



# Deschutes County

## Solid Waste Management Plan

### Executive Summary



*"Providing a Roadmap for a Sustainable Future"*

Prepared:  
July 2019



**Deschutes County**  
**Department of Solid Waste**  
***Solid Waste Management Plan***

**- Executive Summary -**

***Prepared by***

**JRMA, Inc**

***In Association With***

**GBB, Inc.**

**ESI**

**G. Friesen, Associates**

**Barney & Worth**

**July 2019**

# Solid Waste Advisory Committee (SWAC)

## Recognition

The Board of County Commissioners would like to recognize the members of the Solid Waste Advisory Committee (SWAC) for their dedication of time and effort to participate in preparing the 2019 Solid Waste Management Plan (SWMP). The SWAC held monthly meetings to review and comment on the SWMP as it was developed. At each meeting, they provided time for members of the general public to comment and offer suggestions. The SWAC also participated in two public meetings during the planning process. Their commitment of time and input made a valuable contribution to help shape the direction of the solid waste management system for the citizens and businesses of Deschutes County.

<b>Name</b>	<b>Representing</b>	<b>Note</b>
CURRENT		
Jerry Andres	Citizen at Large	
Brad Bailey	Bend Garbage and Recycling	
Jared Black	Citizen at Large	
Bill Duerden	City of Redmond	
Paul Bertagna	City of Sisters	
Catherine Morrow	Citizen at Large	
Jake Obrist	City of La Pine	
Cassie Lacy	City of Bend	Replaced G. Ockner 2/12/19
Mike Riley	The Environmental Center	
Erwin Swetnam	Cascade Disposal	
Rick Williams	Citizen at Large	
FORMER		
Gillian Ockner	City of Bend	Replaced by C. Lacy 2/12/19
Brant Kucera	City of Sisters	Replaced by P. Bertagna 8/21/18
Smith Reese	Citizen at Large	Resigned 7/12/18



# Deschutes County

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### Executive Summary

#### **Introduction**

This Executive Summary provides an overview of the Solid Waste Management Plan (SWMP) prepared by the Department of Solid Waste (DSW). The SWMP provides a roadmap for moving forward with actions to advance the solid waste management system in Deschutes County. It provides guidance for how resources should be spent to reduce waste, expand recycling services to divert waste from landfills and maintain efficient collection and disposal services over the next 20 years. The SWMP centers on the principal that waste be managed as a resource and to have a new disposal system in place when Knott Landfill closes. It includes a summary of the key strategies and recommendations as well as a schedule for implementing those strategies.

#### **State of the Solid Waste Management System**

Over the past 30 years, the County, working with cities, franchised collection companies and special interest groups has developed and operated a solid waste management system that provides efficient and cost-effective services to residents and businesses. During this period, new services to reduce waste and recycle materials that respond to State mandated programs and address local needs have been added.

The County and each of the cities provide collection services to residents and businesses through franchise agreements with private companies. The system also includes Knott Landfill and several transfer stations located throughout the County that provide convenient locations for customers to drop off recyclable materials and solid waste.

A key component of the solid waste system is to provide a menu of waste reduction and recycling programs and services. The County and the cities work cooperatively and effectively with the franchised haulers, the Environmental Center and others to provide these services, which are required by the State. In 2017 and 2018, approximately 33% of the waste generated in the County was diverted from disposal at Knott Landfill. This is less than the 45% recovery goal recently assigned to the County by the State. However, during this period, most communities in Oregon and across the country experienced a reduction in recycling due to a downturn in the markets for recovered materials brought on by China's new, more restrictive standards for purchasing recycled materials. Whereas several jurisdictions in the State have cut back on services and the materials collected due to these market conditions, the County, working with cities and the franchised collection companies, continues to maintain a full range of services to customers. Developing new strategies and expanding existing programs to increase the amount of waste diverted from landfills is a key issue addressed in the SWMP.

The cornerstone of the system is Knott Landfill, operated by DSW, which provides a local resource for disposing of municipal solid waste (MSW) that cannot be recycled. Over the past 25 years, DSW has enhanced the landfill facility to meet or exceed State

requirements for operation of a modern disposal site while maintaining a financially stable operation. All wastes collected by franchise collection companies and received at the County's transfer stations are delivered to the landfill.

