



# Metropolitan Water Reclamation District of Greater Chicago

100 East Erie Street  
Chicago, IL 60611

## Legislation Details (With Text)

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**Title:** Issue purchase order and enter into an agreement with the University of Illinois at Urbana-Champaign, to further develop the Tunnel and Reservoir Plan - Chicago Area Waterway System Three-Dimensional Hydrodynamic and Water Quality Model for Use in Evaluating Aquatic Species Mitigation Measures, Invasive Species Alternatives: Hydrological Impacts on Chicago Area Waterways in an amount not to exceed \$975,320.00, Account 401-50000-612430, Requisition 1434162

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Date	Ver.	Action By	Action	Result
9/1/2016	1	Board of Commissioners	Approved	Pass
9/1/2016	1	Committee of the Whole	Recommended	Pass

### TRANSMITTAL LETTER FOR BOARD MEETING OF SEPTEMBER 1, 2016

#### COMMITTEE ON PROCUREMENT

Mr. David St. Pierre, Executive Director

Issue purchase order and enter into an agreement with the University of Illinois at Urbana-Champaign, to further develop the Tunnel and Reservoir Plan - Chicago Area Waterway System Three-Dimensional Hydrodynamic and Water Quality Model for Use in Evaluating Aquatic Species Mitigation Measures, Invasive Species Alternatives: Hydrological Impacts on Chicago Area Waterways in an amount not to exceed \$975,320.00, Account 401-50000-612430, Requisition 1434162

Dear Sir:

Authorization is requested to issue a purchase order and enter into an agreement with the University of Illinois at Urbana-Champaign (UIUC), according to the terms and conditions of the Master Agreement, to further develop the existing Tunnel and Reservoir Project - Chicago Area Waterway System (TARP-CAWS) three-dimensional (3D) Hydrodynamic and Water Quality Model for use in evaluating invasive aquatic species mitigation measures. This project will be administered by the Environmental Monitoring and Research Division of the Monitoring and Research Department at the Lue-Hing R&D Complex. The purchase order will expire on August 30, 2020.

The principal investigator for this project will be Marcelo Garcia, Ph.D., who is a professor in the Department of Civil and Environmental Engineering. Dr. Garcia is a reputable scientific investigator and researcher in this field.

Dr. Garcia's team at UIUC has previously developed and linked hydrodynamic and water quality models for the CAWS and TARP to create the TARP-CAWS 3D Hydrodynamic and Water Quality Model. The TARP-CAWS

3D Hydrodynamic and Water Quality Model is a useful tool that can be used to evaluate changes in the operations of TARP, the waterways control system to reduce localized flooding, to estimate the frequency and magnitude of combined sewer overflows (CSOs) into the CAWS and flow reversals into Lake Michigan, and to project the effectiveness of the TARP system and impacts of CSOs on water quality.

The migration of nuisance invasive aquatic species has long been a concern in the Great Lakes basin. More recently, there has been heightened concern about the migration of invasive species from the Mississippi River Basin to the Great Lakes Basin. The United States Army Corps of Engineers (USACE) and others have undertaken studies of potential options to further reduce the risk of interbasin transfer of nuisance invasive aquatic species. Many of the potential scenarios raise serious questions about the impact of hydraulic limitations or changes on navigation, stormwater management, flooding, and water quality in the CAWS and Lake Michigan. As the Metropolitan Water Reclamation District of Greater Chicago (District) and local policy makers consider this issue and the potential mitigation options available, they will require a dependable modeling tool to ensure that the ramifications of each scenario are properly addressed with respect to impacts on water quality and flooding.

Dr. Garcia has extensive knowledge of the waterways and TARP systems. Further, Dr. Garcia has detailed familiarity with the USACE study of the potential solutions to inhibit nuisance invasive aquatic species transfer locally.

Further development of the TARP-CAWS 3D Hydrodynamic and Water Quality Model will allow for the evaluation of the impact proposed physical barriers will have on navigation, water quality, hydropower and the hydrologic regime of the Illinois River and CAWS, as well as sedimentation in the CAWS. Development of a Calumet TARP-CAWS data repository will centrally locate and automate the collection of data and will provide the District with a standardized data repository. In addition to benefiting the TARP-CAWS 3D Hydrodynamic and Water Quality Model, this repository would also benefit current efforts with other stand-alone models (HEC-RAS, EFDC, WASP and InfoWorks). For these stand-alone models, developed data import/export utilities and data connectors would allow users to rapidly query and extract data from the repository.

This work will be done as a four-year project, which will be conducted by completing seven tasks.

Dr. Garcia's team at UIUC has extensive knowledge of the CAWS because his team has worked with the District on several projects since 2001, including hydrologic and hydraulic models of TARP, and modeling sediment oxygen demand and resuspension of sediments in Bubbly Creek.

The UIUC, the expert provider to conduct an evaluation of the impact of invasive aquatic species measures, submitted pricing for the services required. Inasmuch as the UIUC is the expert provider for the services required, nothing would be gained by advertising for bids (Section 11.4 of the Purchasing Act).

The UIUC is a non-profit educational institution and is therefore not required to register with the State of Illinois.

The Multi-Project Labor Agreement is not applicable due to the specialized nature of the services required.

In view of the foregoing, it is recommended that the Director of Procurement and Materials Management be authorized to issue a purchase order and enter into an agreement with the UIUC, in an amount not to exceed \$975,320.00.

Funds are available in Account 401-50000-612430.

Requested, Thomas C. Granato, Director of Monitoring and Research, TCG:MPC:HZ:JW:DG:kq  
Requested, Catherine A. O'Connor, Director of Engineering, CAO'C

Recommended, Darlene A. LoCascio, Director of Procurement and Materials Management  
Respectfully Submitted, Barbara J. McGowan, Chairman Committee on Procurement  
Disposition of this agenda item will be documented in the official Regular Board Meeting Minutes of the Board  
of Commissioners for September 1, 2016