Economic Impacts of Expanding Riverbend Landfill

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Waste Management

Final Report

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1 Executive Summary

The Riverbend Landfill Company, Inc. (RLC), a wholly owned subsidiary of Waste Management, intends to file a land use application to change its existing zoning. This zone change would allow the Riverbend Landfill to eventually expand its footprint and total capacity.

As a municipal solid waste landfill, Riverbend Landfill may accept solid waste collected by households and businesses, construction and demolition debris, and non-hazardous special waste. In addition to providing disposal services to Yamhill County, it serves communities on the Oregon coast and portions of Multnomah, Clackamas, and Washington Counties.

RLC asked ECONorthwest to analyze the economic impacts of expanding and continuing to operate Riverbend Landfill. The analysis focuses on impacts only to Yamhill County. The analysis estimates the impacts of expanding and continuing to operate Riverbend Landfill and compares those impacts to alternative disposal options. Economic impacts result from operating the Riverbend Landfill, based on the assumption that it would accept 510,000 tons of waste per year through 2030. Economic impacts also result from construction activity associated with expanding the Riverbend Landfill, estimated to cost $25.5 million (2013 dollars).

Following the zone change, RLC plans to aggressively pursue opportunities to develop a new "Green Tech" facility at Riverbend. One possible Green Tech facility would convert a portion of the waste stream that is currently landfilled into a pelletized fuel source. Such a facility could create a marketable energy product, reduce residual waste disposal volumes and maximize the life of the landfill. Assuming the Green Tech facility is developed by late 2015, the projected landfill capacity would last until about 2034. This analysis examines the impact of constructing such a Green Tech facility in addition to any expansion of the existing landfill facility.

If Riverbend Landfill is not expanded and ceases to accept waste, Yamhill County's waste would need to be diverted and disposed elsewhere. This analysis assumes a new transfer station would be built in McMinnville to allow the diversion of waste to a different site at a cost of $2 million (2013 dollars) for construction. Yamhill County's waste would be hauled from the new transfer station to one of three alternative disposal sites. The three alternative sites are:

- **Coffin Butte Landfill.** Coffin Butte is 38 miles from McMinnville, near Corvallis.
- **Columbia Ridge Landfill and Recycling Center.** Located in Gilliam County, Columbia Ridge is 183 miles from McMinnville.
- **Wasco County Landfill.** This landfill is 123 miles from McMinnville, near The Dalles in Wasco County.

Table 1 summarizes the economic impacts for each alternative compared to the continued operation of Riverbend Landfill. The table shows that expanding Riverbend Landfill generates significant and clear benefits to Yamhill County and its residents. The table lists the types of

impact, and shows the impact of expanding Riverbend Landfill and the impact of hauling waste to alternative sites.

Table 1. Summary of economic impacts (2013 dollars)

Type of Impact	Expand Riverbend	Alternate Disposal Options
Cost of Disposal		
Per- ton cost	$30.40	Coffin Butte: $77.61
		Columbia Ridge: $65.00
		Wasco County: $67.19
Total annual cost for Yamhill County service area	$4,693,000	Coffin Butte: $9,818,000
		Columbia Ridge: $8,223,000
		Wasco County: $8,500,000
Annual cost of solid waste service in Yamhill County		Increase by
		Coffin Butte: 17%
		Columbia Ridge: 13%
		Wasco County: 13%
Licensing and host fees generated to Yamhill County, per year	$1,200,000	Coffin Butte: $64,000
		Columbia Ridge: $94,000
		Wasco County: $78,000
Construction (Landfill vs Transfer Station)		
Employment (job-years)	263	29
Personal income	$7,662,000	$869,000
Operation (Landfill vs Transfer Station)		
Employment, per year	36	Coffin Butte: 14
		Columbia Ridge: 19
		Wasco County: 16
Personal income, per year	$2,122,000	Coffin Butte: $883,000
		Columbia Ridge: $1,126,000
		Wasco County: $1,007,000
Electricity generation	4.8 MW capacity 36,500 MW-hours per year Powers 2,500 homes	Reduces lifetime of electricity generation capacity
Air emissions from hauling waste outside of Yamhill County		
Metric tons per year of CO2, NOx and PM2.5	No increase	Coffin Butte: 691
		Columbia Ridge: 2,644
		Wasco County: 1,777
Cost per year of emissions	No increase	Coffin Butte: $79,000 to $193,000
		Columbia Ridge: $300,000 to $739,000
		Wasco County: $202,000 to $498,000
Green Tech		
Construct facility		
Employment (job-years)	110	None
Personal income	$3,368,000	
Operate facility		
Employment, per year	88	None
Personal income	$4,959,000	
Haul Material to Port		
Emitted metric tons per year of CO2, Nox and PM2.5	2,116	None
Cost per year of emissions	$240,000 to $592,000	
Use material as fuel source		
Avoided metric tons of CO2	35,000	None
Cost of avoided CO2	$1.415 to $3.955 million	

