

SYCAMORE CITY COUNCIL
AGENDA
July 17, 2006

City Council Committee Meetings

No Meetings Are Scheduled

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Regular City Council Meeting
7:00 P.M.

- 1. CALL TO ORDER**
- 2. INVOCATION**
- 3. PLEDGE OF ALLEGIANCE**
- 4. APPROVAL OF AGENDA**
- 5. AUDIENCE TO VISITORS**
- 6. CONSENT AGENDA**
 - A. Approval of the Minutes for the Regular City Council Meeting of July 3, 2006.
 - B. Payment of the Bills for July 17, 2006.
 - C. Plan Commission Minutes for the Meeting of June 12, 2006.
- 7. PRESENTATION OF PETITIONS, COMMUNICATIONS, AND BILLS.**
 - A. Sycamore Economic Development Commission member Bill Nicklas will introduce Ken Wolowiec, the owner of Century Building Supply of 2175 Oakland Drive, who will describe his firm's goods and services.
- 8. REPORTS OF OFFICERS**
- 9. REPORTS OF STANDING COMMITTEES**
- 10. PUBLIC HEARINGS--None**

11. **ORDINANCES--None**

12. **RESOLUTIONS--None**

13. **CONSIDERATIONS**

A. Consideration of a Report from Tim Bronn of McMahon Associates Regarding the Facility Plan Update.

On May 16, 2005 the Council approved a professional services contract with McMahon Associates in the amount of \$70,000 for a facility plan update to guide the City's planning for future treatment plant expansion and collection system improvements. Funding for this project was allocated in the FY06 Budget (05-8331). The firm was selected after qualifications were requested in March 2005 and five firms were interviewed in April 2005. The firm's contract had the following scope of work:

1. Treatment Plant Capacity.

- a) review the performance of the existing wastewater treatment processes;
- b) determine flow and load parameters that would need to be incorporated in future treatment facility expansion, based on the residential, commercial and industrial growth assumptions in the 2003 Sycamore Land Use Plan;
- c) consider future water quality requirements, particularly anti-degradation and nutrient removal regulations.
- d) consider prospects for simplifying the treatment process to achieve higher energy efficiency, and lower equipment and maintenance costs.
- e) consider biosolid processing, storage and volume reduction strategies.

2. Collection System and Wastewater Transport.

- a) include reviews of the current collection system;
- b) analyze potential loadings from the various drainage basins within the service area;
- c) project potential growth areas and population densities, based on the City's Comprehensive Plan of 2003.

Tim Bronn has been the principal representative of McMahon Associates and presented a progress report to the Council on December 19, 2005. He will be present at the meeting on July 17 to present a final report. A copy of his executive summary is attached. Although some "value engineering" may still be possible to reduce some cost items, an informed outline of the facilities and processes needed to serve our service area in the future is now known and was submitted to the Illinois EPA for review about three weeks ago.

The EPA submittal proposes an increase in the rated plant capacity from 2.97 MGD (million gallons per day) to 4.99 MGD for a 20-year planning period. The expansion of the treatment plant capacity and the construction of necessary facility upgrades will be pursued in two phases. The following paragraphs summarize those phases and their respective costs.

Phase One

- Phosphorus Removal. The IEPA has recently required treatment facilities with flows greater than 1.0 MGD to remove phosphorus from the treatment plant effluent. No such equipment presently exists at the North Cross Street plant, but will be provided in the upgrading of the plant's processes. The active agent is ferric chloride, which is a byproduct of steel production and is readily available, relatively inexpensive, and makes sludge more easily "de-watered."
- Autothermal Aerobic Digestion (ATAD). This process would fit into the existing digester tanks and would produce a Class A sludge that is essentially free of pathogens and thus can be used in gardens, parks, golf courses, and sod farms, among other locations. More restrictions pertain to the Class B sludge currently produced at the plant. Class B sludge can be applied to farm lands but contains a higher volume of volatile solids.

The most difficult issue facing the treatment plant operation is the handling and disposal of sludge. Sludge is the nutrient-rich organic product of wastewater treatment. The variety of materials in the wastewater determines the actual composition of the sludge and can include domestic wastes, industrial discharges, chemicals in the water supply, and stormwater.

