

# ANNUAL REPORT 2023

## 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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CITY OF  
**Ames**<sup>TM</sup>  
PUBLIC WORKS



February 29, 2024

Dear Resource Recovery System Members:

This previous year, 2023, brought a number of challenges along with new opportunities for the Resource Recovery System (RRS). Substantial increases in the price of natural gas will create some limits on the amount of gas that can be burned at the power plant as we go into 2024. These limits will mainly occur in the winter months of November – March, which will in turn decrease the amount of refuse derived fuel (RDF) that can be used by the power plant. That then presented the challenge of finding ways to reduce solid waste being processed at the Resource Recovery Plant (RRP) while trying to limit the amount of waste being sent to the landfill.

One new service that has been implemented is providing a “one-stop shop” recycling drop-off at RRP. This allows residents to bring in cardboard, mixed paper, plastic bottles with twist off lids, metals, clothes/shoes, and organics at no charge. New cardboard containers are being implemented at satellite locations in Ames and a traveling recycling container is being considered for member communities.

The partner communities and agencies generated 52,377 tons of municipal solid waste (MSW) during 2023 with approximately 43,847 tons received at the plant and processed to create 28,622 tons of refuse derived fuel (RDF). An estimated 1,414 tons of metal and 261 tons of glass were recovered for recycling. Additional items diverted from the landfill included 16.5 tons of Household Hazardous Materials, 38 tons of organics, 696 appliances, and 1,404 tires. Rummage RAMPage was held once again in 2023, finding new uses and homes for approximately 77 tons of household items that would have otherwise been destined for the landfill! Since the beginning of operations in 1975, RRS continues to be a responsible, sustainable, local solid waste solution for our partner agencies.

**The per capita rate charged to member agencies will remain at \$10.50 and will be billed according to the results of the 2020 census. Based on projected financial needs to meet future operating, maintenance and capital needs, the tipping fee will be raised to \$75.00/ton beginning July 1, 2024.**

Another challenge being addressed is finding a new location(s) for disposal of construction and demolition waste (C&D). Large amounts of C&D from Story County is a challenge for operators



at Boone County Landfill (BCL) and quickly taking up space. Staff have been working together to find new locations for disposal of C&D from Story County, starting in July 2024.

Additionally, the Comprehensive Solid Waste Management Plan between BCL, RRS, and the respective member agencies will expire in June 2025. Staff have been evaluating options for best management of solid waste for 2025 and beyond. This includes evaluation of implementing new landfill partnerships, expanding recycling services, managing C&D, and analyzing a potential transfer station. Any of these changes could have an effect of increasing tipping fees and the per capita rate.

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, McCall burg, Kelley, Story County, and Iowa State University, as well as the Boone County Landfill.** 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,

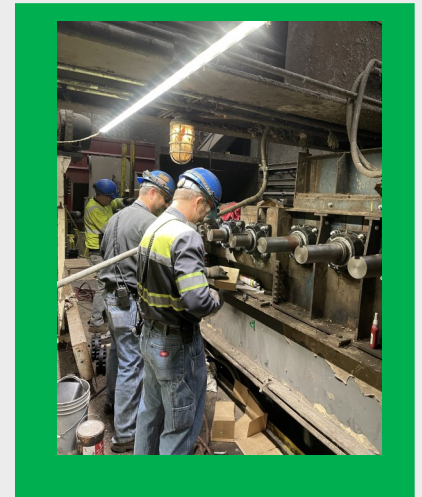
A handwritten signature in blue ink that reads 'John C. Joiner'.

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

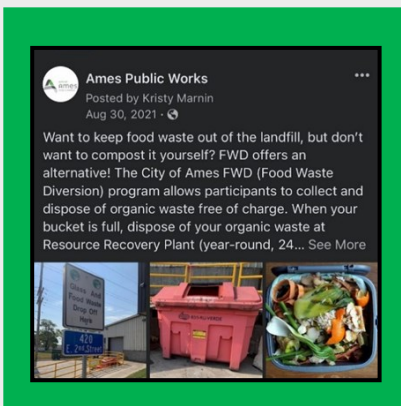
# Service Highlights & Objectives

## System Improvements Update

- Resource Recovery Plant (RRP) staff works towards continuous improvements by implementing new and sustainable technologies within the facility and operations to maximize landfill diversion. These continuous improvements allow maximizing the recovery of RDF and reducing the amount of material going to the landfill while continuing to send the highest quality RDF to the Power Plant. Many improvements were completed by the highly trained and professional staff at RRP. Improvement examples include:
  - Replacing rollers along with chains, sprockets, and bearings on the secondary disc screen. The secondary disc screen utilizes seven rollers used to remove grit and unburnable material from the refuse derived fuel (RDF).
  - The C-1 steel apron infeed conveyor was rebuilt to extend the useful life of the conveyor. The heavy, long steel rails that the conveyor wheels ride on were replaced, the discharge chute and transition into the primary shredder were redesigned and fabricated, and additional internal bracing and support was added.
  - The tipping floor scale building was replaced. The new building will allow RRP staff a climate-controlled area to better serve the citizens and improve the working conditions for the employees and data collection equipment.



