

COUNCIL ACTION FORM

SUBJECT: 2018 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 52,863 tons of Municipal Solid Waste (MSW) was generated within the partner communities and agencies during 2018. Approximately 36,430 tons were received at the plant and processed to create 15,656 tons of Refuse Derived Fuel (RDF). An estimated 1,199 tons of metal and 149 tons of glass were recovered for recycling. Additional items were diverted from the landfill including over 12.5 tons of Household Hazardous Materials, 5 tons of pumpkins from the Great Pumpkin Disposal Program, and over 51 tons of household items, exercise equipment, and furniture were sold for reuse at the Rummage RAMPage event in conjunction with Iowa State University.

Revenues from all sources totaled \$3,300,699 and total expenses were \$4,383,878. This resulted in a net reduction of \$1,083,179 to the Resource Recovery fund for Calendar Year 2018. This impact to the fund balance was the result of more frequent downtime in our Power Plant boilers, which 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. **To help address the volatility of RDF revenue, a new payment process has been developed with Electric Services. This will provide a base payment to Resource Recovery when the Power Plant is down,** which is derived by using the average historical monthly RDF tonnage and value of natural gas. **Electric Services will also be making major boiler improvements in 2019, which should lead to greatly increased reliability.**

However, due to this reduction in revenue, the tipping fee beginning in July 1, 2019, will increase to \$58.75 per ton. It is anticipated that another increase to \$62.50 is likely in approximately three years (2022). **Per capita fees for member communities will remain at \$10.50; car line rates will remain at \$10 for cars/passenger vans and \$25 for pickups/trailers.**

A Waste Diversion Study, funded through Iowa DNR, was completed by SCS Engineers and presented to City Council on January 22, 2019. The study looked at ways to provide enhanced waste diversion, increased efficiency of the RRS, and increased awareness and understanding of citizen value and interest in additional waste reduction/diversion management related services. One of the initiatives that will be pursued is a pilot household organics diversion program. Also, in-plant improvements are underway at Resource Recovery to increase collection of quality material for RDF production and reduce the rejects being sent to the landfill.

ALTERNATIVES:

1. Accept the attached 2018 Resource Recovery Annual Report, authorize staff to distribute the report (assuming City Council supports the tipping fee increase to \$58.75 beginning July 1, 2019, as proposed in the budget).
2. Request further information from staff.

MANAGER'S RECOMMENDED ACTION:

The City Council acceptance of this report will allow staff to bill our participating partners for their respective portions of the Resource Recovery System's 2018 costs. **Staff is aware of the financial challenges facing the Resource Recovery operations and, therefore, an inter-departmental team will monitor the success and impact of the new RDF payment process.** Also, a shared study between Resource Recovery and Electric Services 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.

ARNOLD O. CHANTLAND RESOURCE RECOVERY SYSTEM 2018 Annual Report



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Thank you to our partners in sustainability!

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



February 13, 2019

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.**

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 52,863 tons of Municipal Solid Waste (MSW) was generated within the system during 2018. Approximately 36,430 tons were received at the plant and processed to create 15,656 tons of Refuse Derived Fuel (RDF). An estimated 1,199 tons of metal and 149 tons of glass were recovered for recycling. Additional items were diverted from the landfill including over 12 tons of Household Hazardous Materials, 5 tons of pumpkins from the Great Pumpkin Disposal Program, and over 51 tons of household items, exercise equipment, and furniture were sold for reuse at the Rummage RAMPage event in conjunction with 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'.

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

RESOURCE RECOVERY

The City of Ames and surrounding communities are served by the Arnold O. Chantland Resource Recovery Center. Communities and government agencies sharing in this endeavor are **Cambridge, Gilbert, Huxley, Kelley, Maxwell, McCallsburg, Nevada, Roland, Slater, Story City, Zearing, Iowa State University, and 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 to the City of Ames Electric Utility as a supplemental fuel. Ferrous and non-ferrous metals are also recovered during processing and are 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 and upgrades are generally conducted during the Ames Electric Power Plant annual maintenance outages. The yard waste drop off site is contracted for the service of composting/land application of "yard waste." 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, LED and incandescent light bulbs are accepted at no charge for recycling. In 2012, a collection area was added for used American flags, as well as another locked container specifically for sharps (needles, lancets, etc.). Used 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 the 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 and monitor 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 items and municipal solid waste

The **per capita rate** (last adjusted FY 2012/13) for our partner cities and Story County was increase to \$10.50 for calendar year 2018 (as this payment is made in arrears, the fee will not be billed until May 2019 and November 2019). **Tipping fees** (last adjusted in 2017) for municipal solid waste will be raised to \$58.75/ton on July 1, 2019. The rate for cars and passenger vans will remain the same at \$10, and pickups and vehicles with trailers \$25.

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, International Student Welcome and 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.



RESOURCE RECOVERY

Highlights, continued:

In April 2018 Resource Recovery, in cooperation with the City of Ames Smart Watershed, started a rebate program for backyard composting. This program is available to Story County Residents, offering a rebate of up to \$50 for a home compost system. Through the first eight months, 18 residents have taken advantage of this program.



