

Kootenai County Solid Waste Department 2016 Solid Waste Analysis

**KOOTENAI COUNTY SOLID WASTE DEPARTMENT
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KOOTENAI COUNTY

SOLID WASTE

March 23, 2017

I am pleased to present the 2016 Solid Waste Report for Kootenai County. The annual report is an important historical record and planning tool. Utilizing historical data, the Solid Waste Department can address current obligations while looking to the demands of the future.

Detailed reports and information can be viewed at the Idaho DEQ office in Coeur d'Alene or the Administration Office of the Kootenai County Solid Waste Department.

In 2016, the solid waste facilities experienced a jump in overall waste generation and customer counts attributed to the growing local economy. In reviewing historic data, the increase appears to be directly related to increased development and construction opposed to simply population changes.

The transfer facilities and staffed rural sites served 670,125 customers – an increase of 34,456 customers in one year. The landfill realized a 12% increase in tonnage which was a substantial increase from 5.8% in 2015. The landfill managed a total of 157,130 tons, an increase of 16,408 tons.

The County-owned and operated landfill is the cornerstone of the solid waste system and as waste volumes grow, it is critical to carefully plan for short and long-term operational and development changes. The key project in 2016 was to modify landfill development plans and to perform site investigations and engineering for future development to ensure solid waste landfill options for the next 50 or more years.

The Solid Waste Department offers a multitude of services and strives to obtain best management practices in compliance with ever changing regulatory requirements. We are committed to provide citizens with affordable and efficient waste disposal.

If you have any questions, please do not hesitate to contact us.

Sincerely,

Cathy Mayer
Solid Waste Director

Summary 2016 Waste Stream Analysis



This section contains an overview of the Solid Waste System and some of the planning tools used to help meet the needs of Kootenai County residents.

The Solid Waste Department is committed to provide our citizens with affordable and efficient waste disposal. The Solid Waste Department is an affordable asset to Kootenai County providing financial stability to the County in that we generate revenue and are fiscally responsible.

The Solid Waste Department consists of the following:

- Fighting Creek Farm Landfill (open 6 days a week)
- Ramsey Transfer Station (open 7 days a week) and closed landfill
- Granite Landfill (Closed)
- Prairie Transfer Station (open 7 days a week)
- 13 Rural Residential Collection Sites

Flexibility is the key to success. It takes many talents and skills to keep the Department running smoothly and successfully. There are a total of 60 full-time employees, with additional seasonal staff for the summer months.

The County owned and operated landfill is the key to this goal and the department is always researching alternative methods of disposal and management of leachate. In addition, material reuse or recycling is encouraged to reduce the amount landfilled.

BUDGET

The Solid Waste Department carefully plans all activities to provide for the maximum benefit of available funding which is critical in today's economy. As an enterprise fund, the solid waste program is operated more like a business than the typical tax based government entity. Solid waste dollars are acquired through fees and kept in a Solid Waste Fund. Since dollars are through fees, the Department does not compete for tax dollars.

For detailed information about the financial records of the Department, you may view the Comprehensive Annual Report prepared by the Auditor's office on the Kootenai County website: http://www.kcgov.us/departments/auditor/cafr/Comprehensive_Annual_Reports_2016.pdf

The Department maintains strategic long-term financial plans and works to finance the required operation and expansion of services within the solid waste system in Kootenai County.

As an enterprise fund, other County departments are paid for the services they provide. In 2016, the Solid Waste Department paid \$764,050 to Kootenai County for services provided by other departments.

Operational expenditures are broken down into the following categories. All salaries necessary to support these activities are contained within these budget categories.

Activity	Budget
Administration	\$ 291,661
Ramsey Transfer Station	\$ 2,782,617
Prairie Transfer Station	\$ 2,172,655
Rural Systems	\$ 883,622
Landfill	\$ 2,180,515
Interfund Services	\$ 764,050
Closure/Post Closure	\$ 431,000
Total Budget	\$ 9,506,120

The Department realized a decline in revenue from all recycling commodities and anticipates that the cost of recycling will continue to increase due to changing practices in the recycling markets. More details are provided in the Recycling section of this report.



Kootenai County Mission Statement

It is the mission of Kootenai County Government to provide professional service with regard to public safety, essential service, preservation of natural resources and the responsible management of public assets for the common well-being of our citizens.

Vision Statement

An innovative, cost effective government the community can be proud of, committed to a high quality of life and excellence in public service.

Values and Operating Principles

- **Customer Focus**
 - Responsive, Prompt, Compassionate, Quality Service
- **Accountability**
 - Responsible, Cost Effective Use of Public Resources
- **Teamwork**
 - Creative Cooperation
- **Communication**
 - Open and Honest Sharing of Information and Ideas
- **Professionalism**
 - Innovative, Qualified, Honesty, Integrity, Personal Excellence

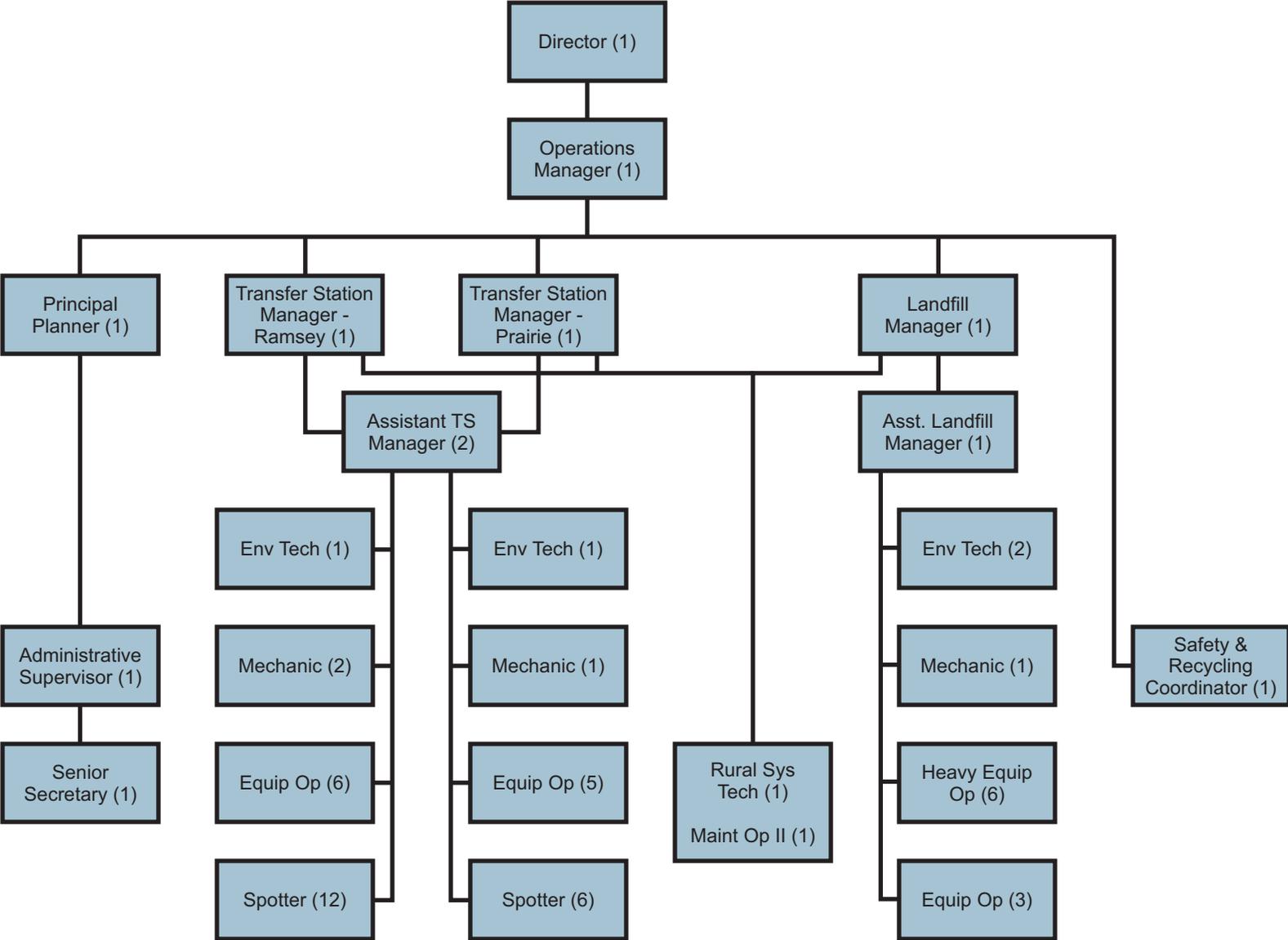


Kootenai County Solid Waste Department Mission Statement

It is the mission of the Kootenai County Solid Waste Department to:

- Protect the public health and well being for all citizens affected directly and indirectly, now and in the future.
- Provide environmentally sound facilities and operations before, during and after dispose of solid waste
- Provide effective and efficient means of solid waste disposal to the citizens of Kootenai County
- Insure the equity of solid waste disposal costs among all citizens

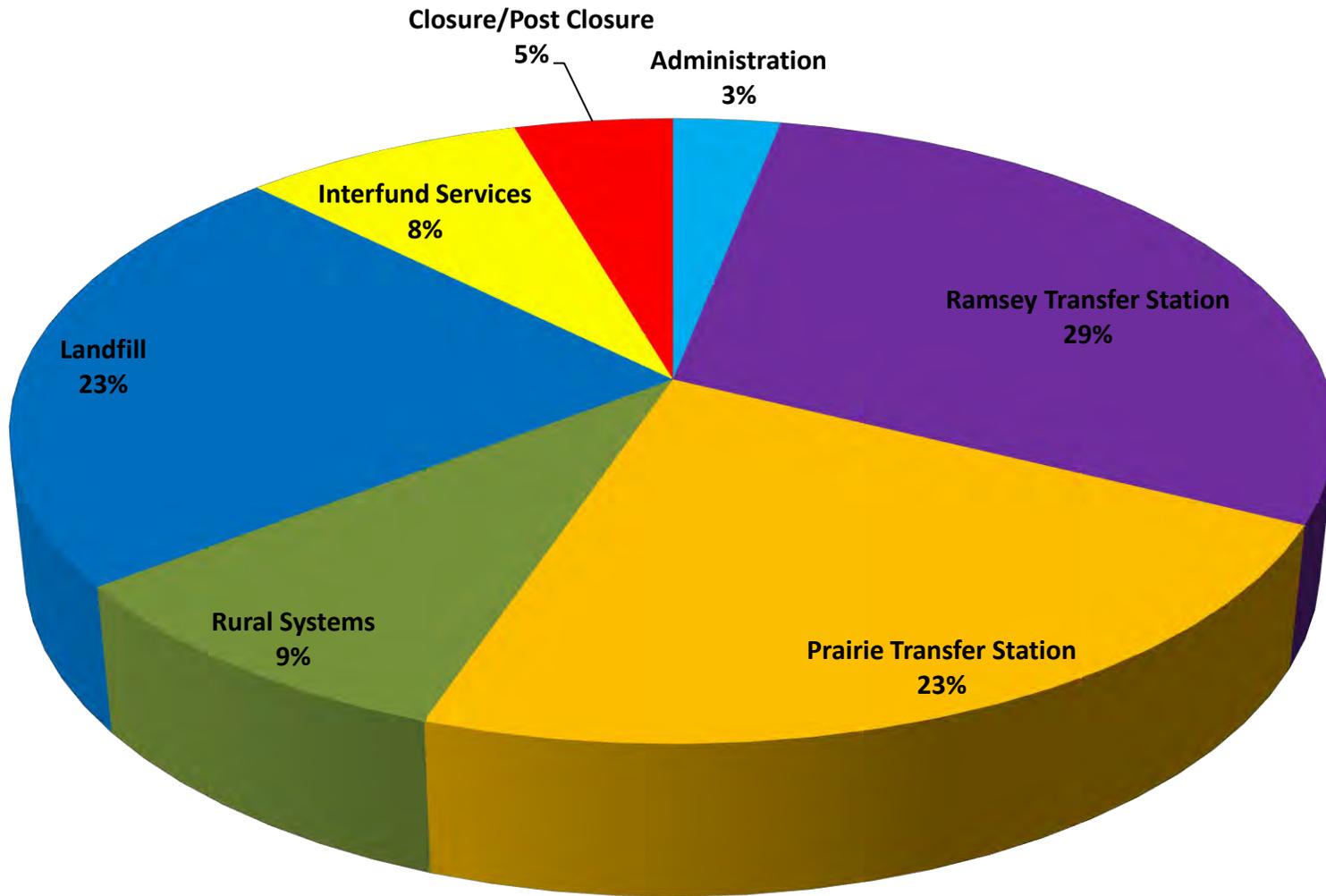
Solid Waste Department



Kootenai County Solid Waste System



Operational Expenditures



Total Operational Expenditures
\$9,506,120

LANDFILL 2016

Kootenai County owns and operates a fully permitted municipal solid waste landfill. The Kootenai County Farm Landfill at Fighting Creek, also referred to as the Fighting Creek Landfill, is located approximately 16 miles south of the city limits of Coeur d' Alene. Over 450 acres are owned by the County with a portion dedicated for landfill. The life cycle of the current permitted area is estimated through 2041-2042.



The landfill was designed under 40 CFR 258, Federal Subtitle 'D' regulations and complies with the Idaho Solid Waste Facilities Act, 39-7400. To meet the above requirements, the landfill has a fully developed liner, leachate collection system and gas extraction system.

The landfill is the cornerstone of the solid waste system in Kootenai County. The landfill operates 6-days a week, Monday through Saturday. The general public must use the Transfer Stations or the rural residential collection locations as waste from individual public loads are not accepted at the landfill. The removal of materials from the waste stream prior to landfill is imperative to save landfill space. The Fighting Creek Landfill received a total of 157,130 tons of material during the calendar year of 2016. This was an increase of 12% or 16,408 tons over 2015.

The *Kootenai County Farm Landfill 2015 Life Cycle Update*, prepared by the engineering firm of CH2M Hill, states that the effective waste density for Cell E1 is 1,200 pounds per cubic yard (lb/cy) average. The density estimate is down from 1,384 lb/cy from start of filling in 1993 to August of 2013 when filling of the new East Cell commenced. Filling in the E1 of the East Cell included a "fluff" layer to prevent damage to the bottom liner. This waste is less dense than the original landfill that was over 150' deep with 20 years of fill. As the new areas fill, density will increase as waste is consolidated and compacted and depth of waste increases.

On June 14, 2016 placement of waste in Phase 2 (E2) of the East Cell of the landfill began. A total of 84,226 tons of material was placed in this section of the landfill from June to the end of the year. The Phase 1 (E1) section of the East Cell of the landfill received waste from 8/5/2013 through 6/23/2016

with a total of 352,679 tons. The original landfill footprint that commenced filling in 1993 reached interim closure elevation in August 2013.

The Life Cycle Update is a planning tool to help understand how well we are doing in managing and disposing of waste within the landfill. Based on these tools, we have determined that our overall growth rate for planning is 3%. The Life Cycle Update of 2015 estimates that the original footprint and the East Cell of the Landfill will reach final closure capacity in 2041-2042.

Daily operations include compaction and cover with an alternative daily cover material and clay. An extensive storm water diversion program is in place to minimize the amount of precipitation entering the waste and requiring treatment as leachate.

LEACHATE

Leachate is the liquid that results from the compaction of, and/or the filtering of natural occurring precipitation through garbage. Under current rules, we must treat and dispose of all leachate that is produced at the Fighting Creek Landfill. Leachate is not hazardous but does contain soluble, suspended material that is from the waste.

Leachate has been managed by a variety of methods with disposal by one of three alternatives: recirculation, evaporation or off-site delivery to a waste water treatment facility. Hauling waste to an off-site wastewater facility has not been an alternative and water disposal is managed onsite.

Landfill staff remain focused on solutions to leachate management. A misting basin, designed and constructed by County personnel, was constructed. The basin is comprised of a 302' x 538' area lined with 30 mil reinforced polyethylene; pipe system with over 892 spray heads; three 50 HP pumps to transfer leachate from the holding ponds to the basin; water system returns to the leachate pond; and electrical upgrades.

The misting system began operation in July 2014. It is closely monitored and not operated on windy days or during high humidity and/or rainy times.

The following represents the leachate processed and disposed utilizing the misting system over the last 3 seasons:

- July-September 2014 - 5 million gallons
- April-August 2015 - 5.7 million gallons
- April-September 2016 – 4.8 million gallons



Permits require wastewater holding and treatment to process the leachate from the Fighting Creek Landfill. Currently four leachate collection ponds are operational with over 7 million gallons of capacity.

Leachate from the landfill is conveyed to the leachate ponds through a system of gravity feed pipes located in the bottom of the landfill. A lift station moves leachate from the new east landfill cell to the leachate pond system.



The ponds are aerated through mechanical injection of air into the ponds which keeps dissolved oxygen levels high to control odors and promote natural evaporation.

Evaporation consists of naturally occurring or by mechanically induced means. In the mechanically induced process, leachate is pumped to the evaporator, where it is superheated. As the leachate heats, it gives off water vapor that is then injected

into a gas flare where it is destroyed. This process requires the use of methane gas to power the leachate evaporator. In 2014, 1,857,290 gallons were disposed of using this technique. This system was taken offline in September, 2014 in order to turn over all methane gas production to the landfill gas to energy facility. The evaporator was operated briefly in 2015 with 136,260 gallons processed.

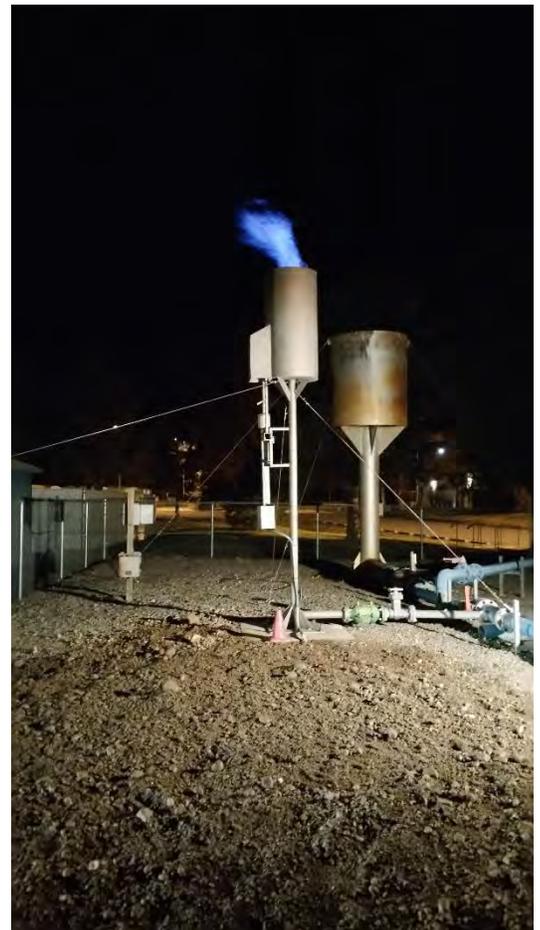
GAS SYSTEM

The Fighting Creek Landfill has a fully operational gas extraction system, which currently includes 242 landfill gas wells in the original footprint and collection points in the newer East phase. This extensive gas well and trench system collects gas and conveys it to a collection point that feeds two operational ground flares, a leachate evaporator and a landfill gas to energy facility. This system is monitored and adjusted weekly to ensure compliance.

The first blower/flare was installed in 1994 and the gas system activated in 1995. A second enclosed flare was installed in 2000.

In March 2012, the Landfill Gas to Energy Project between the Solid Waste Department and Kootenai Electric Cooperative became operational. Kootenai Electric Cooperative built the facility at a cost of approximately \$7 million. At full production, the facility will produce 3.2 MW of power sufficient to service approximately 2,000 homes. Over 1 million KWh of electricity was generated in November and December 2014 following taking the evaporator offline. In 2015, landfill gas declined due to a reduction of “old” gas from the original landfill and the low production of gas from the “new” portion of the East Cell. As the new waste ages, gas production will increase. It is anticipated that the department will receive over \$60,000 in revenue from the sale of methane gas in 2016.

In addition to the Fighting Creek Farm Landfill, the department is responsible for two closed landfills. The Ramsey Road Landfill is located adjacent to the Ramsey Transfer Station in Coeur d’ Alene. The landfill portion of this facility was closed in 1993 upon the opening of the Fighting Creek Landfill. The Ramsey Landfill has a gas



extraction system and an impermeable cover as part of the closure action. The gas production from the Ramsey Landfill as well as the old Coeur d' Alene Landfill is processed through the Ramsey Gas System. In 2007, it became necessary to downsize the candle flare at the Ramsey facility because the generation of gas decreased to the point the larger flare could no longer operate efficiently. The gas system under a complex of several baseball fields is now extinct as gas production has ceased.

An older landfill is located on the northern border of Kootenai County (Granite Landfill) that was shared between Kootenai County and Bonner County. This facility ceased taking waste in the 80's. For many years, this location was far from any dwelling. The sale of adjacent property and the establishment of a rural residential development required us to fence this facility. A passive gas probe system was installed in 2008 to verify the absence of meaningful methane production on this site.

Complete gas reports for the Ramsey and Fighting Creek systems are available for review at the Idaho DEQ, Coeur d' Alene Office or the Kootenai County Solid Waste Department.

WATER

There are two water monitoring systems at the Fighting Creek Landfill. These reports provide an extract from each of our water monitoring programs. The full report is maintained on file at the local DEQ Office or at the Solid Waste Department Administrative Office.

SURFACE WATER

The Idaho Department of Environmental Quality has established rules for surface water monitoring at the Fighting Creek Landfill. Over time, an extensive surface water treatment infrastructure has been established to assure that the water leaving the site is clean.



A series of sedimentation ponds have been established throughout the landfill to accept run-off from all of the local drainage areas. These ponds function in pairs to aid in removing suspended solids. Each pond in the set is designed for a minimum of four hours of retention time. The ponds are cleaned during the summer months when it is determined the silt has significantly reduced the holding capacity of water in the pond.