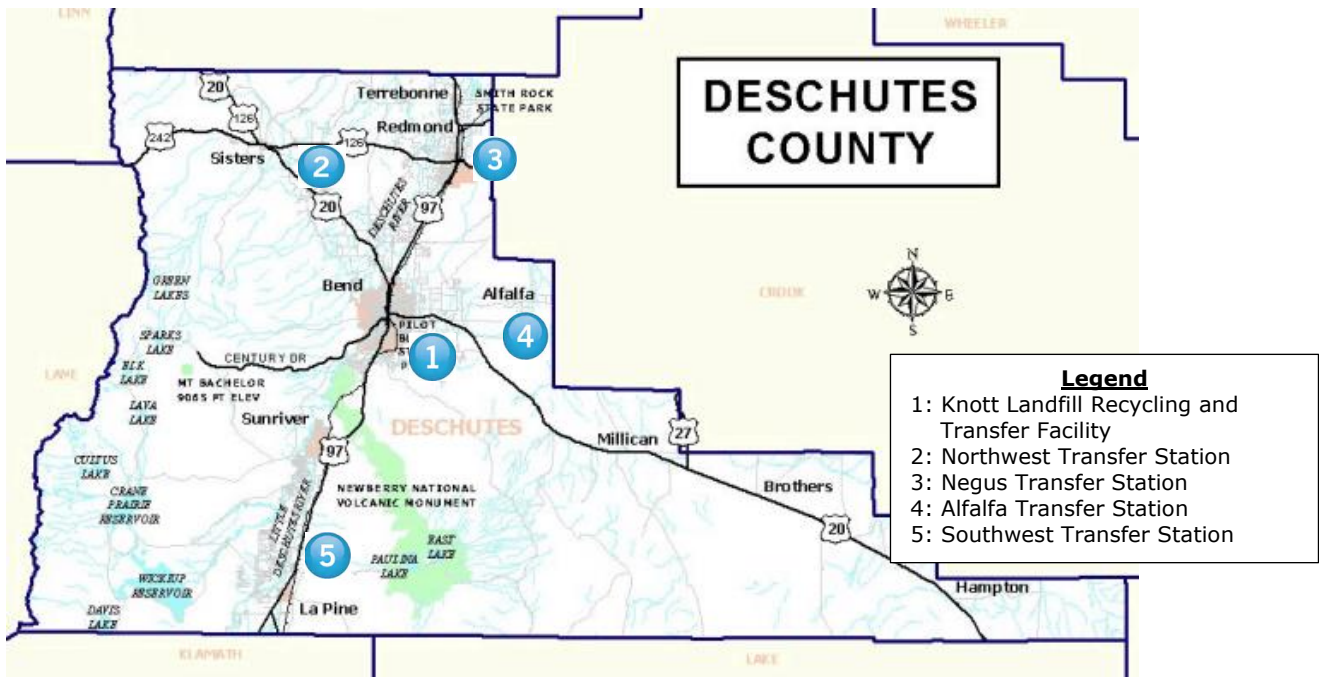
Within the next 10 years, Knott Landfill is expected to reach its designed capacity. At that time, a new long-term disposal system must be in place. Also, in 2017 the State of Oregon adopted regulations that resulted in establishing new goals for reducing the amount of waste disposed in landfills for all communities throughout the State. The focus of these new regulations is to manage waste as a resource and to reduce impacts of greenhouse gas emissions generated from landfills.

These conditions led the Board of County Commissioners to direct DSW to prepare a comprehensive SWMP to evaluate options and make recommendations for managing solid waste in the future.

### Description of the Current Solid Waste System

In the State of Oregon, counties and cities have the responsibility and authority to provide comprehensive services for managing solid waste. Deschutes County executes this mandate by placing the primary responsibility with DSW to oversee these services and operate necessary facilities. DSW functions as an enterprise fund where all revenues needed to operate the system are generated by fees charged for customer services and no general tax revenues are used.

DSW currently operates four rural transfer stations and the Knott Landfill Recycling and Transfer Facility. The locations of these facilities are shown on the map below.



The four rural transfer stations augment regular collection services by providing convenient locations in more rural areas for citizens to deliver waste and recyclables.

Over the past three years, Negus Transfer Station in Redmond and Southwest Transfer Station near La Pine have experienced increases in waste quantities of 23% and 19% respectively. The increases in the number of customers and the amount of waste received at these two transfer stations has created the need to expand them in the near future.