Source: Calculated by ECONorthwest. See full report for explanation of methods.

Expanding Riverbend Landfill provides large economic benefits to Yamhill County and its residents. The costs of hauling waste are lower, many more local jobs and associated income are generated, and the County generates more revenue from landfill license fees. If Riverbend Landfill ceases to operate, Yamhill County residents would not only pay more for garbage service, but fewer of the dollars they spend on garbage service would stay within the local economy.

The economic impacts are the following:

- **Cost of disposal.** Hauling waste to any of the three alternative disposal sites would cause the per-ton cost of disposal to increase for Yamhill County residents and businesses. The annual cost of disposal to the entire County would increase by $3.5 to $5.1 million (depending on the alternative site). The increased costs are caused by the additional cost of managing waste at a transfer station and hauling the waste to the alternative sites.
- **Fees to Yamhill County.** If Riverbend Landfill expands, RLC will pay approximately $1.2 million per year in licensing and host fees to Yamhill County. That revenue supports about two-thirds of the County's Solid Waste Fund budgeted expenses, and pays for post-closure costs of closed landfills, solid waste education programs, household hazardous waste collection, and other programs. If Riverbend Landfill closes, the County would no longer collect licensing and host fees from RLC, but it would collect license fees from a new transfer station, which we estimate to be between $64,000 and $94,000 per year.
- **Employment and income from construction.** RLC will spend $25.5 million to expand Riverbend Landfill. The construction activity will generate 202 jobs directly associated with construction activities and $6.1 million in associated personal income. The construction activity will generate secondary jobs and income impacts, as the construction and its employees purchase goods and services in the local economy. In total, construction of the expansion will generate 263 jobs and $7.7 million in associated income. Under the alternative disposal scenarios, a $2 million transfer station will be constructed, creating 29 (23 of which are directly associated with construction activities) jobs and $869,000 in personal income.
- **Employment and income from operations.** Operating Riverbend Landfill currently requires 17 full-time equivalent jobs, generating $1.6 million in associated personal income per year to operate the facility. Operating Riverbend Landfill yields secondary jobs, as the Landfill and its employees purchase goods and services in the local economy. We estimate that operating Riverbend Landfill generates 19 secondary jobs and $500,000 in personal income, for a total of 36 jobs and $2.1 million in personal income. Hauling waste to alternative sites would create about half as many jobs—operating the transfer station and driving the waste to alternative sites would generate between 14 and 19 jobs and between $900,000 and $1.2 million personal income (depending on the alternative site). Between 11 and 14 of those jobs would be directly employed in transfer station operations and hauling the waste.
- **Electricity generation.** RLC is currently generating and selling electricity to McMinnville Water and Light by combusting landfill gas. Expanding Riverbend Landfill would extend

its ability to generate electricity. The landfill gas from Riverbend Landfill creates a generating capacity of 4.8 megawatts, sufficient to generate about 36,500 megawatt-hours of electricity. This is enough energy and capacity to power 2,500 homes. The electricity-generating capacity displaces the need for new electrical turbines powered by natural gas, which generate additional greenhouse gas emissions and other air pollutants.