Water leaving the ponds is then conveyed through a large vegetated, bio-mass drainage that filters the runoff using natural processes. This biomass or vegetative drainage continues to clean the water. Within the drainage there are a series of "finishing dams" working in concert with the vegetative filters to aid in the cleansing process. The "finishing dams" aid in slowing down the run-off water thus allowing time for the vegetation to filter out sediment.

Enhanced wetland structures also help to remove solids and provide a robust microenvironment that positively affects local wildlife by providing valuable nesting and forage areas as well as other important habitat. We have an abundance of geese and ducks that migrate to our wetlands each year to give birth to their offspring.

The impact from our efforts is the water leaving the site is clean and is consistently of higher quality than the receiving drainages the water flows into.

GROUND WATER

The landfill operating permit requires us to establish and operate a groundwater monitoring system. The original landfill footprint has seven ground water monitoring points. These have been sampled from approximately 1991 until the present. In 2005, there were six additional ground water monitoring wells established to support the new East landfill. As part of a community outreach program, two domestic wells are also sampled during the semi-annual sampling events.

These 13 ground water monitoring wells are sampled twice a year. The location of the wells are both up gradient and down gradient from the landfill portion of the property to allow for a comparative analysis to determine if any ground water degradation has occurred as a result of landfill operations. To date, no degradation to ground water at the landfill or the domestic well sites has been found.

LANDFILL FUTURE DEVELOPMENT



In 2016, the Solid Waste Department updated the development strategy. Work included site investigation for future material sources for landfill cover and capping; East area phasing for construction and operation efficiencies; and engineering for long-term development.

The landfill property includes an area to the South and West of the original landfill and site development options were needed to ensure proper planning, permitting, design and financing. This area will provide for solid waste disposal needs for Kootenai County through approximately 2070.

The Department is also working on interim capping options for the original footprint to reduce infiltration and leachate generation from this area.

Customer Service – Collection Sites 2016

CUSTOMERS

The Kootenai County Solid Waste System is totally owned by the citizens of Kootenai County and exists solely for their use. The Solid Waste Department is an affordable asset to Kootenai County with a positive customer service reputation. A great deal of effort and funds are expended to provide safe and efficient service to citizens while working to deny access when out of county customers attempt to use the facilities.



In 2016, staff assisted a total of 670,125 customers – an increase of 34,456 from last year. Customers used the Ramsey site 327,027 times, the Prairie site 168,784 times, and the staffed rural sites 174,314 times. These totals do not take into account the eleven other rural sites that are being used throughout the County.

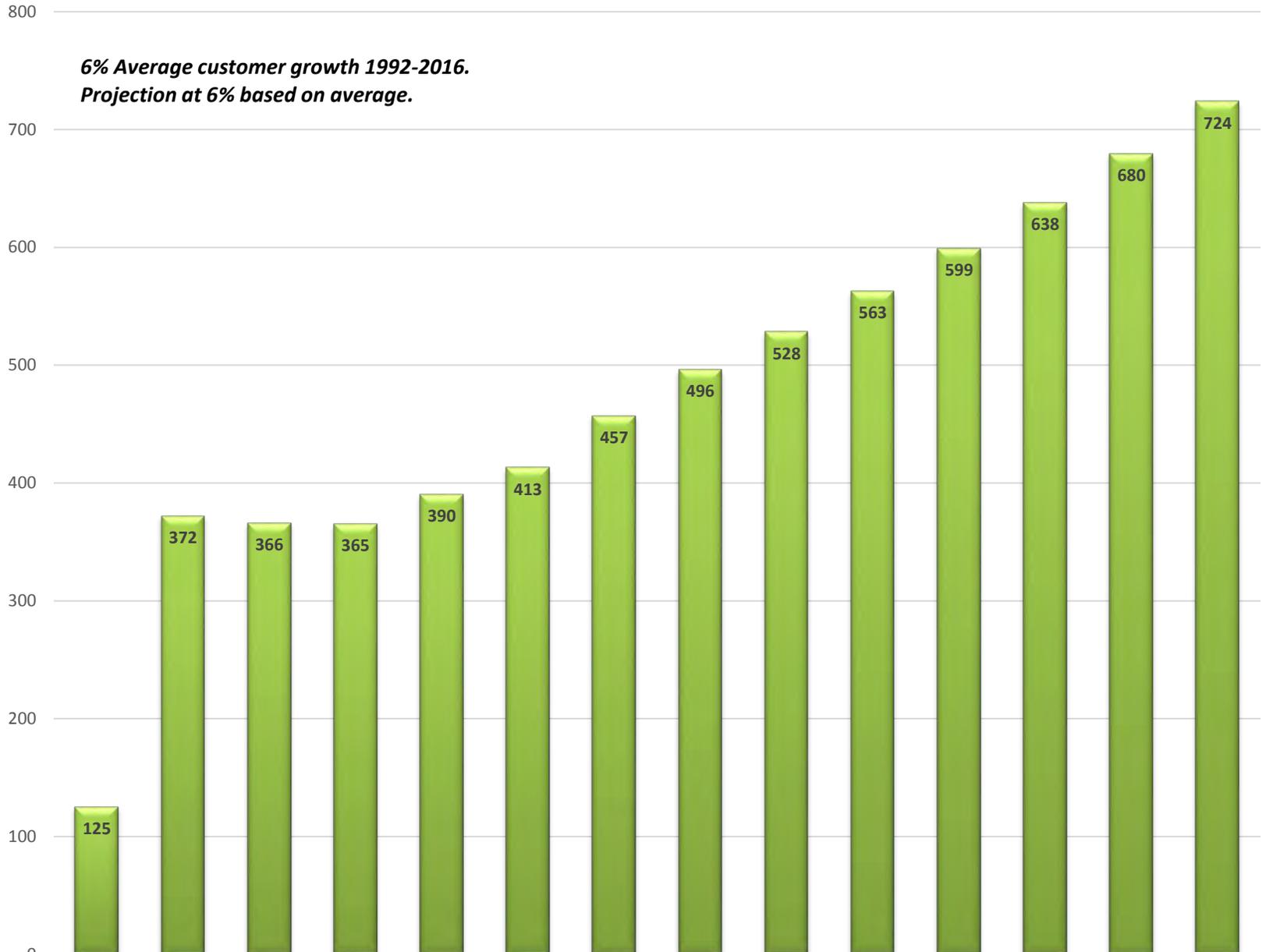
The Ramsey Transfer Station saw an increase of 18,980 or 11.7% over last year. On average 908 customers per day were served with Saturday being the busiest day of the week (average of 1,095), and Thursday the lowest with an average of 806 customers. The least busy day was March 27, 2016 with 154 customers and busiest day, April 9, 2016, with 1,683 customers. The high/low months were April with a total of 34,504 and December with 16,640. A tidbit of trivia - from 1992 through 2016, the Ramsey facility has served over 6 million customers!

The Prairie Transfer Station saw an increase of 21,167 or 14% over last year. On average 469 customers per day used this facility. Saturdays averaged 622 per day and Thursday averaged the lowest with 383 customers. Only 90 customers used this facility on December 24, 2016, but 985 found their way to Prairie on April 2, 2016. April was the busiest customer month with 18,090, with December coming in with the least at 8,920. Trivia note – from 2009 through 2016, 987,223 customers have used the Prairie facility.



In addition to the two transfer stations, Kootenai County has 13 rural residential collection sites. The Chilco and Athol sites in the north are staffed for safety and assistance. The Department will continue to plan and prepare to purchase additional property and staff the rural sites that are provided by Kootenai County and consolidate or expand services in the coming years.

Transfer Stations - Customer History

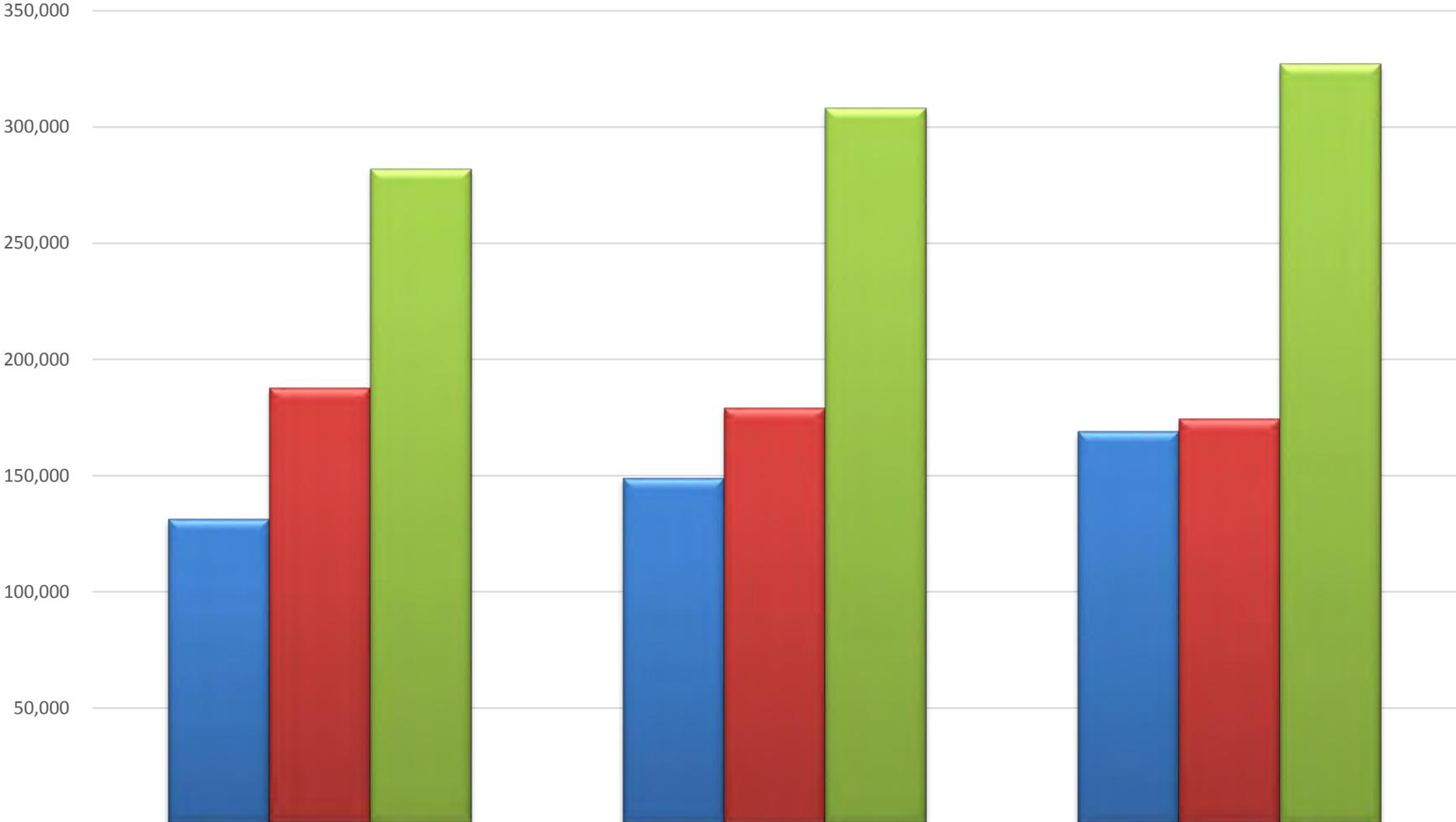


■ Customers (K)

Year	1992	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Customers (K)	125	372	366	365	390	413	457	496	528	563	599	638	680	724

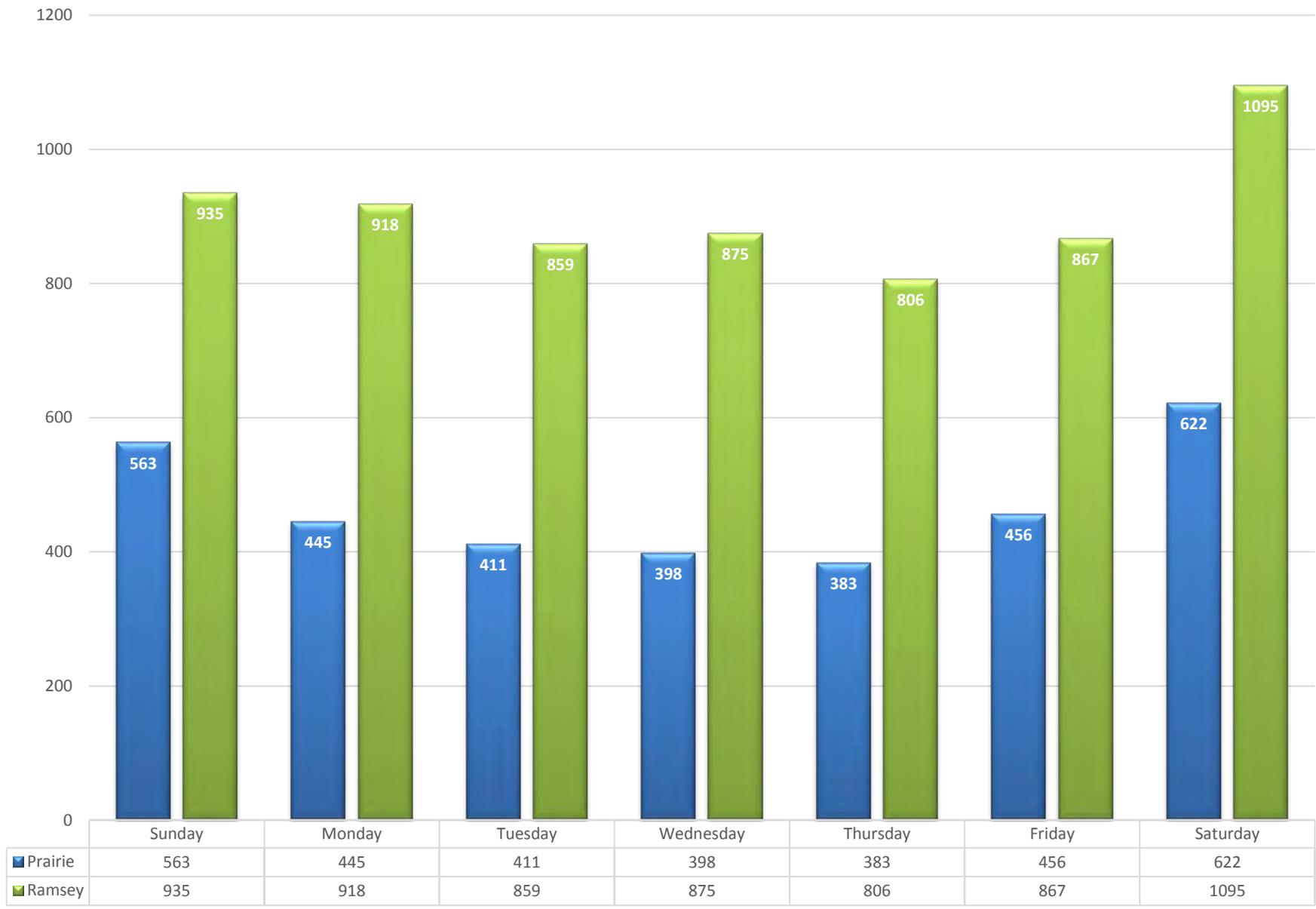
Total Department Customers

Total 670,125

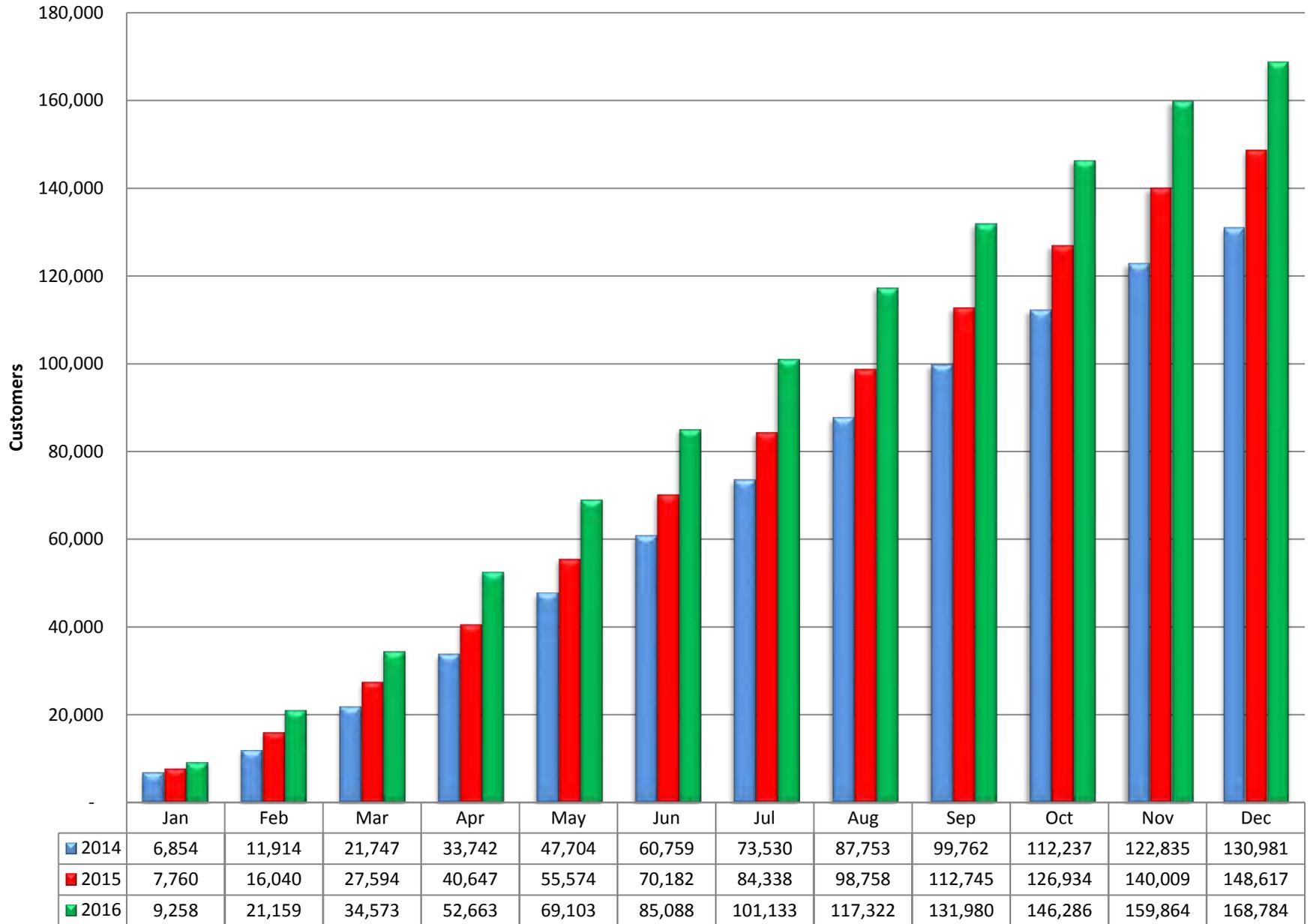


	2014	2015	2016
■ Prairie	130,981	148,617	168,784
■ Rural	187,592	179,005	174,314
■ Ramsey	281,752	308,047	327,027

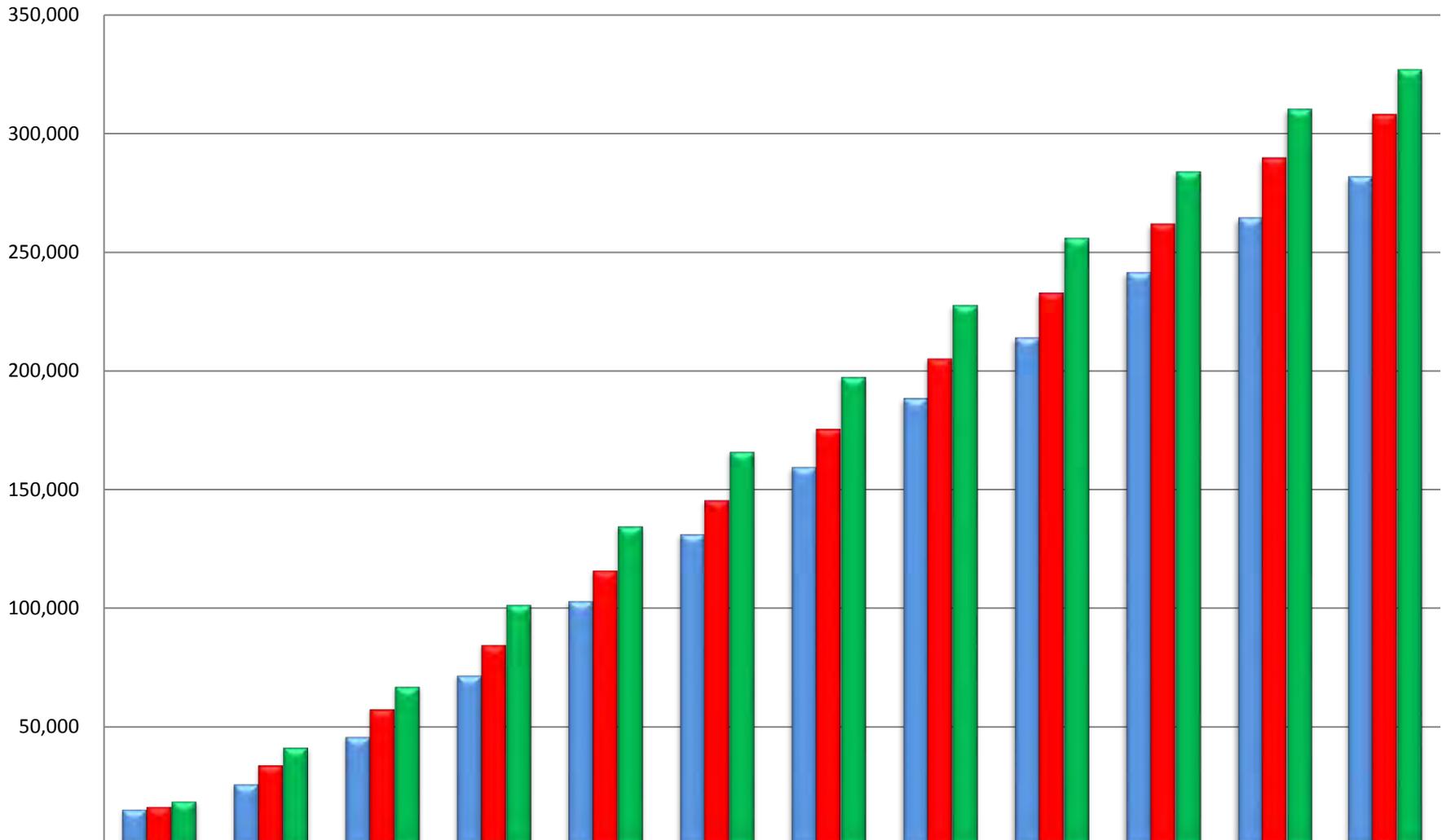
Transfer Station Average Daily Customers



Prairie Cumulative Customers



Ramsey Cumulative Customers



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	15,258	26,035	46,114	72,098	103,317	131,411	159,605	188,570	214,057	241,486	264,487	281,752
2015	16,546	34,262	57,999	85,050	116,312	145,860	175,831	205,286	233,022	261,993	289,719	308,047
2016	18,713	41,529	67,218	101,722	134,706	166,087	197,534	227,830	256,030	284,042	310,386	327,027

WASTE STREAM 2016

In 2016 the Solid Waste System processed a total of 189,695 tons through the two transfer stations. This represents an increase of 11% (18,627 tons) from last year for waste coming into the facilities. We then divert materials from the waste stream to reduce what goes into the landfill.