The cities of Bend, Redmond, Sisters and La Pine are responsible for providing collection services within their jurisdictions and DSW is responsible for providing collection services to the unincorporated portions of the County. Collection services are carried out by four private companies operating under franchise agreements. Each jurisdiction is responsible for setting the service standards and the rates charged to residents and businesses.

As stated previously, DSW estimates remaining capacity of Knott Landfill to be about 10 years. The landfill accepted over 180,000 tons of solid waste per year over the past two years and is one of only two modern disposal sites permitted to accept MSW in central Oregon. The other landfill, located in Crook County, accepts less than 40,000 tons per year. When Knott Landfill reaches capacity, a new disposal solution must be in place. The SWMP examines the options and presents a recommended approach to have a new in-County landfill operational when Knott Landfill closes.

### **Growth in The County**

Waste disposed at Knott Landfill decreased by 3.3% between 2010 to 2011 as a result of the recession that occurred between 2009 and 2013. The decline in waste disposed was a result of a slower economy, reduced construction activity and perhaps a reduction in tourism. From 2010 to 2016, the population grew by almost 15% while the rest of the State of Oregon grew a little over 6%. The result of this growth and changes in the economy are reflected in the following table. Over the past three years, the amount of waste disposed at Knott Landfill has increased at a rate of 11% per year.

**Table ES-1 - History of Waste Disposed at Knott Landfill**

<b>Year</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
<b>Annual Waste Disposed (tons)</b>	<b>114,307</b>	<b>112,751</b>	<b>113,611</b>	<b>119,682</b>	<b>130,956</b>	<b>144,067</b>	<b>161,087</b>	<b>182,095</b>
<b>% Change</b>		<b>(1.4%)</b>	<b>0.9%</b>	<b>5.4%</b>	<b>9.4%</b>	<b>10.0%</b>	<b>11.8%</b>	<b>13.0%</b>

In 2018, DSW reported that 182,000 tons of waste was disposed at Knott Landfill. Population data prepared by the Center of Population Research at Portland State University in 2018 shows that Deschutes County is expected to continue to grow by almost 3.0% per year, while the rest of the State is projected to grow at just 1.3%.

The SWMP includes projections for the amount of waste generated and disposed over the next 20 years. With the estimated remaining capacity of Knott Landfill at 10 years, it will be important to monitor the data to ensure that a new disposal site is permitted and ready to receive waste when it closes. The SWMP presents several strategies to reduce waste, recycle more materials and divert waste from landfill disposal.

Implementation of these programs will help reduce waste disposed at Knott Landfill, but will only aid in providing limited additional time before a new disposal solution is in place.

## **Preparing the SWMP**

With the impending issues discussed above, the Board of County Commissioners allocated funds in fiscal year 2018/19 for DSW to prepare a comprehensive SWMP. DSW proceeded by first selecting a consultant team that specialize in the solid waste management industry to provide policy analysis and technical assistance and to draft the SWMP. A team of consultants, led by JRMA, Inc. was retained. The County also appointed a Solid Waste Advisory Committee (SWAC) and assigned them with the responsibility to review information and provide input and guidance into the formulation of the plan. The SWAC is comprised of representatives of the cities, franchised collection companies, the Environmental Center and technical experts in related areas.

The overriding goal of the County is ***"to work cooperatively with cities and service providers to offer citizens and businesses an integrated solid waste management system that delivers quality and cost-effective services while achieving the best use of our resources and reducing waste disposed in landfills."***

In preparing the SWMP, the County adopted several guiding principles or objectives to be used in evaluating and selecting recommended strategies. These objectives include factors such as enhancing services, using proven and reliable technologies, determining cost-effectiveness and considering environmental impacts. The specific objectives are:

1. ***To provide an integrated solid waste management system*** that addresses an effective combination of strategies and programs guided by the hierarchy adopted by the State of Oregon to first, reduce waste at the source; second, to reuse and recycle materials; third, to compost; fourth, to recover energy; and last, to dispose of waste in landfills.
2. ***To continue educating consumers regarding practices and methods to reduce the long-term per capita waste generation rate*** and to seek, through community outreach, a cooperative approach to individual responsibility for waste reduction.
3. To develop programs and support implementation of system improvements that seek to ensure materials recovered from the waste stream ***attain the highest and best use and are recycled.***
4. To develop a solid waste system that is based on ***sound financial principles, provides cost-effective services and maintains rate stability over the long term,*** while allocating costs equitably to all users.
5. ***To maintain system flexibility to respond to changes*** in waste stream composition, waste management technologies, public preferences, new laws and changing circumstances.

