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WATER POLLUTION CONTROL

MEMORANDUM

To: Gregg Mandsager, City Administrator

CC: Nancy Lueck, Finance Director
Fran Donelson, Secretary

From: Jon Koch, WPCP Director

Date: October 17, 2017

Re: Request for the MARRVE Project

INTRODUCTION: The WPCP and Stanley Consultants are prepared to finalize plans and go to bid for the MARRVE (Muscatine Resource Recovery for Vehicles & Energy) Project. All draft designs and process procedures are ready to be compiled into bid documents, final design drawings and specifications. The project estimates are \$3.0 million with an alternate to the project for one old digester conversion of \$800,000.

BACKGROUND: The WPCP has been planning and designing the MARRVE project for nearly five years. The project will construct a receiving station for high strength wastes such as FOG (fats, oils and grease) from restaurant grease traps as well as industrial liquid wastes from various sources. It will also receive solid waste in the form of inedible food waste from grocery stores, restaurants, schools, households and industries. These wastes will be processed to remove inorganics like metal and plastic then stored for dosing into the existing anaerobic digesters at the plant. This will greatly reduce landfill use as well as produce a useful renewable gas and natural fertilizer, all of which gives positive revenue to the City from a waste product.

The original budget was based on an estimated \$2.5 million contract cost. The transfers to the Replacement Reserve were increased from \$200,000 to \$700,000 in both 2016/2017 and 2017/2018 to accumulate the necessary funds for a \$2.5 million project. The cost estimate for this project is now \$3.0 million. If the digester capacity increase costs are included, project costs are estimated at \$3.8 million. It is proposed that the project be bid with a base bid for the original project with an alternate for the digester portion of the project. Based on bids received, the City Council can consider whether to include the alternate in the contract awarded. A potential funding source for costs over the \$2.5 million budgeted amount would be bonding for the additional amount. This amount (estimated at between \$500,000 and \$1.3 million) could be included in the Spring 2018 bond issue with that portion of the issue repaid with future WPCP revenues.

**"I remember Muscatine for its sunsets. I have never seen any
on either side of the ocean that equaled them" — Mark Twain**

RECOMMENDATION/RATIONALE: Staff recommends that Stanley Consultants proceed to finalize drawings, bid documents and specifications and that the MARRVE project be bid with a base bid for the original project with an alternate for the digester portion of the project.

BACKGROUND:

1. See Council Update MARRVE Memo from October 17, 2017

MEMO

To: Gregg Mandsager

CC: Nancy Lueck

Fran Donelson

From: Jon Koch-WPCP Director

Date: October 17th, 2017

Re: MARRVE update to Council

- We have new cost estimates based on increased level of service determined by industry demand. We had not anticipated a larger demand on the solids waste side than on the liquid waste side. There were equipment cost savings from this but other construction aspects increased the overall cost as design concepts were developed and refined. For example, the ground to be developed had poor soils and will need to be excavated quite deeply to stabilize the building. Also, two loading docks for the solid waste trucking were added due to this increased demand. The WPCP has worked with Stanley Consultants to modify the design to reduce cost by cutting some features to find lower cost alternatives. However, additional engineering costs have been incurred due to these changes. Early cost estimates of \$3.7 to \$4.1 million were reduced to estimates of \$2.7 to \$3.1 million.
- Revenue estimates have also increased due to solid waste potential, but with the current digester capacity, revenue increases are limited. Once at capacity revenue from MARRVE is projected to be \$200K or less. With the proposed digester conversion revenues could more than double to \$550K annually. This may require some modifications to the Biosolids program but these changes could be made in the next 2-3 years to accommodate as the program grows.
- New industries are seeking us out as word spreads of this project. We have been contacted by another large food producer in Davenport and they expressed a need to bring wastes from as far away as Missouri. Similar facilities could begin to open so it is critical that we act quickly to recoup capital while there are no other options for these industrial customers. Once we are open it will also discourage others who are exploring a project like this since they would not see sufficient feed stock in clients we have already secured.
- Projects of this kind puts Muscatine on the national map and new industries looking to come here will take notice. A highly progressive sustainability initiative such as this allows these companies to meet zero waste goals without extra capital expense. Muscatine could sell itself to new industry as the zero waste destination for sustainability minded companies.

- The reduction of landfill use is significant. Five local businesses could account for 15 tons a day which is more than 10% of annual landfill use. These five businesses do not include schools, restaurants or households which accounts for the most available food waste in typical communities. Looking at the cost for new landfill cell development alone will off-set costs by delaying new cells for years. This could reduce solid waste costs overall in reduced transfer station loading and transportation to the landfill.
- The original budget was based on an estimated \$2.5 million contract cost. The transfers to the Replacement Reserve were increased from \$200,000 to \$700,000 in both 2016/2017 and 2017/2018 to accumulate the necessary funds for a \$2.5 million project. The cost estimate for this project is now \$3.0 million. If the digester capacity increase costs are included, project costs are estimated at \$3.7 million. It is proposed that the project be bid with a base bid for the original project with an alternate for the digester portion of the project. Based on bids received, the City Council can consider whether to include the alternate in the contract awarded. A potential funding source for costs over the \$2.5 million budgeted amount would be bonding for the additional amount. This amount (estimated at between \$500,000 and \$1.2 million) could be included in the Spring 2018 bond issue with that portion of the issue repaid with future WPCP revenues.
- I strongly recommend the conversion of one old digester now in order to secure current customer demand. With the MARRVE business plan, it is important to build to current demand with a thought toward future customers and more expansion. With the current digester space, we will not be able to fully service the current customer demand and would turn away available tonnage and revenue from day 1. The RFS (Renewable Fuel Standard) where much of the biogas revenue comes from would also limit revenue based on the mix of feedstock we receive. By having a separate digester, we could realize the full revenue benefits available in the RIN (Renewable ID Number) market as dictated by the RFS.
- Revenue updates based on current customer confidential requests for solid waste service:
 1. Customer #1 estimates 1,750 tons/yr.
 2. Customer #2 estimates 4,000 tons/yr. (total including landfill)
 3. Customer #3 estimates 3,100 tons/yr.
 4. Customer #4 estimates 1,095 tons/yr.
 5. Customer #5 estimates 6,000 tons/yr. (low end estimate, similar to #1 and #2 but much more volume, anticipate this to be higher due to out of region feed sources)

15,945 tons/yr. (43 tons/day, double rated digester capacity)
x \$25/ton (low end estimate, most would pay more)
 \$398,625/yr. solids

Current liquid hauled est. +\$150,000/yr. liquids (est. double current levels)

\$548,625/yr. total (potential w/ alt. old digester expansion)

6.7 year pay back projection

- Customer #1, #2, and #5 are not currently sending any material to the Muscatine Landfill. Any inorganic waste generated from this could be charged back to MARRVE to offset lost revenue from landfill diversion of current solid waste customers.