Waste shipped to the landfill in 2016 was 157,130 tons, which is up 12% or (16,408 tons) from 2015. The landfill received 8,044 loads of material from the two transfer stations. The upturn to the economy with additional construction and new business opportunities in Kootenai County are more than likely the cause for this increase.

A chart is included depicting the waste stream by source. This shows that 61% of the waste through the transfer stations comes from residential use, 34% from commercial activity and 5% from the rural systems. An interesting footnote is that 52% of the residential waste is brought to the transfer station by individual vehicles.

PRAIRIE TRANSFER STATION

The Prairie Transfer Station received 70,353 tons of material in 2016. This represents 37% of the waste processed in Kootenai County, and an increase of 11,445 tons or 19% from last year. The measurement of the Prairie Waste Stream is the weight of all commodities that entered the Prairie Transfer Station during the calendar year.

The average tons received daily was 195 (up from 164). The heaviest tonnage day was November 16, 2016 with 459 tons. It should be noted that the Prairie site was processing all commercial and garbage truck waste for the Department on that day due to pit repairs being completed at Ramsey. The lowest tonnage day was December 24, 2016 with 21. April was the highest month with 6,786 tons received and January the lowest with 4,013 tons received. The days of the week for the average tons (highest – Friday and lowest - Sunday) remained the same as 2015. Friday's average tonnage increased to 247 which is an increase of 17%. Sunday's average tonnage increased 24% to 105 tons.

After processing, the Prairie Transfer Station shipped 57,365 tons or 2,769 trailer loads of waste to the landfill. From January 2009 through the end of 2016, the Prairie Transfer Station has processed 418,837 tons of material.

RAMSEY TRANSFER STATION

The Ramsey Transfer Station received 119,341 tons of material in 2016. This represents 63% of the waste processed in Kootenai County, and an increase of 7,181 tons or 6.4% from last year. The measurement of the Ramsey Waste Stream is the weight of all commodities that entered the Ramsey Transfer Station during the calendar year.

The average tons received daily was 332 (up from 311). The heaviest tonnage day was May 31, 2016 with 634 tons. The lowest tonnage day was December 24, 2016 with 33.8 tons. April was the highest month with 11,678 tons and December the lowest month with 6,703 tons received. The days of the week for the average tons (highest – Monday and lowest - Sunday) remained the same as 2015. Monday's average tonnage increased to 414 which is an increase of 7%. Sunday's average tonnage increased 10% to 163 tons.

After processing, the Ramsey Transfer Station shipped 96,103 tons or 5,275 trailer loads of waste to the landfill. From January 1992 through the end of 2016, the Ramsey facility has processed 3,205,427 tons of material.

FIGHTING CREEK LANDFILL

We operate a fully permitted and environmentally safe landfill. This facility is the key to keeping customer costs to a minimum. The Fighting Creek Landfill received 157,130 tons of refuse in 2016. This reflects an increase of 16,408 tons or 12% of waste placed into the landfill from last year.

There has been a steady increase in waste going to the landfill since 2011. The 2015 Life Cycle Analysis used a growth figure of 3% for historic average growth. Although for the last several years the Department has experienced an increase greater than 3%, the overall growth has not exceeded this planning standard. These figures will be examined again upon completion of the next landfill life cycle analysis.

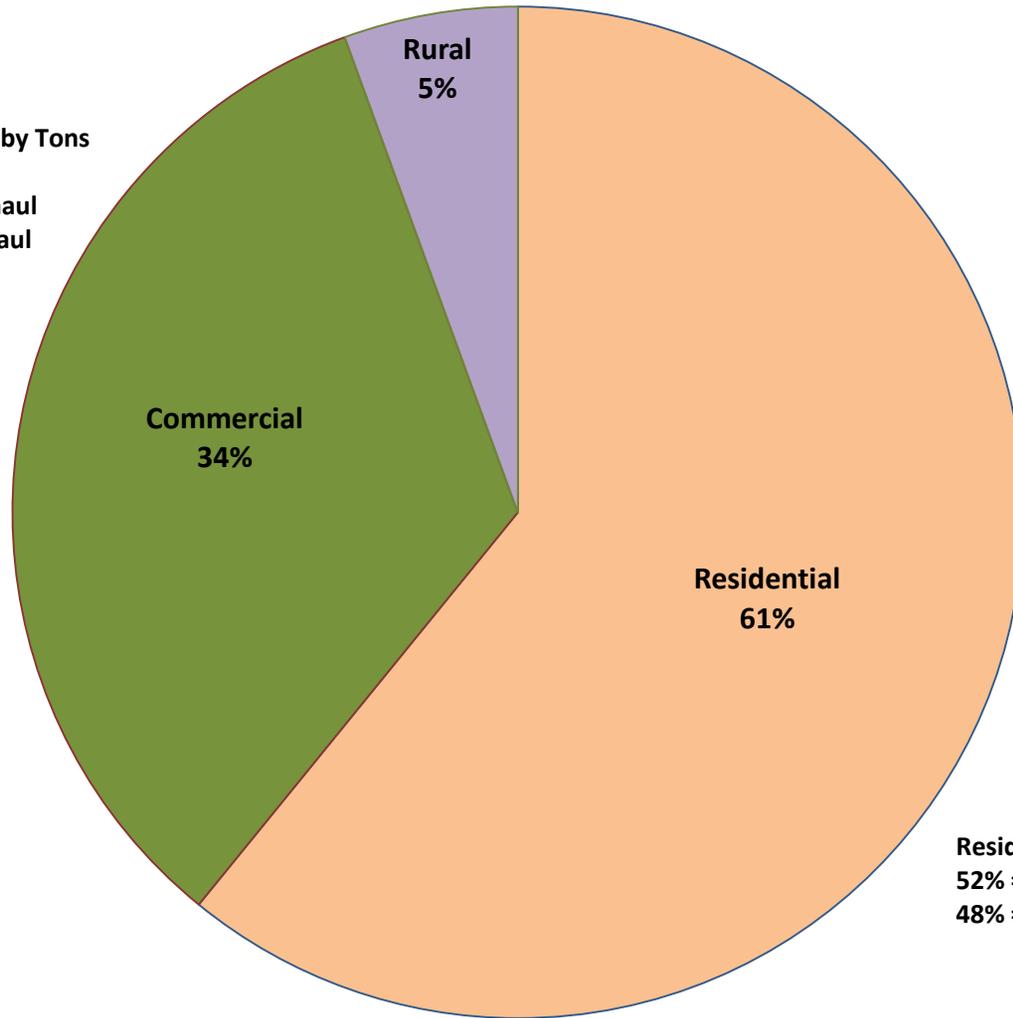
On June 23, 2016 waste placement in Phase 2 of the East Cell of the landfill began. As of December 31, 2016, the Department has placed 84,226 tons of waste into this phase of the landfill.

The Solid Waste Department is always looking at ways to decrease the amount of waste placed to extend the life expectancy of the landfill.



Waste Stream by Source

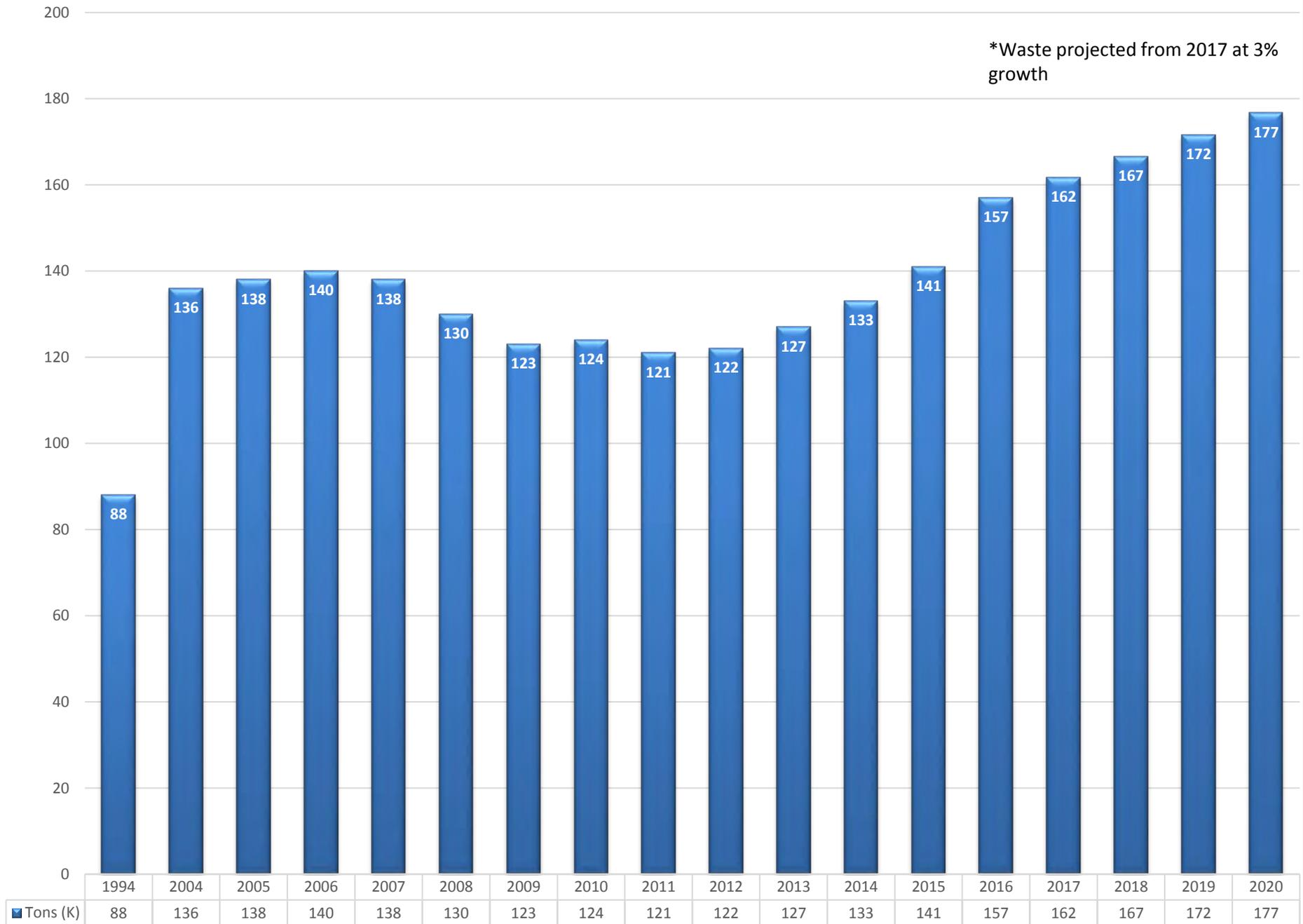
Commercial Breakdown by Tons
57% = garbage haulers
31% = commercial self haul
12% = residential self haul



Residential Breakdown by Tons
52% = self haul
48% = garbage haulers

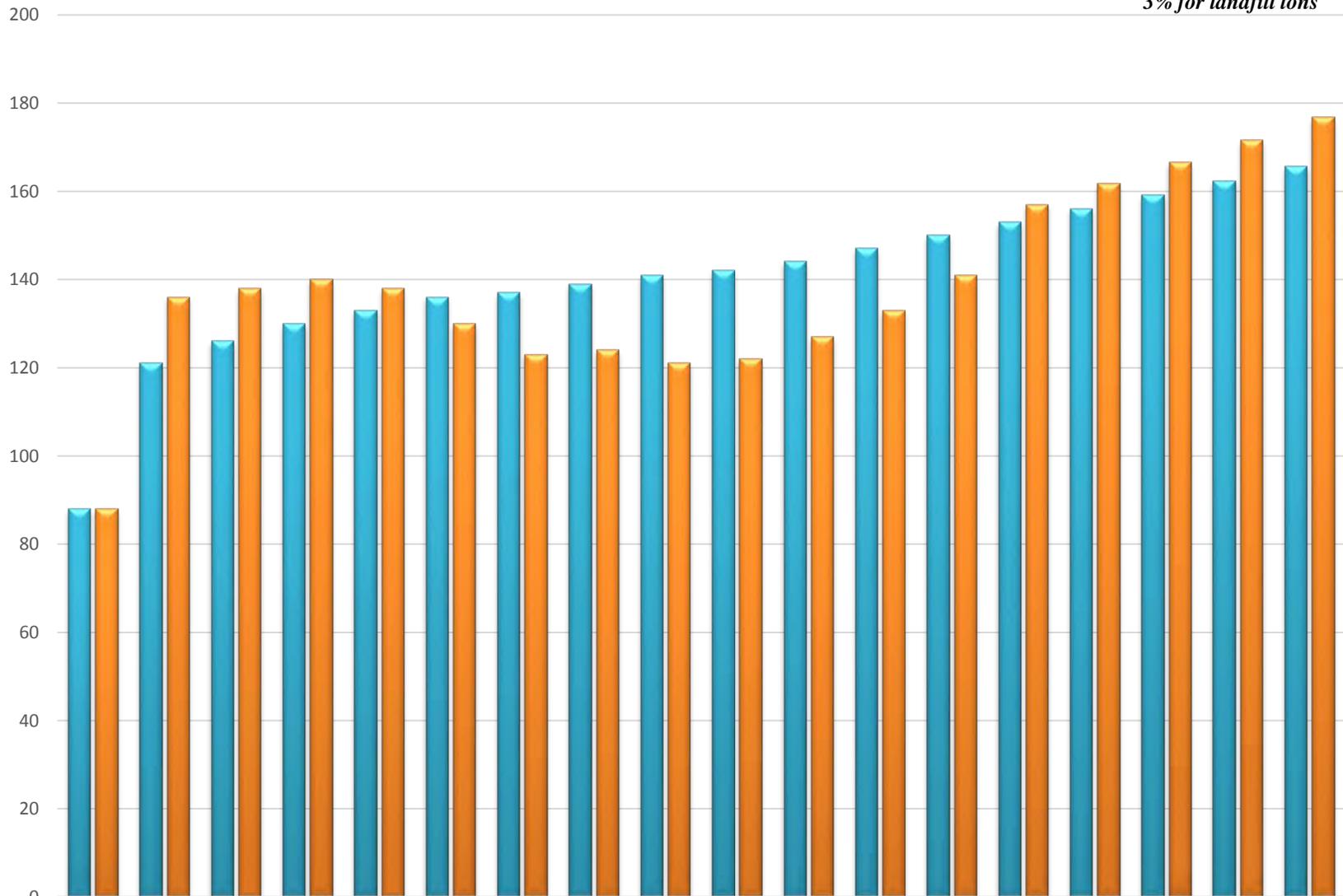
Landfilled Waste History & Projection*

*Waste projected from 2017 at 3% growth



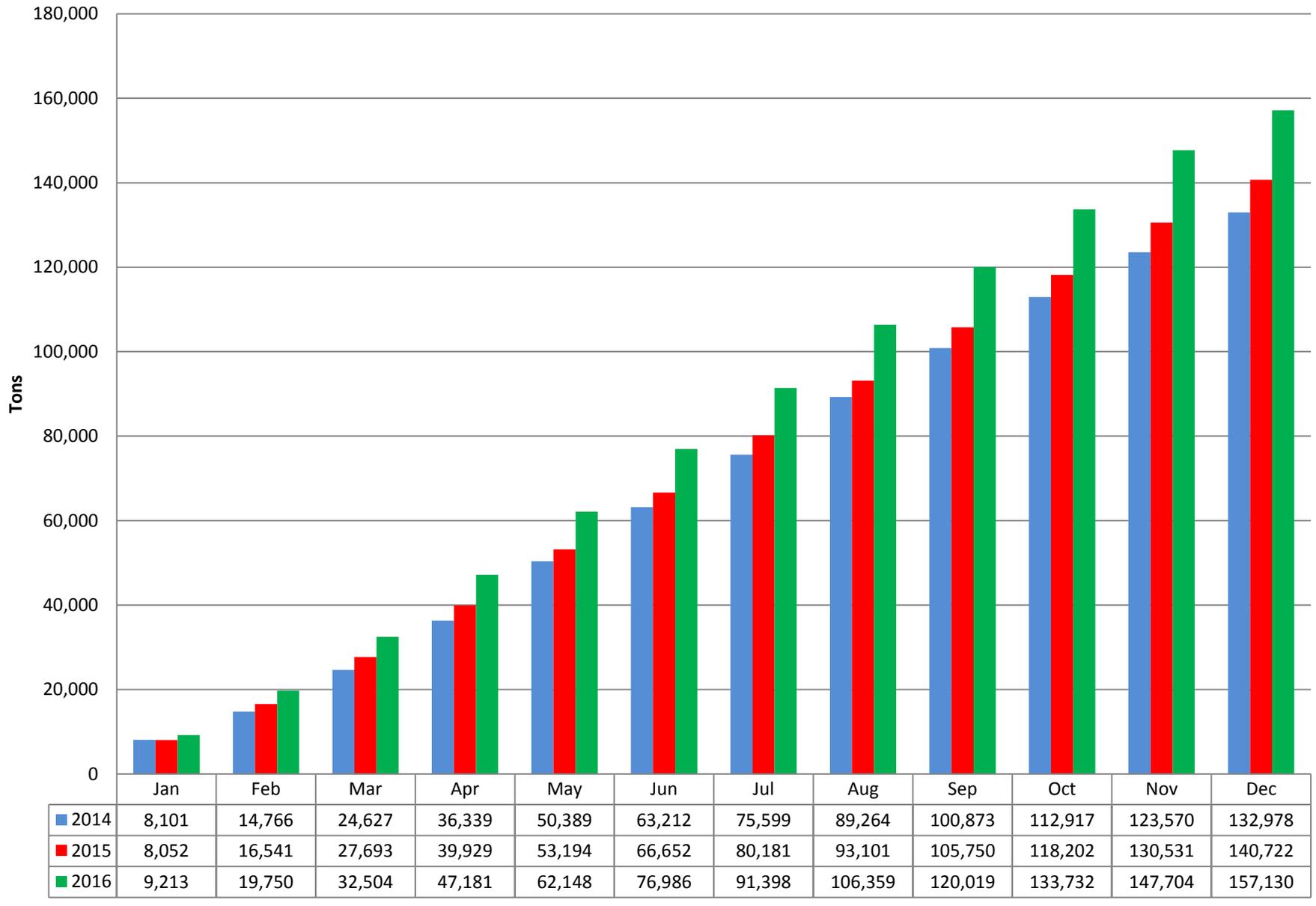
Population and Landfill Tons

Projected growth from 2017
 2% for population
 3% for landfill tons

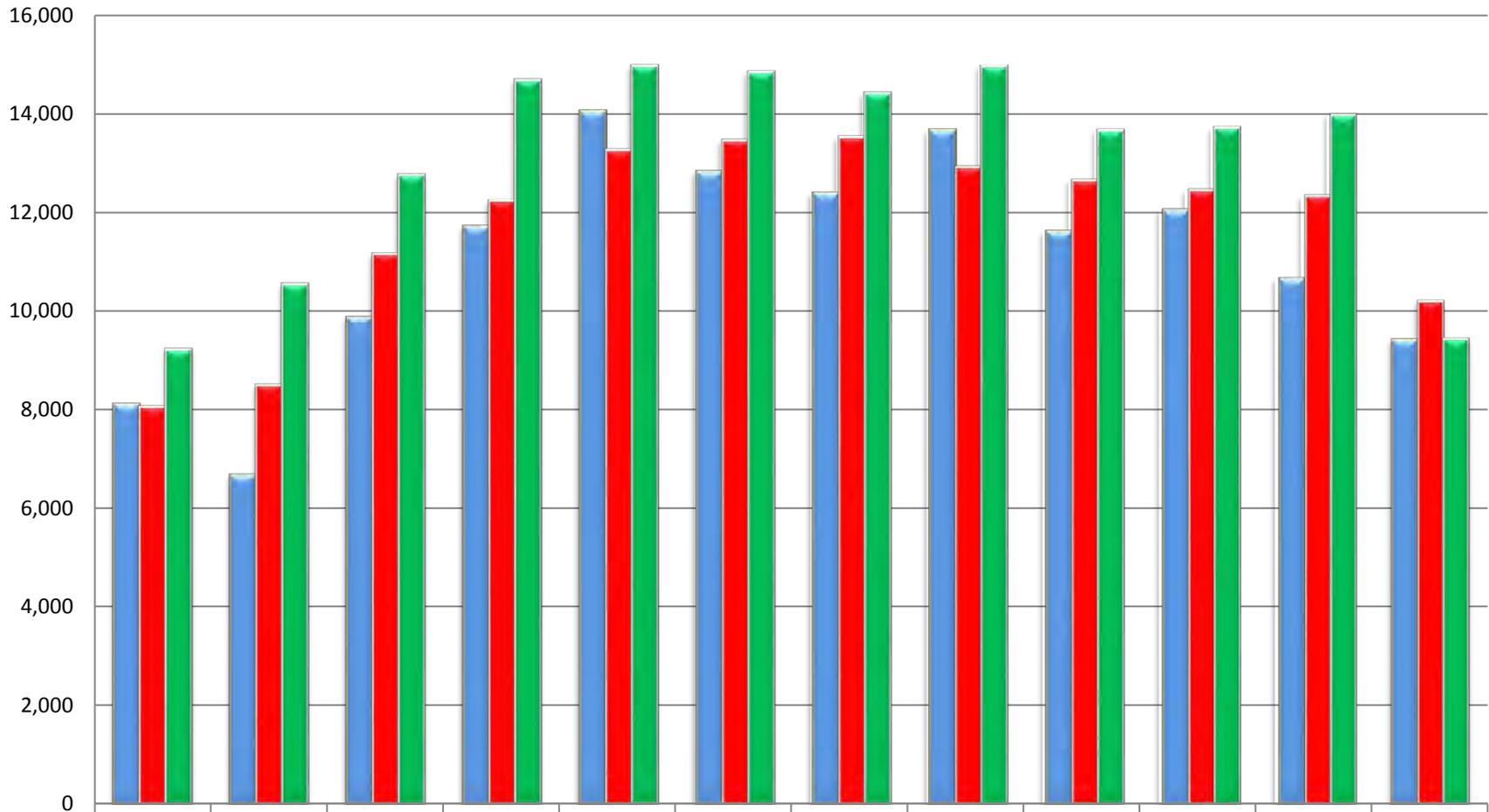


Population (K)	1994	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tons (K)	88	136	138	140	138	130	123	124	121	122	127	133	141	157	162	167	172	177

