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## Solid Waste Disposal Utility

*Anchorage: Performance. Value. Results.*

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### Mission

Dispose of municipal solid waste generated within the Municipality in compliance with state and federal regulations.

### Core Services

- Operate the Anchorage Regional Landfill (ARL)
- Operate the solid waste transfer stations and transfer fleet
- Promote community recycling efforts

### Accomplishment Goals

Optimize solid waste transfer truck utilization

### Performance Measures

- Solid waste transfer truck payload weight
- Transfer loads per driver shift

#### **Measure #1: Average transfer payload rate.**

The following graph provides actual average payloads by month from January 2009 through December 2014.

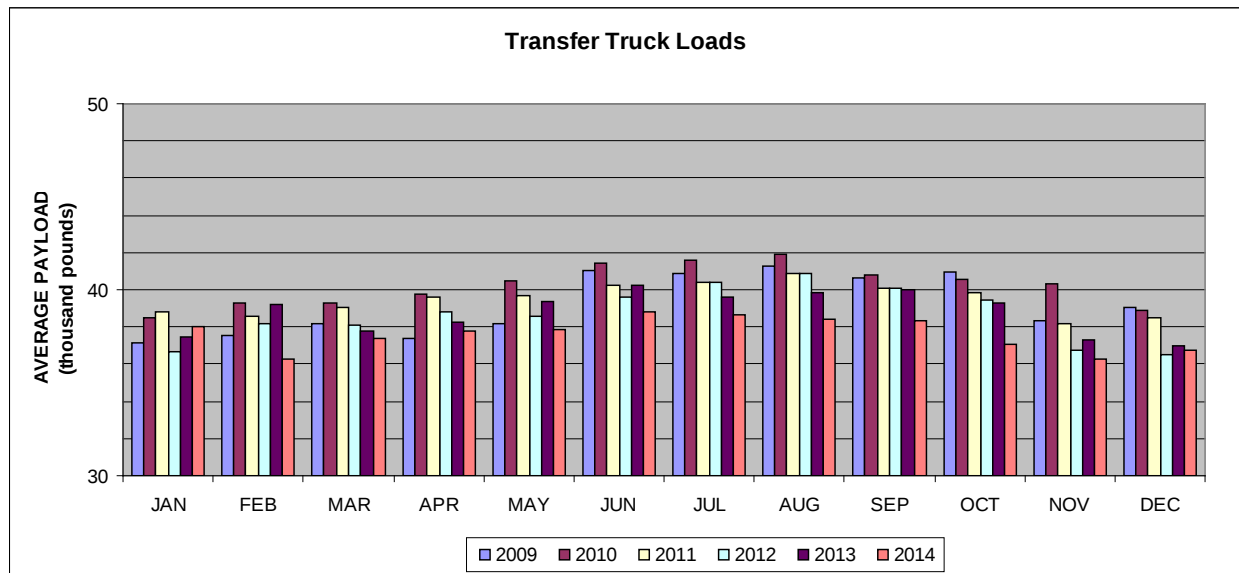


Table 1. Payload Data 2013 – 2014

| MONTH  | AVERAGE WEIGHT | EXCEEDING TARGET | EXCEEDING TARGET (+/- 5%) |
|--------|----------------|------------------|---------------------------|
| OCT-13 | 39,274         | 37%              | 74%                       |
| NOV-13 | 37,300         | 42%              | 73%                       |
| DEC-13 | 37,016         | 35%              | 69%                       |
| JAN-14 | 37,988         | 52%              | 86%                       |
| FEB-14 | 36,300         | 26%              | 58%                       |
| MAR-14 | 37,417         | 43%              | 79%                       |
| APR-14 | 37,800         | 48%              | 77%                       |
| MAY-14 | 37,848         | 17%              | 49%                       |
| JUN-14 | 38,788         | 29%              | 65%                       |
| JUL-14 | 38,649         | 26%              | 61%                       |
| AUG-14 | 38,446         | 22%              | 58%                       |
| SEP-14 | 38,321         | 19%              | 55%                       |
| OCT-14 | 37,036         | 35%              | 65%                       |
| NOV-14 | 36,239         | 26%              | 55%                       |
| DEC-14 | 36,758         | 30%              | 64%                       |

