



# Waukesha Water Utility

SERVING WAUKESHA SINCE 1886

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December 1, 2014

Army Corps of Engineers  
Attn: CECW-CE (Lisa Kiefel)  
441 G Street NW.  
Washington, DC 20314-1000

Re: City of Waukesha, Wisconsin  
“New Water Source Development Program”  
Proposal for a Feasibility Study  
For Inclusion in the USACE Annual Report to Congress

Dear Ms. Kiefel;

Pursuant to the August 5, 2014 Federal Register Notice, the City of Waukesha, Wisconsin, hereby submits a feasibility study request for inclusion in the USACE Annual Report to Congress. To ease your review of this request, we are providing the following direct answers to the 8 questions listed in the Notice.

1. *Provide the name of all non-Federal interests planning to act as the sponsor, including any non-Federal interest that has contributed or is expected to contribute toward the non-Federal share of the proposed feasibility study or modification.*

City of Waukesha Water Utility – a Wisconsin municipality.

2. *State if this proposal is for a feasibility study or a modification to an authorized USACE project or feasibility study and, if a modification, specify the authorized project or study.*

This is a proposal for a new feasibility study entitled the “New Water Source Development Program” (Study).

3. *State the project purpose of the proposed study or modification.*

The purpose of the Study is to create a partnership with the USACE to ensure that the City’s project – to develop a long-term Great Lakes water supply with return flow that meets federal drinking water standards – will be implemented under USACE project standards.

On September 7, 2012, the USACE (Detroit Office) entered into a Planning Assistance to States (PAS) Agreement for a "Great Lakes Water Transmission Routing Study". This Routing Study addressed conveyance alternatives for the City's new source water through the City's existing complex water distribution system. With this effort successfully completed, the City believes that involving the USACE again will provide positive benefits going forward.

### History and Background of the Project

Waukesha needs a new water supply because its primary water source, the deep aquifer, is severely depleted, due in part to a natural formation (a thick layer of shale rock) that restricts recharge of the aquifer from rain and snowmelt. As the aquifer declines, the water has become brackish, like salt water. Contaminants such as radium, a known carcinogen, also have increased with declining water levels. Continued use of the aquifer is not sustainable for the long term.

Continued pumping until the resource is exhausted is environmentally irresponsible. Waukesha's secondary water source is shallow groundwater wells, located outside of City limits. Additional shallow wells would also be located outside the City and have led to legal challenges in the past and would in the future. Adding additional shallow groundwater wells would have permanent adverse environmental impacts to thousands of acres of wetland habitat and designated environmental areas with valued brooks and streams. Groundwater problems in the area are so significant that it is one of only two Groundwater Management Areas designated by the state Legislature in Wisconsin. The other area, in the vicinity of Green Bay, has switched many water supplies from groundwater to Lake Michigan.

Waukesha is under a court order to provide water that complies with federal standards for radium, a known carcinogen, by June 2018. In addition to radium, the issues the City would face with its groundwater supply include high total dissolved salts (TDS) and strontium in the deep aquifer and arsenic in the shallow aquifer. Treatment systems to remove these contaminants would be energy intensive and generate waste streams of concentrated pollutants that are difficult to treat and dispose of. The volume of water that is wasted by these treatment waste streams would more than offset the volume the City will save through its water conservation program. That means even more groundwater would need to be withdrawn from the aquifers to meet the City's water demand.

The deep aquifer is already severely depleted. Pumping the shallow aquifer withdraws water that would otherwise feed valued environmental areas like the Vernon Marsh and Pebble Brook (a cold water trout stream). Groundwater modeling studies show that, developing additional shallow groundwater wells would have permanent adverse impacts to thousands of acres of wetland habitats and other water resources from groundwater drawdowns. Unlike groundwater options in the area, a Lake Michigan water supply is environmentally sustainable because Waukesha will recycle essentially 100% of the water volume to the Lake. The Great Lakes option is the only reasonable alternative because it is the best way of protecting public health and the environment for the long term.

4. *Provide an estimate, to the extent practicable, of the total cost of the proposed study or modification.*

\$500,000

The City sees this “New Water Source Development Program” Corp Feasibility Study as an overview document that builds on past work and the approvals naturally generated by the provisions of the Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact). By the time the Feasibility Study begins, the project will have already met very high State, Regional and National standards as required by the Compact. The City sees the Feasibility Study as an opportunity to have the project elevated to Corp standards and serve as a starting point for a successful City/Corp partnership.

