

**To the Mayor and Members of the City Council****September 24, 2024**

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SUBJECT: CLOSEOUT OF THE TRINITY RIVER WATERWHEEL INITIATIVE

The purpose of this Informal Report is to closeout the Trinity River Waterwheel Initiative — a planned project between the City of Fort Worth, Tarrant Regional Water District, Streams & Valleys, Inc., and private donors on the Trinity River. This report supplements the information provided in previous Informal Reports dated October 24, 2023, and June 4, 2024.

Waterwheel Status

Efforts to raise all necessary funding to support a bid for constructing a waterwheel began in December 2021. Based on the bid responses, the construction and purchase costs of a waterwheel totaled \$1.9 million. As of August 31, 2024, including committed funding from donors and project partners, there is a remaining outstanding project funding gap of approximately \$500,000. The cost drivers that have contributed to the project funding gap include increased cost of materials and labor since project conception. At this time, the Trinity River Waterwheel Initiative is paused until future funding is determined.

Next Steps

Environmental Services will contact donors and provide an option for a refund or to support anti-litter initiatives through the Keep Fort Worth Beautiful Program. Alternate anti-litter initiatives may include installation of litter interceptors in waterways or additional clean-up events to collect floatable litter.

In the event that additional funding opportunities, such as grants and large donations, become available, the City will revisit the Trinity River Waterwheel Initiative.

For questions on the information in this report, please call: Cody Whittenburg, Environmental Services Director at (817) 392-5455.

David Cooke
City Manager

attachments: IRs 23-0762 and 24-1865

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**SUBJECT: TRINITY RIVER WATERWHEEL INITIATIVE**

The purpose of this Informal Report is to provide an update on the Trinity River Waterwheel Initiative, a collaborative and innovative partnership project among the City of Fort Worth, Tarrant Regional Water District (TRWD), Streams & Valleys, Inc. and private funders.

Waterwheel Project Overview

The City of Fort Worth is home to over 100 miles of trails along the Trinity River and its tributaries. The Trinity River Waterwheel Initiative project directly impacts the cleanliness of the waterway by removing floatables from the Trinity River using renewable energy through hydropower and solar power, minimizing energy costs and related maintenance. By locating a waterwheel-powered trash interceptor (waterwheel) on the Trinity River along the Trinity Trails System, it is anticipated that – in addition to helping to keep the river clean – the waterwheel will also bring heightened awareness of community stewardship. It will provide an educational opportunity and visual reminder of the community's efforts to combat litter within its watersheds, and the importance of litter control and litter clean up efforts.

Waterwheel Location and Reducing Litter

The waterwheel will be installed in the Trinity River-Clearfork along the south bank and is engineered to be effective as water levels of the river rise and fall. It can be expected to demonstrate the greatest benefits during and after medium and high-flow rainfall events that frequently flush litter and debris into the river from the storm drainage system. The waterwheel collects and removes trash and debris from the river's surface.

The waterwheel can:

- capture up to 50,000 pounds of floatable litter and debris daily known as 'floatables'
- effectively contain and collect floatables at a single point to prevent it from continuing downstream
- use reusable refuse containers (i.e., dumpsters instead of disposable nets)
- improve the aesthetics and the usability of waterways
- improve aquatic ecosystems for fish and wildlife
- provide an opportunity to educate the community about environmental stewardship

To highlight the need for a waterwheel on the Trinity River, staff collected approximately 28,500 pounds of litter and debris after one heavy rainfall event on August 21, 2022 in a four-day period. This was collected mostly by hand from the banks of the Trinity River. That same year, TRWD's two Trash Bash volunteer litter clean-up events collected approximately 13,500 pounds of litter and debris from along the banks of the Trinity River. The cleanup events are indicative of the amount of floatables that flowed downstream. The planned location of the waterwheel is shown in Figure 1, below.