- **Air emissions from hauling waste.** Hauling solid waste from Yamhill County to any of the three alternative disposal sites generates carbon dioxide (CO2), nitrogen oxides (NOx), carbon monoxide, and particulate matter. Expanding Riverbend Landfill avoids the generation of transportation-related greenhouse gases and pollutants that decrease air quality. The economic cost of the CO2 is between $28,000 and $297,000 per year; the cost of the NOx is between $23,000 and $200,000 per year; and the cost of particulate matter is between $28,000 and $242,000 per year.
- **Tourism Impacts.** ECONorthwest could find no evidence that the presence or absence of Riverbend Landfill had any impact on tourism in Yamhill County.
- **Green Tech facility.** The Green Tech facility would generate a fuel source that emits less carbon per BTU of energy generated.
  - Construction of the facility would generate an estimated 89 jobs directly associated with constructing the facility and $2.8 million in personal income. The construction activity and its workers would create additional jobs and income by purchasing local goods and services, creating a total of 110 temporary jobs and $3.4 million in personal income.
  - The facility would generate an estimated 43 jobs directly associated with operating the facility and hauling the material to a port, and $3.8 million in personal income, per year. The facility and its employees would generate additional jobs and income by purchasing local goods and services, creating a total of 88 permanent jobs and $5.0 million in personal income, per year.
  - The facility would reduce total CO2 emissions by about 33,000 metric tons, which has an economic value between $1.3 million and $3.7 million.

2 Introduction

The Riverbend Landfill Company, Inc. (RLC), a wholly owned subsidiary of Waste Management, intends to file a land use application to change its existing zoning. This zone change would allow the Riverbend Landfill to eventually expand its footprint and total disposal capacity.

Riverbend Landfill is located on Highway 18, about two miles southwest of the McMinnville city limits. As a municipal solid waste landfill, Riverbend Landfill may accept solid waste collected by households and businesses, construction and demolition debris, and non-hazardous special waste. In addition to providing disposal services to Yamhill County, it serves communities on the Oregon coast and portions of Multnomah, Clackamas, and Washington Counties.

RLC asked ECONorthwest to analyze the economic impacts of expanding and continuing to operate Riverbend Landfill. This report summarizes ECONorthwest's analysis. The analysis estimates the impacts of expanding Riverbend Landfill and compares those impacts to alternative disposal options. This report examines only a subset of the potential impacts of an expanded Riverbend Landfill: it focuses on describing and, as possible, quantifying economic impacts to Yamhill County.

2.1 Evaluation Methods and Data

The evaluation used the following sources of information:

- Interviews with waste haulers that deliver waste to Riverbend Landfill. ECONorthwest interviewed key RLC staff to understand the amount of waste delivered to Riverbend Landfill and contacted RLC competitors to determine the expected cost of delivering the waste to alternative disposal sites.
- Interviews with County staff. ECONorthwest interviewed Solid Waste staff at Yamhill County to understand the fiscal impacts of the Riverbend Landfill to the County.
- Landfill operations data from RLC. ECONorthwest worked with staff at RLC to understand Riverbend Landfill operations.
- National data sources. ECONorthwest relied on federal agencies for electricity and air emissions data.

The text of this report provides a full description of the data and methods used to determine the economic impacts of expanding the Riverbend Landfill.

2.2 Organization of the Report

After this introductory chapter, the remainder of this report is organized into two chapters and an appendix:

- **Chapter 3: Evaluation Framework** presents a framework for evaluating the impacts associated with expanding the Riverbend Landfill. This chapter describes some basic principles of analysis, and the alternatives analyzed.
- **Chapter 4: Economic Impacts** compares the economic impacts of expanding Riverbend Landfill to hauling waste to alternative disposal facilities.
- **Appendix: Overview of Economic Multiplier Models** describes measuring economic impacts using input/output models.

3 Evaluation Framework

This chapter discusses principles that are fundamental to an economic impact analysis. It has two sections:

- **Key Issues Affecting this Analysis** discusses the key issues that affect the logic and assumptions of an economic impact analysis.
- **Alternatives** describes the different alternatives used in the analysis to compare economic impacts.