Table 2. Loads per Driver Shift Data 2013 – 2014

| MONTH  | SHIFTS $\geq$ 5 LOADS | SHIFTS $\geq$ 4 LOADS |
|--------|-----------------------|-----------------------|
| OCT-13 | 65%                   | 95%                   |
| NOV-13 | 38%                   | 88%                   |
| DEC-13 | 31%                   | 78%                   |
| JAN-14 | 19%                   | 87%                   |
| FEB-14 | 4%                    | 68%                   |
| MAR-14 | 32%                   | 91%                   |
| APR-14 | 40%                   | 90%                   |
| MAY-14 | 58%                   | 89%                   |
| JUN-14 | 67%                   | 96%                   |
| JUL-14 | 71%                   | 96%                   |
| AUG-14 | 70%                   | 97%                   |
| SEP-14 | 67%                   | 97%                   |
| OCT-14 | 77%                   | 100%                  |
| NOV-14 | 72%                   | 96%                   |
| DEC-14 | 18%                   | 68%                   |

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## **Refuse Collections Division Solid Waste Services Department**

*Anchorage: Performance. Value. Results.*

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### **Mission**

Provide solid waste collection and disposal service to rate-paying customers within our defined service area.

### **Core Services**

- Provide dumpster service to commercial and multifamily residential customers.
- Provide automated garbage and curbside recycle collection and disposal to residential customers.
- Provide manual garbage collection to residential customers not serviced by automated routes

### **Accomplishment Goals**

- Reduce refuse disposal volumes by promoting waste reduction and increased curbside recycling diversion.
- Reduce injuries associated with residential refuse collection.

### **Performance Measures**

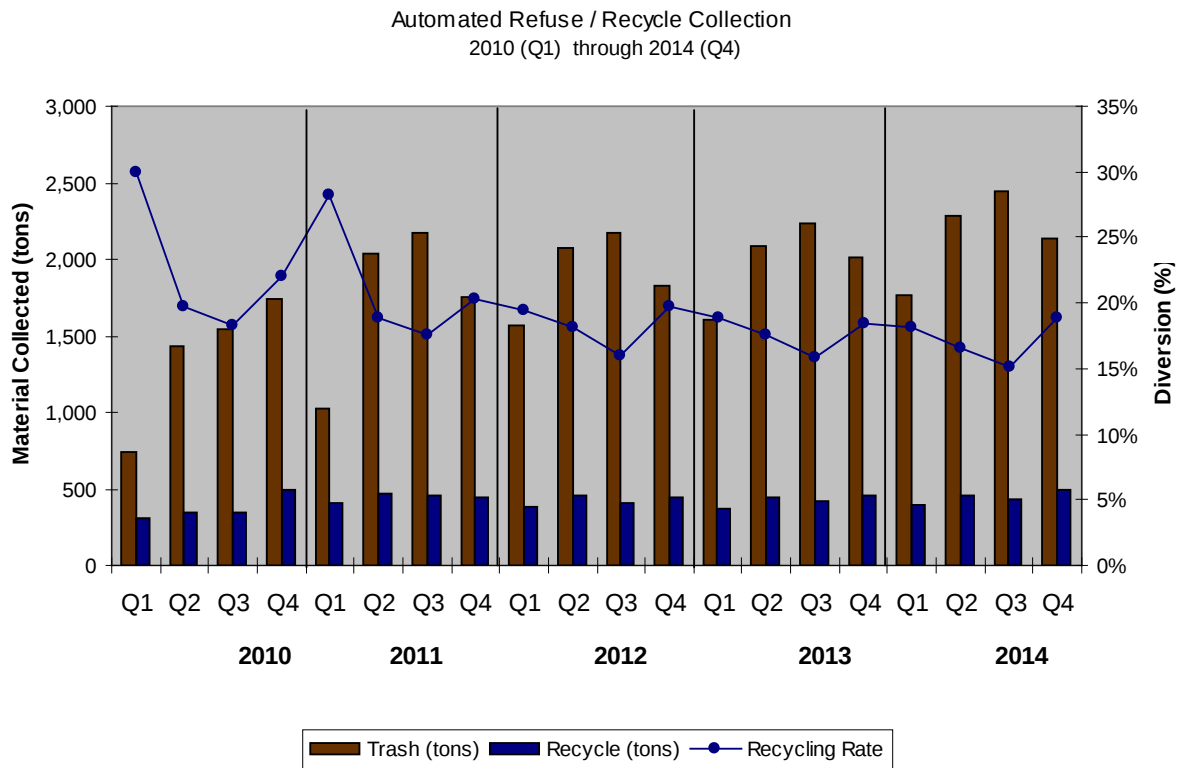
Progress in achieving these goals will be measured by:

