

COUNCIL ACTION FORM

SUBJECT: **2019 RESOURCE RECOVERY ANNUAL REPORT**

BACKGROUND:

The Resource Recovery System (RRS) continues to be one of the most successful methods of landfill diversion in the state of Iowa. The Resource Recovery Annual Report shows that 53,684 tons of Municipal Solid Waste (MSW) was generated within the partner communities and agencies during 2019. Approximately 21,554 tons were received at the plant and processed to create 12,475 tons of Refuse Derived Fuel (RDF). An estimated 759 tons of metal and 191 tons of glass were recovered for recycling. Additional items were diverted from the landfill including over 14.9 tons of Household Hazardous Materials, 3.8 tons of pumpkins from the Great Pumpkin Disposal Program, and over 58 tons of household items, exercise equipment, and furniture were sold for reuse at the Rummage RAMPage event in conjunction with Iowa State University.

One new initiative that was implemented is a pilot household organics diversion program. Also, improvements continue at Resource Recovery to increase collection of quality material for RDF production and reduce the rejects being sent to the landfill.

Following conversion from coal to natural gas at the Power Plant, the boilers began to experience significant on-going maintenance issues and downtime. Major Improvements to the Power Plant Boiler #7 were underway in 2019, which will greatly enhance the reliability and consistent operation of the unit. With Unit #7 out of commission for the upgrades and Unit #8 continuing to experience issues, considerable disruption occurred to the typical operations of the haulers, Resource Recovery, and Boone County Landfill.

More frequent downtime in our Power Plant boilers results in a reduction of the incoming tonnage along with an associated loss in tipping fee revenue. To further exacerbate the problem, boiler outages lead to a reduction in the amount of RDF being sold to Electric Services and a corresponding loss in revenue as well as an increase in hauling costs for the rejects to the Boone landfill. Revenues from all sources totaled \$3,298,071 and total expenses were \$3,785,963. This resulted in a net reduction of \$496,892 to the Resource Recovery fund for FY 2019.

Even with this reduction in revenue, based on long-term projections, the tipping fee will remain at \$58.75 per ton during the coming two years, but it is anticipated that an increase to \$62.50 is likely in 2022. In 2020, Per capita fees for member communities will remain at \$10.50 and car line rates will remain at \$10 for

cars/passenger vans and \$25 for pickups/trailers. However, this may change as financial projects are updated.

ALTERNATIVES:

1. Accept the attached 2019 Resource Recovery Annual Report and authorize staff to distribute the report to member agencies.
2. Request further information from staff.

MANAGER'S RECOMMENDED ACTION:

City Council acceptance of this report will allow staff to bill our participating partners for their respective portions of the Resource Recovery System's costs. **Staff is aware of the challenges facing Resource Recovery operations and, therefore, a shared study between Resource Recovery and Electric Services is planned for 2020 that will look at optimizing the processes of both facilities.**

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No.1, as noted above.



Dear Resource Recovery System Members:

We are truly grateful to the member agencies for our long-standing partnership and their **continuing commitment to sustainability!** Our continuing partners are **Nevada, Story City, Huxley, Slater, Roland, Gilbert, Maxwell, Cambridge, Zearing, McCallsburg, Kelley, Story County, and Iowa State University.**

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If you or any of your constituents have questions about this annual report or any of the activities of the Resource Recovery System, please do not hesitate to contact me or Bill Schmitt (515-239-5137).

Sincerely,

A handwritten signature in blue ink that reads 'John C. Joiner'. The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

John C. Joiner, P.E.
Public Works Director

ARNOLD O. CHANTLAND RESOURCE RECOVERY SYSTEM 2019 Annual Report



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- Story City
- Huxley
- Slater
- Roland
- Gilbert
- Maxwell
- Cambridge
- Zearing
- McCallsburg
- Kelley
- Story County
- Iowa State University



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RESOURCE RECOVERY

The City of Ames and surrounding communities are served by the Arnold O. Chantland Resource Recovery Center. Communities sharing in this endeavor are **Iowa State University, Cambridge, Gilbert, Huxley, Kelley, Maxwell, McCallsburg, Nevada, Roland, Slater, Story City, Zearing, and unincorporated Story County.**

Costs to these communities are figured on a per capita basis using 2010 census figures. Operations include separating combustible material and processing it into refuse-derived fuel (RDF). The RDF is sold as a supplemental fuel to the City of Ames Electric Utility. Ferrous and non-ferrous metals are also recovered and sold on the scrap market for recycling. The remaining non-usable material has been contract-hauled to the Boone County Landfill since July 1992 (the City of Ames closed its landfill on June 20, 1992). Major plant maintenance is generally conducted during an annual two-week downtime to perform repairs in addition to the daily routine maintenance and repairs. Yard waste activities involve the source separation and contracted composting/land application of "yard waste" (leaves, grass, tree limbs, etc.). In 2006, glass recycling was added to the recycling options provided by the plant. Household hazardous materials (HHM) collection began in 1998 with local events, and has progressed to Wednesday afternoon appointments for residents to dispose of their waste. Tires are accepted for a fee and recycled through a national tire recycling company. Compact fluorescent and incandescent light bulbs are accepted at no charge for recycling. A new bin has been placed on the tipping floor for used American flag collection, as well as a locked container specifically for sharps (needles, lancets, etc.) collection. Waste oil, antifreeze, and batteries are also accepted for recycling.