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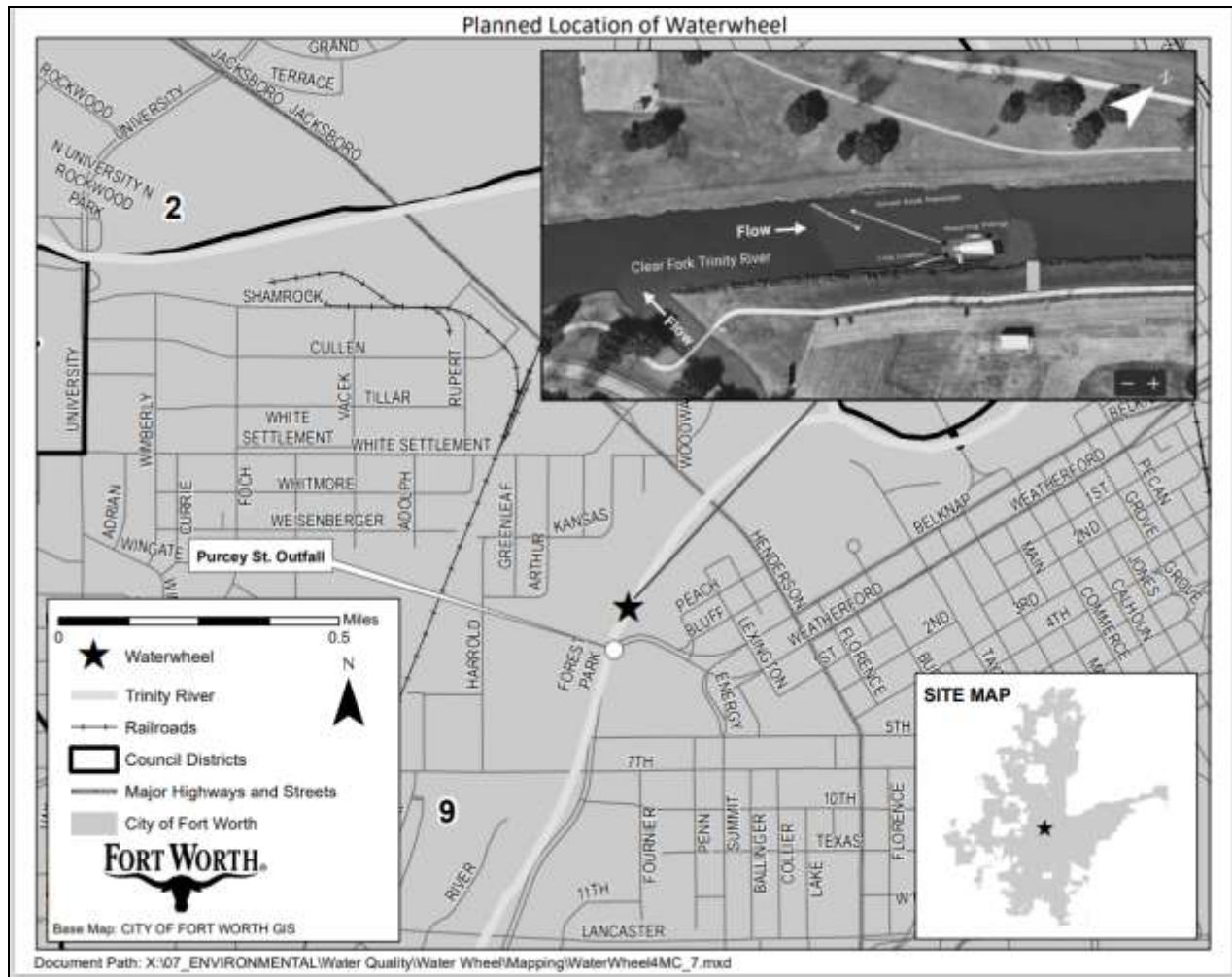
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Figure 1: Planned Location of Waterwheel



Waterwheel Project Details

Fort Worth will be home to the sixth waterwheel in the world and the first waterwheel in Texas with an inland river application. Proof of concept has been demonstrated in Baltimore Harbor (four (4) waterwheels) and most recently in Panama City, Panama.

The installation of the waterwheel is expected to be completed in Summer 2024. Once installed, the expected lifespan of a waterwheel is estimated to offer over 20 years of service with normal preventative maintenance. After installation, operations and maintenance costs to include debris removal/disposal will be shared between the City and TRWD. TRWD will be conducting the routine removal of collected debris to ensure continual operation of the waterwheel.

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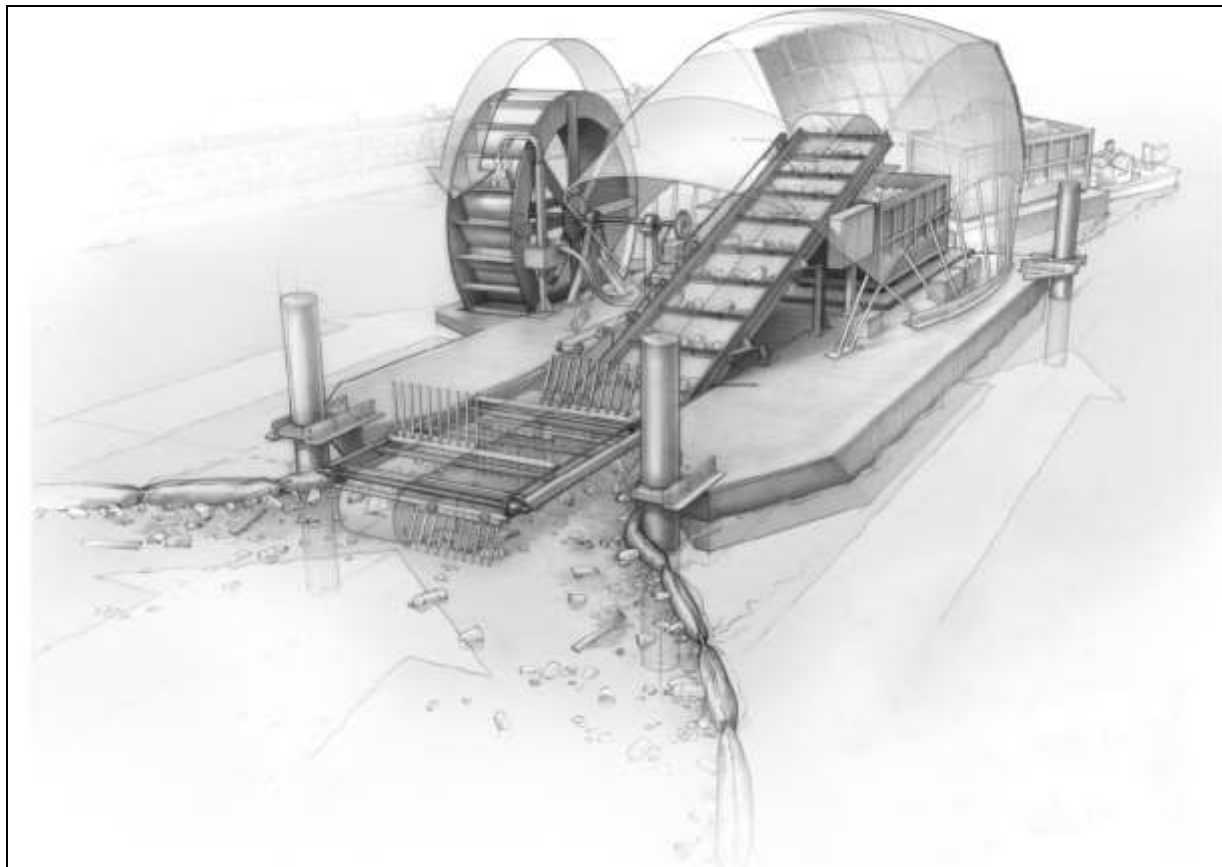