Total Cumulative Tons - Landfill

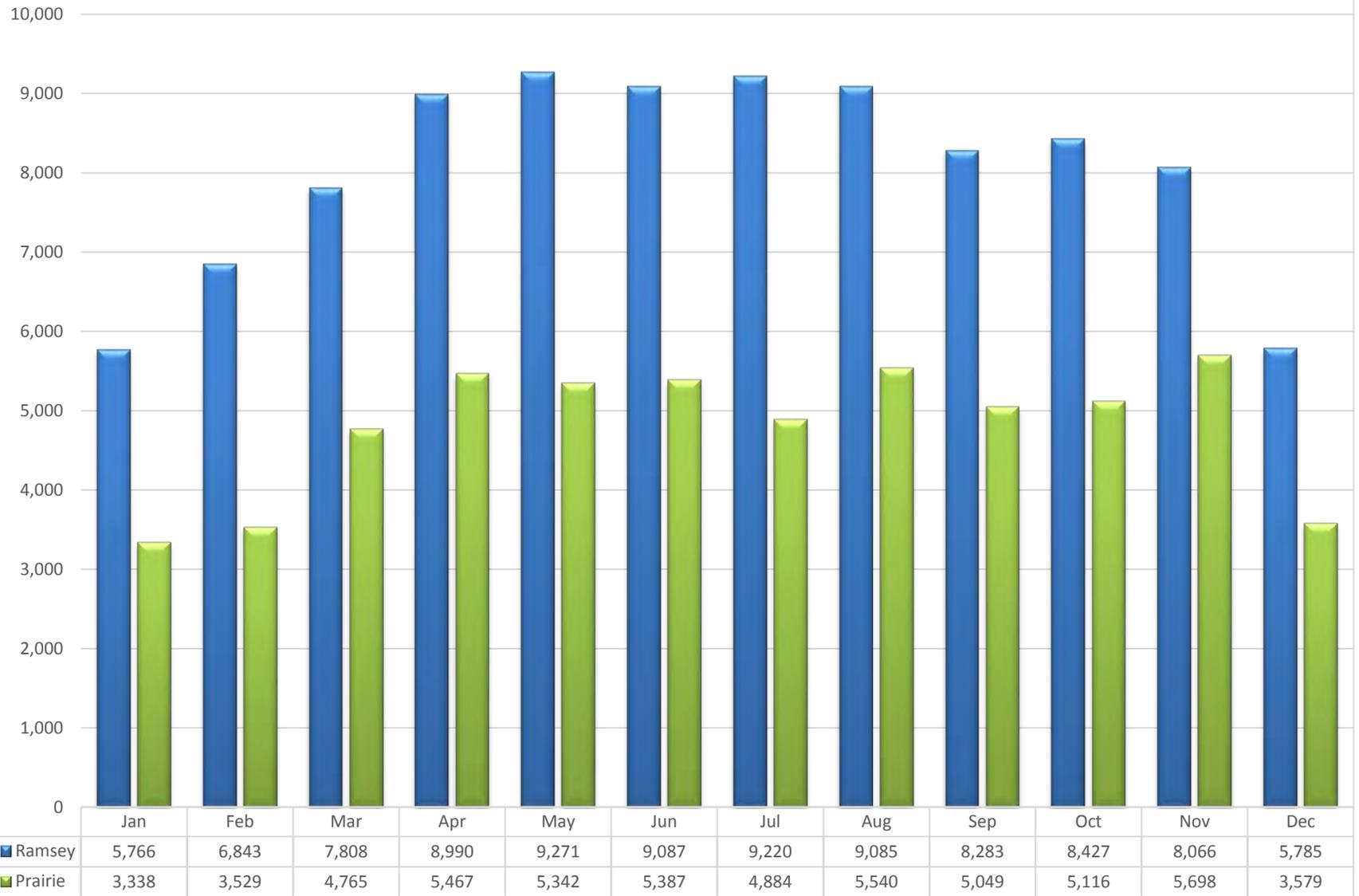


Landfill Tons by Month

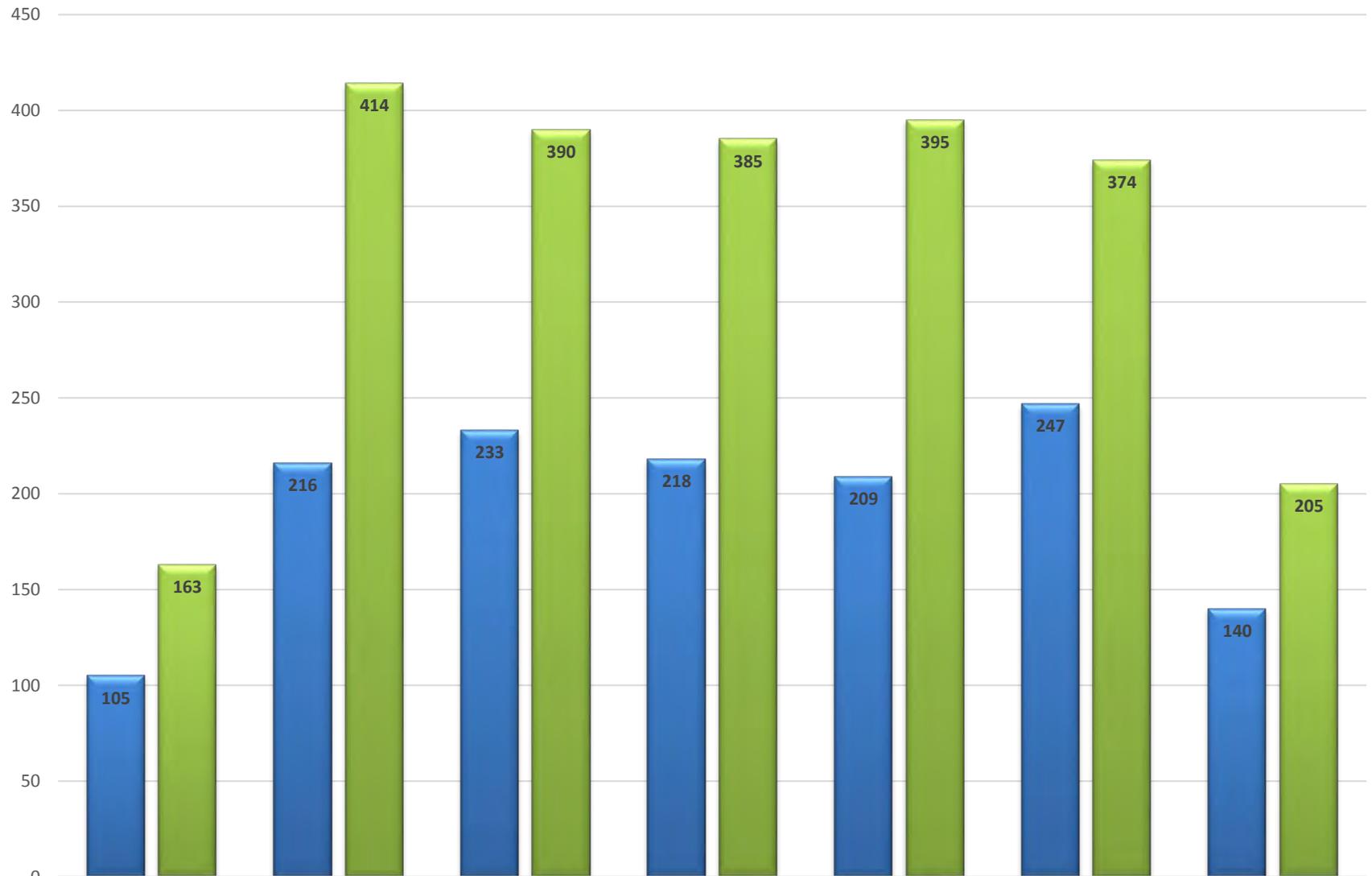


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	8,101	6,665	9,861	11,712	14,050	12,823	12,387	13,665	11,609	12,044	10,653	9,408
2015	8,052	8,489	11,152	12,236	13,265	13,458	13,529	12,920	12,649	12,452	12,329	10,191
2016	9,213	10,536	12,754	14,678	14,966	14,838	14,413	14,961	13,660	13,713	13,971	9,427

Landfill Waste by Transfer Station



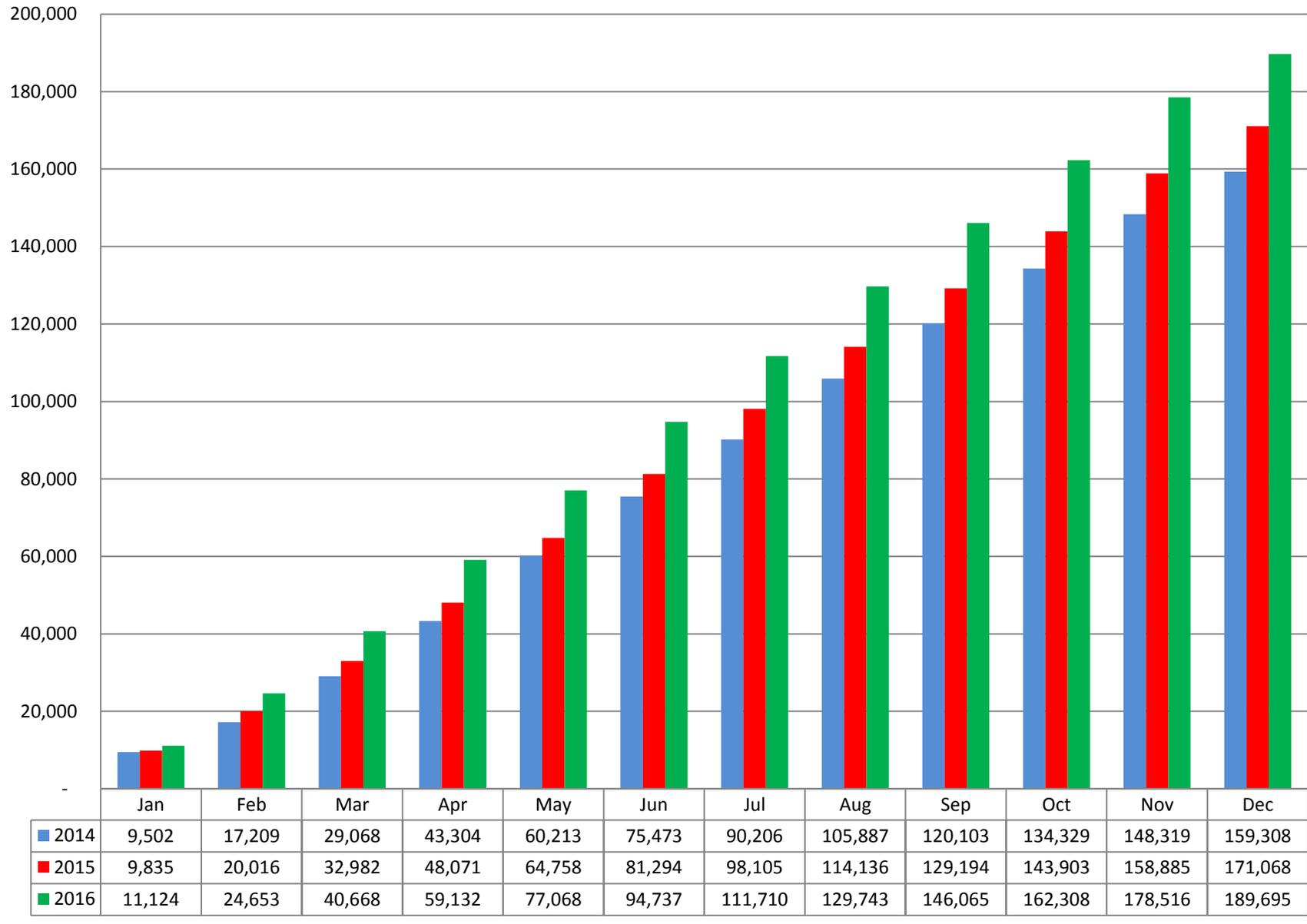
Transfer Stations Average Daily Tons



■ Prairie
■ Ramsey

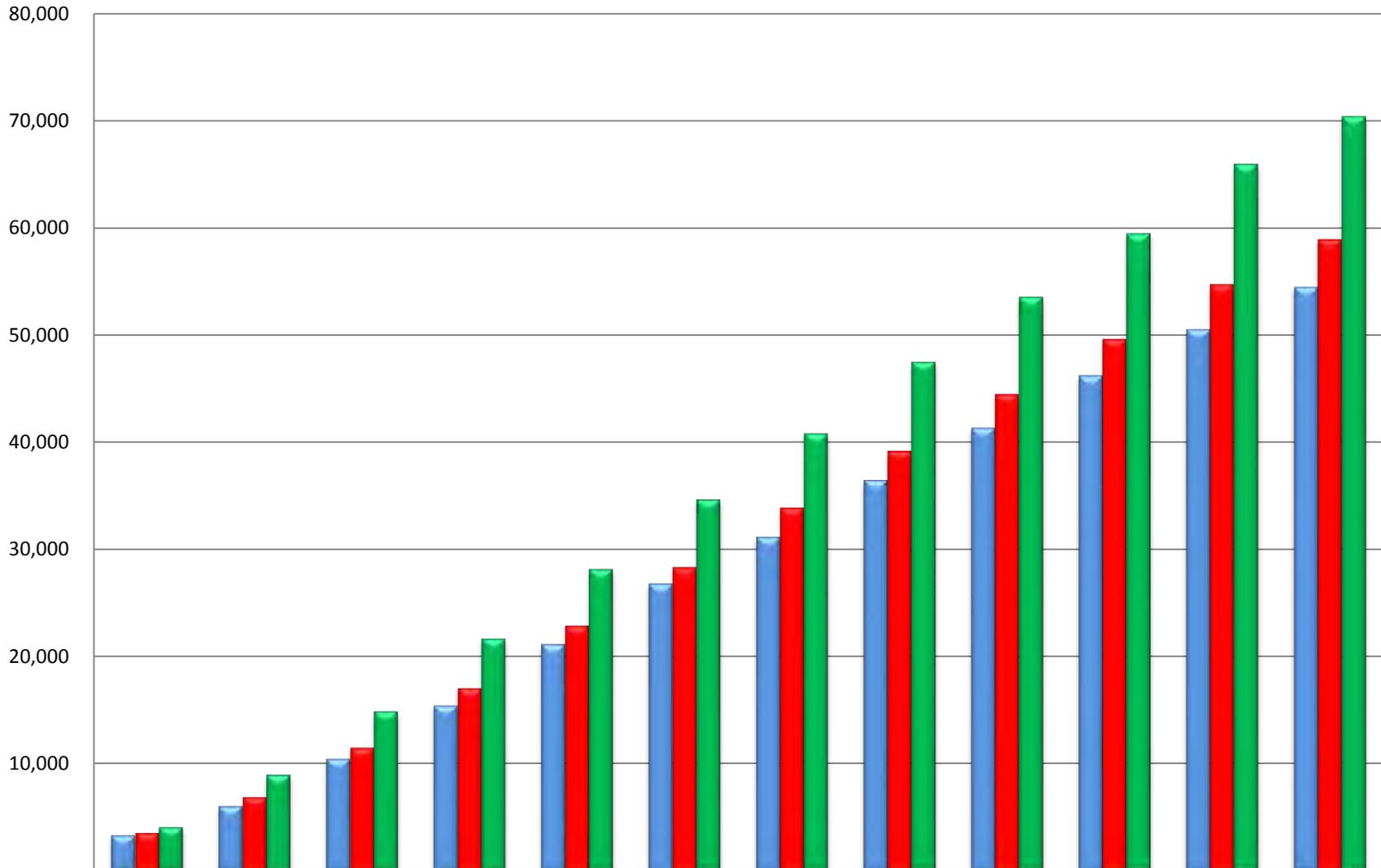
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Prairie	105	216	233	218	209	247	140
Ramsey	163	414	390	385	395	374	205

Monthly Cumulative Tons* - Transfer Stations



*Tons In - Before Recycling

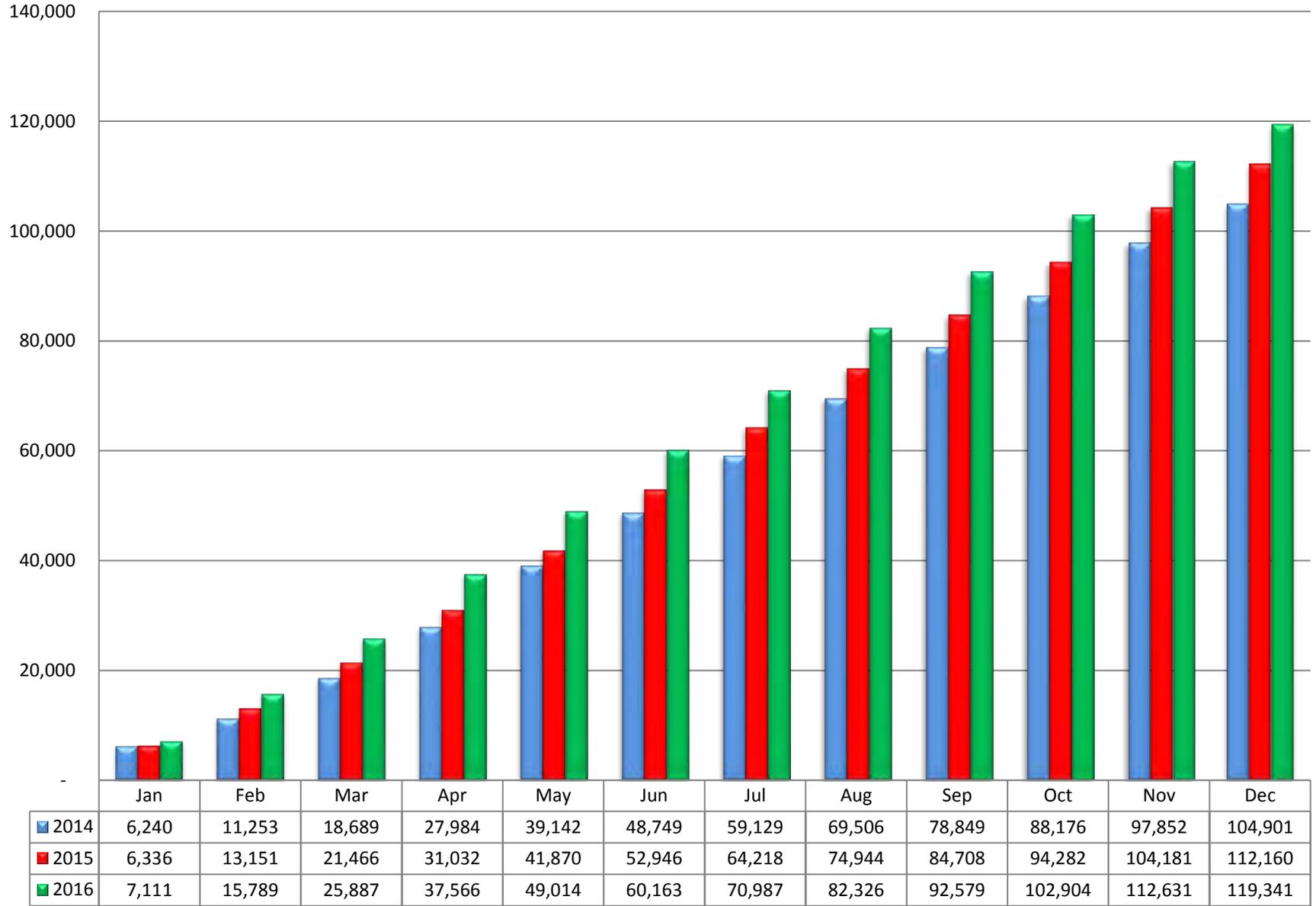
Prairie Cumulative Tons*



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	3,262	5,956	10,379	15,320	21,071	26,724	31,076	36,380	41,253	46,152	50,466	54,407
2015	3,499	6,866	11,516	17,039	22,887	28,348	33,887	39,191	44,487	49,621	54,705	58,908
2016	4,013	8,865	14,780	21,566	28,054	34,574	40,723	47,416	53,485	59,403	65,885	70,353