A primary objective of the State is to protect the environment by emphasizing waste reduction and reducing waste disposed in landfills. Therefore, each watershed or

county has been assigned a targeted recovery rate, which is the amount of materials reused and recycled divided by the total amount of waste generated. The State's goal established under Oregon Revised Statutes (ORS) 459A.010 sets Deschutes County's recovery rate at 45% by 2025. This target will be measured on an annual basis, and programs and facility assessments will be made on the County's progress towards reaching this goal.

The SWMP addresses each component of the solid waste system according to the hierarchical management approach adopted by the State. As shown on the adjacent graphic, the SWMP considers strategies that first, reduce waste; second, reuse materials; third, recycle; fourth, compost; fifth, recover energy; and finally, dispose of waste that cannot be recycled or used to produce alternative energy resources.



Over the past 17 months, DSW, the consultant team and the SWAC have examined existing conditions, identified waste management system needs and opportunities and evaluated alternatives to address these needs. The process included regular meetings with the SWAC to review the draft plan and provided valuable input into shaping the direction in the development of the solid waste system. DSW established a special webpage where people could access the plan as it was being drafted and reviewed by the SWAC. All SWAC meetings were open to the public for comments. Also, during the preparation of the SWMP, DSW held two public meetings to gain input. The outreach program included conducting several surveys to solicit input. After reviewing each component of the solid waste system, the SWAC reviewed and endorsed recommendations for the future system. A summary of the comprehensive public outreach and involvement program and results of the surveys are included in Appendix B.

### **Summary of Key Issues Addressed in the SWMP**

The SWMP addresses several key issues related to managing solid waste in the County over the next 20 years. While these issues are a result of changing regulations, some are driven by the impending closure of Knott Landfill. The following is a list of some of the key issues addressed in the SWMP.

1. Currently, the County recovery rate is 33%. What strategies can be implemented that will increase the recovery rate to potentially meet the recovery goal of 45% by 2025?
2. What strategies can be implemented in the near term that might extend the site life of Knott Landfill?
3. Are there proven and reliable technologies that would be cost-effective to implement that would further reduce the County's dependence on landfill disposal?
4. What is the best approach for providing for reliable and cost-effective long-term disposal capacity and should a new landfill be sited in the County, or should the County transfer waste to an existing regional landfill?



5. What investments and improvements are needed at the County's transfer stations to address the long-term system needs and maintain convenient cost-effective services?
6. Are there regional approaches to work with Crook County and provide opportunities to provide cost-effective solutions?
7. What is the timeline for making needed investments in the solid waste system and when do facilities need to be operational?

A full list of the primary issues is presented in Chapter 1, Section 1.3 of the SWMP.

### **Highlights of the SWMP**

Deschutes County has the largest population and economy in the State east of the Cascade Mountains. In addition to a growing commercial/industrial sector, the County is a regional and nationally recognized location for year-round tourism. As previously mentioned, the County is growing at a faster rate than other parts of Oregon. By 2030 the population of Deschutes County is expected to be 230,000, an increase of over 25% as projected by the Population Research Center at Portland State University.

Because of the location of the County in relation to other large population centers, it was imperative that the County develop a cost-effective and reliable system for managing waste. As a significant economic center for central Oregon, the County, working with the cities, has developed a well managed and cost-effective integrated solid waste system. It provides a wide range of programs and services aimed at reducing waste and recovering materials for reuse and recycling. Knott Landfill has been upgraded over the past 25 years and provides a state of the art disposal site comparable to other major regional landfills operating in the Pacific Northwest.

A focus of the SWMP was to examine the current system and evaluate what strategies can be implemented to not just maintain services, but to consider alternatives that can improve them in the future. The SWAC considered many alternatives for reducing waste, recycling more materials and diverting more waste from landfill disposal. They considered options to convert waste to renewable energy sources using new or evolving alternative technologies and other ways to maximize the use of waste as a resource. The result was a set of recommendations that set forth a strategy to reduce waste disposed in landfills by as much as 15% or more over the next 10 to 15 years. When combined with the current waste reduction and recycling programs, these strategies are designed to help the County achieve and possibly exceed a recovery goal of 45% by 2025. However, it is important to acknowledge that recycling services provided by the County and cities are responsible for about 55% of the total recovery rate. The remaining 45% is a result of private business initiatives that recycle and report independently to the State.

