system cost increase would be lower for implementing Options 1 through 3 combined ($5 to $12 per ton) than for implementing Option 4 alone ($8 to $12 per ton).[8] Options 1 to 3 provide equivalent facility infrastructure upgrades in comparison to a new MRF/transfer station option (Option 4). However Options 1 through 3 combined do not carry as many of the challenges that siting and developing an entirely new MRF/transfer station entail. Also, facility locations for Options 2 and 3 can be strategically located on the West Slope. Finally, Options 1 through 3 can be planned for and implemented incrementally which would minimize one-time system cost impacts. The West Slope may not have the economic means, in the near- to intermediate-term, to develop a comprehensive West Slope EcoPark, so Option 5 likely is not viable at this time (although it might be over the long-term or in phases).

[8] Some of these new incremental costs may be offset by cost reductions associated with replacing existing equipment, or modifying existing facility configurations; however, these cost savings are not quantifiable at this time.

Table 5
Estimated Baseline Refuse Tipping Fee Costs (Per Ton)

Description	Transfer Station	Transportation	Landfill Disposal	Total Costs
Western El Dorado Transfer Station	$15 - $20	$20 - $30	$25 - $30	$60 - $75 (mid - $67.50)

Table 6
Estimated Incremental Cost Increases (Per Ton) of Various Landfill Disposal Scenarios

				Landfill Disposal				
Option	Number of Years of Landfill Capacity	Transfer Station Operations (A)	Transportation (B)	Landfill Development and Road Improvement Costs	Landfill Operating Costs	County Fees	Total Landfill Disposal Costs (C)	Total Costs
A. Expand Landfill to 1.1 Million Tons Capacity and Modify Existing Road	11 (2016 to 2025)	$5–$10	$5–$10	$40–$76	$15–$25	$5	$60–$106	$70–$126 (mid $98)
B. Expand Landfill to 1.1 Million Tons Capacity and Develop Alternative Road	11 (2016 to 2025)	$5–$10	$5–$10	$32–$50	$15–$25	$5	$52–$80	$62–$100 (mid $81)
C. Expand Landfill to 3.0 Million Tons Capacity and Modify Existing Road	29 (2016 to 2044)	$5–$10	$5–$10	$19–$32	$15–$25	$5	$39–$62	$49–$82 (mid $60.50)
D. Expand Landfill to 3.0 Million Tons Capacity and Develop Alternative Road	29 (2016 to 2044)	$5–$10	$5–$10	$16–$23	$15–$25	$5	$36–$53	$46–$73 (mid $59.50)

[a] Amortized over number of tons created by the expansion.

[b] Total costs represent the sum of (A) transfer station costs, plus (B) transportation costs, plus (C) landfill disposal costs.

[c] Options to enhance the existing roadway are more expensive than options to develop a new road due to the likely higher costs of property acquisition and right-of-way fees, and the potentially more challenging roadway construction requirements.

Table 5, above, shows the current estimated Western El Dorado Service (WERS) refuse tipping fee per ton. The tipping fee is separated into transfer station, transportation, and landfill disposal cost components. The current tipping fee range is approximately $60 to $75 per ton. This range assumes refuse is collected and consolidated at the WERS, and then transported to Potrero Hills Landfill in Solano County. This data can be compared to other West Slope facility alternatives.

Table 6, above, summarizes four (4) landfill disposal alternatives related to reopening the Union Mine Landfill *(Strategy 3.3)*. The first two options (Options A and B) provide an expansion of 1.1 million tons of new landfill capacity, lasting approximately 11 years. Option A is for modification to the existing access road while Option B is for construction of a new access road. The second two options, Options C and D, provide an expansion of 3.0 million tons of new capacity, lasting approximately 29 years. Option C is for modification to the existing access road while Option D is for construction of an entirely new access road.

Based on the data in **Table 6,** Option A is significantly more expensive than the West Slope's current refuse disposal method. Option B also is slightly more expensive. Options C and D (the 29 year expansion) both fall below current total West Slope refuse disposal tipping fees. However, both Options C and D are competitive with the current WERS because very large upfront development costs are amortized over 29 years of useful life. Costs for modifying the existing access road, or for construction of a new access road, to Union Mine Landfill were preliminarily estimated at $40 to $70 million by the County's Department of Transportation. Due

to uncertainty in road construction costs, property acquisition requirements, and right-of-way fees, a more in-depth cost analysis is recommended.

As the West Slope is not in the position to incur significant upfront costs, West Slope jurisdictions would be better off not taking on the risk of pursuing the Union Mine Landfill expansion at this time unless a more in-depth cost analysis proves it is cost effective in the shorter term. Instead, West Slope jurisdictions should focus on incremental West Slope facility improvements (with greater jurisdictional control through public private partnerships) and more small scale, targeted, and economical enhancements to West County facilities, programs, and services. This is not to say that re-opening Union Mine Landfill might not be more economical at some future time especially if out-of-County disposal costs significantly increase. For now, Strategy 3.3 is retained in the Plan in Phase 3 (2026 to 2040).

I. Implementation Approach

In finalizing this Solid Waste Management Plan, the County should take steps to systematically implement the near-term strategies described in this document. These near-term strategies will provide the County with a more coordinated approach to solid waste management, ensure compliance with state requirements, and improve diversion efforts throughout the County. These strategies will also provide a foundation for the more comprehensive infrastructure, programmatic, and policy strategies that will be implemented over the intermediate and longer-term. This phased approach will allow the County to gradually improve and expand solid waste management activities, while meeting the vision and goals outlined in this document.

