

ITEM#: 10
DATE: 02-09-21

COUNCIL ACTION FORM

SUBJECT: 2020 RESOURCE RECOVERY ANNUAL REPORT

BACKGROUND:

This previous year proved to be very challenging with the effects of COVID-19 and major improvements with our partners at the Ames Power Plant. However, through these challenges, the Resource Recovery System (RRS) continues to be very effective at waste management and landfill diversion. With 50,061 tons of municipal solid waste (MSW) generated within the partner communities and agencies during 2020, approximately 40,162 tons were received at the plant and processed to create 23,486 tons of Refuse Derived Fuel (RDF). An estimated 1,419 tons of metal and 246 tons of glass were recovered for recycling. Additional items diverted from the landfill included over 13.2 tons of Household Hazardous Materials, 13.9 tons of organics and 8.5 tons of pumpkins from the Great Pumpkin Disposal Program. Unfortunately, due to the pandemic, we were not able to hold the annual Rummage RAMPage, however plans are in the works for 2021.

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 completed early in 2020. This will greatly enhance the reliability and consistent operation of the unit; however, federal requirements dictate the amount of RDF that can be fired. This, along with maintenance activities have led to a temporary increase in the amount of rejects being processed and hauled. Revenues from all sources totaled \$4,265,167 and total expenses were \$4,120,399. This resulted in a net increase of \$144,768 to the Resource Recovery fund for 2020.

Similar upgrades to Unit #8 will begin in Spring 2021, with an estimated completion of Fall 2021. This will enhance the capacity of co-firing RDF and allow increased efficiency of the Resource Recovery plant. This will also provide redundancy and resilience for the hauler and other customers.

Based on long-term projections, the 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. The tipping fee will remain at \$58.75/ton for 2021, but it is anticipated to increase to \$62.50/ton beginning July 2022.

ALTERNATIVES:

1. Accept the attached 2020 Resource Recovery Annual Report and authorize staff to distribute the report to member agencies.
2. Request further information from staff.

CITY MANAGER'S RECOMMENDED ACTION:

Completing major improvements at the Power Plant this year will increase the efficiency and capacity of producing RDF. The redundancy achieved by completing major improvements in both Power Plant boilers will provide enhanced and consistent service for the haulers and other customers. City Council acceptance of this report will allow staff to bill our participating partners for their respective per capita fees for the Resource Recovery System.

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



ANNUAL REPORT 2020

ARNOLD O. CHANTLAND— RESOURCE RECOVERY SYSTEM

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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

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February 10, 2021

Dear Resource Recovery System Members:

This previous year proved to be very challenging with the effects of COVID-19 and major improvements with our partners at the Ames Power Plant. However, through these challenges, the Resource Recovery System (RRS) continues to be very effective at waste management and landfill diversion. With 50,061 tons of municipal solid waste (MSW) generated within the partner communities and agencies during 2020, approximately 40,162 tons were received at the plant and processed to create 23,486 tons of Refuse Derived Fuel (RDF). An estimated 1,419 tons of metal and 246 tons of glass were recovered for recycling. Additional items diverted from the landfill included over 13 tons of Household Hazardous Materials, 14 tons of organics and 8.5 tons of pumpkins from the Great Pumpkin Disposal Program. Unfortunately, due to the pandemic, we were not able to hold the annual Rummage RAMPage, however plans are in the works for 2021.

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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**. 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

Service Highlights & Objectives

System Improvements Update

- 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 employees of Resource Recovery. 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.

Program Updates

- Participation in the Food Waste Diversion program has increased dramatically with 13.9 tons diverted from the landfill in 2020. The derecho contributed to this tonnage considerably with residents bringing in spoiled food due to electric outages throughout Story County. The derecho presented the opportunity to raise awareness and education of the FWD program as an alternative for food waste.
- The Great Pumpkin Disposal Program netted 17,000 pounds destined for composting rather than the landfill.
- Over 1,400 tons of metal was recycled from the waste stream rather than being landfilled. Additionally, after six years of low pricing the metals market has noticed a partial recovery.
- The glass recycling program set a new record in 2020 with 246 tons recycled.

