Congratulations!

EEI would like to recognize the following employees for their milestone anniversaries with the company:

5 Years: **John D. Hoffmann, P..E., CPII**
Senior Project Engineer I

10 Years: **Jason M. Bauer, P.E.**
Project Manager

Timothy V. Weidner, P.E.
Senior Project Engineer II

15 Years: **Jeffrey W. Freeman, P.E., CFM, LEED AP**
Vice President

EEI would also like to congratulate **John D. Hoffmann and Sean W. Mikos** for obtaining their CPII certification. **Kyle D. Welte** for passing the P.E. exam!

EEI also welcomes **Brett T. Roberts, P.E.** and **James P. Schmidt** to our staff!

Did You Know?

The Institue for Sustainable Infrastructure has announced a new rating system entitled EnvISIon™ that evaluates, grades, and gives recognition to infrastructure projects that use transformational, collaborative approaches to assess the sustainability indicators over the course of the project's life cycle. For more information visit http://www.sustainableinfrastructure.org/rating/index.cfm

You can find EEI on Facebook at www.facebook/EngineeringEnterprisesInc and on LinkedIn.

Enterprises Trivia Challenge

Q: How much of the water on earth is available to drink?

Send your answer to **eei@eeiweb.com** or fax to **(630) 466-6701** by September 28th to be entered in a drawing for a $50 American Express gift card!

How do you want to hear from us?
Scan the QR Code to the right
or visit www.eeiweb.com/survey.html and let us know.

Engineering Enterprises, Inc. (EEI), founded in 1974, provides consulting engineering services throughout northern Illinois. Our expertise includes water, wastewater, transportation, stormwater, construction management, land surveying and GIS.

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Elgin and Algonquin Primed to Save Big Bucks with Water Conservation Commitment

In this Edition:

As we continue through the drought of 2012, the capacity of many Water Works Systems are being tested as they ramp up to meet the increase in water demand. The lack of precipitation in the region is reminding everyone of the need to preserve water supply resources for sustainable Water Works System operation and a sustainable economy. While the growth pressures that were encountered over the last few decades have subsided, growth in the region will someday rebound and more people typically means more demand for water.

There are currently over 8,000,000 people within the eleven counties within Northeastern Illinois. Population projections completed as part of the Water2050 Chicago Metropolitan Agency for Planning (CMAP) led planning initiative suggest the eleven county region could surpass a population of 12,000,000 by 2050. The Water2050 report analysis also concluded that if water use in the region continues at the current trends, the water supply resources of Northeastern Illinois will be stretched to their limits in some areas. Given cost-effective water supply is a necessity for a healthy regional economy, Water2050 concluded increased levels of water conservation is the most viable approach to extend the region's water supply resources to meet the 2050 water demands and beyond.

One can only imagine how much more stress would have been placed on Water Works Systems to meet this year's increased demands if communities were still seeing a high amount of growth at the same time. Taking advantage of this slowdown, many policy makers and community staff members are working on positioning their community for future growth

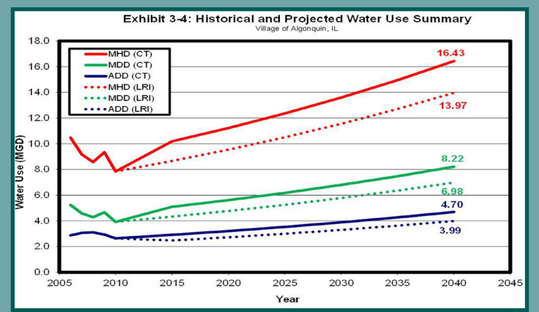
Summer 2012

Enterprises

Elgin and Algonquin Primed to Save Big Bucks with Water Conservation Commitment, Cont'd.

and economic development. In some cases, they are updating their infrastructure plans to make sure they have a plan in place to expand their systems to take on the future growth in the "new normal" economy. The City of Elgin and the Village of Algonquin are two communities who have taken this lull in growth in their communities to plan for the future expansion of their Water Works System. EEI is honored to have provided the engineering services for the development of these plans, and are happy to showcase the communities Water Works System, and the approach and general results of each master plan.

