

# COMPACTION

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Transfer Plan Review Workshop 1

July 26, 2013



Department of Natural Resources and Parks

**Solid Waste Division**

# Background

- The Algona, Factoria, Houghton, and Renton transfer stations were built in the mid-1960s before modern compaction equipment was available
- Customers dump directly into an open topped trailer
- A “stationary compactor” mounted above the trailer is used to distribute and tamp down the waste in the trailer



# Background

- Modern compactors are called “pre-load compactors”
- Waste is unloaded onto a receiving floor and then pushed by a loader through a chute to the compactor, which uses a hydraulic cylinder to compress the waste into a fully enclosed container
- The Enumclaw, Vashon, Shoreline, and Bow Lake transfer stations use pre-load compactors



# Payload

- Stationary compactor average payload: 19 to 20 tons
- Pre-load compactor: 24 to 26 tons
- More efficient loading means fewer trips from the transfer facility to disposal
- How many loads we haul has a direct effect on cost

# Pre-load Compactor Savings

## Number of Hauls - Year 2022 Example

	Stationary compactor	Pre-load compactor	Savings
Factoria	\$ 1,513,068	\$ 1,176,562	\$ 336,506
Algona (South County)	\$ 1,687,739	\$ 1,292,808	\$ 394,931
Houghton (Northeast)	\$ 2,243,661	\$ 1,718,644	\$ 525,017
<b>Total</b>	<b>\$ 5,444,468</b>	<b>\$ 4,188,014</b>	<b>\$ 1,256,454</b>

## Trailer Maintenance and Repair

	Cost per mile (2013\$)
Stationary compactor	\$0.47
Pre-load compactor	\$0.34

## Compactor Maintenance and Repair

	Annual cost (2013\$)
Stationary compactor	\$35,000
Pre-load compactor	\$12,000

# Pre-load Compactor Cost and Payback

## Pre-load compactor cost estimates (inflated)

- Factoria (purchase 2016) \$1,700,000
- South County (purchase 2018) \$1,790,000
- Northeast (purchase 2019) \$1,840,000

## Payback

- Factoria 5 years
- South County 4 years
- Northeast 3+ years

# Environment

- A reduction in the number of loads also reduces greenhouse gas emissions and traffic
- Pre-load compactors load into fully enclosed containers or trailers; the open-topped trailers used at Algona, Factoria, Houghton and Renton are more likely to have odor or litter problems

<b>Factoria 2017 - 2040</b>	
Trips saved	31,638
Miles saved	1,138,976
Gallons of diesel saved	325,422
kg CO2/GHG saved	3,303,031

<b>Algona (South County) 2019 – 2040</b>	
Trips saved	40,258
Miles saved	1,650,569
Gallons of diesel saved	471,591
kg CO2/GHG saved	4,786,650

<b>Houghton (Northeast) 2020 – 2040</b>	
Trips saved	50,670
Miles saved	2,077,464
Gallons of diesel saved	593,561
kg CO2/GHG saved	6,024,646

# Service

- Customer time on site
  - Direct dump stations, customers wait while trailers are switched out
  - Pre-load compactor stations, customers dump onto a floor and are not affected by trailer switch out