Service Objectives:

- ✓ **Provide a responsible, sustainable, local solution for solid waste disposal in support of City Council's goal to expand sustainability efforts**
- ✓ Provide refuse derived fuel to the Power Plant as an alternative fuel source to natural gas
- ✓ Maintain the Household Hazardous Materials (HHM) program, including sharps drop-off
- ✓ Provide used American flag collection for proper disposal
- ✓ Continue to provide proper recycling for waste oil, antifreeze, batteries, fluorescent bulbs, and tires
- ✓ Maintain positive relationships with member agencies
- ✓ Provide yard waste disposal for Story County residents
- ✓ Continue to expand glass recycling
- ✓ Maintain the closed landfill
- ✓ Continue community connections through school science fairs, service club presentations, and facility tours
- ✓ Continue researching possible bio-energy connections with the Power Plant
- ✓ Maximize recycle/re-use of unwanted and municipal solid waste

The **per capita rate** (last adjusted FY 2017/18) for our partner cities and Story County is \$10.50 for calendar year. **Tipping fee** for municipal solid waste \$58.75/ton; the rate for cars and passenger vans \$10, and pickups and vehicles with trailers \$25.

The area encompassed by the Resource Recovery System produced 2,411 tons more of municipal solid waste (4.7%) in FY 18/19 than the previous year. Tonnage sent directly to the Boone County Landfill for disposal was 20,285 tons, a 43.5% increase from FY 18/19. This increase in the amount of material hauled to the Boone County Landfill was due to the extended downtime at the Power Plant for boiler repairs and maintenance.

RESOURCE RECOVERY

Highlights:

Resource Recovery staff spends many hours on education and outreach activities each year. Activities this past year included: Science Night presentations at Ames elementary schools, Welcome Fest at Iowa State University, a sponsor of Stash the Trash, the City of Ames Smart Business Challenge, Eco Fair, Iowa State University class tours, Des Moines Area Community College SCALE (Story County Active Learning Experience) program participation, Rummage RAMPage, tours at Resource Recovery, and presentations to numerous groups throughout Story County.



July 1, 2019, the Food Waste Diversion (**FWD**) pilot program kicked off. Kits consisting of a 4-gallon bucket and lid, 5 compostable liners, and a 5-time punch card were sold to approximately 100 people by the end of the year. Over 2,000 pounds of food waste was collected, diverted from MSW, and turned into compost.

The fourth annual Rummage RAMPage was a huge success again this year, keeping 116,424 pounds of furniture and housewares out of the landfill, and raised \$33,194 for local non-profit agencies.

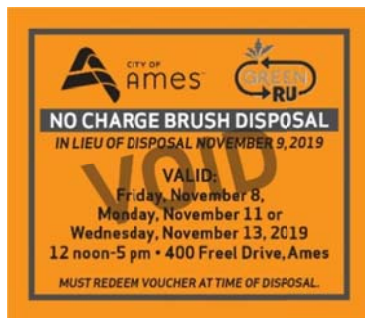


Planning meetings have already begun for Rummage RAMPage 2020. The fifth annual event will begin on Friday, July 24 and run through Monday, August 3. In just four years, the event has diverted 340,839 pounds of furniture and household items from the landfill. The event is organized by the City of Ames and Iowa State University, and the majority of the workers are from non-profit organizations that split the proceeds from the event. Rummage RAMPage would not be possible without the donations from the citizens, the buyers, and the fantastic volunteers!

RESOURCE RECOVERY

Highlights continued:

Resource Recovery staff continues to work on recommendations from the consultant's report on landfill diversion. Some of the latest continuous improvements have included modifications to the plant focused on recovering a higher percentage of RDF material and sending it to the Power Plant. These modifications have been designed, fabricated, and installed by the employee involvement of the Resource Recovery staff. Modifications include an extension of the air knife deflection vane to allow more precise control of the air flow separating the RDF, an automated cleaner installed on the extension to allow programmed cleaning of the vane, extensive modifications were made to the air density system and plant dust control system to allow for recovery of fine or light fraction RDF. These continuous improvements allow us to maximize the recovery of RDF and reduce the amount of material going to the landfill while continuing to send the highest quality RDF to the Power Plant.



