



Date: December 4, 2012

To: Thomas J. Bonfield, City Manager
Through: Keith Chadwell, Deputy City Manager
From: Marvin Williams, Public Works Director
Subject: Contract with ENTRIX, INC., d/b/a Cardno ENTRIX for a Feasibility Study and Pilot Study Design of AquaLutions™ Nutrient Removal in the Falls Lake Watershed

Executive Summary

The Falls Lake Nutrient Management Strategy requires large reductions of nitrogen and phosphorus (i.e., nutrients) from the City of Durham. The existing rules provide direction for structural stormwater control measures to be installed to mitigate nitrogen and phosphorus from new development, existing development and agricultural land uses. Stormwater & GIS Services has identified two nutrient removal technologies that have the potential to remove nitrogen and phosphorus at a lower cost. This project would direct Cardno ENTRIX to conduct a feasibility study and design a pilot study for one of those technologies, the AquaLutions™ nutrient removal system. The AquaLutions™ nutrient removal system is a patented stormwater treatment and filtration system that can treat from 10,000 to several million gallons of stormwater per day. The Public Works Department recommends that the City Council authorize the City Manager to execute a contract for this work with ENTRIX, INC.

Recommendation

The Administration recommends that the City Council:

1. Authorize the City Manager to execute a contract with ENTRIX, INC. for a feasibility study and pilot study design for an AquaLutions™ nutrient removal system in the amount of \$79,017.00;
2. Establish a contingency in the amount of \$7,983.00; and,
3. Authorize the City Manager to executed amendments to the contract, as long as the total contract amount, including amendments, does not exceed \$87,000.00.

Background

The Falls Lake Nutrient Management Strategy rules went into effect in January of 2011. To reduce the amount of algae/chlorophyll *a* in the lake, these rules require extensive reductions of nutrients entering Falls Lake from the City of Durham and other watershed jurisdictions. The ultimate required reductions are 40 percent less nitrogen and 77 percent less phosphorus than was delivered to Falls Lake in 2006. The three different parts of the nutrient strategy rules that address nutrients in stormwater runoff are as follows: the new development rule (15A NCAC 02B .0277), the existing development rule (15A NCAC 02B .0278), and the agriculture rule (15A NCAC 02B .0280). Projected costs to comply with the existing development portion of the rules are estimated at \$595 to \$645 million dollars to

achieve a ten percent nitrogen reduction and 20 percent phosphorus reduction. These reductions are significantly less than the mandated reductions.

The new development, existing development and agriculture rules require the construction of structural stormwater control measures to achieve the nutrient reductions. The proposed South Ellerbe Creek wetland at the former Duke Diet and Fitness Center location is an example of the type of measure the rules direct. Other methods of controlling nutrient loads or treating lakes are available and are used throughout the country. While many of these methods have not been used in North Carolina, they may provide equal or better nutrient removal at a lower cost than constructed stormwater control measures. Stormwater Services investigated several of these methods and has identified two that merit detailed evaluation, the use of an AquaLutions™ system or an Algal Turf Scrubber™. Both of these technologies are in use in the State of Florida, where algae blooms have caused serious human health and aquatic life impacts. The AquaLutions™ system is currently being used at Lake Jesup, Florida, treating 6.5 million gallons per day with removal rates from 50% for total Nitrogen and 70% for total Phosphorous. This contract will evaluate the potential use of the AquaLutions™ system in Durham, including a preliminary cost-benefit analysis.

A Request for Proposals was posted on the City of Durham's website from August 16, 2012 through September 17, 2012. Three proposals were received. A committee of six people reviewed and scored the proposals. The proposal submitted by Cardno ENTRIX ranked the highest and was selected for full funding.

Alternatives

The alternative is to deny authorization to negotiate and execute the professional services contract.

Financial Impact

The City of Durham will pay Cardno ENTRIX \$79,017.00, with a contingency of \$7,983.00, resulting in a total potential, not to exceed amount of \$87,000 from the Public Works Capital Improvement Plan project budget (Organization code 4300L045, Object codes 725000 and 731900, Project code LK109).

SDBE Summary

The Equal Opportunity/Equity Assurance Department reviewed the Request for Proposals and all proposals received to ensure compliance with the Ordinance to Promote Equal Business Opportunities in City Contracting. There were no SBDE goals for this project. The SDBE report is provided as an attachment.

Attachments

Copy of Draft Contract
SDBE Summary Report