## Program Updates



- Participation in the **Food Waste Diversion (FWD)** has continued to dramatically increase. Since our pilot FWD program started in 2019, over **254,060 pounds** have been composted.
- Our waste oil collection efforts have allowed the waste oil to be turned into bituminous material for asphalt roads or refined to create new oil for consumer use.

# Service Highlights & Objectives

## Program Updates, continued



- A total of 449,536 pounds of Household Hazardous Materials have been diverted from the landfill and properly recycled and disposed of since collection started in 1998.
- The Great Pumpkin Disposal program has continued to increase in popularity and has been a fun way to collect pumpkins, gourds, and other vegetable décor. Over 94,080 pounds of pumpkins have been used since 2017 to feed local farm animals, or to be composted.



- Over 84,361 tons of ferrous and non-ferrous metal have been recycled from 1976-2023 rather than being landfilled. This is enough metal to manufacture the steel components needed to make approximately 11-1/2 Eiffel Towers!
- The City of Ames offers four no-charge yard waste days for residential drop off in the spring and fall. This past year 971 tons of yard and tree waste was collected and reused.
- The glass recycling program set a record in 2023 with 261 tons recycled. The glass is processed into usable materials for remanufacturing new glass bottles, fiberglass insulation.
- A total of 1,404 tons of tires were collected for recycling in 2022. The recycled materials are broken down to make rubber mulch, rubberized flooring, and athletic surfaces.
- Recycling options at Resource Recovery have been expanded to include drop off for mixed paper, corrugated cardboard, metals, plastic bottles with twist off lids, clothes/shoes, along with existing drop offs for food waste and glass are at the northeast corner of the building, at 420 E 2<sup>nd</sup> Street.
- City staff will implement a fee-based recycling program for TV and monitors starting in July of 2024.



# Service Highlights & Objectives

## Program Updates, continued

- In alignment with City of Ames sustainability goals, Iowa State University has diverted 2,017 tons from the landfill with their programs for reducing, reusing, recycling, donating, and composting materials.



- Resource Recovery continues to collaborate with ISU for the community to sponsor the spring cleanup event, Stash the Trash.
- Partnered with Project Aware to process collected materials from river and stream clean-ups that are not suitable for recycling but can still be recovered for refuse derived fuel.

- The City Storm Water Management Team coordinated a clean-up of loway Creek, and non-recyclable material was processed at RRP (Resource Recovery Plant).



- RRP Staff also collaborated with other City Department to promote Total City Perspective.

### Examples include:

- When time allowed during snow events, coordinated with the Streets Department to plow and haul snow utilizing RRP equipment including the hybrid front-end loader, pickup with plow, hook truck, and 40-yard roll off boxes.
- Worked with Parks and Recreation during the 2023 RAGBRAI event for placement of glass recycling bins and roll off boxes for trash at Brookside Park.
- Hauled mulch for Parks and Recreation to be utilized at neighborhood park renovations.

# Service Highlights & Objectives

## Resource Recovery System Public Education and Outreach

- Rummage RAMPage continues to be an amazing event for the community, sustainability efforts and landfill diversion. A total of 154,843 pounds were rehomed with only 7,480 pounds landfilled. Rummage RAMPage increased proceeds by more than \$12,000 compared to the results from 2022 and diverted 11,005 more pounds (almost 6 tons) from the landfill. Over the seven years of the event more than 732,000 pounds of material diverted from the landfill and more than \$215,000 raised for area non-profits.
- Resource Recovery continues its ongoing mission to educate the public by giving tours of our facilities and operations. Tours are provided for individuals and large groups of all ages. Residents, students, engineering groups and many other communities from around the state, country, and world have visited the Resource Recovery Plant to see how we process materials that are not recycled into refuse derived fuel. For those that are unable to come to RRP, staff will go to the organizations and present at their meetings.



- RRP, in partnership with Iowa Department of Natural Resource's Iowa Waste Exchange (IWE) program, kept more than 40,000 tons of material from the landfill in 2022-23. RRP works with citizens, businesses, and other customers to connect them with IWE. IWE then assists clients in saving disposal and raw material costs through reducing, reusing, recycling, and renewing materials that those businesses no longer have a need for.
- RRP hosted the 2023 Iowa Society of Solid Waste Operators 2023 spring conference, with over 100 solid waste industry and government leaders attending. During the conference, participants toured the Resource Recovery Plant, innovative plastic recycling at Iowa State University (ISU) (that RRP is working with), and ISU dining and compost facilities to observe how the dining centers are collecting organics to be composted at the ISU compost facility.



