



CITY OF

NEWPORT BEACH

City Council Staff Report

March 24, 2020
Agenda Item No. 7

TO: HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL

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TITLE: Newport Bay Trash Wheel – Approval of Professional Services Agreement with Burns & McDonnell Engineering Company, Inc.

ABSTRACT:

The Newport Bay Trash Wheel project will provide a trash wheel collecting vessel that can capture garbage flowing down San Diego Creek from inland Orange County into Newport Bay. Staff requests approval of a Professional Services Agreement with Burns & McDonnell Engineering Company, Inc. to prepare construction documents and obtain regulatory permits and approvals for the project.

RECOMMENDATION:

- a) Determine this action is exempt from the California Environmental Quality Act (CEQA) pursuant to Sections 15060(c)(2) and 15060(c)(3) of the CEQA Guidelines because this action will not result in a physical change to the environment, directly or indirectly;
- b) Approve a Professional Services Agreement with Burns & McDonnell Engineering Company, Inc. at a not-to-exceed amount of \$464,925, and authorize the Mayor and City Clerk to execute the agreement; and
- c) Approve Budget Amendment No. 20-041 appropriating \$224,925 in increased expenditures from the Upper Bay Reserve unappropriated fund balance to the Public Works, Tidelands Maintenance account (10001-980000-17X12) for the Newport Bay Water Wheel project 17X12.

FUNDING REQUIREMENTS:

The current Capital Improvement Program budget includes \$300,000 for the design of the Newport Bay Water Wheel project. The source of these funds is a grant from the Ocean Protection Council (OPC). Through the terms of the grant agreement, \$280,000 is allocated for design and permitting and \$20,000 for geotechnical work.

If the approved, the budget amendment appropriates an additional \$224,925 in increased expenditures from the Upper Bay Reserve unappropriated fund balance. A portion of the requested funds, \$184,925, will be combined with the existing \$280,000 budgeted for design and permitting to fund the total not-to-exceed amount of \$464,925. The remaining portion requested, \$40,000, will be combined with the \$20,000 budgeted for geotechnical services.

Table 1: Funding for Project Design and Geotechnical Services

Funding Source	Design Services (Burns & McDonnell)	Geotechnical Services (On-call)	Total
OPC Grant Funds	\$280,000	\$20,000	\$300,000
Upper Bay Reserve Funds	\$184,925	\$40,000	\$224,925
Total	\$464,925	\$60,000	\$524,925

The Upper Bay Reserve Fund, also referred to as the Upper Newport Bay Restoration Fund, is a type of State Tideland funds. As outlined in the Senate Bill establishing the funds, the use is reserved for use “by the City for Upper Newport Bay environmental restoration and improvement on tide and submerged lands for the preservation, maintenance, and enhancement of the lands in their natural state and the reestablishment of the natural state of the lands so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area.” Staff feels that this project is in keeping with these guidelines. (See Attachment D)

DISCUSSION:

San Diego Creek is the largest creek entering Newport Bay and contributes approximately 80% of the freshwater flow into the bay. Every year, large volumes of trash and debris enter the bay from the creek. A large portion of this trash/debris is deposited on the vegetated inter-tidal areas around Upper Bay, the beaches at the Newport Dunes, and around the lower harbor. Some of the trash and debris exits the Harbor Jetty into the open ocean with a portion deposited on beaches along the Balboa Peninsula and Big Corona.

The amount of trash and vegetation debris entering the bay has not been directly measured. The City's log boom deployed at North Star Beach captures 20-80 tons of trash and debris annually. About 20 percent of the mass is trash with the remainder debris. Volunteers pick up trash in the upper bay and harbor during various events throughout the year including Coastal Cleanup day, Earth Day, Martin Luther King Day, and the Underwater Clean Up. “Help Your Harbor” does monthly cleanups, with “Surfrider” and “Zero Trash Newport” also performing monthly cleanups. Volunteers do not pick up reeds and other organic debris. The total mass of trash (with no reeds) picked up by volunteers may be in the range of 20-30 tons annually. However, the trash and debris that remains is considerable and it can be safely estimated that the amount of trash and debris entering the bay is well over 100 tons annually, perhaps exceeding 300 tons during a very wet year.