3.1 Key Issues Affecting this Analysis

This section discusses assumptions that affect an analysis of economic impacts.

- **Identify the base case.** To estimate the net benefits of expanding Riverbend Landfill, the benefits and costs of one possible future (with an increased capacity at the Riverbend Landfill) must be compared to the benefits and costs that would occur in a different future (without the increased capacity). Such evaluation usually occurs by comparing alternative scenarios to the 'base case.' In this analysis, the 'base case' assumes that RLC expands Riverbend Landfill.
- **Identify study area boundaries.** Different types of impacts affect different geographies. In the case of a landfill, the cost of disposal affects the landfill's entire service area. Although some economic effects may occur elsewhere, the focus of this analysis is on Yamhill County. The analysis identifies the economic impacts that affect Yamhill County's residents, businesses, and county government.
- **Properly attribute causality.** Establishing a base case affects an analyst's ability to properly identify cause-and-effect relationships. Attributing effects to causes, and doing so only once (i.e., avoiding double counting), is essential to an evaluation of net impacts.
- **Clarify timing of impacts.** Economic effects occur over time. Some impacts are single events, such as the construction of a transfer station. Other impacts are ongoing, such as the annual license fees paid to Yamhill County. This analysis, conducted in 2013, is based on 2013 data and estimates jobs, income, tax revenue, and other factors based on 2013 values. This analysis identifies impacts that are one-time, and those that are ongoing, but does not estimate future values. Instead, the analysis describes the ongoing impacts in 2013 dollars, and notes that the impacts would continue on an annual basis into the future.

3.2 Alternatives

The analysis of economic impacts is organized to compare the base case of expanding Riverbend Landfill, to hauling the waste to other landfills in the region. This section describes assumptions used in the analysis of the alternatives.

3.2.1 Expand Riverbend Landfill

Riverbend Landfill accepts municipal solid waste generated from households and businesses. The Riverbend Landfill provides disposal services for Yamhill County and outside the County.

RLC estimates that 510,000 tons of waste will be disposed at Riverbend Landfill in 2013 and annually into the future. We use 510,000 tons per year to estimate economic impacts. RLC estimates that Yamhill County residents and businesses generate 24.8% (126,500 tons) of the total annual volume of waste disposed at Riverbend Landfill.[1]

RLC will eventually apply to expand the Riverbend Landfill by 3.5 million cubic yards of capacity, or 4.1 million tons. RLC reports that the eventual expansion is expected to cost $25.5 million (in 2013 dollars).

There are currently 17 employees at Riverbend Landfill, and the total value of the income for those employees (wages plus the cost of providing benefits) equals $1.6 million. This analysis assumes the landfill will require this level of employment throughout its operating life.

RLC has built a system to capture methane gas generated in the Riverbend Landfill by decomposing waste and convert it to usable electricity. The expansion would extend the time that the Riverbend Landfill can be used to generate electricity.

Different alternative technology processes exist that RLC could pursue at Riverbend Landfill to recover waste that currently gets disposed in a landfill. The Green Tech process most likely to work at the Riverbend Landfill site is a technology Waste Management has developed to create a fuel from waste that serves as a substitute for coal. Waste Management has constructed similar facilities at other landfills, and plans to site such a facility at Riverbend Landfill if the expansion proceeds. This particular type of facility takes the non-recyclable waste and sorts it, so that about one-third (170,000 tons per year) can be converted to fuel pellets. The remainder would be disposed in the Riverbend Landfill. For the purposes of this study, we call this facility the Green Tech facility.

Waste Management reports that it will cost $31 million to construct the Green Tech facility and that operating it will require 35 employees. The total value of their wages and benefits is $3.29 million.

3.2.2 Haul Waste to other Landfills

If Riverbend Landfill does not expand, it will no longer accept waste. The area currently served by Riverbend Landfill would need to find alternative disposal options.

[1] All data describing Riverbend Landfill facilities were provided by Waste Management staff.

