100 East Erie Street
Chicago, IL 60611

Metropolitan Water Reclamation District of Greater Chicago

Legislation Details (With Text)

File #:	10-1023 **Version:** 1		
Type:	Report	**Status:**	Filed
File created:	8/26/2010	**In control:**	Engineering Committee
On agenda:	9/2/2010	**Final action:**	9/2/2010
Title:	Report on Contract 06-526-3P, Infrastructure and Process Needs Feasibility Study for the Hanover Park Water Reclamation Plant		
Sponsors:			
Indexes:			
Code sections:			
Attachments:	1. Report 06-526-3P		

Date	Ver.	Action By	Action	Result
9/2/2010	1	Committee of the Whole	Recommended	Pass
9/2/2010	1	Board of Commissioners	Published and Filed	Pass

TRANSMITTAL LETTER FOR BOARD MEETING OF SEPTEMBER 2, 2010

COMMITTEE ON ENGINEERING

Mr. Richard Lanyon, Executive Director

Report on Contract 06-526-3P, Infrastructure and Process Needs Feasibility Study for the Hanover Park Water Reclamation Plant

Dear Sir:

On May 1, 2008, the Board of Commissioners approved entering into an agreement with the firm of Black & Veatch Corporation (B&V) to perform an infrastructure and process needs feasibility study (Master Plan) for the Hanover Park Water Reclamation Plant (WRP). To date, B&V, in conjunction with the Engineering, Maintenance and Operations, and Monitoring and Research Departments, has assessed the conditions and needs of the existing plant, and studied various alternatives for the continued treatment of wastewater at the Hanover Park WRP. In addition, their scope of work includes a separate, less-detailed analysis evaluating the concept of decommissioning the Hanover Park WRP and conveying wastewater from the District's Hanover Basin to another treatment plant.

With respect to continued on-site treatment at the Hanover Park WRP, B&V has identified, developed, and evaluated various alternatives. Although the evaluation of alternatives is not yet complete, the selected alternative will likely be similar to the following description:

- Construction of new primary and final settling tanks
- Modifications of the existing aeration tanks to incorporate anoxic zones and to enhance the existing step-feed capability
- Conversion of an existing filter basin to accept ultraviolet disinfection equipment
- Addition of a sludge pumping station responsible for primary and secondary sludge pumping
- Automation of digester and sludge lagoon feed systems

- Replacement of the mixing systems on digesters 3 through 6 with vertical mixing pumps
- Replacement of internal digester gas collection piping
- Installation of a gas storage membrane inside the tank of Digester 2
- Construction of a Digestion Process Building to house new equipment

A planning-level cost estimate has been performed for this treatment option. The initial capital cost is $65 million, and annual plant operation and maintenance (O&M) costs are $4.6 million per year. The 60-year present worth value for this alternative is $185 million. This includes significant future replacement costs associated with aging of existing structures and equipment that will occur in years following the initial construction.

As mentioned above, the Master Plan has also investigated the feasibility of decommissioning the Hanover Park WRP and conveying wastewater from the Hanover basin to another treatment plant. In the course of studying this option, a North Area Sub-Regional Network (Network Approach) was developed, which essentially consists of:

- A new Hanover basin transfer pumping station (located at the site of the existing Hanover Park WRP)
- Two (2) new force mains from the new Hanover basin pumping station to the Egan WRP (approximate length of force main route is six miles)
- A new deep tunnel from the Egan WRP to the Kirie WRP (approximate length of the tunnel is 5.5 miles)

The following is a brief description of how the Network Approach would function. During typical dry-weather conditions, wastewater from the Hanover basin would be pumped to the Egan WRP, where it would receive full treatment. During wet-weather conditions, flows that exceed the capacity of the Egan WRP would be diverted to the Kirie WRP/O'Hare CUP system via the new deep tunnel. Refer to the attached flow diagrams.

A planning-level cost estimate was performed for the Network Approach. The initial capital costs and annual O&M costs are estimated to be approximately $120 million and $2.1 million (per year), respectively. The annual O&M costs include maintaining and operating the new Hanover basin pumping station and force mains, as well as increased costs incurred at the Egan and Kirie WRPs due to treating higher flows (i.e. the flows from the Hanover basin). The 60-year present worth value for the Network Approach is $170 million, which also includes future replacement of aging structures and equipment.

It appears that the Network Approach may be financially beneficial to the District. Although initial capital expenditures are high, in the long term, the District would significantly reduce expenditures in the Corporate Fund. Also, the Network Approach more fully utilizes the available treatment capacities of the Egan and Kirie WRPs.

If the Network Approach were to be implemented, approval would be required from the Illinois Environmental Protection Agency, the U.S. Army Corps of Engineers, and the Illinois Department of Natural Resources. We are concerned about the possibility of spending significant time, effort, and funds to further develop the Network Approach, only to subsequently learn that there are significant regulatory hurdles that would render this approach unworkable. Thus, the Engineering Department will be proceeding to contact these agencies and commence discussions in order to further investigate the viability of this alternative.

Lastly, although the scope-of-work for the subject agreement includes the analysis of the option of decommissioning the Hanover Park WRP, the analysis of this option was originally planned to be of a reduced level of detail. However, as interest in this option increased over the course of the study, the analysis became more complex and involved than originally envisioned, and the Black & Veatch Corporation has been directed to spend significantly more time and effort to study the Network Approach. Therefore, in order to complete this study, an increase to the contract will be requested at a Board Meeting in the near future.

Respectfully Submitted, Kenneth A. Kits, Director of Engineering, TEK:ECB

Attachments