5. *Describe, to the extent practicable, the anticipated monetary and nonmonetary benefits of the proposal including benefits to the protection of human life and property; improvement to transportation; the national economy; the environment; or the national security interests of the United States*

There are three primary benefits of this proposal. They include, (1) long-term protection of the health and welfare of human life, (2) providing sustainable potable water to a regional center in danger of losing its raw water supply and, (3) restoration and protection of an impaired environment.

#### Protection of Human Life

Waukesha, under the consent order issued by the State of Wisconsin on behalf of the U.S. Environmental Protection Agency, must come into compliance with federal standards on radium, a human carcinogen, by June 30, 2018. In addition, reliance on groundwater sources is not sustainable for the long term. The City also faces increasing problems with arsenic in the shallow aquifer and TDS and strontium in the deep aquifer. There are also many known sources of potential contamination to the deep and shallow aquifers. Lake Michigan is the water supply alternative that is most protective of public health.

Waukesha’s project is ranked number 6 out of 182 among State drinking water needs. The return flow component of the project is ranked number 11 out of 184 State wastewater needs.

#### Maintaining the Community, Businesses and Industries

The ongoing vitality and sustainability of the City of Waukesha will be affected by the availability and affordability of its new drinking water source. It’s 71,000 residents and significant local industry, such as General Electric Healthcare, Cooper Power Systems, Generac Power Systems and Waukesha Engine, need and will continue to need, safe drinking water.

Waukesha needs a water supply that is sustainable and reliable for the long term, while protecting public health and the environment.

The current project estimate is \$206,000,000. Current financing models show that this level of investment will require a typical annual residential water bill to increase to approximately \$1,000/year along with significant increases to all other user classes. With the City's water users facing this cost, adding the USACE expertise to the planning process will instill added confidence that the project will be implemented in a cost effective manner.

#### Restoration of an Impaired Environment

At the heart of this proposal is the fact that a new City Lake Michigan Water supply would be part of a fresh water system that recycles water back to the lake after use and treatment. The City's current groundwater system results in discharges of fresh water from local aquifers to the Gulf of Mexico. Eliminating the City's use of groundwater supports environmental restoration of the deep aquifers predevelopment conditions and the resumption of natural area groundwater flows to surface water resources as well as prevents the potential negative environmental impacts to approximately 3,000 to 4,000 acres of wetland areas. The use of Lake Michigan water instead of groundwater also prevents permanent adverse impacts to thousands of acres of wetlands from additional wells.

The City currently obtains more than 87 percent of its water supply from the deep St. Peter Sandstone Aquifer with limited natural recharge characteristics. Continued use of the aquifer by the City and surrounding communities since the 19<sup>th</sup> century has led to the over 400 foot decline in aquifer water levels. This drop has in turn affected regional surface waters, which now receive about 18 percent less groundwater contribution as water migrates towards this deep aquifer. The City obtains less than 15 percent of its water supply from the Troy Bedrock Valley shallow aquifer. Additional pumping of this aquifer would reduce base flows to local streams and wetlands, making well permits difficult to obtain. Besides improving area water resources and preventing additional adverse impacts on aquifers and 3,000 to 4,000 acres of wetlands, a Lake Michigan water source requires less energy, causes fewer greenhouse gas emissions and leaves a smaller carbon footprint.

6. *Describe if local support exists for the proposal.*

Significant local support exists for this project and this proposal. Over the life of this project, the following have provided written support for federal resource help:

James Sensenbrenner, US Congressman  
Ron Johnson, US Senator  
Herb Kohl, Former US Senator  
Milwaukee Water Council  
Golden Guernsey Dairy, LLC  
Badger Meter, Inc.  
Carroll University  
ProHealth Care

SPX Waukesha  
Waukesha County  
Waukesha County Business Alliance  
Waukesha State Bank

The Governors of the Great Lakes states will review the application to ensure it meets the requirements set forth in the Compact.

7. *State if the non-Federal interest has the financial ability to provide for the required cost share.*

The City is committed to providing payments and/or in-kind services to comply with USACE local share requirements as was done under the PAS Agreement referenced in number 3 above.

8. *Submit a letter or statement of support from each associated non-Federal interest.*

The submission of this letter provides the City's statement of support.

Should you need any further information or if any effort on our part will expedite review, approval or inclusion of this Study in your report to Congress, please contact me at [DDuchniak@waukesha-water.com](mailto:DDuchniak@waukesha-water.com) or 262-521-5272, ext. 518.

Very Truly Yours,



Daniel S. Duchniak  
General Manager

cc Bill Viney  
Don Roecker