This year vouchers were available for the brush No-Charge Yard Waste Day; residents could use a voucher to go to the yard waste site either before or after the event, preventing longer lines on the actual day. The vouchers were well received by the citizens and reduced the volume of vehicles on the actual No-Charge Yard Waste Day.

**CITY OF AMES, IOWA
RESOURCE RECOVERY SYSTEM
FISCAL REPORT**

	2017/18	2018/19	2019/20	2020/21
Service Accomplishments:	Actual	Actual	Adjusted	Projected
Tons of refuse available	51,364	53,775	53,000	53,000
Tons of refuse diverted to Boone landfill	14,131	20,285	15,000	10,000
Tons of refuse processed	37,124	33,173	36,410	43,000
Tons of RDF to Electric Utility	17,048	15,439	26,000	32,000
Tons of glass recycled	132	173	190	200
Tons of metal recycled	1,353	1,119	1,400	2,000
Pounds of HHM* collected	25,070	29,846	25,000	26,500
ISU tons into plant	3,019	2,724	3,000	3,000
Pounds diverted from landfill to Rummage	102,550	116,424	120,000	124,000
Average # of vehicles/free yard waste day	645	663	700	700
Efficiency and Effectiveness:				
% of available materials processed	72%	64%	72%	81%
Reject disposal rate/ton (Boone County)	\$46.50	\$48.00	\$48.00	\$52.00
% of processed materials that are sent to the landfill as rejects	45%	50%	25%	21%
Reject transportation rate/ton	\$13.52	\$13.66	\$14.14	\$15.00
Average cost/user free yard waste day	\$7.45	\$6.54	\$7.00	\$7.70

* Household Hazardous Materials

**CITY OF AMES, IOWA
RESOURCE RECOVERY SYSTEM**

**Revenues and Expenses
For Calendar Year 2019**

REVENUES:

Per Capita	\$	847,895
Refuse Derived Fuel-Electric		816,788
Sale of Metals		72,901
Public Fees		75,377
Regular Customers		1,263,972
Reimbursements and Refunds		9,537
Other Governmental Agencies		6,778
Out of County Revenue		0
ScrapTires		3,555
I.S.U. Solid Waste Share		178,708
Interest Revenue		11,095
FWD		2,465
Damage Claims		

\$ 3,289,071

EXPENSES:

Operations	\$	3,619,975
Debt Service		165,988

\$ 3,785,963

Net Income/Expense \$ (496,892)

MATERIALS, REVENUES & EXPENSES

RESOURCE RECOVERY SYSTEM

Year	Total Refuse (Tons)	*Refuse Not Processed (Tons)	Refuse Processed (Tons)	% of Total Processed	Metals (Tons)	Glass (Tons)	RDF (Tons)	RDF (% of Processed)	% Total Diverted	Revenue	Expense
1999	49,164	2,794	46,370	94%	1,654	0	30,434	66%	69%	\$3,161,495	\$3,220,240
2000	48,896	4,499	44,397	91%	1,401	0	28,095	63%	66%	\$3,097,282	\$3,313,053
2001	50,093	5,138	44,955	90%	1,104	0	30,435	68%	70%	\$3,353,739	\$3,281,503
2002	50,267	1,550	48,717	97%	1,258	0	35,147	72%	75%	\$3,731,348	\$3,110,513
2003	51,906	4,770	47,136	91%	1,678	0	33,146	70%	74%	\$3,803,639	\$3,527,346
2004	53,788	2,762	51,026	95%	2,332	0	34,334	67%	72%	\$4,017,107	\$3,462,794
2005	54,493	1,025	53,468	98%	2,250	0	32,621	61%	65%	\$4,285,110	\$3,716,566
**2006	55,500	4,511	50,989	92%	2,229	54	30,180	59%	64%	\$4,250,337	\$4,449,985
2007	57,333	4,513	52,820	92%	2,102	96	34,182	65%	69%	\$4,392,686	\$4,531,663
2008	57,470	4,754	52,716	92%	2,068	115	36,060	68%	73%	\$4,632,493	\$3,725,904
2009	53,395	6,748	46,647	87%	1,987	130	31,040	67%	71%	\$3,956,279	\$5,507,045
2010	58,756	1,262	57,494	98%	2,347	129	37,865	66%	70%	\$4,937,018	\$4,605,121
2011	55,270	4,659	50,611	92%	2,166	150	34,422	68%	73%	\$4,697,573	\$3,729,248
2012	53,106	3,725	49,381	93%	2,177	145	32,329	65%	70%	\$4,641,704	\$4,089,447
2013	54,159	10,066	44,093	81%	1,873	171	28,262	64%	69%	\$4,062,010	\$4,196,226
2014	55,698	8,204	47,494	85%	2,104	173	29,595	62%	67%	\$4,501,455	\$4,555,974
***2015	54,394	6,641	47,753	88%	2,201	177	25,194	53%	58%	\$4,205,529	\$4,342,664
2016	52,210	8,953	43,257	83%	1,947	159	24,135	56%	61%	\$3,818,109	\$4,086,378
2017	51,254	7,997	43,257	84%	1,804	131	21,005	49%	53%	\$3,650,063	\$4,545,420
****2018	52,863	19,087	33,669	64%	1,199	149	15,656	46%	51%	\$3,300,699	\$4,383,878
*****2019	53,684	32,030	21,554	40%	759	191	12,475	58%	62%	\$3,289,071	\$3,785,963
20 Years	1,074,535	142,894	931,434	87%	36,986	1,970	586,178	63%	67%	\$80,623,251	\$80,946,691