# Service Highlights & Objectives

## Resource Recovery System Public Education and Outreach, continued

- **ISOSWO Legislative Committee** – Bill Schmitt, RRP Superintendent, is currently serving on the Legislative Committee. The Legislative Committee works with legislators to develop laws that are realistic and achievable for the industry while upholding sound fiscal, social and environmental policy towards solid waste management.
- **ISOSWO Safety Committee** – Mark Peebler, RRP Assistant Superintendent, is currently serving on the Safety Committee. This committee engages the ISOSWO membership on new levels by serving as a resource for members to seek out safety and training information by collaboratively working with other solid waste operators and agencies throughout the state of Iowa, to increase the safety and well-being of employees and customers while collecting, processing, and disposing of solid waste and recycling materials.
- **RRP staff served on the planning committee that coordinated the inaugural ISOSWO Equipment ROAD-E-O in March.** This event is to showcase individual skills of top truck drivers, equipment operators and mechanics who are vital to solid waste operations, demonstrating who are the best operators in the solid waste industry.
- **Ames Repair Café:** The Ames Public Library, in conjunction with the Resource Recovery Plant, continues to help and support Repair Café with its mission of fixing and repairing items rather than throwing them into the landfill.



**MATERIALS, REVENUES & EXPENSES**

**RESOURCE RECOVERY SYSTEM**

Year	Total Re- fuse (Tons)	*Refuse Not Processed (Tons)	Refuse Pro- cessed (Tons)	% of Total Processed	Metals (Tons)	Glass (Tons)	RDF (Tons)	RDF (% of Processed)	% Total Diverted	Revenue	Expense
2004 CY	53,788	2,762	51,026	95%	2,332	0	34,334	67%	72%	\$4,017,107	\$3,462,794
2005 CY	54,493	1,025	53,468	98%	2,250	0	32,621	61%	65%	\$4,285,110	\$3,716,566
**2006 CY	55,500	4,511	50,989	92%	2,229	54	30,180	59%	64%	\$4,250,337	\$4,449,985
2007 CY	57,333	4,513	52,820	92%	2,102	96	34,182	65%	69%	\$4,392,686	\$4,531,663
2008 CY	57,470	4,754	52,716	92%	2,068	115	36,060	68%	73%	\$4,632,493	\$3,725,904
2009 CY	53,395	6,748	46,647	87%	1,987	130	31,040	67%	71%	\$3,956,279	\$5,507,045
2010 CY	58,756	1,262	57,494	98%	2,347	129	37,865	66%	70%	\$4,937,018	\$4,605,121
2011 CY	55,270	4,659	50,611	92%	2,166	150	34,422	68%	73%	\$4,697,573	\$3,729,248
2012 CY	53,106	3,725	49,381	93%	2,177	145	32,329	65%	70%	\$4,641,704	\$4,089,447
2013 CY	54,159	10,066	44,093	81%	1,873	171	28,262	64%	69%	\$4,062,010	\$4,196,226
2014 CY	55,698	8,204	47,494	85%	2,104	173	29,595	62%	67%	\$4,501,455	\$4,555,974
***2015 CY	54,394	6,641	47,753	88%	2,201	177	25,194	53%	58%	\$4,205,529	\$4,342,664
2016 CY	52,210	8,953	43,257	83%	1,947	159	24,135	56%	61%	\$3,818,109	\$4,086,378
2017 CY	51,254	7,997	43,257	84%	1,804	131	21,005	49%	53%	\$3,650,063	\$4,545,420
****2018 CY	52,863	19,087	33,669	64%	1,199	149	15,656	46%	51%	\$3,300,699	\$4,383,878
*****2019 CY	53,684	32,030	21,554	40%	759	191	12,475	58%	62%	\$3,289,071	\$3,785,963
2020CY	50,061	9,622	40,162	80%	1,419	246	23,486	58%	63%	\$4,265,167	\$4,120,399
2021 FY	51,223	11,053	40,040	78%	1,307	256	23,598	59%	63%	\$4,514,203	\$4,254,055
2022 FY	52,561	9,471	43,096	82%	1,459	250	27,979	65%	69%	\$4,718,211	\$4,016,792
2023 FY	52,377	7,438	43,847	84%	1,414	261	28,622	65%	69%	\$4,898,595	\$5,035,401
<b>20 Years</b>	<b>1,079,595</b>	<b>164,521</b>	<b>913,374</b>	<b>85%</b>	<b>37,144</b>	<b>2,982</b>	<b>563,040</b>	<b>62%</b>	<b>66%</b>	<b>85,033,419</b>	<b>85,140,924</b>

