ITEM # 23
DATE 01-08-13

COUNCIL ACTION FORM

SUBJECT: RESOURCE RECOVERY PRIMARY SHREDDER REPLACEMENT

BACKGROUND:

Since 1975, the City of Ames has processed the majority of the MSW generated in Story County through the current primary shredder. This piece of equipment utilizes high-speed shaft hammer mill technology. The 38-year-old shredder is driven by a 4160 volt, 1000 horse power motor with high electric demand rates and a poor power factor.

This shredder is a high-speed shredder; components wear out quicker due to abrasion. This will not be as much of an issue with a slow-speed, high-torque shredder. Major components of the older unit have been identified in the CIP for replacement. Some of these maintenance costs could be utilized for the replacement of this piece of equipment rather than operational maintenance. Routine maintenance involves component replacement of "hammers" that weigh 150 pounds each; each hammer is handled a minimum of four times during its life cycle, increasing risk to employees. Handling these hammers presents safety concerns; several lifting devices have been developed over the years, but none have provided a solution to concerns of injury due to handling heavy components or parts during maintenance. Newer equipment utilizes much smaller and lighter weight components. The modernization of shredding equipment will result in a reduction of electrical usage, increase safety and overall capacity throughput, with a reduction of maintenance requirements leading to lower operational costs.

Refuse-derived fuel (RDF) makes up approximately 70% of product generated at Resource Recovery. Newer, modern equipment will enable staff to further improve upon material recovered and utilize an estimated additional 900 tons of the waste stream by processing items that are currently taken directly to the landfill. These include, but are not limited to, bulky materials such as carpet, mattresses and couches. These materials are not compatible with the current shredding system and cause considerable downtime from downstream plugs and/or fires if processed. These materials will be easily handled with the new equipment. Additionally, the new equipment will reduce the required on-going maintenance while mitigating potential safety hazards for the employees.

This Replacement Project will be completed in two phases:

- Phase 1, will begin immediately (originally scheduled for 2013/14) and be completed in 2012/13. We will solicit RFPs from qualified vendors consisting of design and engineering work, including removal and/or demolition specifications of existing

equipment; layout, prints and bid documents for the installation of the new shredder; and associated belts and equipment ($130,000).

- Phase 2, which will be scheduled for 2013/14, will include the purchase and installation of the new shredder, associated conveyors and electrical equipment. This equipment will adapt to future implementation of any potential alternative conversion system, as well as potentially incorporating construction and demolition waste.

ALTERNATIVES:

1. Approve funding of $130,000 from the Resource Recovery Fund for qualified engineering design services, beginning Phase 1 of shredder replacement.

2. Maintain current CIP schedule and begin Phase 1(design services) in 2013/14 budget with construction in 2014/15.

MANAGER'S RECOMMENDED ACTION:

The City staff is currently exploring the possibility of transforming our RDF to a gaseous state before it is used to create electric energy. However, whether or not the City pursues this new process, a new primary shredder will still be needed.

It is estimated that a new, modern shredder would reduce the amount of electrical demand, operations and maintenance budget ($30,000 savings) as well as reduce landfill transportation/disposal costs, which represents a reduction of up to 900 tons per year that could be processed rather than transported to the landfill ($45,000 savings). This will also result in a corresponding increase in RDF sales and metal recovery ($25,000 additional revenue). Replacement of the shredder would also enable eliminating several planned maintenance items from the CIP, totally approximately $360,000. Therefore, this project is estimated to have a 6.5 year payback.

Currently, the CIP reflects this project in FY 2013/14 for design and FY 2014/15 for construction. Because of the enhanced safety, minimized operational downtime, and reduced operational costs, the staff will be recommending next week that this project be advanced in the CIP by one year.

Therefore, to accomplish this shredder replacement project by the end of next fiscal year, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1, thereby approving funding of $130,000 from the Resource Recovery Fund balance for qualified engineering design services to replace the primary shredder.