- Percent change in recyclable material diversion from the residential waste stream.
- Percent change in worker injuries

The following provides actual data from previous years which quantify these measures:

**Measure #2: Increase curbside recycle diversion.**

**Waste and Recycle Tonnage**



### Measure #3: Improved safety for refuse collection workers

#### Workers Comp Losses 2010 - 2014 Municipal Refuse Collection Utility

| Service Type          | Injury Type | 2010      |           | 2011      |          | 2012      |           | 2013      |          | 2014      |         |
|-----------------------|-------------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|-----------|---------|
|                       |             | Incidents | Losses    | Incidents | Losses   | Incidents | Losses    | Incidents | Losses   | Incidents | Losses  |
| Manual Residential    | TLI         | 2         | \$52,820  | 1         | \$17,771 | 3         | \$126,687 | 0         | \$0      | 1         | \$1,802 |
|                       | MO / RO     | 5         | \$0       | 1         | \$98     | 3         | \$2,426   | 2         | \$81     | 1         | \$173   |
| Automated Residential | TLI         | 0         | \$0       | 0         | \$0      | 0         | \$0       | 3         | \$52,992 | 0         | \$0     |
|                       | MO / RO     | 3         | \$0       | 1         | \$0      | 0         | \$0       | 0         | \$0      | 0         | \$0     |
| Commercial            | TLI         | 2         | \$104,878 | 0         | \$0      | 0         | \$0       | 0         | \$0      | 1         | \$3,490 |
|                       | MO / RO     | 2         | \$8,900   | 0         | \$0      | 7         | \$3,246   | 2         | \$154    | 1         | \$552   |
| Vehicle Maintenance   | TLI         | 1         | \$83,339  | 0         | \$0      | 0         | \$0       | 1         | \$5,473  | 0         | \$0     |
|                       | MO / RO     | 1         | \$0       | 0         | \$0      | 0         | \$0       | 0         | \$0      | 0         | \$0     |
| Other                 | TLI         | 0         | \$0       | 0         | \$0      | 0         | \$0       | 0         | \$0      | 0         | \$0     |
|                       | MO / RO     | 0         | \$0       | 4         | \$2,806  | 0         | \$0       | 1         | \$1,379  | 1         | \$0     |
| Total                 | TLI         | 5         | \$241,037 | 1         | \$17,771 | 3         | \$126,687 | 4         | \$58,465 | 2         | \$5,292 |
|                       | MO / RO     | 11        | \$8,900   | 6         | \$2,904  | 10        | \$5,672   | 5         | \$1,614  | 3         | \$725   |

TLI = Time lost

incident

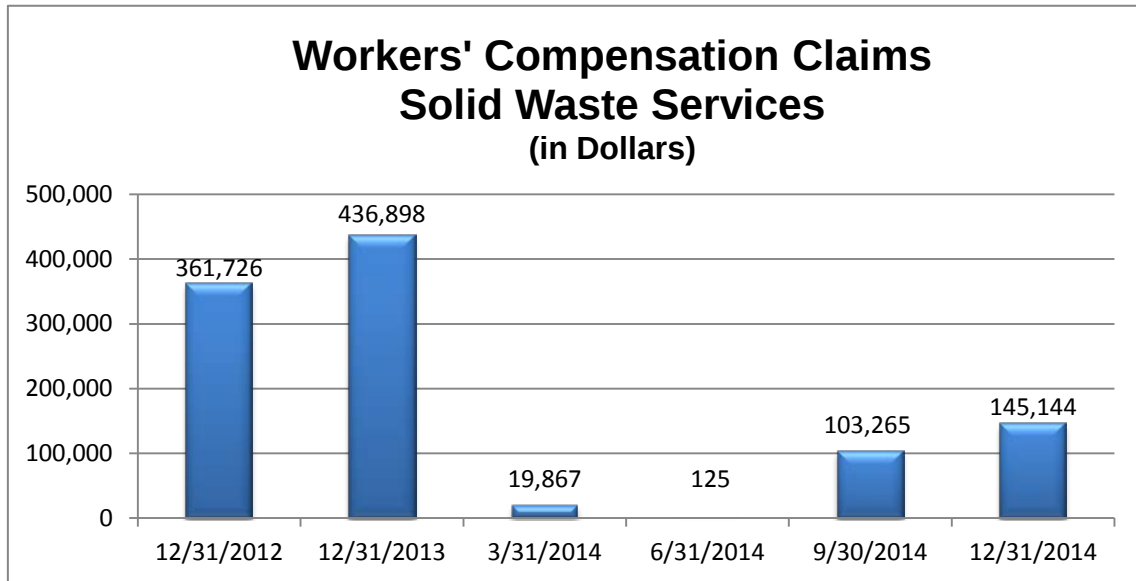
MO = Incident required medical attention but no lost time