At the July 2016 meeting of the Water Quality/Tidelands Committee, Pat Fuscoe, Fuscoe Engineering, reviewed options (including booms, skimmers, and “Bandalong” litter trap) for capturing trash in San Diego Creek. He concluded that a trash wheel at the mouth of San Diego Creek, supplemented with installation of several trash booms upstream of the Highway 405, were the best options for reducing trash loading from the creek into the bay.

The concept for the Newport Bay Trash Wheel Project is based on a device successfully operating in Baltimore Maryland’s Inner Harbor. The Baltimore trash wheel is a moored vessel that uses booms to move trash to the trash wheel where rotating trash rakes convey the trash onto a conveyor belt that moves the trash up and into a dumpster. The trash rakes and the conveyor belts are powered by the creek’s current and solar power. Once the dumpster is full, a towboat transports the dumpster barge to an unloading ramp.

In 2017, the Water Quality Tidelands Committee, chaired by Council Member Dixon, identified the trash wheel project as a Committee priority. Fuscoe prepared a technical memorandum for the trash wheel project that became the basis for a 2018 grant application to the State of California Ocean Protection Council (OPC). The City was subsequently successful in securing one of the two grants awarded last year at an amount of \$1.68 million for the design and construction of the Trash Wheel. The grant application received support from Newport Bay Conservancy, Surfrider Foundation Newport Beach, Help Your Harbor, and Orange County Coastkeeper. The project has also received support from the California Department of Fish and Wildlife and State Coastal Conservancy.

The City’s proposed project has a special challenge: the loaded dumpster cannot be towed from San Diego Creek to the unloading ramp at the Newport Dunes due to a concrete breakwater obstruction located at the mouth of San Diego Creek. Instead, the dumpster will sit on a short, elevated rail system in the creek, which will be winched landside when full. Landside, a standard front-loading garbage truck will directly dump the contents of the 8-cubic yard dumpster into the truck body. The project design must incorporate features to safely and securely operate and transport the trash landside without leakage or loss of trash during windy and/or storm conditions. As the project will be highly visible, project aesthetics are critical. In addition to providing detailed construction documents for this unique project, regulatory agencies staff may require detailed supplementary analyses before approving permits or providing other approvals.

This project will require a Coastal Development Permit from the California Coastal Commission, and permits from the Army Corps of Engineers, California Department of Fish & Wildlife, and the Regional Water Quality Control Board. Due to the proposed location of the Trash Wheel within San Diego Creek, easements are also required with the landowner, the Irvine Company, and Orange County Flood Control.

Design, Construction and Operation/Maintenance Cost Considerations

As the proposed Trash Wheel will be the first of its kind built on the west coast, there is some uncertainty on what studies and analyses the regulatory agencies will require as part of the permit applications.

As such, the not-to-exceed limit of \$464,925 in the proposed agreement with Burns & McDonnell Engineering Company, Inc. includes \$60,000 to prepare additional studies if needed.

The concept-level estimate for construction cost is \$1.6 million, but could range a bit higher due to the leading edge nature of this project. With 10% contingency, the construction budget would be about \$1.8 million. However, at the initial concept design level, a higher construction contingency is prudent. If City Council approves the proposed agreement, staff will initially limit the consultant's scope to focus on preparing a detailed, high confidence, cost estimate. This will entail some detailed analysis of some of the project elements so that costs can be accurately ascertained. Staff proposes coming back to City Council to report on the detailed cost estimate and obtain confirmation that Council remains comfortable with continuing to move forward with the detailed design.

The OPC grant allocates \$1.38 million for construction. To supplement the higher anticipated construction cost, staff will submit a grant application in April 2020 for an additional \$500,000 for the project's construction from OCTA's Measure M2-Tier 1 program. As part of the grant application package, a resolution passed by City Council authorizing submission of the grant application is necessary. City Council consideration to approve the authorizing resolution would be a separate Council action.

