



Recommendation for Action

File #: 22-3386, **Agenda Item #:** 56.

12/8/2022

Posting Language:

Authorize negotiation and execution of a two-year contract with the University of Texas at Austin for mapping sediment bedforms and measuring microplastics and nutrients in sediments from Lake Austin and Lady Bird Lake for a total contract amount not to exceed \$160,000.

Lead Department:

Watershed Protection Department.

Fiscal Note:

Funding in the amount of \$160,000 is available in the Fiscal Year 2022-2023 Capital Improvements Program Budget of the Watershed Protection Department.

For More Information:

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Additional Backup Information:

The contract will provide for the University of Texas to perform services for the City to including collection, testing, and analysis of sediments using high resolution imaging and laboratory techniques to evaluate sediment characteristics including bedforms, nutrient contents, isotopic composition, and microplastics in Lake Austin and Lady Bird Lake. The contract will establish a new collaboration with the University of Texas to study issues of emerging concern related to water pollution in Austin and globally.

Rapid urban development increases impervious cover within watersheds and results in greater runoff during rainfall events. Increased runoff negatively affects water quality in many ways: increased sediment, increased scour, degraded habitat, increased trash transport, increased pollutant transport, degraded biological communities that ingest and/or absorb pollutants through bioaccumulation (magnifying metals and pollutants through the food web), and by promoting growth of nuisance plants and algae. Impounded waterways, like Lake Austin and Lady Bird Lake, act as sinks for sediments, nutrients, and pollutants (e.g., heavy metals, carcinogens, and microplastics). Excessive growth of nuisance plants such as hydrilla and algae (including blue-green cyanotoxin-generating algae) have been an increasing problem in Austin lakes. In addition, Austin area residents recognize that trash in local waterways is a problem and volunteer regularly to assist with clean-up (e.g., Lady-Bird Lake bi-monthly clean-ups since 2009, annual Lake Travis Clean Up).

The Watershed Protection Department recently completed a trash-in-creeks study and management benchmarking report characterizing the distribution and relative amounts of trash in Austin's creeks as well as solution strategies (Clamann et al. 2022; Gosselink et al. 2022); however, while these efforts have been focused on visible trash, there has not been any concerted efforts to study microplastics which are an emerging contaminant of concern. With Austin's population projected to double to more than 4.5 million by 2050, understanding the relationship between urbanization and microplastics in the local environment is essential to ensuring good water quality and a healthy urban freshwater ecosystem for Austin and for downstream communities. For example, microplastics can injure and/or block the digestive tracts of aquatic organisms (which may lead to starvation) as well as accumulate in their tissues which then act as pollution vectors distributing the contaminants throughout the food chain (potentially even humans) and the

surrounding environment.

Without this contract, Lake Austin and Lady Bird Lake, will continue to accumulate unknown pollutants that may have negative consequences to the ecosystem and to the beneficial uses of the reservoirs desired by the community.

Strategic Outcome(s):

Health and Environment.