



**Engineering  
Enterprises,  
Inc.**

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*Spring/Summer 2006*

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# Enterprises



# Award Winning Wastewater Treatment Facility



With more than 20 years having passed since a plant expansion, the Village of Hampshire wastewater treatment facility was past its useful life and unable to handle current and projected flows. For the Village to continue providing quality wastewater management, modifications to the wastewater treatment facility were required.

The most cost effective rehabilitation and expansion of the facility was determined to be a balance between salvaging as many portions of the existing plant as possible and constructing new unit processes.

The improvements necessary to meet the design average flow of 0.75 million gallons per day (MGD) included converting the existing fixed film rotating biological contactor and trickling filter plant to a suspended growth extended aeration oxidation ditch treatment facility. This new system included screening, grit removal, biological treatment through aeration and final settling, and ultraviolet disinfection. The improvements were designed to meet tertiary level discharge requirements utilizing enhanced secondary treatment. Biosolids

stabilization was achieved through mechanical sludge thickening, aerobic digestion, and mechanical sludge dewatering.

The entire rehabilitation and expansion was completed within the footprint of the existing facility with careful attention given to plant expandability so that future capacity and unit process additions could be accomplished cost-effectively. Additionally, a detailed phasing plan was created to coordinate facility construction while maintaining effluent quality from the plant.

Engineering services provided for this project by EEL included facility planning, preliminary and final design, and construction services.

The Village of Hampshire and EEL received the Chicago Metro Chapter of the American Public Works Association 2006 Public Works Project of the Year award in the environmental category, division \$2 Million to \$10 Million on March 9, 2006. The Village and EEL advanced from the APWA Fox Valley Branch in December 2005. ■



Village of Hampshire  
Water Treatment Plant

## Are We Prepared?

Whether your community has a population of 1,000 or 1,000,000, providing safe drinking water to your residents is essential. As your community evolves, water needs change and you may begin to wonder, "Are We Prepared?"

The answer to that question can be found by performing a Needs Assessment which enables you to evaluate your community's water supply, treatment and distribution system adequacy; ensure compliance with regulatory bodies; and develop a capital improvement plan.



United City of Yorkville  
Water Treatment Plant

# Infrastructure Blends Into Rural Community

Settler's Ridge, a proposed residential community incorporating traditional neighborhood design in the Village of Sugar Grove, Illinois, is also the location of a new 2.88 MGD water treatment plant and 2 MG ground storage reservoir. The water treatment plant and storage reservoir are part of systemwide improvements necessary to meet increasing demands.

Not typical, and looking more like a traditional barn, the water treatment plant and storage reservoir is in keeping with the pastoral atmosphere of this far western suburb. With no sign identifying the building and construction

Village of Sugar Grove  
Water Treatment Plant  
& Storage Reservoir  
3-D Rendering



materials and landscaping carefully chosen to blend into the local surroundings, area residents, passing motorists and new homebuyers will think that this is, in fact, a farm building.

Today, more than ever, public officials are assessing the design of municipal facilities to be consistent with the character of their communities. ■

In the most simplistic condition, a Needs Assessment will examine existing water use and evaluate five water supply and storage system parameters:

1. Ultimate Source Capacity
2. Reliable Source Capacity
3. Peak Hourly Storage
4. Fire Flow
5. Emergency Supply

In addition, water treatment processes are examined primarily to make certain the community remains in conformance with existing and anticipated Illinois Environmental Protection Agency standards and those of other regulatory bodies.

For communities anticipating growth, land use plans are reviewed to project future water needs. The same five supply and storage system parameters listed above are then reevaluated based on the future projected population.

To analyze and simulate the benefits of recommended improvements, determine fire flow capacity at various locations throughout the distribution system, optimize water main routing and sizes, and identify infrastructure weakness, a water model is developed. A computerized water model provides a more thorough analysis of the existing and future water system conditions.

Once needed water system improvements are identified, a phasing and implementation plan is

created and coordinated in a manner that is consistent with the community's planning and economic development goals. Water connection fees are then examined and updated accordingly.

Performing a Needs Assessment will determine your level of preparedness and help prioritize the needs of your community. Communities perform this analysis at different intervals depending on the system's age, amount of redevelopment and/or new growth, and related conditions. The key is to think ahead and start planning now.

When is the last time your community completed a Water System Needs Assessment? ■

# Welcome

Welcome to the first issue of *Enterprises*. We are especially grateful to our readers and it is for all of you that *Enterprises* is written.

The name *Enterprises*, synonymous with a bold undertaking, is exactly the way the in-house EEI writers and editors felt about "undertaking" our first newsletter, and this is how the name was derived. We approached it with caution and a great deal of determination. After considerable tenacity, and a greater amount of dialogue, the content was agreed upon. We hope the topics will be of interest to you and the results of our endeavor will be to your liking.

We invite you to contact us with comments or requests for particular topics you would like addressed in future issues. ■

## Enterprises Challenge

### Trivia, brainteasers and more...

The Enterprises Challenge will take place in each issue. The person with the first correct answer will receive a \$50 American Express gift card.

Send your answers to Bobbi Erdmann at [berdmann@eeiweb.com](mailto:berdmann@eeiweb.com) or fax 630-466-9380.

**Q** What was the speed limit imposed on the first Illinois hard roads?

## Contact the Editor

You may contact the editor at:

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## Did You Know?

At the Illinois Section American Water Works Association Annual Conference in Springfield, Illinois, Jeffrey W. Freeman, P.E., Vice President and head of EEI's Environmental Group, addressed concerns of rising water demand and sustainable sources of supply in a presentation titled, "Water Conservation Ordinances, What Are They and Do They Work?"

Jeff presented common themes from water conservation ordinances that have been codified in

many northern Illinois communities, water use prior to and after ordinance implementation, and the potential cost savings to a water works system.

If you missed the conference, you may access Jeff's presentation at:  
[www.eeiweb.com/pages/news.asp](http://www.eeiweb.com/pages/news.asp)

If you have any questions or would like more information on this topic, you may contact Jeff at 630-466-9350 or [jfreeman@eeiweb.com](mailto:jfreeman@eeiweb.com). ■



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