At the City's treatment plant, wastewater is separated into settled solids or sludge, and liquid. The current plant uses an activated sludge process consisting of physical means (screens, settling basins, and sand drying beds), biological means (microorganisms) and chemical treatment. Sodium hypochlorite is used in the chemical treatment phase to control the growth of algae in the tanks. As solids are stabilized and dried, they are applied to farm fields. The treated water is discharged to the Kishwaukee River. Currently, digested sludge from aerobic digesters flows by gravity to eight exterior drying beds with a total area of 60,400 square feet. Any inclement weather such as rain or snow or cold temperatures slows the drying process. Typically, the plant staff removes the sludge from the beds before it is dry enough for easy handling because more sludge is ready to be applied to the drying beds. This process is very labor-intensive and inefficient. The new digestion and solids handling systems included in the upgrades are necessary with or without a higher volume of wastewater entering the facility. Fortunately, the IEPA recognizes the pressing need for improvement in the sludge-handling process and would permit the City to address it as the City petitions for an increase in the discharge permit. Hence, the two-phase approach has been proposed to allow the City to address a pressing need while planning better ways to address other treatment needs and new regulatory requirements.

The estimated cost of Phase One is \$5,916,549 plus \$1,774,965 in engineering and contingency costs, for a total of \$7,691,514.

Phase Two

- Preliminary Treatment and Main Pumping Station. A new ¼-inch screen would be installed in an existing channel in the main pumping station to replace the one-inch screen, which will minimize the penetration of unwanted materials in subsequent

treatment units and diminish maintenance problems. The main pumping station presently has the capacity to pump 52 MGD during storm events, and this is sufficient to the needs projected during the 20-year planning period. In the station, the control gates will be automated, the HVAC and electrical systems will be enhanced, and a large pump with a variable frequency drive will be provided. The existing grit removal system will be replaced to improve efficiency during high flow events.

- Installation of Primary Clarifiers. The existing plant does not include primary clarifiers, which remove a significant portion of suspended solids and BOD (“biochemical oxygen demand” or organic matter) with a small energy output, and reduce the necessary size of the aeration system.
- Secondary Treatment with Sequencing Batch Reactors. These reactors will provide the secondary treatment. They have the same effect as conventional activated sludge equipment but do not require secondary clarifiers or return sludge pumping equipment. As a result, the east secondary clarifier tank can be reused for chlorine contact for the excess flow.
- Disinfection with Liquid Chlorine. The existing chlorine tank does provide the volume to provide adequate contact time under today’s regulations. As noted above, the east secondary clarifier can be used for chlorine contact for the excess flow without additional tanks.

The estimated cost of Phase Two is \$5,931,535 plus \$1,779,460 in engineering and contingency costs, for a total of \$7,710,995.

Summary

The consultant’s cost estimate for Phases One and Two has grown to \$15,402,509.00. In January 2005, before the consultant’s report was completed and some regulatory requirements were better understood, the engineering estimate included in the City’s three-year capital plan projected a total cost of \$11,861,000.00. The January 2005 estimate assumed the City could mobilize about \$6.0 million in Sewer Fund and Sewer Impact Fee Fund reserves and borrow about an equal amount from the IEPA’s revolving loan fund, without increasing sewer fees which will incrementally grow in annual volume with continued growth.

What can be done to reduce the cost? First, the consultant’s overall price includes a 15% charge for engineering plus a 15% contingency charge. The overall contingency might be squeezed to about 3% to 5%, yielding a savings of \$1,184,808 to \$1,421,770. In addition, the preliminary estimates of cost for the sludge storage building (\$1,015,000) and solids handling building (\$1,080,000) that are included in the overall estimate can be re-thought to yield further savings. Finally, once cost-saving steps are investigated, the City should review the final project estimate in terms of our sewer connection charges. In March, 2006, the cost of treatment plant improvements was revised upward to \$6.30 per gallon, based on the calculation below:

- Projected plant capacity of 4.99 MGD minus today’s rated capacity of 2.97 MGD equals 2.02 MGD.

- Estimated improvement cost of \$12.72 million divided by 2.02 equals \$6.30 per gallon.

About 30%-35% of the proposed improvements have more to do with plant efficiency than plant capacity needs. The Water Fund reserve would fund these costs and a portion of the expansion costs. Some examples of the improvements that would bring more efficiency to the treatment process without necessarily expanding treatment capacity are the sludge dewatering improvements, bar screen improvements, grit chamber and chlorination upgrades, and excess flow improvements.

When the project estimate is honed to a sharper point, the cost per gallon may well be revised, and the City's sewer impact fee may need to be revised accordingly. We know that we will be aiming for a rated capacity of 4.99 MGD. If no significant savings are found, the cost of the plant improvements would be \$7.62 per gallon (4.99 MGD – 2.97 MGD = 2.02 MGD divided into \$15.4 million).

This item is informational. After some further consultation with Mr. Bronn, and once the IEPA review is received, a sharper cost estimate will be presented to the Council along with funding options. The City staff are anxious to proceed with a Phase One project to address the sludge issues, with the possibility of a Phase Two expansion project under construction in 2-3 years.

14. OTHER NEW BUSINESS

15. APPOINTMENTS

16. ADJOURNMENT