Staff met with OCTA on March 3, 2020 and verified that the Trash Wheel is eligible for construction grant funding. Based on the meeting, City staff believes the grant application will be favorably received by the OCTA grant reviewers with a very good chance for funding. Grant awards would be announced in fall with formal agreements signed at the end of the year. Staff would report to Council on the Measure M award as soon as it is announced. A 20% City cash match would be required with the Measure M grant award. The match could be funded from the Upper Bay Reserve Fund. There are also other funding opportunities that staff is exploring; however, it is too early to assess if these potential sources are viable. Table 2 summarizes the projected funding sources for project's design/geotechnical work and construction.

Table 2: Summary of Funding for Design and Construction

Funding Source	Design Funding	Construction Funding	Total
OPC Grant Funds	\$300,000	\$1,380,000	\$1,680,000
Measure M Grant Funds (projected award)	\$0	\$500,000	\$500,000
Upper Bay Reserve Funds	\$224,925	\$100,000	\$324,925
Total	\$524,925	\$1,980,000	\$2,504,925

The expected useful lifetime of the trash wheel is 20-years. Maintenance costs are estimated at \$12,000 for annual operations and maintenance, and \$15,000 for dumpster unloading, for a total of \$27,000 annually. Costs would be higher for a long rain season.

Cost/Benefit Considerations

During the first year of operation, the trash wheel may remove 25-50 tons per year. As staff becomes more familiar with the operation, removal rates may double. As a comparison, the Baltimore Trash Wheel removes 400 tons annually in a larger watershed.

Assuming a removal rate of 50 tons per year and an overall cost of \$3 million for design, construction and operation/maintenance, the removal cost is estimated to be in the range of \$3,000 to \$5,000 per ton. As a comparison, the cost of trash removed in catch basin screen inserts is estimated to be in the range of \$10,000 to \$20,000 per ton. For the trash captured at the Santa Ana-Delhi Channel (SAD) Diversion, the cost of trash removed may be in the range of \$50,000 to \$60,000 per ton. Note that the catch basin screen inserts and SAD Diversion project are full capture systems; the trash wheel only removes floatable trash. The SAD Diversion project also has a water reuse component.

Design Consultant Selection

In October 2019, staff issued a Request for Proposals (RFP) to solicit proposals for engineering, design and permitting of the project. Two proposals were received, from Burns & McDonnell and Moffatt & Nichol. As shown in Table 3, senior staff reviewed and scored the proposals and selected Burns & McDonnell based in part on demonstrating a clearer understanding of the project's challenges. The recommended consultant successfully provided professional engineering services for the Big Canyon Phase 1 project completed in 2017.

Table 3: Proposal Scores

Proposer	Total Score	Overall Rank
Burns & McDonnell	89.3	1
Moffatt and Nichol	87.0	2

Staff requests City Council approval of the Professional Services Agreement with Burns & McDonnell Engineering Company, Inc. at a not-to-exceed amount of \$464,925.

ENVIRONMENTAL REVIEW:

Staff recommends the City Council find the professional services agreement with Burns & McDonnell is not subject to the California Environmental Quality Act (CEQA) pursuant to Sections 15060(c)(2) (the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment) and 15060(c)(3) (the activity is not a project as defined in Section 15378) of the CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, because it has no potential for resulting in physical change to the environment, directly or indirectly.

City Council, on September 25, 2018, adopted Resolution No. 2018-67 (Attachments D), a resolution of the City Council of the City of Newport Beach adopting Mitigated Negative Declaration No. ND2018-002, (SCH 2018081013), prepared for the Newport Bay Water Wheel (PA2018-153), pursuant to the California Environmental Quality Act, State CEQA Guidelines and City Council Policy K-3.

NOTICING:

The agenda item has been noticed according to the Brown Act (72 hours in advance of the meeting at which the City Council considers the item).

ATTACHMENTS:

Attachment A – Location Map

Attachment B – Professional Services Agreement

Attachment C – Budget Amendment

Attachment D – Tide and Submerged Lands - A3 SB 573