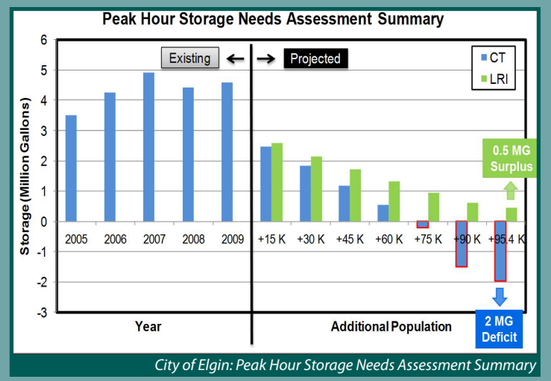
The City of Elgin is a dynamic and progressive community. The 2010 Census concluded the City's population was 108,000 people. In addition to providing water to the City's residents, businesses and institutions, the system also provides water to the Villages of Sleepy Hollow and Bartlett. At the time of the water master planning process, the City of Elgin's Water Works System contained a Fox River intake, eleven deep sandstone wells, two water treatment plants, twelve water storage facilities and over 532 miles of water main. The system is operated with four pressure zones along with interconnecting booster pump stations and pressure reducing valves to transfer water into adjacent zones. Based on the amount of undeveloped land within the City of Elgin's planning boundary and the average historical growth rate they had seen for decades, the 2040 population projection was established at 202,500 for the Comprehensive Water Master Plan. The City of Elgin is committed to sustainability, most prominently portrayed through the City's development of their *Sustainability Action Plan*. Given the City's commitment to sustainability and cost-effective operation of their Water Works System, the theme for the master plan was established to be: *planning for strategic investment for a sustainable water works system.*



Village of Algonquin: Historical and Projected Water Use Summary

The Village of Algonquin is a dynamic and progressive community, as well. The 2010 Census population for the Village was 30,046. The Village of Algonquin's Water Works System contains eight shallow wells and one deep well, three water treatment plants, seven water storage facilities and over 160 miles of water main. The system is operated with six pressure zones. The 2040 population projection for the Village of Algonquin was set at 51,656. The Village was a pioneer in the development of a comprehensive Water Conservation Plan. The Village utilizes a four color system to establish outdoor water use restrictions, which has proven to be quite successful in managing water demands in the community.

The City of Elgin's and the Village of Algonquin's comprehensive water master plans were developed with a similar approach. After an inventory of the existing system, the historical water use within each community was reviewed. Following the review of the historical water use, the current trends (CT) or business as usual water use for the community was established. In the case of Elgin, the CT water use was established at 114 gallons per capita per day (gpcd). On the other hand, the Village of Algonquin's CT water use was computed to be 95 (gpcd). With the CT usage in place, the projected CT water demands were established by multiplying each community's projected population increase by the CT per capita water use.



City of Elgin: Peak Hour Storage Needs Assessment Summary

Given each community's focus on sustainability, the next step in the process was to determine reasonable reductions in water use based on reasonable levels of additional water conservation commitment. This process entailed the review of the 13 water conservation best management practices recommended in the Water2050 plan, and then determining how they could benefit each community. In the end, the City of Elgin concluded they could reduce their per capita water use by 17%, whereas the Village of Algonquin established a 15% reduction goal. The resulting less resource intensive (LRI) per capita water use was established at 96 gpcd and 81 gpcd for the City of Elgin and Village of Algonquin, respectively. With the LRI water use per capita value calculated, the LRI 2040 water demand was established.

Once the two water demand scenarios were formulated, the water supply, treatment, storage and distribution system additions required to meet the two future water demands were determined. Once the needs of the system were established, cost estimates for the two system expansion options were computed.

With the two expansion options defined, both communities were able to see just how much capital investment they could save with moderate reductions in water use over the planning period. The 17% per capita water use reduction for the City of Elgin would save nearly **$16,000,000** in present value. The 15% reduction in per capita water use for the Village of Algonquin would save their community **$6,000,000** in present value over the planning period. With these significant capital savings identified, it becomes clear that water conservation can save communities big bucks in the long run.

To learn more about this exciting project or Water Works System Master Planning in general, please contact Jeffrey W. Freeman, P.E., CFM. LEED AP, Vice President at (630) 466-6700 or jfreeman@eeiweb.com.

President's Message

As I reflect back on 35 years (really?) as a consulting engineer it strikes me that some of the first projects that I worked on at EEI were wastewater reuse projects. Back then we didn't use the term "sustainable" or "green" to describe those projects; we were simply providing a practical solution to wastewater treatment. The wastewater projects provided needed irrigation, nutrients for crops and aquifer recharge in the dry southwest. A cost-effective solution that was environmentally friendly and a very practical way to treat and dispose of wastewater. EEI has always been an advocate for sustainability. I guess you could say EEI was "Green" before green was cool. (To borrow a phrase from an old country and western song).

Today EEI is a leader in sustainability and is practicing something we like to refer to as "practical green" that is incorporating green design features that enhance the environment, save money and make sense for our clients. We believe that today more than ever you need to be open minded and practical. If you would like to explore ways to incorporate sustainable elements into your next project - give us a call and we will lead you through the myriad of options and regulations and help you find a practical solution that performs well, is sustainable and saves you money. After all if we can save money while enhancing our environment that's sustainability that we can all support.

Waste Treatment and Utilization, El Reno, Oklahoma