This analysis assumes that the waste collected in Yamhill County by garbage collection vehicles will need to be transferred to larger, long haul trucks. A new transfer station would need to be constructed to provide that transfer capacity.[2] We assume that the new transfer station would be built in the vicinity of McMinnville, but we have not identified a specific location for this hypothetical scenario.

Staff at RLC estimated that a new transfer station, sized to accommodate waste generated in Yamhill County, would cost roughly $2 million (in 2013 dollars) to construct. This cost estimate assumes that the facility is relatively simple and does not include any materials recovery capability. This cost estimate excludes the cost of any compacting equipment.

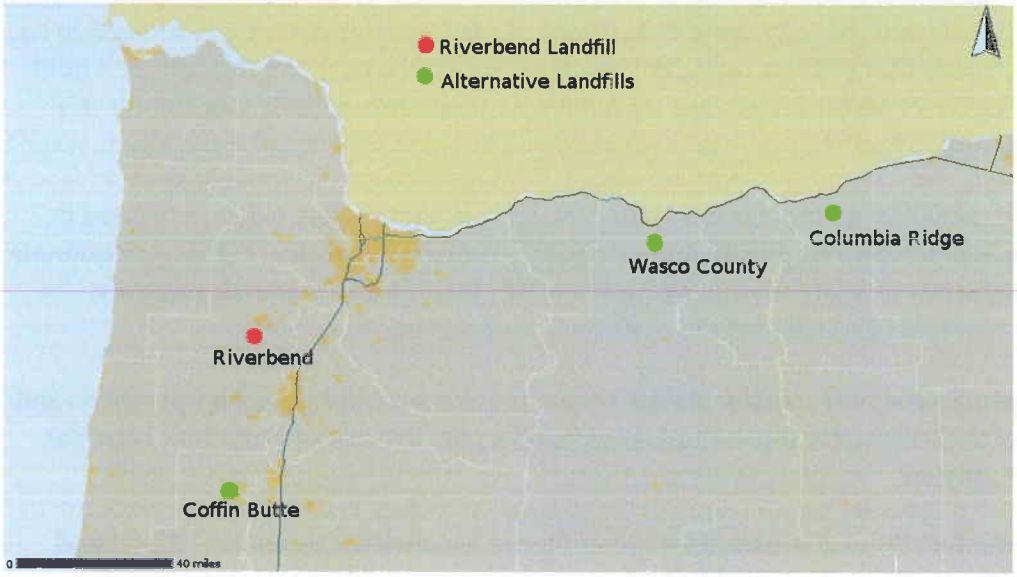
This analysis assumes the new transfer station would require six employees for operations and the total value of the income for those employees (wages plus the cost of providing benefits) equals $564,000 per year.

This analysis considers three alternative locations. Figure 1 shows the location of Riverbend Landfill and the three alternative landfills.[1]

- **Coffin Butte Landfill.** Coffin Butte is 38 miles from McMinnville, near Corvallis.
- **Columbia Ridge Landfill and Recycling Center.** Located in Gilliam County, Columbia Ridge is 183 miles from McMinnville.
- **Wasco County Landfill.** This landfill is 123 miles from McMinnville, near The Dalles in Wasco County.

[2] The existing transfer station in Newberg is not large enough to accommodate all of Yamhill County's waste.

Figure 1. Location of Riverbend Landfill and alternative landfill sites



Source: oregonexplorer.info/mappingtools

Table 2 shows the distance and estimated travel times from a hypothetical McMinnville transfer station and the reported per ton tipping fee for the alternative landfills and Riverbend Landfill.

Table 2. Distance and time from McMinnville transfer station and tipping fees for alternative sites, 2013

Landfill	Miles from WOW Transfer Station	Travel Time (minutes) from McMinnville Transfer Station	Per Ton Tipping Fee
Coffin Butte	38	0:58	$52.50
Columbia Ridge	183	3:22	$28.00
Wasco County	123	2:34	$36.19
Riverbend	na	na	$30.40

Source: Mileage and travel time from www.maps.google.com, tipping fees obtained through interviews with landfill operators.