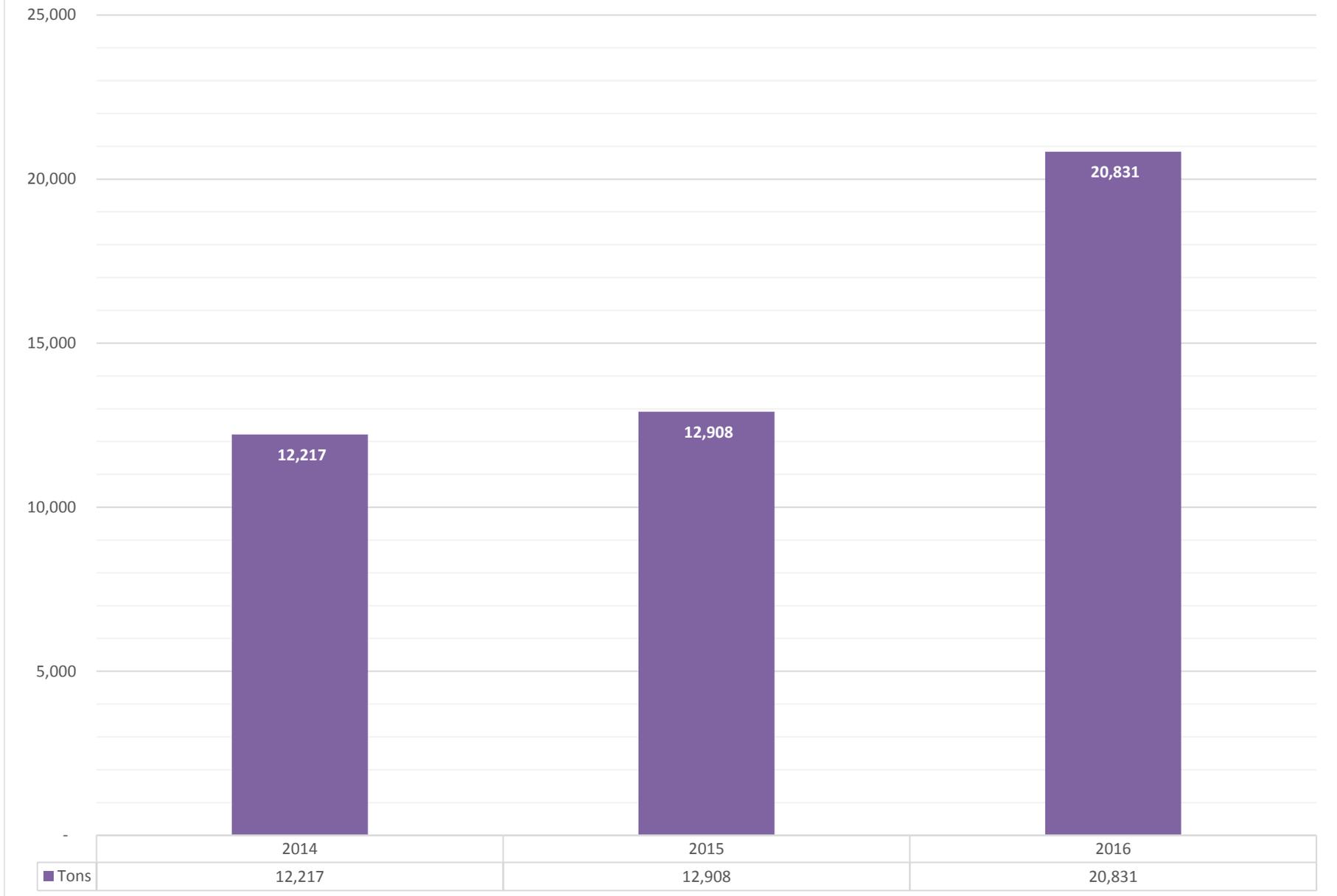
*Tons In - Before Recycling

Ramsey Cumulative Tons*



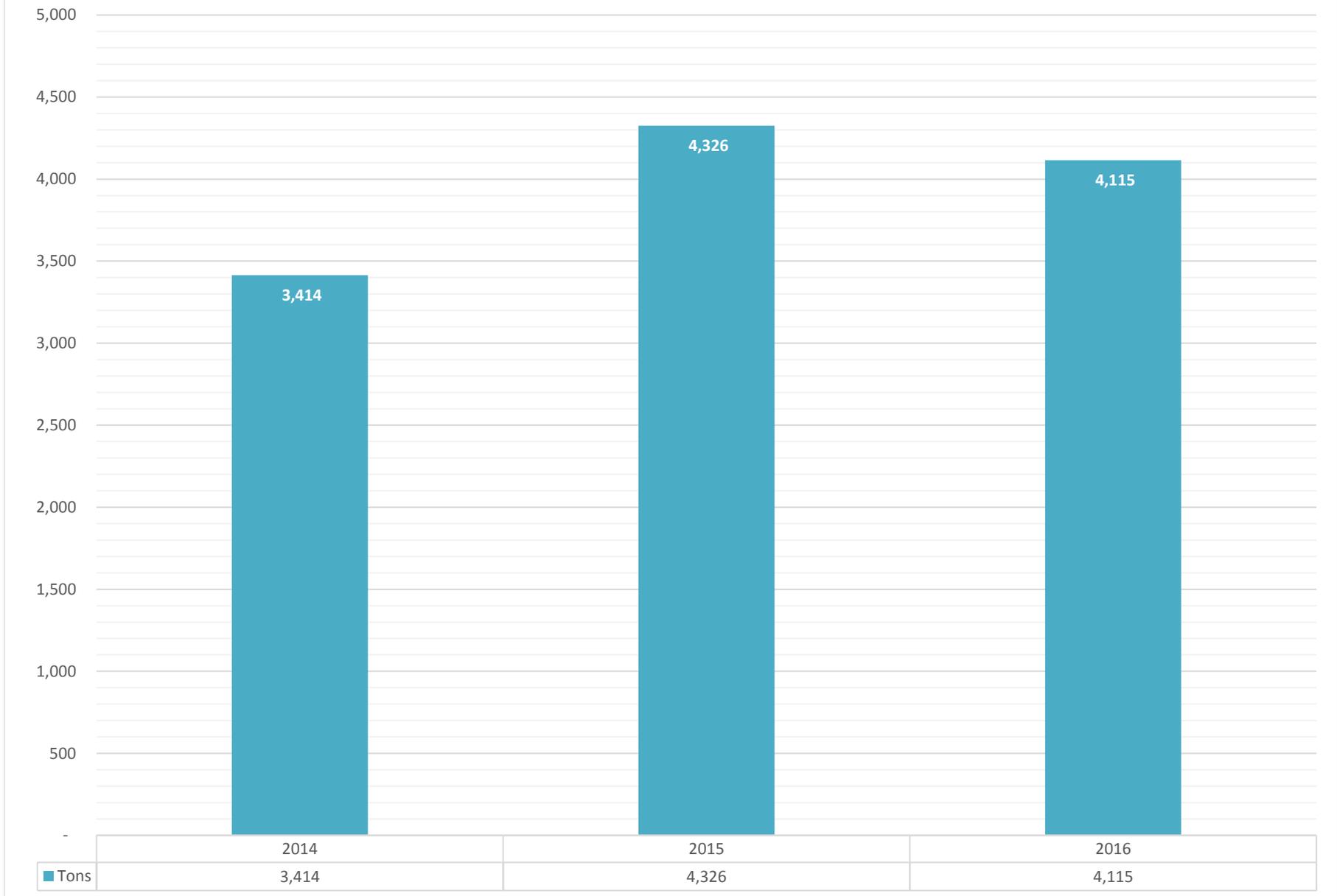
*Tons In - Before Recycling

Construction & Demolition Waste*



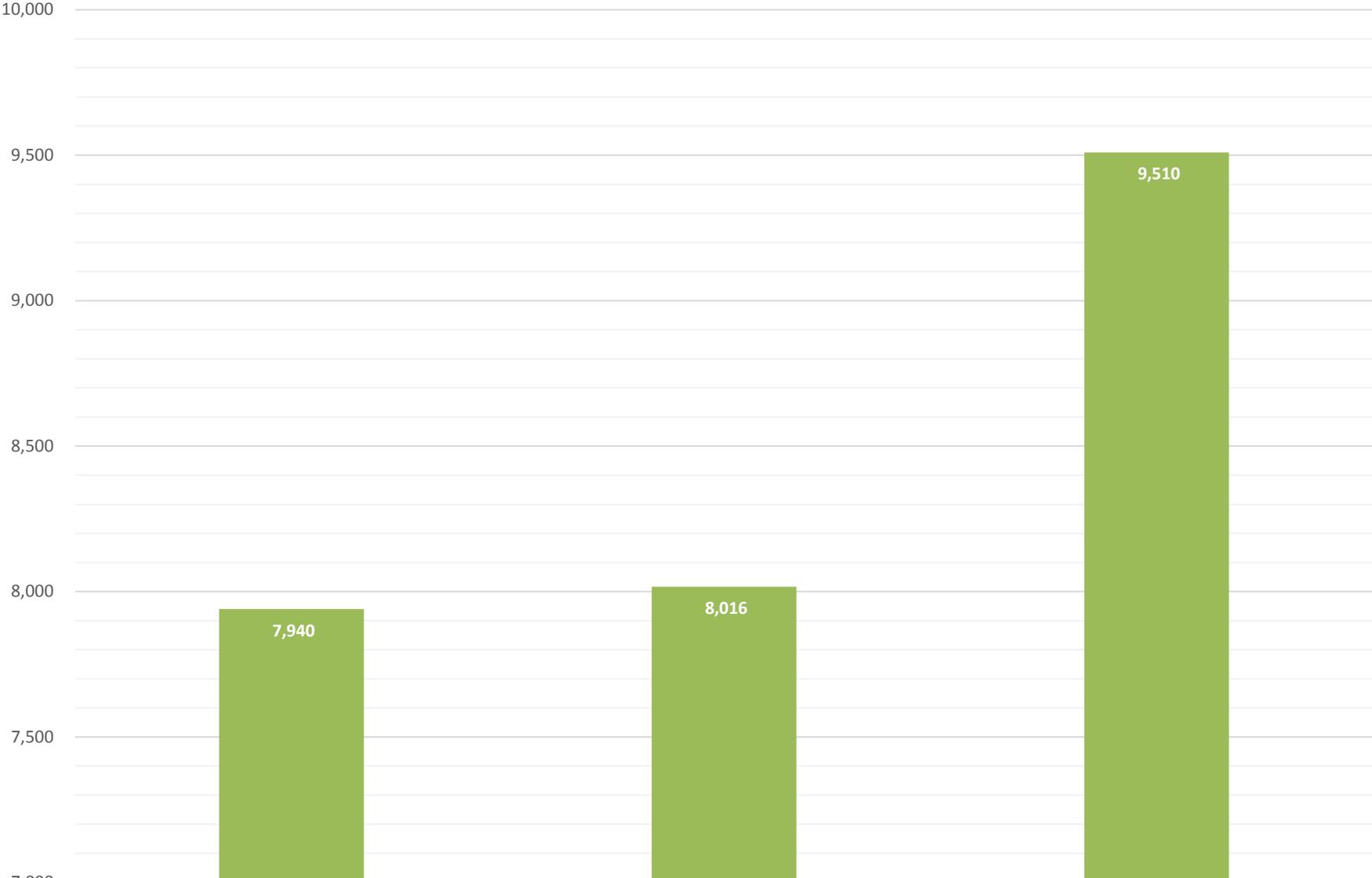
*Includes Construction/Demolition, Mixed Demolition, and Roofing

Inert Material*



*Inert Material includes Inert Material and Cover Material

Yard Debris



■ Tons	2014	2015	2016
	7,940	8,016	9,510

RECYCLING 2016



Kootenai County encourages waste diversion, reduction, reuse and recycling before material becomes a part of the County solid waste system but does not mandate or control what is collected outside of County operated sites.

A wide variety of reuse, reduction, and recycling programs are in place throughout the area operated by businesses or other entities independent of County programs. Material collected and recycled include, but are not limited to, single-stream material; cardboard, newspaper, plastics and other segregated recyclables; textiles; automotive batteries; scrap metal; used oil; electronics; wood waste and other material.

The County offers recycling drop-off stations at the Ramsey and Prairie Transfer sites and some rural residential solid waste sites. These facilities are owned and operated as part of the County system and self-haulers (generators) deliver the segregated material directly to the County drop-off stations. Materials accepted at the Ramsey and Prairie Transfer Stations include:

Cardboard	Newspaper	Mixed Paper	Mixed Plastic
Plastic Bags	Aluminum Cans	Tin Cans	Metal
Automotive Batteries	Tires	Used Oil	Textiles

The program is modified dependent on current markets, challenges with marketing material, and problems with contamination of the material when disposers throw prohibited items in the bins.

During 2016, after several years of dramatic drop in prices, we saw an uptake to some commodities in the recycling market. Recycling is influenced by domestic and international markets for recycled materials and the economics of recycling has been impacted by many factors.

The Department entered into a one-year agreement with a local recycling processing company to handle the materials generated at the transfer stations and the rural residential collection sites. Fees associated with recycling processing were charged and the revenue for the materials collected shared. At the beginning of the year, the market was very depressed, but by year end some commodities increased.

Private haulers and cities have also been impacted by processing facility fees. The haulers collect single-stream mixed recycling which requires extensive sorting and is costly to manage than the segregated material that is collected at County sites.

Recycling can provide an effective means of reducing landfill space. However, recycling is not a free service as it takes money to collect, sort, transport, and manage the material and these costs are volatile and dependent on markets to receive, and pay, for the material. The programs must be economically and environmentally sustainable.

The Solid Waste Department system is supported by solid waste fees charged to property owners and fees at transfer sites. Waste and recycling programs offered by private businesses are not a County function; however, the County recognizes savings in landfill space and implemented a rebate program to provide some financial support to encourage continued collection of the single-stream residential material.

The recycling programs operated by Kootenai County diverted a total of 22,451 tons of material from the landfill. This represents an increase of 32% or 5,455 tons more than 2015. The majority of this increase (4,565 tons) was wood that came into the transfer stations as a result of the windstorm in November 2015. The remainder of the increase (890 tons) came from an increase of metal.

The table below provides a breakout of recycling efforts for Kootenai County and local haulers. Further details are provided in this section.

	WMI Curbside*	CG Curbside^	Rural Sites ⁺	Solid Waste [~]
2011	2,046	681	753	15,086
2012	2,161	1,751	654	15,066
2013	2,341	1,077	542	14,862
2014	2,286	2,007	472	15,110
2015	2,320	1,926	442	16,524
2016	1,326	3,218	412	22,039
Totals	12,480	10,660	3,275	98,687

***WMI Curbside** – includes the City of Coeur d’Alene single stream program and other curbside recycling programs picked up by Waste Management of Idaho through June 30, 2016.

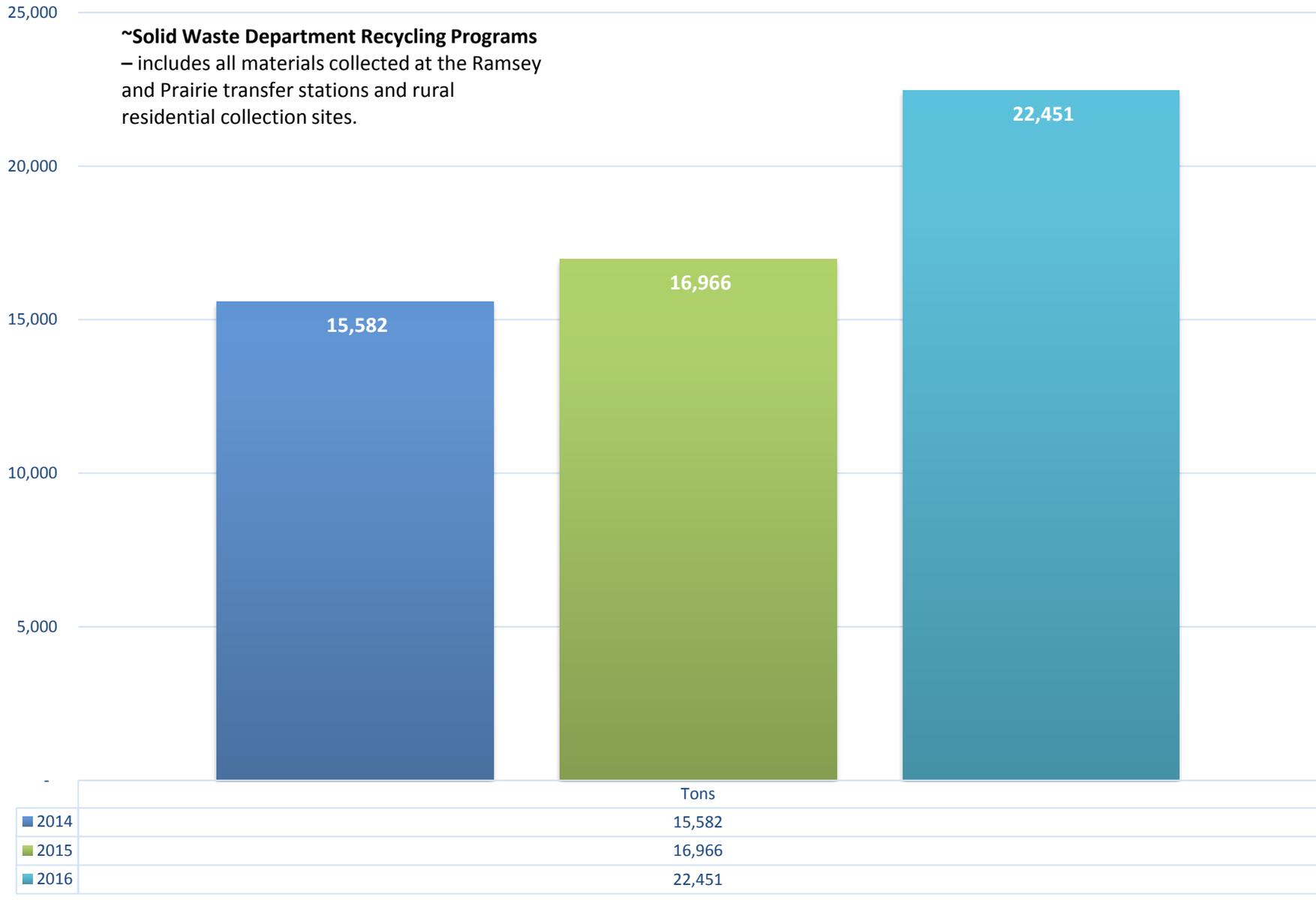
^**CG Curbside** – includes the City of Post Falls single stream program and other curbside recycling programs picked up by Coeur d’Alene Garbage/Post Falls Sanitation. As of July 1, 2016, CG became the contractor for the City of Coeur d’Alene.

+**Rural Sites** – includes co-mingled collection of paper, aluminum cans and cardboard available at rural residential collection sites managed and picked up by Kootenai County Solid Waste.

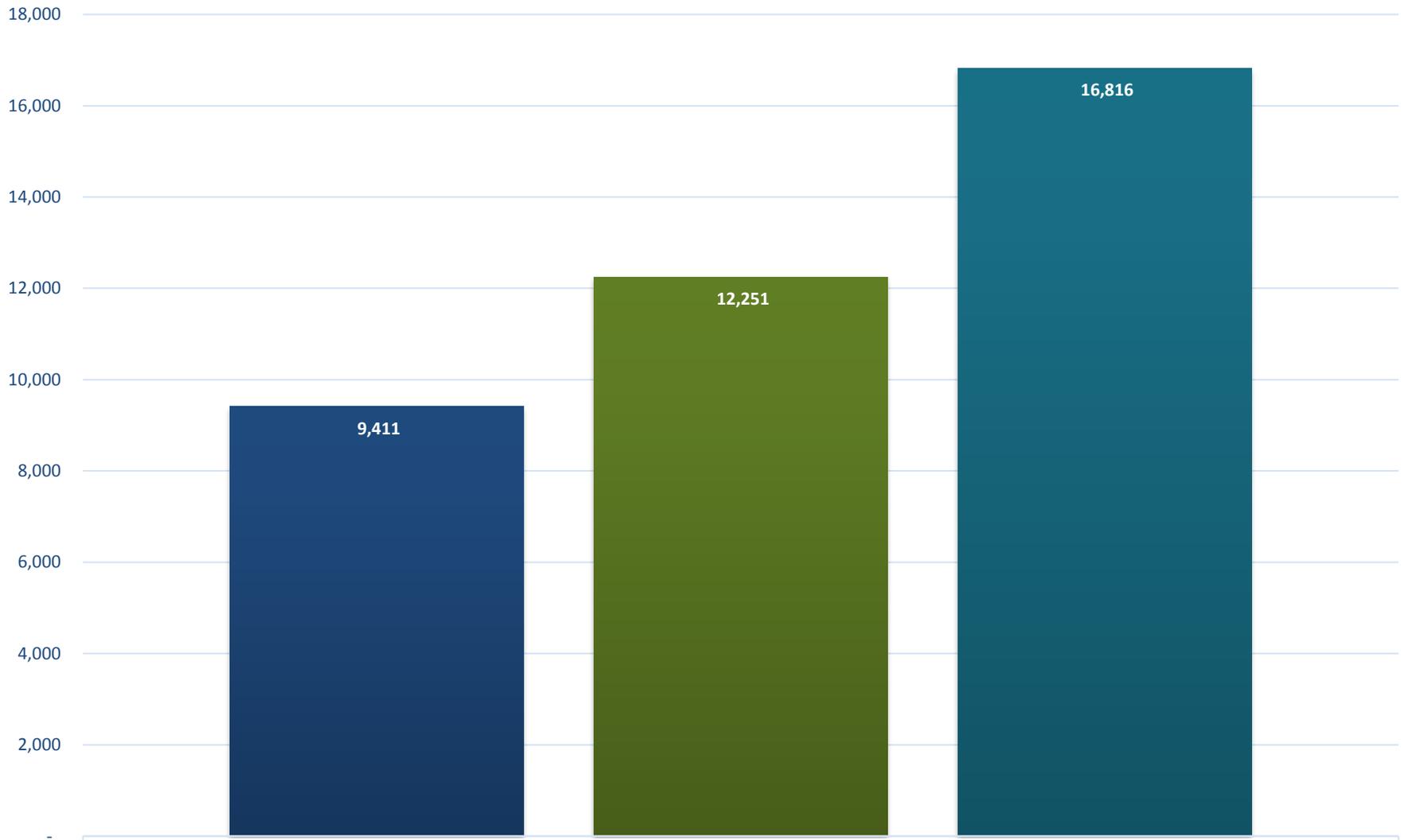
~**Solid Waste** – includes all materials collected at the Ramsey and Prairie transfer stations.