To address future needs, the SWMP recommends several actions to enhance the County's solid waste system infrastructure. This includes expanding existing transfer stations over the next several years to enhance services and meet the needs of the growing population in Deschutes County. It also identifies the need to site and develop a new landfill located in the County when Knott Landfill closes.

Once the Draft SWMP was completed, a survey was conducted by Triton Polling and Research, Inc., an independent polling and research company. The purpose of the Triton survey was to obtain additional input on whether the County should pursue

siting a new landfill in Deschutes County, or transport waste to an out-of-County landfill when Knott Landfill closes. Results of this survey indicate that 84% of respondents support the position that waste generated in Deschutes County be disposed of in Deschutes County, with 93% supporting the recommendation to site a new landfill in the County.

The following discussion presents a summary of the recommendations in the SWMP. It is important to recognize that the SWMP is a roadmap outlining a strategy for achieving the goals set by the County and cities. There are many details and future actions to be considered during the implementation phase over the next 10 years. In moving forward with these actions, there will be many opportunities for the public to comment and provide input to shape the services to achieve the desired results.

## **Summary of the SWMP Recommendations**

### **Waste Reduction and Recycling**

Currently, about 33% of the waste generated in Deschutes County is recycled. In 2016, the State adopted new rules and established a new recovery rate goal of 45% for Deschutes County. Therefore, a significant focus of the SWMP is addressing how the County's residents and businesses can recover and recycle more materials and reduce the amount of waste disposed in landfills. The SWAC considered many options that can lead to a sustainable management approach to reduce waste and recycle more materials. In doing so, they examined each of the primary waste generators, what services are currently being provided, and how those services could be enhanced to increase recycling. Waste generators included:

1. Residential single-family households
2. Multifamily units
3. Commercial businesses
4. Construction and demolition (C/D) generators

In considering these generators, the SWAC identified certain targeted materials for recovery. These include separating vegetative food waste and collecting it with yard waste, expanding collection of source separated materials from multifamily units, increasing recycling from commercial businesses and separating C/D waste for processing. The following are recommendations for achieving a higher recovery rate.

### **Recommendations that Apply to all Generators**

**Recommendation 3.1:** Move toward establishing a standard waste reduction and reuse program throughout the County for single-family homes, multifamily units and businesses, which focuses on education and promotion.

**Recommendation 3.4:** Expand and develop additional materials to educate residents of single-family homes, multifamily units and businesses on how to reduce food waste and develop promotion of vegetative food waste collection with yard waste and consider universal service for vegetative food waste collection.

**Recommendation 4.8:** The County should complete a waste characterization study to better understand the composition of its waste stream, which will aid in evaluating options for recovering targeted materials and designing the programs and facilities needed.

## **Recommendations for Residential Single-Family Households**

Curbside recycling for single-family households in the cities and urbanized unincorporated County is well established. Expanding and enhancing these services to more customers is an ongoing activity.

**Recommendation 4.1:** Expand the current residential collection of vegetative food waste with yard waste to increase participation.

## **Recommendations for Multifamily Units**

Collection of source separated materials is provided to many multifamily units by the franchise haulers; however, participation is very low. The SWAC considered establishing a task force to focus on a comprehensive program to expand recycling service to the ever-growing number of multifamily developments being constructed in the County. The task force would look at establishing standards for ensuring there is adequate space for recycling containers and providing consistent educational and promotional material for these residents.

**Recommendation 3.2:** Expand and improve a standard for a multifamily recycling program that includes a comprehensive education and outreach program to expand participation at multifamily developments and increase collection opportunities.

## **Recommendations for Commercial Businesses**

Collection of source separated recyclable materials is currently provided to some businesses in the County. However, it is desirable to increase their participation in recycling. Also, the County experiences many tourists year-round and the SWAC identified a need to increase efforts to expand opportunities to provide more recycling services to tourists and businesses that service the tourism industry.

**Recommendation 3.3:** Expand business education and promotion to target expansion of recycling for businesses, focusing on hotels and resort communities to reach the year-round tourist population. As part of the business education and promotion program, develop a program to target food waste recovery.

**Recommendation 4.5:** Develop a recycling and vegetative food waste collection program targeting businesses, hotels and resort communities.