RO = Incident required no medical attention or lost time

## **PVR Measure WC: Managing Workers' Compensation Claims**

Reducing job-related injuries is a priority for the Administration by ensuring safe work conditions and safe practices. By instilling safe work practices we ensure not only the safety of our employees but reduce the potential for injuries and property damage to the public. The Municipality is self-insured and every injury poses a financial burden on the public and the injured worker's family. It just makes good sense to WORK SAFE.

Results are tracked by monitoring monthly reports issued by the Risk Management Division.



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**Performance Measure Methodology Sheet**  
**Disposal Division**  
**Solid Waste Services Department**

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|---------------------------------------------------|
| <b>Measure #1: Average transfer payload rate.</b> |
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**Type**

Efficiency

**Accomplishment Goal Supported**

Maximization of fleet utilization by ensuring that all transfer loads meet load targets (40,000 lbs in summer; 38,000 lbs in winter) whenever possible and that drivers ideally make 5 trips per day to the landfill.

**Definition**

This measure will improve utilization of the transfer fleet. Significant deviation from this measure may be an indication that the fleet is under-utilized or over-staffed.

**Data Collection Method**

All transfer trucks are weighed upon arrival at the Anchorage Regional Landfill (ARL). Truck number, driver identification, load weight and origin are recorded into our automated scale house database for each truck.

**Frequency**

Measurement is made for every truckload hauled to ARL. A summary report is produced on a weekly basis showing each load, by driver, by day.

**Measured By**

Weights are measured by the commercial scales at ARL which are certified for commerce by the State of Alaska. Truck number and driver identification are entered by the scale house staff, but weights are recorded directly from the scale to the database.

**Reporting**

A weekly report is prepared by the SWS IT group which summarizes the loads by driver, weight and day. Total loads and truck count are recorded in an Excel spread sheet which summarizes the sources of all loads entering the landfill by day, day of week, month and year.

**Used By**

Data is used by the Director and Disposal General Foreman to schedule staffing and shifts and make decisions on fleet size and vehicle replacement.

**Explanatory Information**

Approximately 70 percent of all solid waste processed by the Disposal Utility is received at the Central Transfer Station (CTS) and then transported by our transfer fleet to ARL. Operation of our transfer fleet is one of the more costly operational activities of the utility. Each day, SWS processes approximately 800 tons of garbage through CTS. SWS operates a fleet of transfer trailers, each with a capacity of 120 cubic yards (cy). A trailer can carry a maximum payload of between 40,000 and 45,000 pounds depending on the vehicle weight. Actual payloads are often less than that, and depend on the amount,

type and condition of garbage received. Payloads are also further reduced when load restrictions are in force during spring thaw.

There are no national standards for transfer operations as each transfer station represents a unique combination of transfer equipment, haul distance and local garbage characteristics. SWS has tracked transfer operations since the inception of ARL. Our general goal for weekday operations is 40,000 pounds of payload per trailer in summer and 38,000 pounds in winter.

The optimal material for waste transfer operations is municipal solid waste from commercially collected residential and commercial garbage routes. These loads are soft, compressible and generally free of oversized materials. Loads of this material only could exceed the allowable axle load limits before reaching the volume capacity of the trailer. When frozen, the efficiency of packing these materials is reduced as the garbage tends to take on a more rigid structure. Loads tend to fill the trailer volume at between 38,000 pounds and 40,000 pounds in winter.

Loads containing construction and demolition debris, fabrication and warehouse wastes and loads hauled by individual homeowners and businesses tend to contain bulky objects and materials which do not pack well into the transfer trailers. Refuse received on Saturdays generally contains a much higher percentage of these less-optimal wastes due to the large number of residential users. Consequently load efficiencies on these days are significantly decreased and highly variable.

The time to load, unload and travel round trip between the Central Transfer Station and Landfill is approximately 105 minutes. On an ideal shift, a driver can make five round trips, including vehicle fueling, safety inspections and contract defined breaks. Traffic, tire maintenance, mechanical maintenance, wait times entering the landfill and timing of garbage arrival can reduce the number of trips per shift. While 5 trips is the optimal goal, 4 trips are considered common.