Solid Waste Department Recycling Programs~



Wood Recycling



- 2014
- 2015
- 2016

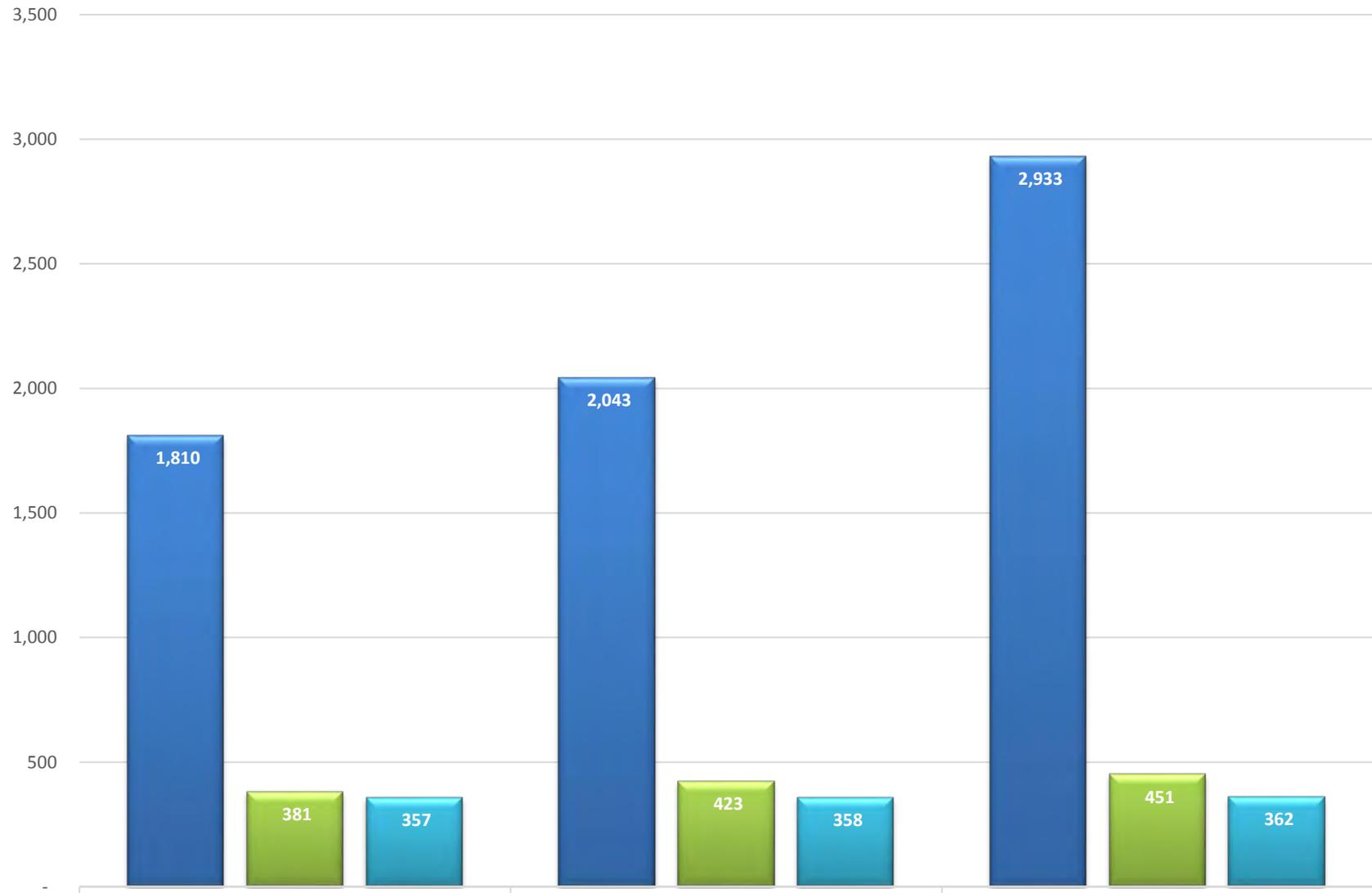
Tons

9,411

12,251

16,816

Metal, Tires & Electronics Recycling



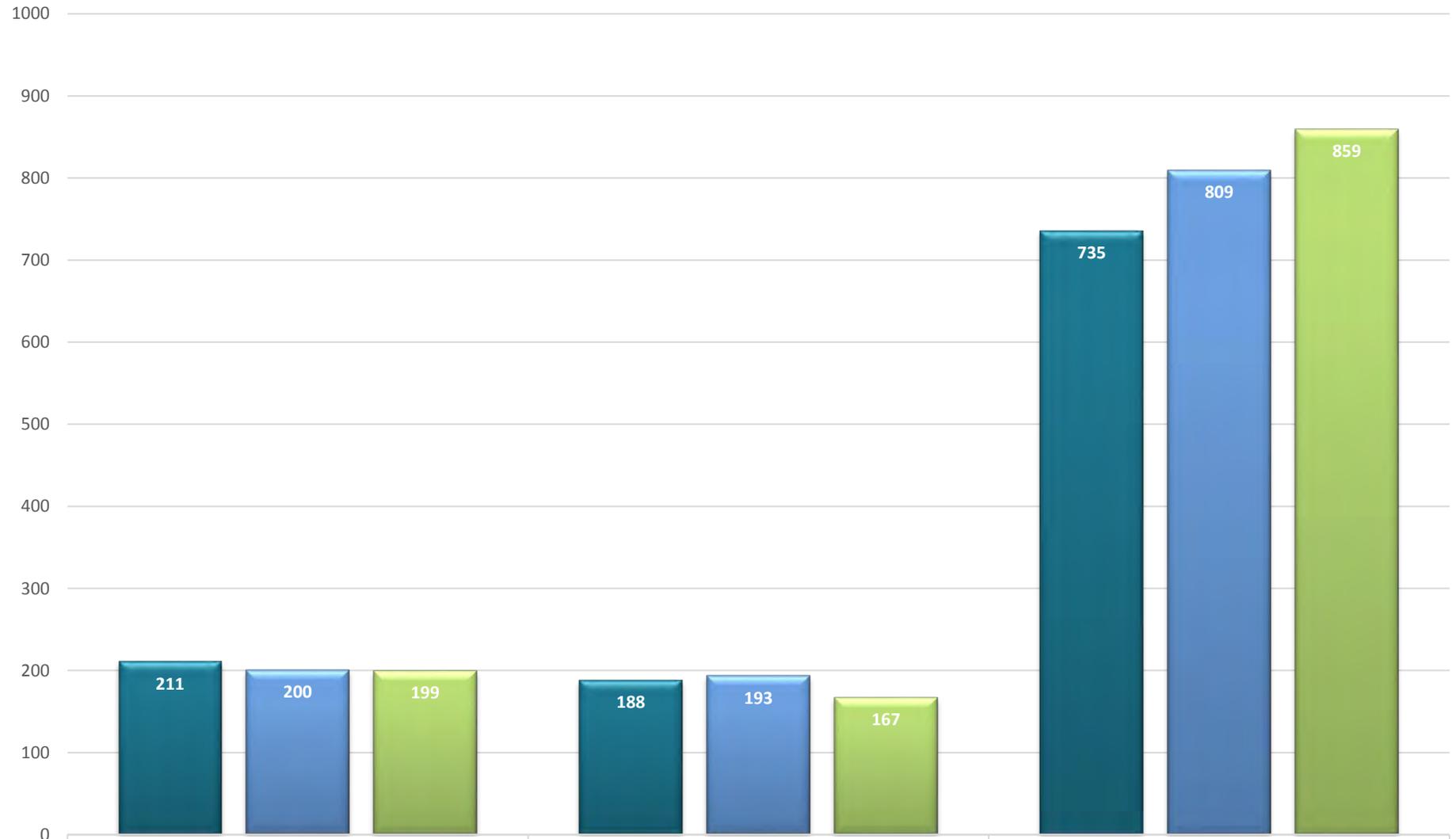
■ Metals*	1,810	2,043	2,933
■ Tires^	381	423	451
■ Electronics+	357	358	362

* Loose Metals - Prairie 742 tons and Ramsey 1,290 tons

^ Tires - Prairie 184 tons and Ramsey 268 tons

+ Electronics - Prairie 138 tons and Ramsey 224

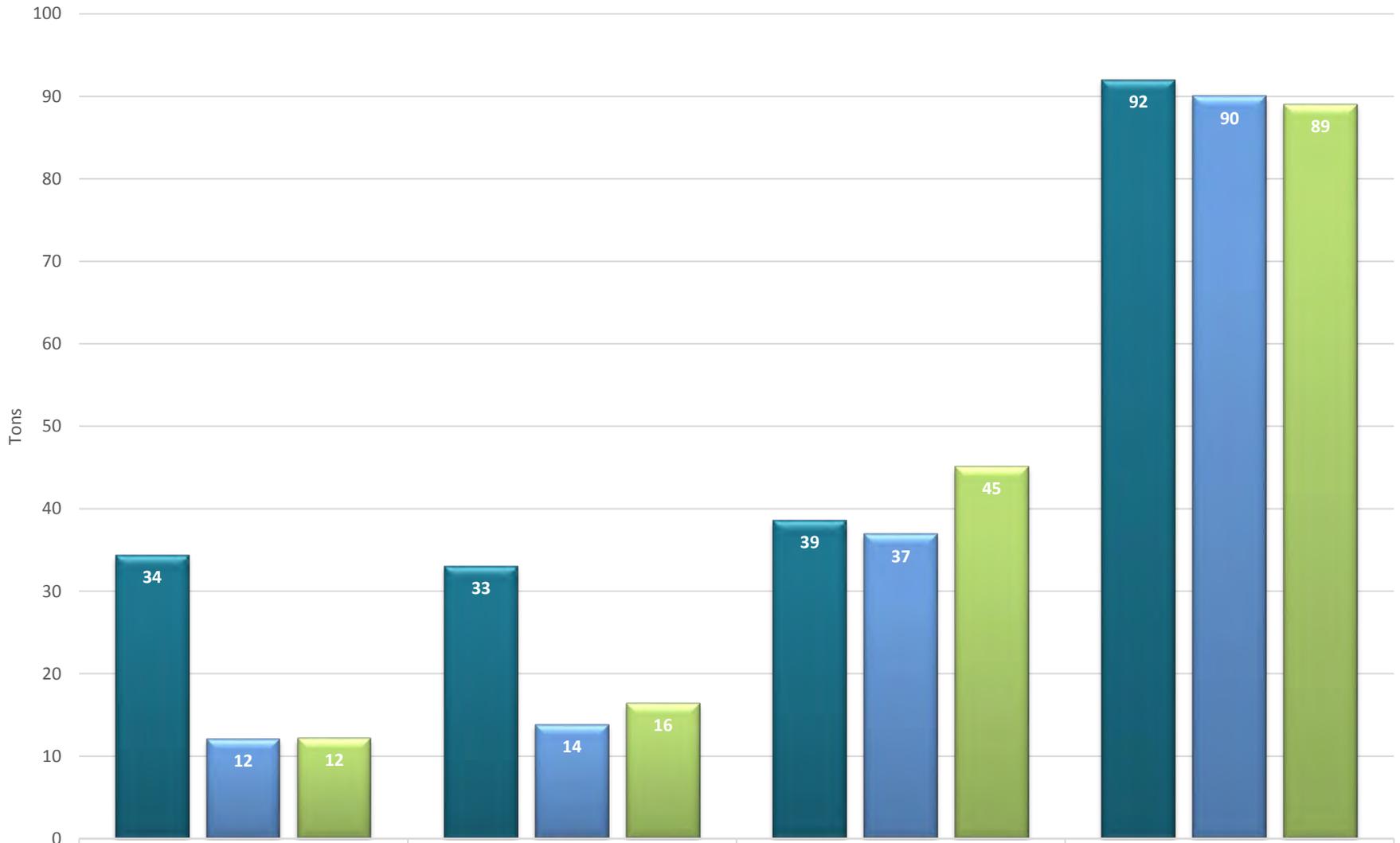
Paper Recycling - Totals*



	Mixed Paper	Newspaper	Cardboard
2014	211	188	735
2015	200	193	809
2016	199	167	859

*reported in tons

Other Recycling



■ 2014
■ 2015
■ 2016

	Tin	Aluminum	Batteries	Mixed Plastics
2014	34	33	39	92
2015	12	14	37	90
2016	12	16	45	89

RURAL RESIDENTIAL COLLECTION SYSTEM 2016

There are 13 rural residential collection sites spread throughout the County, of which the County owns the property for four. There are two staffed sites in the northern portion of the County and 11 collection sites on the east and west side of Coeur d' Alene Lake, and in the southern portion of the County. The challenge is to keep this waste stream confined to residential household waste and over the years the Department has implemented changes to meet this challenge by staffing sites and increasing public awareness as to what can and cannot be accepted at these sites. Another challenge is to restrict out of county/out of state use at these facilities and ensure they are used only by the citizens who pay for the system.

A total of 14,574 tons of garbage was collected from the rural sites in 2016. This is an increase of 10% or 1,357 tons from last year.

NORTH RURAL SYSTEM

There are two staffed rural sites (Athol and Chilco) in the northern portion of Kootenai County. The staffed sites are open the same hours and days as the transfer stations.

The staffed sites assisted a total of 174,314 customers in 2016. This is a decrease of 4,691 customers reported in 2015. A total of 6,648 tons of waste collected at the north rural sites in 2016, which is down 479 tons from last year.



Improvements were made to both the north sites in 2016. At the Athol site, trees were removed and the area leveled to expand the collection area. In addition, a new fence was installed along with site lighting.

Improvements to the Chilco site in 2016 included site lighting as well.

SOUTH RURAL SYSTEM

The south rural routes have two subsets, Harrison and Worley. There was 7,926 tons of garbage collected at these 11 sites which is a 30% (1,836 tons) increase from last year.

The Harrison Route is on the eastern side of Coeur d' Alene Lake and bounded by Shoshone County to the east and Benewah County to the south. There are eight collection sites on this route. The Worley Route has three collection sites. This route is on the western side of Coeur d' Alene Lake, south of Coeur d' Alene and bounded on the south by Benewah County and Washington on the west.

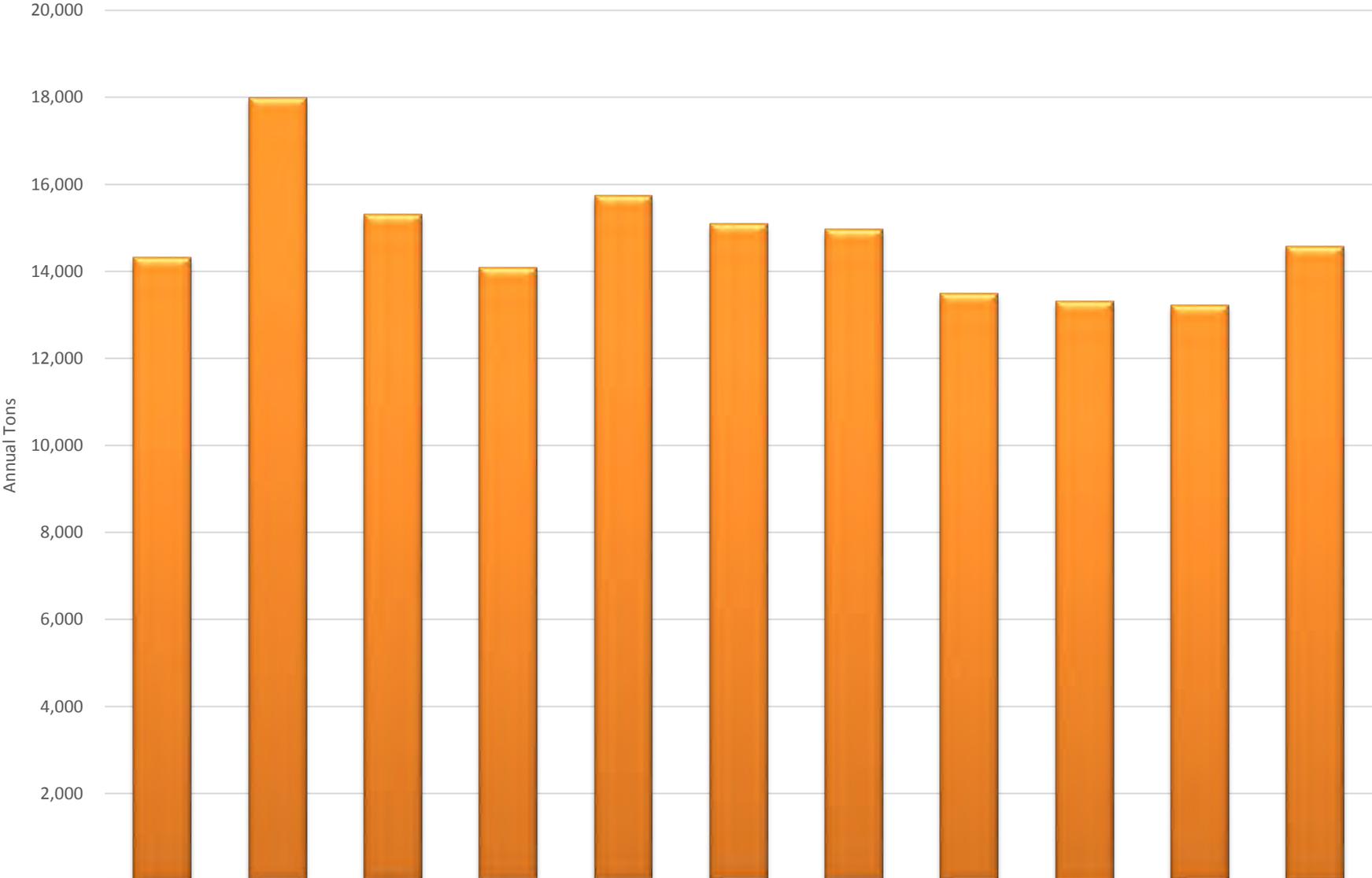
The Department has been actively working to acquire permanent County-owned parcels to develop (relocate) collection sites in the Rose Lake area as well as Wolf Lodge. An agreement to purchase property in Rose Lake was completed in 2016. The Department is moving forward to obtain the permits required to establish a collection site on this property.



The Department, along with the contracted hauling company, spends a significant amount of time and effort to maintaining the rural residential collection sites. Several times a week the Department removes improperly disposed items from these sites. These sites are for residential waste only, large bulky items such as appliances, furniture, tires, remodel waste and yard debris must be taken to a transfer station for proper disposal. The photos show improper disposal that required clean up by the Department.