## **Recommendations for C/D Generators**

The County estimates that 25% or more of the waste disposed at Knott Landfill is generated from C/D activities. This waste stream contains large amounts of wood, sheetrock and roofing as well as typical commodity materials such as metal, cardboard and plastics. Also, there is an inert residue component (i.e. dirt, grit, glass) that is being disposed in the landfill. Completing a waste composition study and examining options to process and recover C/D material to reduce waste disposed in Knott Landfill or a future landfill can be part of a long-term solution.

**Recommendation 3.5:** Expand and develop new programs aimed at increasing recycling of C/D material.

**Recommendation 4.7:** Evaluate and develop a plan to provide incentives for recycling of C/D material and programs to recycle these materials to minimize its disposal at Knott Landfill or future landfills.

### **Infrastructure and Facility Needs**

The SWMP considered the impacts to existing County solid waste facilities and identified the need for new infrastructure to support the recommended strategies. These facilities are needed to continue to provide long term, cost-effective services.

### **Recommendations for Compost Facilities**

One focus on reducing waste disposed in landfills is to recover food waste and other organics from the waste stream. This will result in possibly as much as a 50% increase in the amount of organic materials to be composted.

The existing compost facility is located at Knott Landfill where there have been issues with odor. Given the fact there is increasing residential development in the area around the landfill, this site may not be well suited to handle the expected increase from food waste and other organics unless more advanced technologies that can process these materials faster and control odors are implemented. Also, there may be other locations more suitable for this operation that are closer to potential markets.

The SWAC has identified several recommendations to address the need to process more organics.

**Recommendation 4.2:** Conduct an assessment of markets for compost products resulting from expanded organics programs.

**Recommendation 4.3:** Evaluate alternatives to enhance and expand composting facilities. The study should evaluate optimal locations considering proximity to generators, markets and surrounding land uses.

**Recommendation 4.4:** Upgrade the organics processing capacity and technology to efficiently handle additional food and yard waste, including meats and dairy from residential and commercial sources and other organic waste streams.

### **Recommendations for Transfer and Recycling Stations**

DSW operates four rural transfer stations to serve areas of the County that are remote to Knott Landfill. These transfer stations have been in operation since the early 1990s. Negus Transfer Station in Redmond and Southwest Transfer Station near La Pine are at capacity and need improvements. The following recommendations outline a phased, multi-year strategy to upgrade transfer station facilities.

**Recommendation 5.1:** Develop a Facility Plan for Negus Transfer Station in 2019 for making improvements to the facility by 2021 or as needed.

**Recommendation 5.2:** Develop a Facility Plan for Southwest Transfer Station within the next three years. Modifications to this facility can be made as the demand for enhanced services for managing increased waste volumes and traffic is required.

**Recommendation 5.3:** Develop a Facility Plan for the Knott Transfer and Recycling Facility as necessary to address long-term disposal options or within five years of closure of Knott Landfill.

**Recommendation 5.4:** Establish a capital improvement program for making investments in transfer station modifications over the next 10 years.

### **Recommendations for Alternative Technologies**

Over the past 10 years, there have been advancements in alternative technologies to recover and convert the energy value of solid waste into renewable energy. The SWMP includes a review of various technologies to determine if any may be practical for implementation in Deschutes County. The results of the review led to the following findings:

1. Alternative technologies for managing waste in Deschutes County do not appear feasible at this time.
2. Markets for renewable energy or fuel products are not currently available locally.
3. Knott Landfill is expected to reach capacity within 10 years. This provides an opportunity for the County to monitor the continued advancement of new technologies and to reassess the potential for implementing an alternative technology project in three to five years.
4. The County should only consider those technologies and vendors that have a proven record of successfully operating a commercial scale alternative technology facility.

**Recommendation 6.1:** The County should continue to monitor and assess the status and feasibility of alternative technologies as a part of the solid waste system in three to five years.

### **Recommendations for Landfill Disposal**

When Knott Landfill reaches capacity, the County must be prepared to have a new solution in place. Two primary options were considered in the SWMP:

1. Transport waste to regional landfills located between 135 and 185 miles from Deschutes County near the Columbia Gorge.
2. Site and build a new landfill in Deschutes County.