*Reflects tons to Boone County landfill from planned and unplanned shut downs, and non-beneficial MSW

** Closed for one month for air knife installation

*** Closed for 6 weeks for power plant upgrades

****Power Plant off for repairs for 164 days

*****Power Plant off for repairs for 227 days

CITY OF AMES, IOWA RESOURCE RECOVERY SYSTEM

POPULATION - PERCENTAGES - CHARGES

Annual Billing - Calendar 2019 at \$10.50

	Population	Percent of Population	Calendar Year 2019
Ames	49,765	63.14%	\$522,533
Story County	8,706	11.05%	\$91,413
Nevada	6,798	8.63%	\$71,379
Story City	3,431	4.35%	\$36,026
Huxley	3,317	4.21%	\$34,829
Slater	1,489	1.89%	\$15,635
Roland	1,284	1.63%	\$13,482
Gilbert	1,082	1.37%	\$11,361
Maxwell	920	1.17%	\$9,660
Cambridge	827	1.05%	\$8,684
Zearing	554	0.70%	\$5,817
McCallsburg	333	0.42%	\$3,497
Kelley	309	0.39%	\$3,245
TOTALS	78,815	100.00%	\$827,558

Based on 2010 U.S. Census
Ames is 58,965 minus I.S.U. 9,200

**CITY OF AMES, IOWA
RESOURCE RECOVERY PLANT VOLUMES
12/31/2019**

Generator	2019 TRIPS	2019 WEIGHT	PERCENT OF TOTAL WEIGHT
Non-Scale Refuse (Car line)	5,346	1,142	2.1%
Commercial Haulers	4,760	21,850	40.7%
Private Industry/Contractors	223	189	0.4%
City of Ames	30	37	0.1%
Iowa State University	657	2,054	3.8%
Iowa Dept. of Transportation	0	0	0.0%
U.S.D.A. Lab	27	46	0.1%
Directly to Boone	5,601	28,366	52.8%
TOTALS	16,644	53,684	100.0%

CITY OF AMES, IOWA RESOURCE RECOVERY SYSTEM

FEE SCHEDULE

YEAR	PER CAPITA	TIPPING FEE	CARLINE	
			CARS	PICKUPS
2002/03	\$11.75	\$52.75/TON	\$8.00	\$22.00
2003/04	\$10.50	\$52.75/TON	\$8.00	\$22.00
2004/05	\$10.50	\$52.75/TON	\$8.00	\$22.00
2005/06	\$10.50	\$52.75/TON	\$8.00	\$22.00
2006/07	\$10.50	\$52.75/TON	\$8.00	\$22.00
2007/08	\$10.50	\$52.75/TON	\$8.00	\$22.00
2008/09	\$10.50	\$52.75/TON	\$8.00	\$22.00
2009/10	\$10.50	\$52.75/TON	\$8.00	\$22.00
2010/11	\$10.50	\$52.75/TON	\$8.00	\$22.00
2011/12	\$9.10	\$52.75/TON	\$8.00	\$22.00
2012/13	\$9.10	\$52.75/TON	\$8.00	\$22.00
2013/14	\$9.10	\$52.75/TON	\$8.00	\$22.00
2014/15	\$9.10	\$52.75/TON	\$8.00	\$22.00
2015/16	\$9.10	\$52.75/TON	\$8.00	\$22.00
2016/17	\$9.10	\$52.75/TON	\$8.00	\$22.00
2017/18	\$9.10 / \$10.50	\$55.00/TON	\$10.00	\$25.00
2018/19	\$10.50	\$55.00/TON	\$10.00	\$25.00
2019/19	\$10.50	\$58.75/TON	\$10.00	\$25.00
Proposed 2020/21	\$10.50	\$58.75/TON	\$10.00	\$25.00