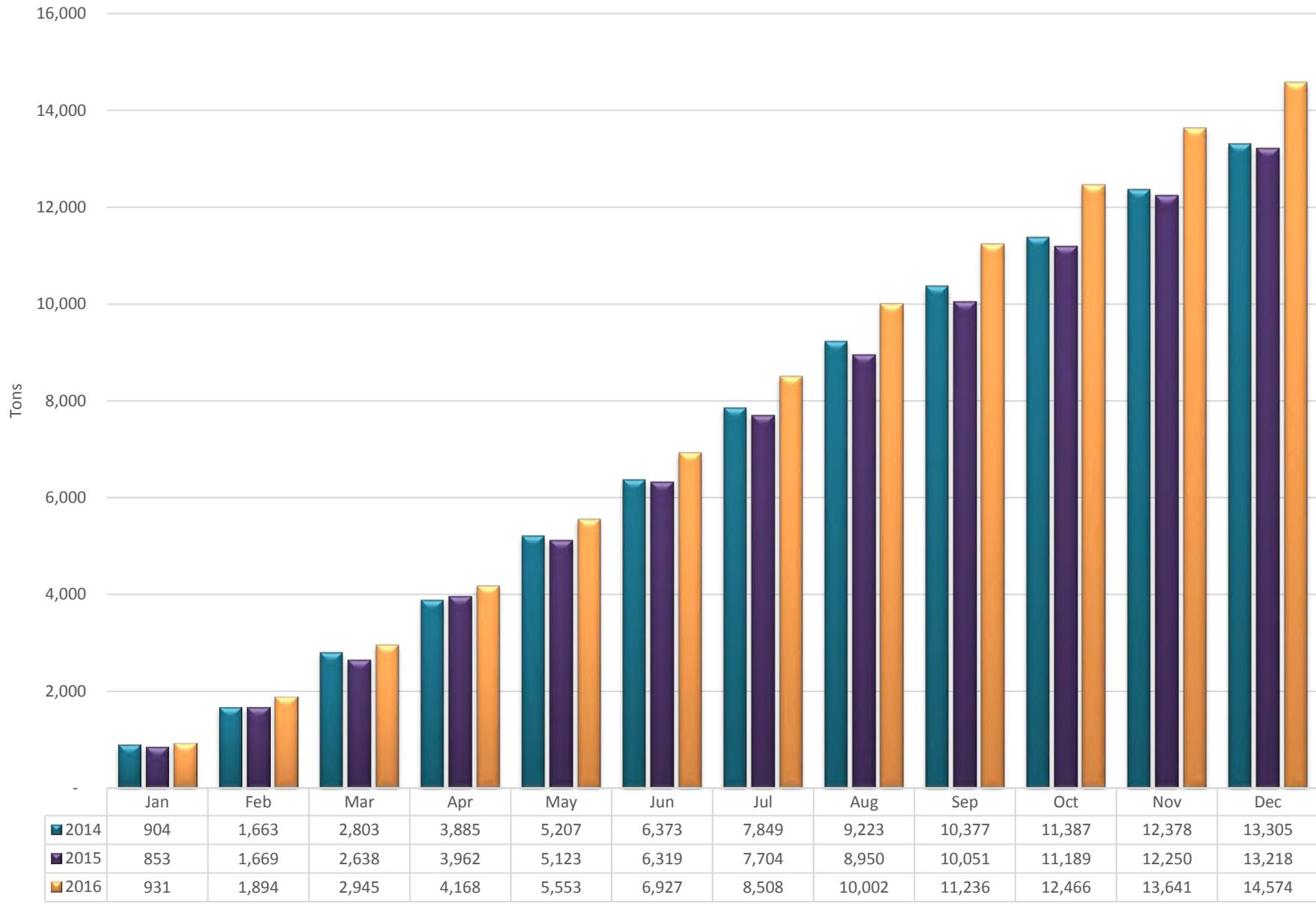


Rural System Tonnage Comparison

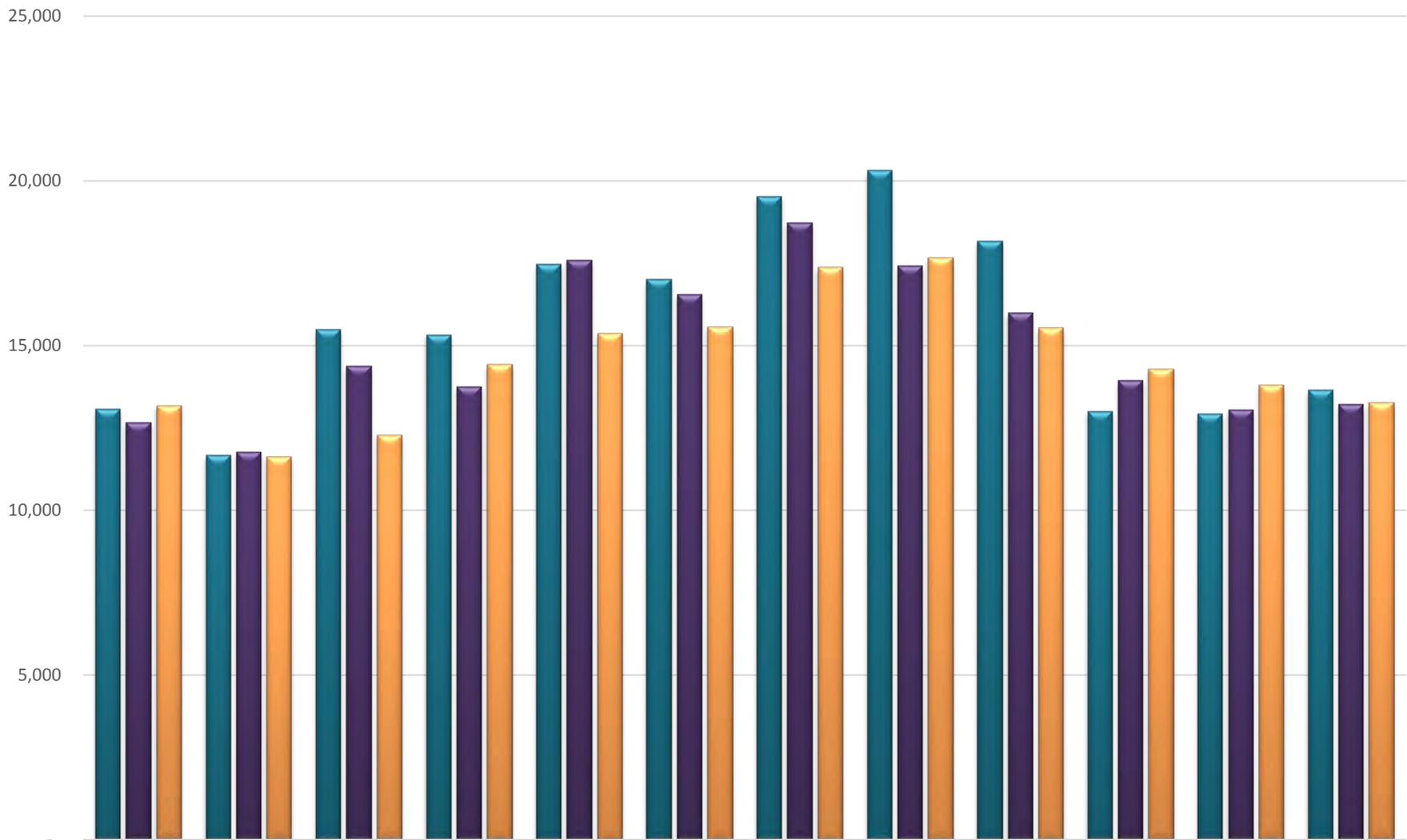


■ Tons	1993	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
	14,314	17,985	15,300	14,082	15,740	15,083	14,957	13,486	13,304	13,218	14,574

Rural Systems Cumulative Tons



Rural Systems Cumulative Customers



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	13,063	11,669	15,484	15,325	17,461	17,005	19,527	20,314	18,157	13,007	12,929	13,651
2015	12,662	11,760	14,372	13,756	17,600	16,543	18,712	17,424	15,981	13,949	13,037	13,209
2016	13,176	11,612	12,282	14,428	15,354	15,567	17,365	17,661	15,530	14,285	13,788	13,266

HOUSEHOLD HAZARDOUS WASTE 2016

The Kootenai County Solid Waste Department operates year-round Household Hazardous Waste (HHW) collection facilities at the Ramsey and Prairie Transfer Stations. The Ramsey (HHW) facility is opened from 8:00 a.m. until 4:00 p.m. Wednesday and Saturday. The Prairie Transfer Station has the same hours of operations but operates on Friday and Saturday. These facilities accept up to ten gallons from residential customers. It does not accept any commercial hazardous waste.



Most communities offer limited HHW collection days (some only a few days annually). Kootenai County Solid Waste Department offers over 200 days/year. Limiting days is necessary as trained and certified technicians are responsible for safe identification, acceptance, material handling, packaging, shipping, etc. to avoid spills, explosions, contaminations or injury.

Only HHW can be accepted and there are also restrictions on type and volume of material as called out in the Panhandle Health District Critical Materials Regulation/Certification and facility operating permit. Transfer stations are Tier II Facilities - permitted to accept municipal solid waste and no industrial or commercial hazardous waste.

During the summer of 2016, the Ramsey Transfer Station offered an additional day per week (Friday) for acceptance of HHW. It is anticipated that the additional day will continue to be offered during the summer months at the Ramsey location.

In 2015 the transfer station staff began tracking the customers utilizing the HHW services. A total of 6,449 customers for both transfer station locations were provided HHW services in 2015. The number of customers in 2016 increased to 8,742, of that number 614 customers took advantage of the added Friday collection day at Ramsey.

In 2016, the Department processed a total of 150.7 tons of special waste through the HHW collection days. The breakdown of this material is show in the charts for this section of the annual report.

The Ramsey collection "shed" is outdated and has limited functionality and very restricted traffic and user drop off areas/lanes. During 2016, options to develop a new special/hazardous waste structure or expand the current collection area were discussed.

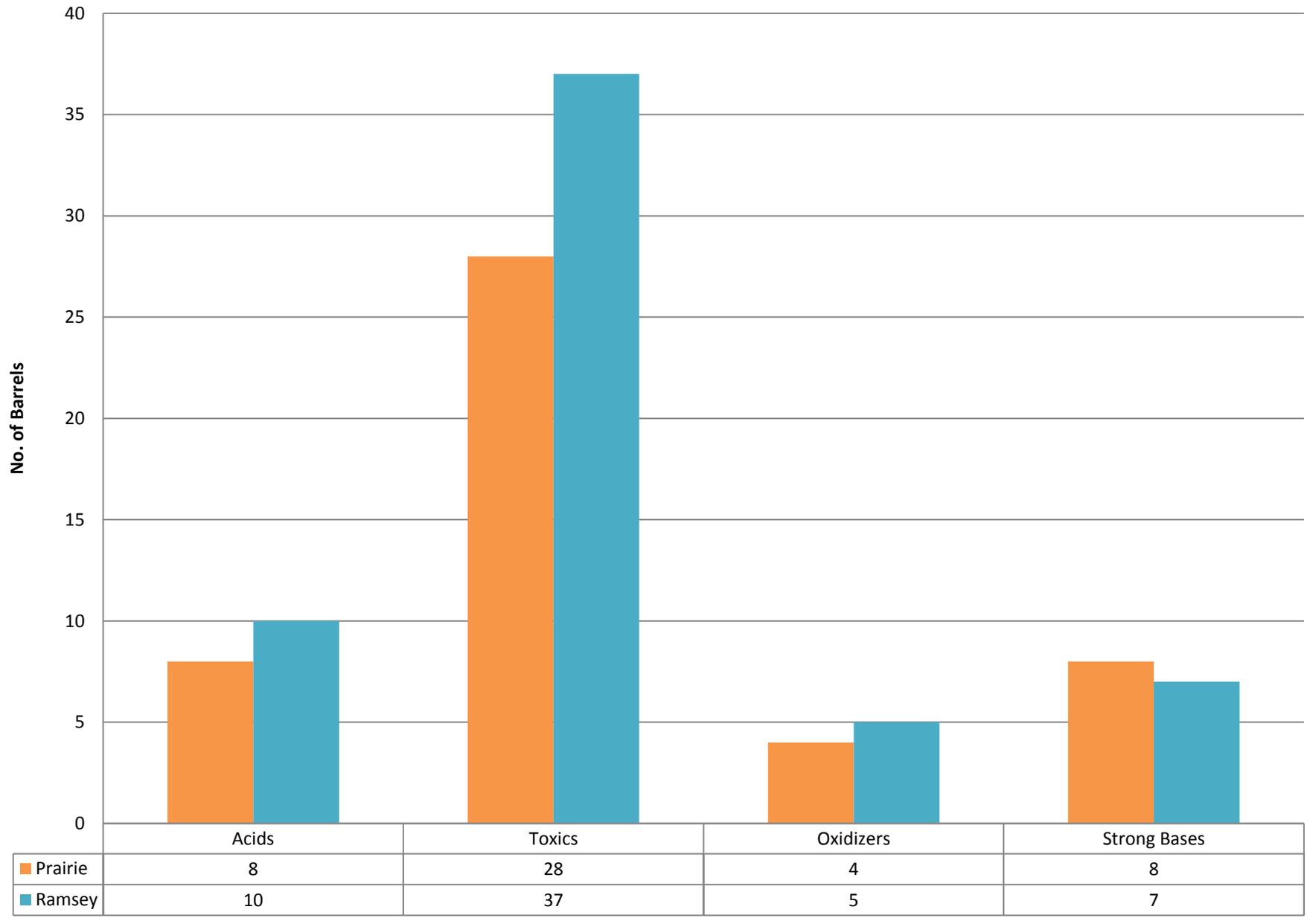
A valuable exchange program, which addresses the growing awareness of the problems of household hazardous waste in the environment, is also offered. By signing off on a release of liability form, customers may shop at the exchange cart for items such as pesticides, herbicides, paint, and many other household

products. Department staff tries to ensure that the containers with product are labeled, but we are unable to guarantee the product, thus the liability waiver.

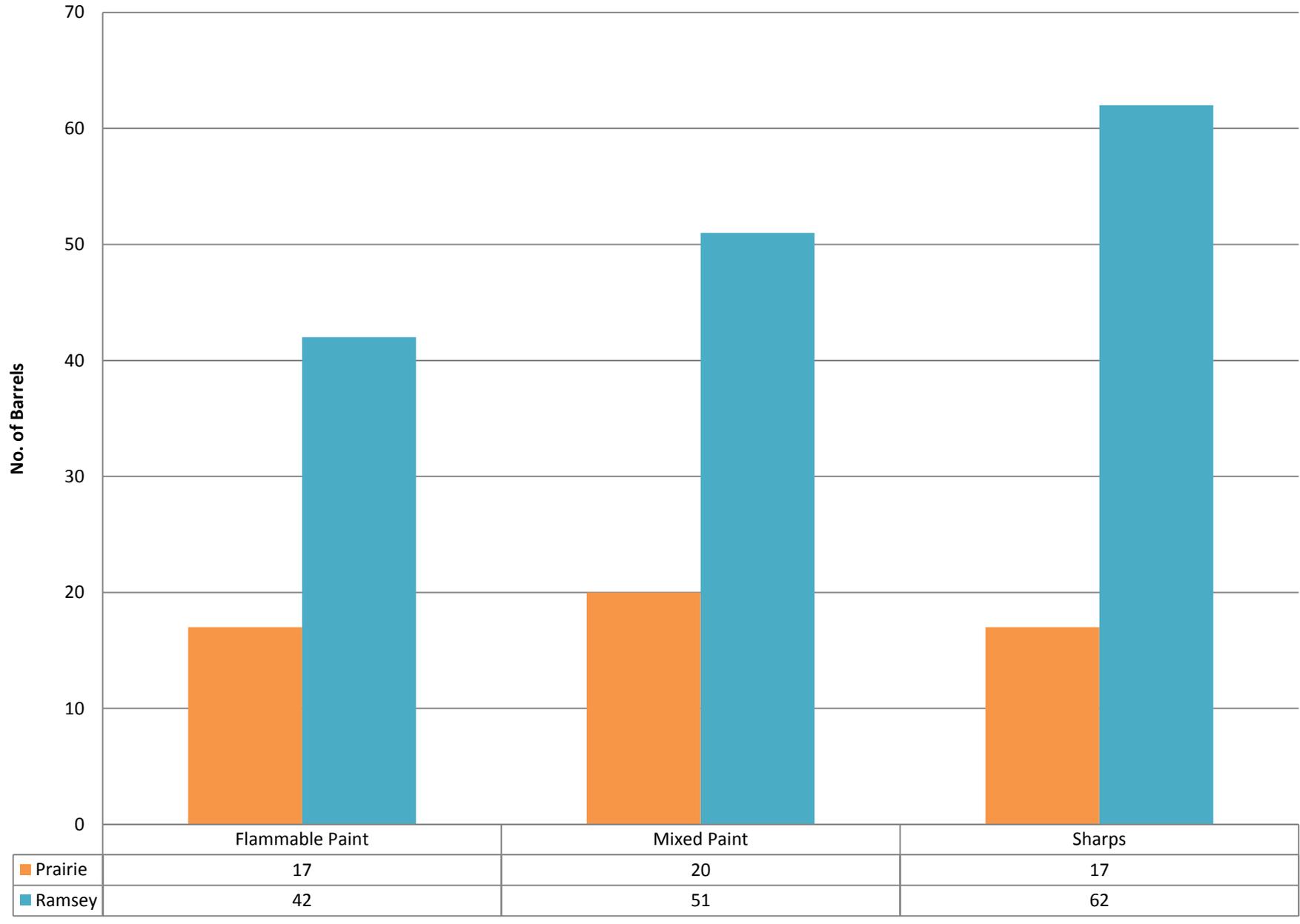
The Department continues to use mixed latex paint as an additive to the existing alternative daily cover for the landfill. All paint possible is collected in the HHW programs at the transfer stations. Staff sorts and separates the paint collected and set aside latex paint for shipment to the landfill. Landfill staff mixes the latex paint with a Posi-Shell® material and sprays it over the working face of the landfill as daily cover. This unique approach provides the Department with a cost-effective and environmentally safe alternative cover and reduces expenses for transportation of HHW disposal. This cover system also saves very valuable landfill air space.

A chart is included demonstrating the program for reuse of used waste oil throughout facilities. The chart shows the amount of waste oil used in heating maintenance shops at Ramsey, Prairie and Fighting Creek. The excess waste oil brought into the facilities is then shipped out to be reused elsewhere as fuel, asphalt emulsion, and other uses.

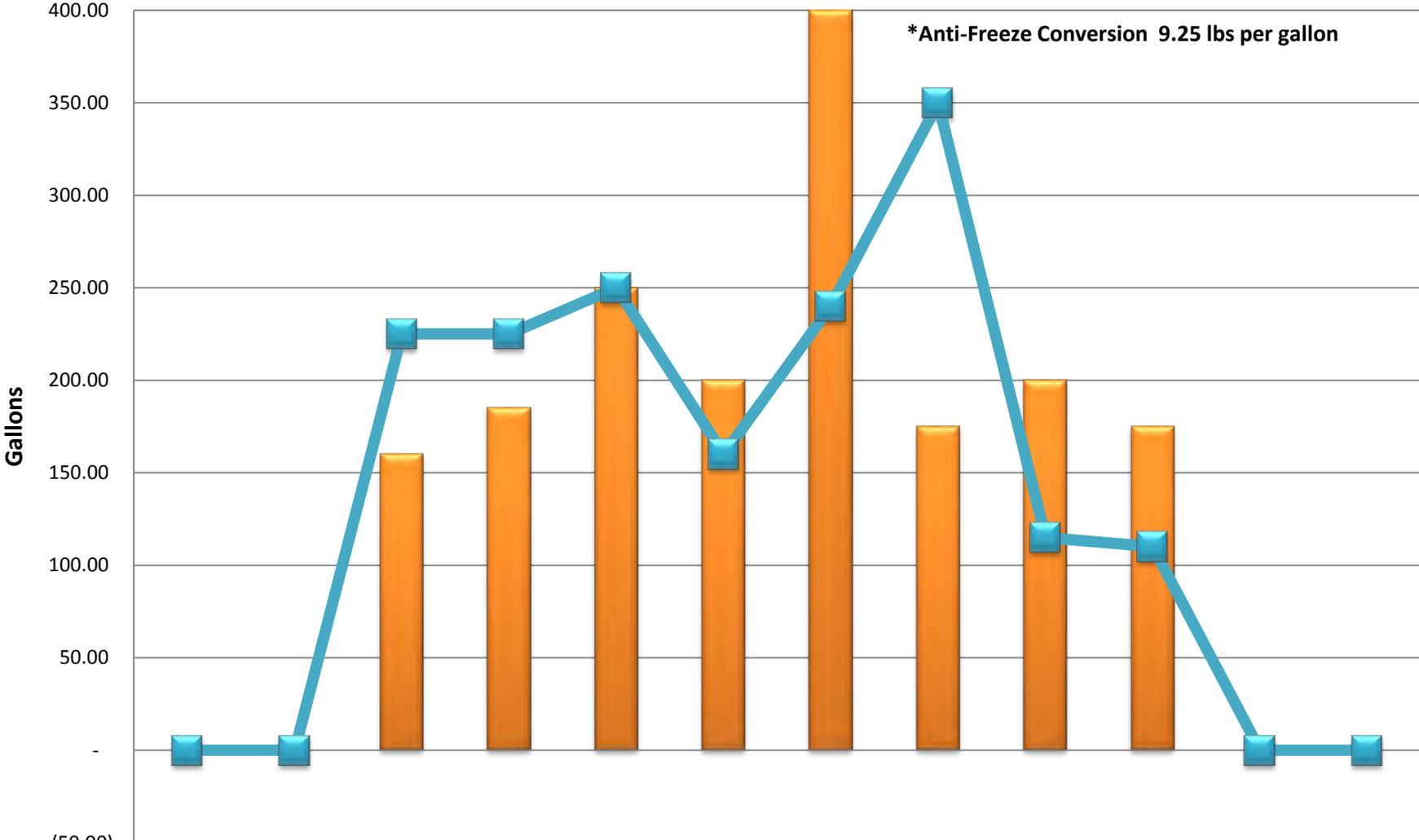
Household Hazardous Waste - Processed



Household Hazardous Waste - Paint/Sharps

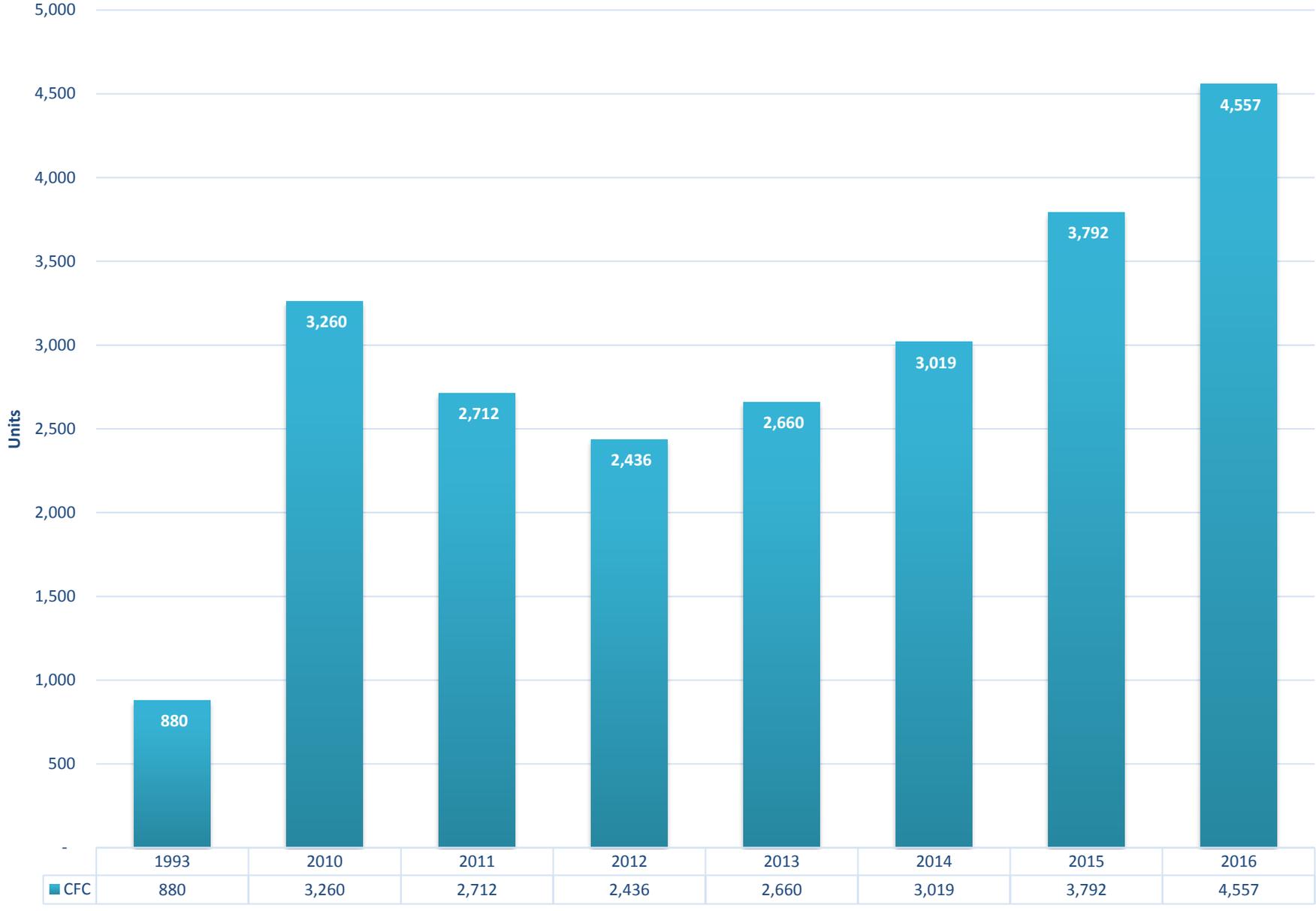


Anti-Freeze (15.82 tons*)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
■ Ramsey	-	-	160.00	185.00	250.00	200.00	400.00	175.00	200.00	175.00	-	-
■ Prairie	-	-	225.00	225.00	250.00	160.00	240.00	350.00	115.00	110.00	-	-