DSW, working with the SWAC and the consultant team, completed an evaluation of the landfill options considering several factors. A public meeting was held to solicit additional input into which option was preferred. After examining the alternatives, the SWAC reached a consensus that the best approach for providing a long term and cost-effective waste management system was to site and construct a new in-County landfill. Some of the key factors supporting this recommendation include:

1. The ability to control decisions for managing the County's waste stream without having to consider impacts to a contract with an out-of-County service provider.
2. Environmental and other impacts resulting from transporting waste almost 250 to 300 miles (roundtrip) to a regional landfill located in the Columbia Gorge region are excessive when compared to disposing of waste in Deschutes County. Depending on the effectiveness of waste reduction and recycling programs, there will be about 25 to 30 large transfer trucks that need to make this trip each day. Vehicle emission impacts are substantially greater with the out-of-County disposal option. Additionally, these trucks must travel through several towns along the route and the number of trips is expected to increase as the population grows.
3. With an average depth to ground water of over 500 feet and an arid climate with less than 14 inches of precipitation annually, conditions in Deschutes County are conducive to siting a new, environmentally safe landfill operation. These conditions are similar to those prevalent at other regional landfills.
4. The cost to build and operate an in-County landfill is expected to be less than the alternative to transport waste over long distances and dispose in a regional site that is also obligated to pay host fees, which in turn would likely be paid by the County.
5. The County has demonstrated its ability to effectively build and operate a modern landfill complex in an environmentally safe and cost-effective manner.

There was much discussion on the difficulty of siting a new landfill and the possibility of a protracted process to successfully obtain permits. However, the geographic and demographic conditions in the County are favorable in comparison to locations west of the Cascade Mountains where siting has not been successful. It was noted that prior to expanding Knott Landfill in the late 1990s, the County did conduct a siting process and was able to identify sites that were environmentally suitable.

The SWAC considered the impacts of greenhouse gases from landfills and concluded these impacts are the same whether the waste is landfilled in the County or disposed at another site. However, avoiding the emission impacts of transporting waste over the required distances was a distinct environmental benefit.

**Recommendation 7.1:** The County should proceed to site and permit a new in-County landfill to be operational when Knott Landfill closes. The landfill should be capable of handling all waste streams generated in the County.

**Recommendation 7.2:** The County should begin a formal process to site and permit a new landfill by 2021.

**Recommendation 7.3:** Consider privatization of development and operations of the new landfill.

## **Recommendations for Administration and Financial Management**

The County has provided a leadership role in developing much of the infrastructure that supports the management of solid waste. Day-to-day management and operations of the transfer stations and Knott Landfill are carried out directly by DSW staff. DSW also contracts out certain operations to private franchise companies, primarily to provide collection, transportation and recycling services. This also includes a license for Deschutes Recycling to operate the recycling and compost facility at Knott Landfill.

As part of the SWMP, it is important to consider the recommended strategies and what impact they could have on the current administrative responsibilities of DSW, or if changes in the management structure are needed. Likewise, the SWMP identified needed investments to site, permit and construct a new landfill as well as necessary upgrades and expansions to existing transfer stations.

Currently, the County and the cities of Bend and Redmond have entered into intergovernmental agreements that commit to disposal of waste at Knott Landfill. These agreements state the commitment to work together for managing solid waste. In addition, each jurisdiction has a franchise agreement with private companies to provide collection and recycling services.

Upon review of the current management structure, no major changes were suggested. Regarding the financial management of the system, DSW operates as an enterprise fund where revenues generated from disposal fees are used to provide direct services. DSW also provides several dedicated reserve accounts used to fund routine capital improvements at the landfill, thus avoiding the need to borrow money. This approach provides for stability in the rates charged to customers. Also, the County has been able to procure low cost funding using the County's bonding capacity for larger capital investments when required. The last time bonds were required was in 2005 when the Knott Landfill Recycling and Transfer Facility was constructed.

**Recommendation 8.1:** Given the need to implement the necessary changes to the solid waste management system over the next 10 years, the County should meet with the cities to reaffirm commitments and update, as necessary, the intergovernmental agreements. The agreements should also address the cities' participation in the process for implementing the recommendations adopted in the SWMP.

**Recommendation 8.2:** The County should establish a formal process that provides for continued involvement of cities, other stakeholders, businesses and the general public in implementing the recommendations of the SWMP. This process may include establishing an ongoing advisory group and/or assigning task force committees to oversee development and implementation of specific programs.

**Recommendation 8.3:** The County should consider the current DSW organization and determine the resources that are needed to carry out the implementation of the recommendations adopted in the SWMP. This will require perhaps some additional staff as well as financial resources.