Resource Recovery System Public Education and Outreach

- Resource Recovery has worked to increase social media presence and engagement. The City of Ames – Government and also the Ames Public Works social media pages offer a great way to share plant and program information in a timely way. Additionally, these outlets have provided another opportunity to engage with residents.
- Early planning meetings have started for Rummage RAMPage 2021. The fifth annual event will begin on Friday, July 30 and run through Saturday, August 7. The event is organized by the City of Ames and Iowa State University and staffed with volunteers from the City, ISU, and non-profit organizations. Proceeds from the sales are divided amongst the volunteer organizations. In four years, the event has diverted 340,839 pounds of furniture and household items from the landfill. Rummage RAMPage would not be possible without the donations from the citizens, the buyers, and the fantastic volunteers
- Sustainapalooza at Iowa State in the Memorial Union offers a great way to network with other sustainability leaders from campus and the Ames community; Resource Recovery featured the Food Waste Diversion program at the 2020 event.
- Educational Outreach pre-pandemic: 293 visitors at 14 events, Science Nights were well attended at Meeker and Fellows elementary schools, 2 Eco Chats at the library, and a new video is being created for use with young virtual audiences

Service Highlights & Objectives



Pictured Left to Right:

Old conveyor removed by crane and the new conveyor prepped for install

New C5 Conveyor



Pictured Left to Right:

C2 Conveyor Belt

C5 Vibratory Replacement



Pictured: Crane placing the door for the secondary mill

Service Highlights & Objectives



Pictured Left to Right:

Shredder with door removed

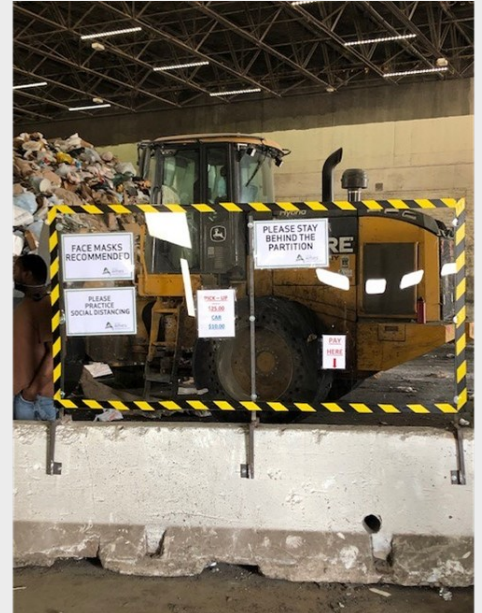
New shredder door



Pictured: Transformer testing and maintenance



Pictured: Secondary Motor Rebuild



Pictured: Covid 19 Precautions at the plant

Service Highlights & Objectives



Pictured: The Great Pumpkin Disposal pumpkins transferred for composting

YES	NO
Fruit and vegetable / scraps and spoiled	Plastic of any kind
Meat, shellfish, fish	Styrofoam trays and cups
Pasta, bread, cereal	Aluminum foil
Dairy products, egg shells	K-cups
Coffee grounds & tea bags	Bones
Candies, cookies, & cake	Waxed paper/cardboard
Baking ingredients, herbs, spices	Cooking oil and grease
Household plants including soil	Animal waste, pet litter, or fur
Pet food	Diapers
Floral arrangements (not artificial)	Hair
Corn husks and cobs	
Old cereal & chips	




Pictured: Food Waste Diversion Program



Pictured: Sustainapalooza at Iowa State in the Memorial Union



Pictured: Rummage RAMPage in 2019



Pictured: Science Nights at Ames Elementary Schools



MATERIALS, REVENUES & EXPENSES

RESOURCE RECOVERY SYSTEM

Year	Total Re- fuse (Tons)	*Refuse Not Pro- cessed	Refuse Processed (Tons)	% of Total Processed	Metals (Tons)	Glass (Tons)	RDF (Tons)	RDF (% of % Total Pro- cessed)	Revenue	Expense
2001	50,093	5,138	44,955	90%	1,104	0	30,435	68%	\$3,353,739	\$3,281,503
2002	50,267	1,550	48,717	97%	1,258	0	35,147	72%	\$3,731,348	\$3,110,513
2003	51,906	4,770	47,136	91%	1,678	0	33,146	70%	\$3,803,639	\$3,527,346
2004	53,788	2,762	51,026	95%	2,332	0	34,334	67%	\$4,017,107	\$3,462,794
2005	54,493	1,025	53,468	98%	2,250	0	32,621	61%	\$4,285,110	\$3,716,566
**2006	55,500	4,511	50,989	92%	2,229	54	30,180	59%	\$4,250,337	\$4,449,985
2007	57,333	4,513	52,820	92%	2,102	96	34,182	65%	\$4,392,686	\$4,531,663
2008	57,470	4,754	52,716	92%	2,068	115	36,060	68%	\$4,632,493	\$3,725,904
2009	53,395	6,748	46,647	87%	1,987	130	31,040	67%	\$3,956,279	\$5,507,045
2010	58,756	1,262	57,494	98%	2,347	129	37,865	66%	\$4,937,018	\$4,605,121
2011	55,270	4,659	50,611	92%	2,166	150	34,422	68%	\$4,697,573	\$3,729,248
2012	53,106	3,725	49,381	93%	2,177	145	32,329	65%	\$4,641,704	\$4,089,447
2013	54,159	10,066	44,093	81%	1,873	171	28,262	64%	\$4,062,010	\$4,196,226
2014	55,698	8,204	47,494	85%	2,104	173	29,595	62%	\$4,501,455	\$4,555,974
****2015	54,394	6,641	47,753	88%	2,201	177	25,194	53%	\$4,205,529	\$4,342,664
2016	52,210	8,953	43,257	83%	1,947	159	24,135	56%	\$3,818,109	\$4,086,378
2017	51,254	7,997	43,257	84%	1,804	131	21,005	49%	\$3,650,063	\$4,545,420
****2018	52,863	19,087	33,669	64%	1,199	149	15,656	46%	\$3,300,699	\$4,383,878
*****2019	53,684	32,030	21,554	40%	759	191	12,475	58%	\$3,289,071	\$3,785,963
2020	50,061	9,622	40,162	80%	1,419	246	23,486	58%	\$4,265,167	\$4,120,399
20 Years	1,075,700	148,017	927,199	86%	37,004	2,216	581,569	63%	81,791,136	81,754,038