Beginning in 2010, added emission controls to the diesel engines have increased the base weight of the tractors which pull the transfer trailers by approximately 2,000 pounds. Since load limitations for commercial vehicles on highways are based on gross vehicle weight, this increase to the tare weight reduces the available payload by the same amount. With routine vehicle replacements, nearly all vehicles in the transfer fleet have now been replaced with the newer, heavier equipment. It is therefore recommended that the target loads be reduced to 38,000 pounds in summer and 36,000 pounds in winter in future evaluations.

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**Performance Measure Methodology Sheet**  
**Refuse Collections Division**  
**Solid Waste Services Department**

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|---------------------------------------------------------|
| <b>Measure #2: Increase curbside recycle diversion.</b> |
|---------------------------------------------------------|

**Type**

Effectiveness

**Accomplishment Goal Supported**

Achieve an overall recycle diversion rate of 20 percent for all residential customers.

**Definition**

Refuse Collections currently diverts between 16 percent and 20 percent of the waste stream from residential customers to recycle markets. We currently service about 90 percent of our customers on automated routes. With the next year, all residential refuse collection routes will be automated. Increasing diversion of recyclables reduces our operating costs.

**Data Collection Method**

All refuse and recycle loads are weighed by commercial scales at the Central Transfer Station. The diversion rate is calculated as the percentage of materials delivered to the recycle center out of all materials collected by the residential collection trucks. Customer participation is currently measured solely by subscription rate. SWS is evaluating means of estimating actual household participation by other measures, such as lift arm cycles on the recycle collection vehicles.

**Frequency**

All vehicles are weighed prior to unloading. Weights are automatically entered into our load management system, with scale house staff entering vehicle numbers on the weight transaction. Lift arms have an on-board cycle counter. Route drivers would record the beginning and ending count on the cycle counter for every shift.

**Measured By**

Weights are measured using the SWS commercial scales. Load counter data are recorded by route drivers on their daily route sheets. Diversion rate is calculated as the ration of tonnage diverted to total tonnage collected.

**Reporting**

Weight and arm cycle data are provided to the SWS Recycling Coordinator who reviews the data and calculates the diversion rates and household participation.

**Used**

Data is used by SWS to budget for disposal and recycle processing costs. Diversion and participation rates can be used to focus educational materials and customer outreach to better promote the program.

**Explanatory Information**

The automated refuse collection program includes a voluntary curbside recycling program which is provided to the customers at no additional charge. Source reduction and diversion of recyclables extends the life of the landfill. The Collection Utility realizes a savings for each ton of recyclable materials diverted. The cost to dispose of refuse delivered to the Transfer Station is \$68/ton whereas the cost to process recycled materials is currently \$40/ton.

Approximately 13 percent of customers refused to have a recycling roll cart when they selected their automated service level. There are many other customers who have a recycling roll cart but do not use it.

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**Performance Measure Methodology Sheet**  
**Refuse Collections Division**  
**Solid Waste Services Department**

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|-------------------------------------------------------------------|
| <b>Measure #3: Improved safety for Refuse Collection Workers.</b> |
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**Type**

Effectiveness

**Accomplishment Goal Supported**

Reduce injuries for Refuse Collection Workers

**Definition**

SWS will provide fleet improvements and training to all Refuse Collection staff to improve operational safety of this group. We will track costs and lost time associated with worker injuries by operational activity.

**Data Collection Method**

All accident and injury related data is reported to and compiled by the Municipal Risk Manager's office in accordance with Municipal policies and procedures and Occupational Health and Safety Administration (OSHA) requirements.

**Frequency**

Data is collected on a per incident basis.

**Measured By**

Injuries and incidents are measured and reported per OSHA standard reporting requirements.

**Reporting**

The Municipal Risk Management department provides monthly reports which detail losses by month and year-to-date. The SWS Safety Officer attributes incidents to job-specific activities.

**Used By**

Data is used by the SWS Safety Officer and Director to identify high risk activities, perform job safety analyses, and develop training and safety system adjustments to focus on reducing incidents.

**Explanatory Information**

From 2002 through 2006, the Refuse Collection Utility incurred approximately \$860,000 in Worker's Compensation medical claims. In 2008 SWS began implementation of automated refuse collection for residential customers. Currently 90% of all residential trash is collected by automated equipment.