CFC Units* (4,557 units)



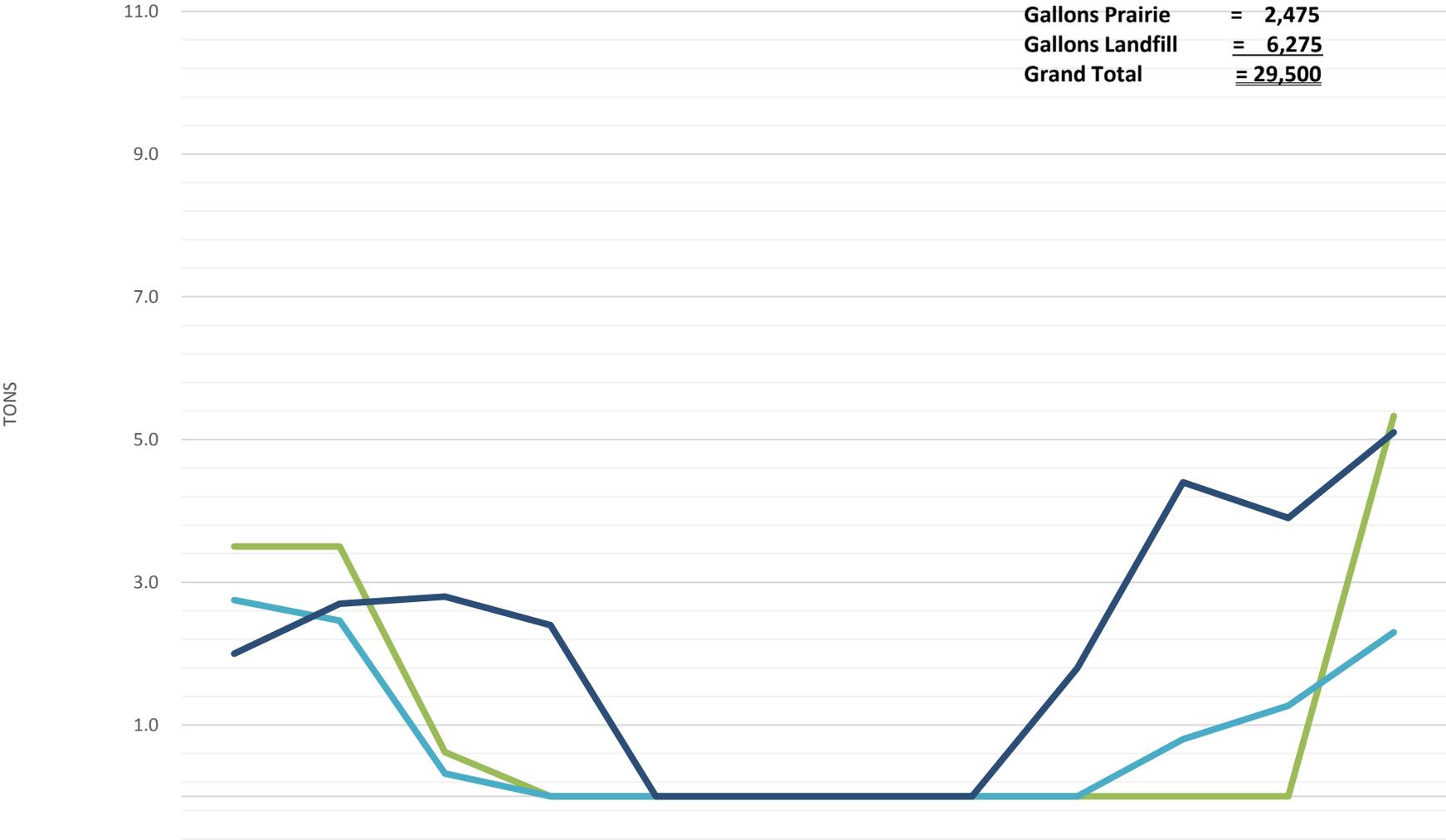
*includes Refrigerators, Freezers, AC Units, etc.

Used Motor Oil

Conversion rate is 8 lbs per Gallon

2016 Totals

Gallons shipped out	=	17,500
Gallons Ramsey	=	3,250
Gallons Prairie	=	2,475
Gallons Landfill	=	6,275
Grand Total	=	<u>29,500</u>



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ramsey	3.5	3.5	0.6	-	-	-	-	-	-	-	-	5.3
Prairie	2.8	2.5	0.3	-	-	-	-	-	-	0.8	1.3	2.3
Fighting Creek	2.0	2.7	2.8	2.4	-	-	-	-	1.8	4.4	3.9	5.1

Department of Environmental Quality Reporting

The following is a summary of the electronic information provided to Idaho Department of Environmental Quality (DEQ) and Idaho Panhandle Health District (PHD) with this annual report.

- A. **Inspections and Reports:** The 2016 Waste Stream Analysis is attached hereto and incorporated herein by reference. All required documents relevant to this annual report are included on a CD saved as PDF documents and provided to Idaho Department of Environmental Quality (DEQ) and Idaho Panhandle Health District (PHD) each year.
- B. **Tier 1 Operating Air Quality Permit:** Copies of all Tier 1, Title V Air Quality Permit documents and reports have been provided and can be viewed at the Idaho DEQ office in Coeur d'Alene.
- C. **Closure and Post-Closure Plan:** There were no changes or modifications to the Closure Plan in 2016.
- D. **Financial Assurance Plan (FAP):** Updated information regarding monies spent and set aside to fund future closure and post-closure requirements per §39-7417 of Idaho Code has been included in the electronic version of this report. A copy of the letter and supporting documents from Kootenai County, Finance Director, Deena Darrow, is attached hereto and incorporated herein by reference. A copy of this same information is included as a PDF document in the electronic version of this report.
- E. **Landfill Gas Reporting:** Fighting Creek gas system reports were included in the required reporting to the EPA, a copy of which is included in the electronic version of this report. The Ramsey gas system report is included in the electronic version of this annual report.
- F. **Ground Water Summary:** The electronic reports and data from bi-annual ground water monitoring as described in the Ground Water Monitoring Plan is included in the electronic version of this report.
- G. **Leachate Report:** A summary of the performance of the leachate treatment and disposal system during the preceding calendar year containing the same information as previously reported in the annual leachate report is included in the electronic version of this report.
- H. **Surface Water:** The Department complied with the regulations of the EPA regarding MSGP and SWPPP. Copies of these reports have been provided, previously, to DEQ, but are included in the CD accompanying this report to DEQ.
- I. **Plans and Specifications:** No new construction was completed in 2016 that required approval of plans and specifications.

Inspections and Reports

Idaho DEQ approved the 2015 Solid Waste Analysis on March 20, 2017. A copy of said approval is included with this report and represented below.



State of Idaho
Department of
Environmental Quality

2110 Ironwood Parkway • Coeur d'Alene, ID 83814 • (208) 769-1422

C. L. "Butch" Otter, Governor
John H. Tippets, Director

March 20, 2017

Cathy Mayer
Kootenai County Solid Waste Department
3650 N Ramsey Rd
Coeur d'Alene, ID 83815
cmayer@kcgov.us

Subject: Kootenai County Solid Waste – 2015 Solid Waste Analysis

Dear Ms. Mayer:

On May 4, 2016, the Department of Environmental Quality (DEQ) received the Kootenai County Solid Waste Department 2015 Solid Waste Analysis. This report contains an overview of the Kootenai County Solid Waste facilities and operations. Included with the analysis are the Tier 1 Semi-Annual Report, 2015 Financial Assurance, the Ramsey Landfill Gas Control Annual Report, the 2015 Semi-annual Groundwater Monitoring Reports, stormwater monitoring and reporting information, and the Leachate Report.

DEQ has reviewed the Analysis and finds it to be acceptable. Thank you for providing this report. Should you have any questions, please contact me at 208-666-4622.

Sincerely,

A handwritten signature in black ink, appearing to read "Matt Plaisted".

Matt Plaisted, P.E.
Engineering Manager
Matthew.Plaisted@deq.idaho.gov

c: Erik Ketner, eketner@phd1.idaho.gov
Rob Eachon, Robert.eachon@deq.idaho.gov
Lauren Chaffin, lchaffin@kcgov.us
Mollie Mangerich, mollie.mangerich@deq.idaho.gov
File in TRIM: Kootenai County Landfill, 2017BAB221 (in BIN: 2011BAZ2174)

Attachment "A"

Tier 1 Operating Air Quality Permit

Idaho DEQ approved a new Tier 1 Operating Permit effective October 25, 2016. The permit can be reviewed at the Idaho DEQ office in Coeur d'Alene, Idaho or at the administration office of the Solid Waste Department. In addition, a copy of the permit is included with the electronic version of this report.



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hillen • Boise, Idaho 83706 • (208) 373-0502
www.deq.idaho.gov

C.L. "Buck" Ober, Governor
John R. Tippels, Director

October 25, 2016

Cathy Mayer
Director
Kootenai County Farm Landfill
3650 North Ramsey Rd.
Coeur d'Alene, ID 83815

RE: Facility ID No. 055-00044, Kootenai County Farm Landfill, Coeur d'Alene
Final Tier 1 Operating Permit Letter

Dear Ms. Mayer:

The Department of Environmental Quality (DEQ) is issuing Tier 1 Operating Permit No. T1-2015.0038 to Kootenai County Farm Landfill at Coeur d'Alene in accordance with IDAPA 58.01.01.300 through 386, Rules for the Control of Air Pollution in Idaho (Rules).

The enclosed permit is effective immediately, summarizes the applicable requirements for your facility, and requires an annual compliance certification for all emissions units. This permit replaces Tier 1 Operating Permit No. T1-2010.0028, issued January 14, 2011. The enclosed operating permit is based on the information contained in your permit application received on August 3, 2015. Modifications to and/or renewal of this operating permit shall be requested in a timely manner in accordance with the Rules.

In order to fully understand the compliance requirements of this permit, DEQ highly recommends that you schedule a meeting with Almer Casile, Air Quality Analyst, at 208-666-4600 to review and discuss the terms and conditions of this permit. Should you choose to schedule this meeting, DEQ recommends the following representatives attend the meeting: your facility's plant manager, responsible official, environmental contact, and any other staff responsible for day-to-day compliance with permit conditions.

Pursuant to IDAPA 58.01.23, you, as well as any other entity, may have the right to appeal this final agency action within 35 days of the date of this decision. However, prior to filing a petition for a contested case, I encourage you to call Dan Pitman at 208 373-0502 or daniel.pitman@deq.idaho.gov to address any questions or concerns you may have with the enclosed permit.

Sincerely,

Handwritten signature of Mike Simon in cursive.

Mike Simon
Stationary Source Program Manager
Air Quality Division

MS/DP Permit No. T1-2015.0038 PROJ 61569

Enclosure

Kootenai County Farm Landfill Closure and Post-Closure Plan

No changes were made to the Closure and Post-Closure Plan since 2010. The plans are available for inspection at the Idaho DEQ office in Coeur d'Alene and the administration office of the Kootenai County Solid Waste Department.

Financial Assurance for Closure and Post-Closure Activities

Enclosed is a letter of Financial Assurance from the Kootenai County Finance Director stating that Kootenai County meets the financial obligations of Closure and Post-Closure for the Fighting Creek Farm Landfill.



Kootenai County Auditor

Jim Brannon · Clerk

451 Government Way · P.O. Box 9000 · Coeur d'Alene, ID 83816-9000

Phone (208)446-1650 · Fax (208)446-1662

<http://www.kcgov.us/departments/auditor> · Email kcauditor@kcgov.us

February 6, 2017

Idaho Department of Environmental Quality
Attn: Matt Plaisted, Technical Engineer
2110 Ironwood Parkway
Coeur d'Alene, ID 83814

RE: Kootenai County Farm Landfill - Closure and Post-Closure Funding

Dear Mr. Plaisted;

The financial liability associated with monitoring the closure and post-closure responsibilities, assumed by Kootenai County, is fully funded for the portion of the Kootenai County Farm Landfill (Fighting Creek) that has been depleted to date. The estimated liability at the end of our most recently completed fiscal year is defined and summarized on the attached schedule, which indicates an accrued obligation balance of \$7,595,000.

Additionally, this information will be included in our (Audited) Comprehensive Annual Financial Report for Kootenai County, Idaho for the year ending September 30, 2016. The restricted cash balance for closure and post-closure will be displayed in the Business-type Activities column under the Assets section of the report and will support or exceed the total noted above.

Please contact me for further questions or additional assistance. I can be reached at the address above, or by phone at 446-1665.

Sincerely,

Dena Darrow
Finance Director

cc: Solid Waste
BOCC

Attachment

Attachment "D"

Landfill Gas Reports for Ramsey and Fighting Creek Farm Landfills

The Fighting Creek Farm Landfill is required to report to the EPA twice a year under the Tier 1 Annual Compliance. Copies of these reports are attached to the electronic version of this report.

The gas system at the old Ramsey Landfill does not fall under the same reporting requirements. The annual gas system report for Ramsey is attached to the electronic version of this report. An excerpt from the report shows below.

Parametrix
ENGINEERING, PLANNING, ENVIRONMENTAL SCIENCES

719 2ND AVENUE, SUITE 200 | SEATTLE, WA 98104 | P 206.394.3700

February 10, 2017
Parametrix No. 553-1660-039 (02/02)

Cathy Mayer, Director
Kootenai County Solid Waste Department
3650 N. Ramsey Road
Coeur d'Alene, ID 83815

Re: The Ramsey Road Landfill Gas Control Annual Report for 2016

Dear Cathy:

This letter is an annual summary of the landfill gas monitoring and landfill gas management activities performed at the Ramsey Road Landfill in 2016. It is specific only to the landfill gas control system. This letter can be forwarded to Division of Environmental Quality and Panhandle District Health Department to communicate gas information and evaluations.

The annual letter report includes the follow sections:

- Introduction
- Description of Facilities
- System Monitoring Results
- Conclusions
- Recommendations

INTRODUCTION

The Ramsey Road Landfill is located at 3650 N. Ramsey Road, Coeur d'Alene, Idaho 83815. Ramsey Road divides the site into east and west areas. The landfill, which was a municipal solid waste landfill, is now closed. The landfill began accepting waste in 1963 and closed in 1993.

During the summers of 1992 and 1993, a gas control system was installed at the site in both the east and west areas. The gas control system consists of in-refuse wells, perimeter (native soil) wells, horizontal trenches, collection manifold and laterals, condensate traps, and a blower/flare station. Landfill settlement throughout the landfill made it difficult to locate and repair all the pipe failures, resulting in low methane and high oxygen concentrations. Consequently, in December 2002 and January 2003, the buried polyvinyl chloride (PVC) manifold and lateral piping was replaced with high-density polyethylene (HDPE) by the County. In May 2006, four additional shallow gas wells (ER-12 through ER-15) were installed by the County to increase landfill gas collection along the east side to help eliminate methane levels in GP-6 and 7, which are located just outside of the landfill footprint. A down-sized open flare was installed at the blower/flare facility (October 2007) to better handle the low landfill gas stream from landfill. Two additional gas probes (GP-6A and 7A) were installed June 2008 between the landfill and proposed development projects on the east side to monitor potential impacts to human health since there has been evidence of subsurface migration in the past.

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Ground Water Summary

The bi-annual monitoring requirements for ground water were completed as required in 2016.

The following is an excerpt from the 2016 Ground Water Monitoring Report prepared for Kootenai County Farm Landfill by the Engineering Firm of Parametrix. The full reports are available for review at the Idaho DEQ office in Coeur d'Alene and the administration office of the Solid Waste Department.

Ground water quality results as stated in Section 2.5 of the Summary Report were below primary state or federal groundwater quality criteria.

2.5 Summary and Conclusions

Groundwater quality results were below primary state or federal groundwater quality criteria, except for dissolved manganese in April 2016 in original landfill upgradient well M-5. Volatile organic compounds were not detected in any of the landfill wells.

Nitrate concentrations have increased in well M-9 over the past few years but remain well below the groundwater quality criteria. Nitrate concentrations in well M-17 were also above the UPL during both the April 2016 and October 2016 events. Since nitrate concentrations have also shown increases in East Cell upgradient well M-15, it is recommended that continued monitoring of nitrate without verification resampling be conducted at well M-17.

Trends in ammonia concentrations are continuing to be monitored. Concentrations of other leachate indicator parameters in downgradient wells did not show evidence of landfill impacts.

“Domestic” Water Well Monitoring results as stated in Section 3.2 of the Summary Report indicate that the concentrations of iron and manganese in the Brand well were above secondary state and federal drinking water criteria. These parameters have regularly exceeded water quality criteria during previous sampling events, which is a reflection of natural occurrence of these minerals in groundwater. Iron and manganese concentrations in the Shriner well have fluctuated over the past few years, and were below the criteria in 2016.

3.2 Groundwater Quality Results

The analytical data for 2016 are summarized in Table A-5 (Appendix A). For the October 2016 monitoring event, the laboratory reports and chain-of-custody forms are provided in Appendix B, and field data are provided in Appendix C. The April 2016 laboratory and field data were presented in the semiannual groundwater monitoring report (Parametrix 2016b). A review of the laboratory data was conducted including a check of holding times, method blanks, and trip blanks. No data were qualified as a result of this review.

Time-series plots for parameters that were detected in the domestic wells during the last few years are presented in Appendix D-2. The plots also include data for original landfill upgradient and downgradient monitoring wells and the MCL, if applicable.

The data collected from the domestic wells indicate that the concentrations of iron and manganese in the Brand well were above secondary state and federal drinking water criteria. These parameters have regularly exceeded water quality criteria in both wells during previous sampling events, which is a reflection of natural occurrence of these minerals in groundwater. Iron and manganese concentrations in the Shriner well have fluctuated over the past few years, but were below the criteria in 2016.

For the Brand well, the time-series plots show upward trends in some parameters (including conductivity, chloride, sulfate, iron, and manganese) in the last several years. These trends are not attributed to the landfill, since similar increases have not been observed in the landfill monitoring wells.

Kootenai County Farm Landfill Leachate Report

A copy of the report to Idaho DEQ outlining the volume of leachate processed in 2016 and the methods used is attached in the electronic version of this report. The total of 4,899,270 gallons of leachate were processed in 2016.



KOOTENAI COUNTY

SOLID WASTE

March 15, 2017

Mr. Matt Plaisted, P.E.
%Division of Environmental Quality
2110 Ironwood Parkway
Coeur d'Alene, ID 83814

Re: 2016 Annual Leachate Report – Fighting Creek Farm Landfill

Dear Mr. Plaisted,

Attached you will find a spreadsheet that lays out how the Solid Waste Department managed leachate during the 2016 season. The Department processed a total of 4,899,270 gallons of leachate.

This year we utilized the misting system for the majority of the leachate. We did recirculate a very small amount of leachate back into the East Cell of the landfill. I have listed below the methods and amount(s) of leachate processed.

1. Misting	4,893,270 gallons
2. Recirculation	6,000 gallons
Total	4,899,270 gallons

We continue to consult with Steve Emge of the engineering firm, Parametrix, to review the results of our leachate and gas systems. Mr. Emge will continue to look for any inconsistencies or trends appearing from the data collected at the landfill. Leachate quality data will be included within the semiannual and annual groundwater reports.

Please let me know if you have any questions or concerns about this information.

Sincerely,


Rick Bishop
Operations Manager

cc: Cathy Mayer Solid Waste Director;
Eric Ketner, PHD
Steve Emge, Parametrix;

3650 N Ramsey Road • Coeur d'Alene, Idaho 83815
Phone: 208-446-1430 • Fax: 208-446-1432 • Email: kcsww@kcgov.us

Attachment "G"

Kootenai County Farm Surface Water

The Solid Waste Department complied with the regulations of the EPA regarding MSGP and SWPPP. Copies of these reports were provided to Idaho DEQ at the time they were submitted. Courtesy copies of the submittals have been included on the CD provided to Idaho DEQ and Idaho Panhandle Health District.

Plans & Specifications

No construction projects or plans were completed in 2016.