**Recommendation 8.4:** DSW should prepare a financial study of the current rates to determine the impacts of implementing the improvements identified in the SWMP and develop a capital improvement plan for a five to seven year period aimed at maintaining a stable financial strategy for facility improvements.

**Recommendation 8.5:** Consider privatization of all aspects of the solid waste system as changes and program are implemented, as referenced in *Appendix A*, as has been the practice of the solid waste system historically.

### **Implementation Schedule**

The SWMP provides a roadmap for guiding the future development of the solid waste management system. It consists of 24 recommendations; several are related actions while others are dependent on the time when certain policies or facilities are completed. Also, certain actions are a priority while others can be delayed. The implementation schedule provides a comprehensive summary tool to help coordinate and manage the timeframe when actions should occur and be completed and when others may begin. It is important to recognize that public participation and input for implementing new programs is essential. While there is flexibility in the schedule, there are, however, certain actions that have identified key dates that will need to be considered.

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## Deschutes County SWMP 2019 Implementation Schedule

Recommendations		2019	2020	2021	2022	2023	2024	2025
<b>Recommendations that Apply to All Generators</b>								
3.1	Set up standard waste reduction and recycling program for single/multifamily and businesses	Task Force				Implementation		
3.4	Expand education to single/multifamily and businesses to promote reducing/recycling food waste	Planning	Task Force			Implementation		
4.8	Complete a waste characterization study	Implementation						
<b>Recommendations that apply to Residential Single Family Households</b>								
4.1	Expand current collection of residential food waste with yard waste	Continue Pilot Program				Implement Full Program		
<b>Recommendations that apply to Multifamily Units</b>								
3.2	Develop standard for multifamily recycling promotion and education program	Task Force		Implement Pilot Program		Implement Full Program		
4.6	Develop a multifamily recycling and food waste collection program	Task Force		Implement Pilot Program		Implement Full Program		
<b>Recommendations that apply to Commercial Businesses</b>								
3.3	Expand business education/promotion focusing on tourism	Task Force				Implement Program		
4.5	Start a recycling food waste collection program targeting hotels/resort communities		Planning			Implement Program		
<b>Recommendations that apply to Construction and Demolition (C/D) Generators</b>								
3.5	Expand and develop new programs aimed at increasing recycling C/D materials		Planning			Implement Program		
4.7	Evaluate and develop program to provide incentives for recycling C/D materials		Planning			Implement Program		
<b>Compost Facilities</b>								
4.2	Assess markets for compost products resulting from expanded organics program		Assess					
4.3	Evaluate alternatives to expand composting facilities involving optimal locations			Evaluation				
4.4	Upgrade organics processing from residential and commercial sources			Planning		Implement Program		
<b>Transfer and Recycling Stations</b>								
5.1	Develop and implement plan for Negus Transfer Station improvements	Design	Construction			Operation		
5.2	Develop and implement plan for Southwest Transfer Station improvements			Planning	Design	Construction	Operation	
5.3	Develop plans for Knott Transfer and Recycling Facility improvements						Planning	
5.4	Establish a capital improvement program		Implementation			Update Annually		

Recommendations		2019	2020	2021	2022	2023	2024	2025
<b>Alternative Technologies/Solid Waste Disposal</b>								
6.1	Assess status of alternative technologies			Assess			Assess	
<b>Landfill Disposal Options</b>								
7.1	Proceed to site and permit a new County landfill to be operational before Knott Landfill reaches capacity	Develop Siting Process						
7.2	Begin formal process to site and permit new landfill		Siting			Permitting		
7.3	Evaluate and consider privatization of landfill construction and operations						Evaluate & Consider	
<b>Administration and Financial Management</b>								
8.1	County to meet with cities to reaffirm commitments and update interlocal agreements	Meetings					Review	
8.2	Establish process that implements the recommendations of the SWMP	Task Force			Implementation			
8.3	Determine the resources needed to implement SWMP recommendations	Review	Budgeting			Implementation		
8.4	Prepare financial study of the SWMP and develop a capital improvement plan (CIP) for 5-7 year period, maintaining financial stability	Prepare Study/Plan				Implementation (Update Annually)		
8.5	Evaluate and consider privatization in the system		Evaluate & Consider					
		Blue - Signifies actions involving multiple stakeholders			Red - Signifies actions initiated by county			