Resource Recovery applied for Iowa Department of Natural Resources (IDNR) Solid Waste Alternatives Program (SWAP) financial assistance in the form of a forgivable loan in 2015. A \$20,000 forgivable loan with a \$5,000 cash match to contract with a consultant to develop and implement a two-part study leading to enhanced waste diversion, increased efficiency of the RRP, and increased awareness and understanding of citizen value and interest in additional waste reduction/diversion management related services. SCS Engineers completed their work in December of 2018. A number of recommendations were made in the report. Some of those recommendations are: mechanical changes to the processing system (additional air knives and reconfiguration of existing air knives - have already been accomplished), add additional mechanical separation (studying feasibility), conduct a study of the current combustion system compared to new RDF combustion systems (planned to start in July 2019), increase awareness of existing recycling programs like the glass recycling and food donations (ongoing), and explore an organics pilot project with a drop-off site (spring 2019).

The process improvement projects for enhanced recovery were researched, designed and fabricated solely by plant personnel:



Primary shredder rotor replacement

RESOURCE RECOVERY

Highlights, continued:



C-8 head pulley recovery



C-8 suction pipe recovery



Alt Feed



C-6/C-7 Distribution Pyramid



Alt Feed/Dust Collection Fan & Pipe



E 2 Elevator Buckets



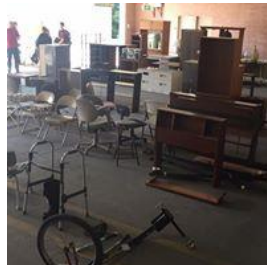
A new, larger hazardous waste building replaced the original building, enabling more collections.

RESOURCE RECOVERY

Highlights, continued:

In 2018 the third annual Rummage RAMPage was held from Friday, July 27 until Thursday, August 2. This highly successful event was able to keep 102,550 pounds of usable household goods out of the landfill. The local non-profit agencies that staffed Rummage RAMPage split over \$18,000. Linens, bedding, clothing, books, unused food, and school supplies were accepted on behalf of other organizations and distributed to local agencies including the Ames Animal Shelter, Goodwill, and the Ames Public Library.

New in 2018, Story County Conservation, Iowa Wildlife Center, Ames Animal Shelter, and others partnered to offer an opportunity to rehome pets that might otherwise be released into the wild. Non-native fish and animals can die or damage the environment when released. Two fish and one bearded dragon were taken in during the event.



CITY OF AMES, IOWA

RESOURCE RECOVERY PLANT FISCAL REPORT

	2016/17 Actual	2017/18 Actual	2018/19 Adjusted	2019/20 Projected
Service Accomplishments:				
Tons of refuse available	51,987	51,364	52,000	52,000
Tons of refuse diverted to Boone landfill	6,194	14,131	19,000	12,000
Tons of refuse processed	45,386	37,124	28,500	40,000
Tons of RDF to Electric Utility	23,514	17,048	16,000	24,000
Tons of glass recycled	141	132	155	160
Tons of metal recycled	2,071	1,353	1,368	1,400
Pounds of HHM* collected	22,374	25,070	26,000	26,500
ISU tons into plant	3,665	3,019	2,301	3,000
Pounds diverted from landfill to Rummage RAMP	77,520	102,550	105,000	105,000
Average # of vehicles/free yard waste day	743	645	700	700
Efficiency and Effectiveness:				
% of available materials processed	87%	72%	55%	77%
Reject disposal rate/ton (Boone County)	\$46.50	\$46.50	\$48.00	\$48.00
% of processed materials that are sent to the landfill as rejects	41%	45%	39%	37%
Reject transportation rate/ton	\$13.68	\$13.52	\$13.22	\$15.00
Average cost/user free yard waste day	\$5.74	\$7.45	\$7.40	\$7.70

* Household Hazardous Materials

CITY OF AMES, IOWA RESOURCE RECOVERY SYSTEM

Revenues and Expenses For Calendar Year 2018

REVENUES:

Per Capita	\$	717,217	
Refuse Derived Fuel-Electric		634,082	
Sale of Metals		65,744	
Public Fees		76,386	
Regular Customers		1,786,029	
Reimbursements and Refunds		2,820	
Other Governmental Agencies		5,976	
Out of County Revenue		0	
ScrapTires		2,874	
I.S.U. Solid Waste Share		0	
Interest Revenue		8,946	
Sale of Glass		625	
Damage Claims		0	
			\$ 3,300,699

EXPENSES:

Operations	\$	4,221,540	
Debt Service		162,338	
			\$ 4,383,877

**Net
Income/Expense \$ (1,083,179)**

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	16,326	36,430	69%	1,199	149	15,656	43%	47%	\$3,300,699	\$4,383,878
23 Years	1,192,577	98,347	1,077,797	90%	40,884	1,779	681,896	63%	70%	\$89,188,178	\$89,356,110

* Closed for one month for air knife installation

** Closed for 6 weeks for power plant upgrades

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

CITY OF AMES, IOWA

POPULATION - PERCENTAGES - CHARGES

Annual Billing - Calendar 2018 at \$10.50

	Population	Percent of Population	Calendar Year 2018
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
12/31/2018**

Generator	2018 TRIPS	2018 WEIGHT	PERCENT OF TOTAL WEIGHT
Non-Scale Refuse (Car line)	5,029	1,119	2.1%
Commercial Haulers	7,229	32,050	60.6%
Private Industry/Contractors	324	273	0.5%
City of Ames	35	42	0.1%
Iowa State University	815	2,983	5.6%
Iowa Dept. of Transportation	1	1	0.0%
U.S.D.A. Lab	30	69	0.1%
Directly to Boone	3,392	16,326	30.9%
TOTALS	16,855	52,863	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
2019/20	\$10.50	\$58.75/TON	\$10.00	\$25.00