



CIORBA GROUP | Consulting Engineers

Quality engineering solutions for the community

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September 5, 2017

Mr. Fred Biring
Senior Pumping Station Operator
Village of Oak Park
201 South Blvd
Oak Park Illinois 60302

**Subject: Pump Station Energy Study 2017 Project 17-121
Revised Proposal**

Dear Mr. Biring:

Please find under this transmittal our revised proposal for Pump Station Energy Study 2017 Project 17-121. Revisions reflect our August 14th teleconference to discuss scope, project approach, and budget estimate. The following changes have been incorporated into our Project Approach and Fee:

- Project has been revised to a single step that includes a full day of site visits, and culminates with an energy study report. The scoping step from the original proposal has been eliminated.
- Scope has been revised to eliminate equipment field test (pump power monitoring). Analysis of component performance will be based upon available curves, O&M manuals, and SCADA data.
- The report will be provided in a draft form with completed content, and a final form following a meeting with the Village to discuss findings.

Should you have any questions about this proposal, please contact me at 773.355.2947 or at lmattson@ciorba.com

Sincerely,

CIORBA GROUP, INC.

Luke Mattson, PE
Municipal Project Manager

Project Scope

PROJECT UNDERSTANDING

The Village of Oak Park requires a study that investigates energy use at the North, Central, and South Pumping Stations. The study asks the following three questions:

1. Do the existing facilities operate with optimized energy consumption?
2. Are the existing operating components nearing the end of their useful life and are technologies current?
3. Are the existing operating components sized for future demand?

The Village is seeking a fee proposal to answer these questions by carrying out an energy study.

PROJECT APPROACH

Ciorba Group has assembled a team of professionals specializing in the key technical disciplines associated with pump station design who also have direct experience on projects in the Village's facilities.

Ciorba Group will lead the team and the process considerations, and has completed projects in all three stations.

McMahon Group will focus on electrical performance of station components, and was the designer for the 1996 mechanical and electrical upgrades to the Central Station.

Automatic Control Systems will focus on monitoring and controls, and is the current system integrator for the Village.

SCOPE OF SERVICES

After Notice to Proceed is received, the Project Team will complete the following design work tasks:

Kickoff Meeting and Facility Visits

Ciorba will meet with Village staff to discuss the project requirements and objectives. Ciorba will identify information needed from the Village such as facility as-builts, SCADA output, utility bills, O & M manuals, pump curves, and the Village's current water model, among other information. The project schedule and submittal requirements will be confirmed. Follow-up facility visits will be scheduled with the intent of completing comprehensive walk-throughs of the North, Central, and South stations in a single day. These visits will be attended by personnel from Ciorba Group, McMahon Group, and Automatic Control Systems. These site visits are necessary to identify all energy consuming components, their typical operation, and data tracked during operation.

Operational Analysis

Following the site visits, and upon receipt of the Village data, Ciorba will perform a cursory review of pump station operations from a process, electrical, and controls standpoint. Examples of this review will include the review of pump and flow SCADA output compared to the pump performance and efficiency curves of the 8 Village pumps; identification of power consumption components in the station and estimate of power use compared to utility bills; review of VFD output at all stations to identify measurement needs in Phase 2. Operating personnel will also be interviewed for a full understanding of system operations.

Operational analysis will also include:

- Review of the capacity of the main power consumption elements
- Review of existing operation of pumps and VFDs
- Review system demand over past 3 years
- Comparison of demand, electricity billing, VFD and pump operation over past 3 years
- Calculation of future supply
- Identification of future conditions system shortfalls
- Water model analysis of operational scenarios with the focus of energy efficiencies

Project Scope

Equipment Testing

No equipment testing will be carried out as a part of this study. Analysis of component performance will be based upon available curves, O&M manuals, and SCADA data.

Energy Study Report

Report sections are anticipated to include an Executive Summary, Existing Conditions (Facilities, Operating Components, Water Demands, Operating Approach, Power Consumption), Future Conditions (Demand, Useful Life of Components), Summary of System Shortfalls, Alternative Improvements for Energy Optimization, Recommendations for Facility Improvements, Budget Estimates).

The report will be provided in a draft form with completed content, and a final form following a meeting with the Village to discuss findings.

Assumptions

Ciorba Group assumes a water model of the existing system will be made available for use during this study. It is assumed this model has fully defined pump curves and extended period simulation scenarios already defined, and that the model has been calibrated to the Village's satisfaction.

Quality Control / Quality Assurance

Submittal reviews will be completed in accordance with the Ciorba Group QC/QA policy. Additionally, tandem QC/QA review will be completed by McMahon Group and Automatic Control Solutions.

Fee Breakdown
Pump Station Energy Study 2017 – Project 17-121
2017-09-05 Update

Project Component	FEE
All Phases – Energy Study	
Meetings & Coordination	\$3,161
Site Inspection	\$3,394
Scoping Memorandum	\$20,933
Direct Costs	\$316
<i>Total</i>	<i>\$27,804</i>