\*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**  
**System Summary Fiscal Year 2023**

	2020/21 Actual	2021/22 Actual	2022/23 Actual	2023/24 Adjusted	2024/25 Projected
<b>Service Accomplishments:</b>					
Tons of refuse available	51,223	52,561	52,377	52,450	53,000
Tons of refuse diverted to Boone landfill	11,053	8,221	7,438	12,450	14,000
Tons of refuse processed	40,040	43,096	43,847	40,000	39,000
Tons of RDF to Electric Utility	23,598	27,979	28,622	26,000	25,350
Tons of glass recycled	256	250	261	265	270
Tons of metal recycled	1,307	1,459	1,414	1,300	1,200
Pounds of HHM* collected	25,716	28,454	23,019	23,000	23,000
ISU tons into plant	2,241	2,935	2,946	2,840	2,840
Pounds diverted from landfill to Rummage RAMPage	0	92,126	154,843	150,000	150,000
Pounds of Organics Diverted	27,306	87,060	76,840	80,000	85,000
Average # of vehicles/free yard waste day	624	641	460	425	430
<b>Efficiency and Effectiveness:</b>					
% of available materials processed	78%	85%	87%	79%	76%
Reject disposal rate/ton (Boone County)	\$52.00	\$52.00	\$54.00	\$ 57.00	\$ 57.00
% of processed materials that are sent to the landfill as rejects	34%	32%	31%	32%	32%
Reject transportation rate/ton	\$14.63	\$15.15	\$15.67	\$ 16.23	\$ 17.04
* Household Hazardous Materials					

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**CITY OF AMES, IOWA**  
**RESOURCE RECOVERY SYSTEM FUND**  
**For Fiscal Year 2023**

**REVENUES:**

Per Capita	\$	912,738		
Refuse Derived Fuel	\$	909,300		
Sale of Metals	\$	148,379		
Public Fees	\$	97,123		
Regular Customers	\$	2,538,581		
Other Governmental Agencies	\$	6,991		
I.S.U. Solid Waste	\$	270,379		
Interest Revenue	\$	15,104		
Damage Claims				
			<b>\$</b>	<b>4,898,595</b>

**EXPENSES:**

Operations	\$	4,884,174		
Debt Service	\$	151,227		
			<b>\$</b>	<b>5,035,401</b>

<b>Net Income/Expense</b>			<b>\$</b>	<b>(136,806)</b>

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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

	<b>Population</b>	<b>Percent of Population</b>	<b>Per Capita Charge</b>
<b>Ames</b>	56,427	64.93%	<b>\$592,484</b>
<b>Story County</b>	8,965	10.32%	<b>\$94,133</b>
<b>Nevada</b>	6,925	7.97%	<b>\$72,713</b>
<b>Huxley</b>	4,244	4.88%	<b>\$44,562</b>
<b>Story City</b>	3,352	3.86%	<b>\$35,196</b>
<b>Slater</b>	1,543	1.78%	<b>\$16,202</b>
<b>Roland</b>	1,362	1.57%	<b>\$14,301</b>
<b>Gilbert</b>	1,211	1.39%	<b>\$12,716</b>
<b>Maxwell</b>	859	0.99%	<b>\$9,020</b>
<b>Cambridge</b>	827	0.95%	<b>\$8,684</b>
<b>Zearing</b>	528	0.61%	<b>\$5,544</b>
<b>McCallsburg</b>	353	0.41%	<b>\$3,707</b>
<b>Kelley</b>	304	0.35%	<b>\$3,192</b>
<b>TOTALS</b>	<b>86,900</b>	<b>100.00%</b>	<b>\$912,450</b>

Based on 2020 U.S. Census

Ames is 66,427 minus I.S.U. 10,000

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**CITY OF AMES, IOWA**  
**RESOURCE RECOVERY PLANT VOLUMES**  
**For Fiscal Year 2023**

<b>Generator</b>	<b>2023 TRIPS</b>	<b>2023 WEIGHT</b>	<b>PERCENT OF TOTAL WEIGHT</b>
Non-Scale Refuse (Car line)	6,413	1,402	2.7%
Commercial Haulers/ Contractors/Govt	8,671	40,591	77.5%
Iowa State University	886	2,946	5.6%
Directly to Boone	1,309	7,438	14.2%
<b>TOTALS</b>	<b>17,279</b>	<b>52,377</b>	<b>100.0%</b>

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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
2020/21	\$10.50	\$58.75/TON	\$10.00	\$25.00
2021/22	\$10.50	\$58.75/TON	\$10.00	\$25.00
2022/23	\$10.50	\$62.50/TON	\$10.00	\$25.00
2023/24	\$10.50	\$75.00/TON	\$15.00	\$30.00