The remainder of this Plan identifies specific strategies for the County to consider implementing by year. The majority of Strategies will be implemented in the first six years of the Plan, from 2011 to 2016. This will require a concerted effort by the El Dorado County Environmental Management Department, as well as other County jurisdictions, and current (and future) franchise haulers.

Upon approval of the Plan, the County should begin implementing four strategies. The County and jurisdictions may also start developing Strategy 1.1, the West Slope JPA. During the first full year of the Plan, 2012, the County and jurisdictions will create the West Slope JPA, conduct a waste characterization study, begin the process of expanding mandatory residential collection, place debris boxes in strategic locations, and implement three new programs. In 2013, the West Slope JPA members will focus on facilities and rates. Also in 2013, and into 2014, the County should implement a number of new programs.

The emphasis during Phase 2 will shift somewhat from administrative, planning, and program activities to facilities. By 2017, the County should develop a compost facility and a West Slope C&D processing facility. These two new facilities would significantly enhance the County's solid waste infrastructure. Also during Phase 2, the County should continue to expand programs, particularly those focused on organics (green and food waste).

By Phase 3, the County should have implemented most of the program-related strategies. The County should broaden coordination to create a regional JPA, and continue to focus on facilities and infrastructure. By 2026, some of the facilities that are not currently economical may become more feasible. The seven strategies in Phase 3 listed as "To Be Determined" may, or may not, be implemented during the Phase 3 time period.

Table 7, beginning on the next page, provides estimated annual costs, by year, and for each of the three phases. This table is meant to show how the costs of implementing Plan strategies are spread out over time and to provide an expectation for when the jurisdictions should expect significant costs to occur.

Table 7

Phase 1 – 2011 to 2016		Annual New Costs
2012	■ Strategy 1.3 – Extend Use of and Modify WERS Facility as Needed ■ Strategy 2.5 – Enhance and Enforce the Construction and Demolition Ordinance ■ Strategy 2.9 – Expand Diversion Programs at Public Facilities ■ Strategy 2.17 – Advance Outreach and Education Programs ■ Strategy 1.1 – Create a West Slope Joint Powers Authority (JPA) ■ Strategy 1.2 – Conduct County Waste Characterization Studies ■ Strategy 1.4 – Expand Mandatory Residential Collection Ordinance ■ Strategy 2.2 – Use Greater Pay-As-You-Throw (PAYT) Pricing Programs ■ Strategy 2.4 – Implement Mandatory Commercial Recycling Program ■ Strategy 2.8 – Enhance Existing School, Park, and Community Facility Recycling Programs (and implement where necessary) ■ Strategy 3.5 – Develop Small Volume Rural Transfer Facilities and Strategically Placed Debris Boxes on the West Slope	
	Subtotal	**$1,435,000**
2013	■ Strategy 2.13 – Enhance Home Composting Programs ■ Strategy 3.1 – Evaluate, Finalize, Plan, and Initiate Facility Infrastructure Strategies ■ Strategy 4.1 – Revise Rate System to Fund New Facilities and Programs	
	Subtotal	**$20,250**
2014	■ Strategy 2.3 – Expand Use of Purchasing Preference Practices ■ 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)	
	Subtotal	**$506,875**
2015	■ Strategy 2.10 – Expand Multi-Family Recycling Program ■ Strategy 3.9 – Develop West Slope C&D Processing Facility	
	Subtotal	**$714,250**
	TOTAL – Phase 1	**$2,676,375**

Table 7

Phase 2 – 2017 to 2025		Annual New Costs
2017	■ Strategy 2.1 – Implement New Waste Reduction Actions ■ Strategy 2.12 – Develop Commercial Food Waste Collection Program ■ Strategy 2.18 – Reduce Emissions from Collection Fleets ■ Strategy 3.4 – Develop El Dorado County Composting Facility ■ Strategy 3.10 – Develop Modern and Economical MRF/Transfer Station on the West Slope ■ Strategy 4.5 – Create New Funding Sources and Rate Mitigation Strategies	
	Subtotal	**$2,375,000**
2018	■ Strategy 2.16 – Develop Residential Food Waste Collection Program	
	Subtotal	**$202,500**
2020	■ Strategy 2.15 – Develop Community Composting Programs	
	Subtotal	**$9,250**
To Be Determined	■ Strategy 2.11 – Expand Types of Recyclables Collected Curbside ■ Strategy 5.1 – Identify Appropriate Performance Metric for Each Selected Strategy ■ Strategy 5.2 – Summarize, Report, and Evaluate Metric Data	
	Subtotal	**$15,750**
	TOTAL – Phase 2	**$2,602,500**

Phase 3 – 2026 to 2040		
2026	■ Strategy 1.5 – Create a Regional Joint Powers Authority ■ Strategy 2.19 – Use Advanced Technologies for Collection Trucks and Vehicles ■ 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	
	Subtotal	**$678,000**
To Be Determined	■ Strategy 2.14 – Prepare for Possible Elimination of Residential Yard Waste Burning on the West Slope ■ 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 4.2 – Develop South Lake Tahoe MRF/Transfer Station, 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.	
	Subtotal	**$3,911,750**
	TOTAL – Phase 3 (without EcoPark)	**$689,750**
	TOTAL – Phase 3 (with EcoPark)	**$4,589,750**

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