*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

FISCAL REPORT

	2017/18	2018/19	2019/20	2020/21	2021/22
Service Accomplishments:	Actual	Actual	Actual	Adjusted	Projected
Tons of refuse available	51,364	53,775	51,749	52,000	52000
Tons of refuse diverted to Boone landfill	14,131	20,285	17,970	15,000	11000
Tons of refuse processed	37,124	33,173	33,511	36,750	40,735
Tons of RDF to Electric Utility	17,048	15,439	17,217	26,500	28000
Tons of glass recycled	132	173	215	250	265
Tons of metal recycled	1,353	1,119	1,056	1,500	1600
Pounds of HHM* collected	25,070	29,846	26,420	27,000	27500
ISU tons into plant	3,019	2,724	2,156	2,350	2350
Pounds diverted from landfill to Rum- mage RRAMP	102,550	116,424	0	118,000	120000
Average # of vehicles/free yard waste	645	663	638	660	660
Efficiency and Effectiveness:					
% of available materials processed	72%	64%	67%	65%	70
Reject disposal rate/ton (Boone County)	\$46.50	\$48.00	\$52.00	\$52.00	\$52.00
% of processed materials that are sent to the landfill as rejects	45%	50%	45%	46%	35%
Reject transportation rate/ton	\$13.52	\$13.66	\$14.14	\$14.63	\$15.14
Average cost/user free yard waste day	\$7.45	\$6.54	\$7.24	\$7.05	\$7.00

* Household Hazardous Materials

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

**Participating Communities
For Calendar Year 2020**

REVENUES:

Per Capita	827,557.50	
Refuse Derived Fuel-Electric	804,488.00	
Sale of Metals	172,002.21	
Public Fees	60,402.24	
Regular Customers	2,187,967.10	
Reimbursements and Refunds	1,693.07	
Other Governmental Agencies	6,626.69	
<i>FWD</i>	896.00	
ScrapTires	2,914.00	
I.S.U. Solid Waste Share	196,474.49	
Interest Revenue	4,079.98	
Sale of Glass	65.94	
Damage Claims	-	
		\$4,265,167.22

EXPENSES:

Operations	3,958,611.94	
Debt Service	161,787.50	
		4,120,399.44

**Net Income/
Expense** **\$144,767.78**

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CITY OF AMES, IOWA RESOURCE RECOVERY SYSTEM

POPULATION - PERCENTAGES - CHARGES

Annual Billing - Calendar 2017 at \$9.10

Annual Billing - Calendar 2019 at \$10.50

	Population	Percent	Calendar Year 2020
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

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CITY OF AMES, IOWA

RESOURCE RECOVERY PLANT VOLUMES

12/31/2020

Generator	2020 TRIPS	2020 WEIGHT	PERCENT OF TOTAL WEIGHT
Non-Scale Refuse (Car line)	4,313	874	1.7%
Commercial Haulers	7,559	36,768	73.4%
Private Industry/ Contractors	496	423	0.8%
City of Ames	34	36	0.1%
Iowa State University	562	2,258	4.5%
Iowa Dept. of Transportation	4	2	0.0%
U.S.D.A. Lab	50	78	0.2%
Directly to Boone	1,743	9,622	19.2%
TOTALS	14,761	50,061	100.0%

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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
Proposed 2020/21	\$10.50	\$58.75/TON	\$10.00	\$25.00

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