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An M&C to authorize the Memorandum of Understanding (MOU) between City of Fort Worth and TRWD will be on the November 14th council agenda for approval. The TRWD Board of Directors approved execution of this MOU on September 19, 2023.

Upon construction, the waterwheel will be located specifically downstream of the Purcey St. stormwater outfall, located south of the Henderson St. Bridge over the Trinity River. This location was strategically located because much of the storm drain network from downtown Fort Worth drains to this point. The dimensions of the waterwheel are approximately 62 feet long, 28 feet wide and 22 feet tall. The collection equipment sits on a floating deck; the waterwheel mechanism is attached onto the interior (river side) of the deck which helps to power the conveyor belt that draws floatables into the reusable dumpster. Solar energy is used during low-flow conditions. The waterwheel is expected to be a key attraction to the river that will not inhibit river recreation and enjoyment. Figures 2, 3 and 4, below, offer architectural rendering and engineering drawings.

Figure 2: Architectural Rendering of Waterwheel



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Figure 3: Profile Drawing of Waterwheel

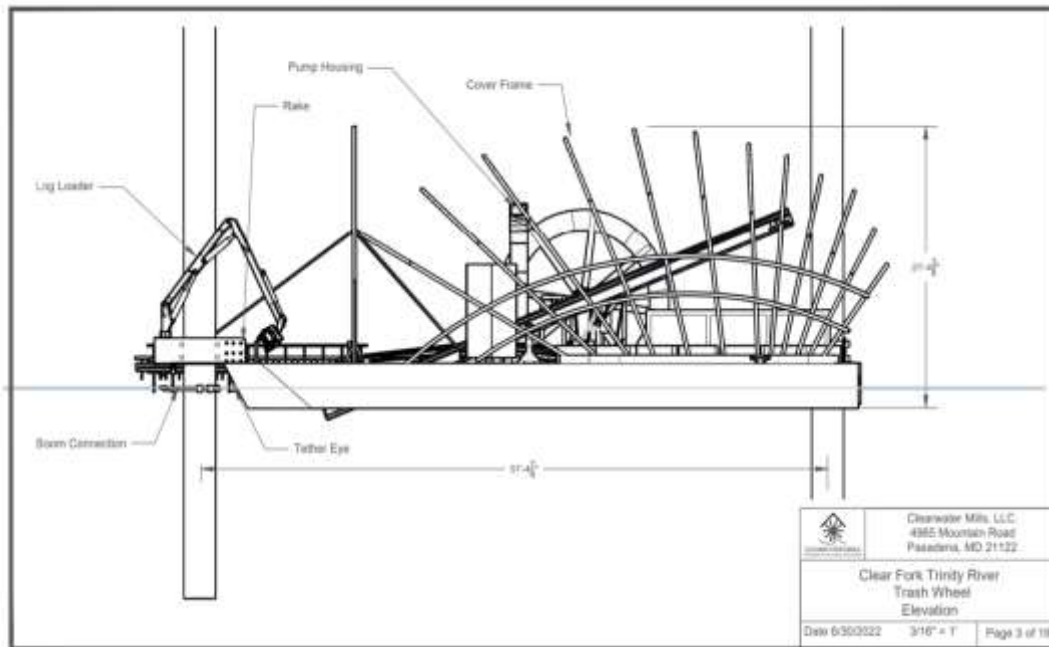
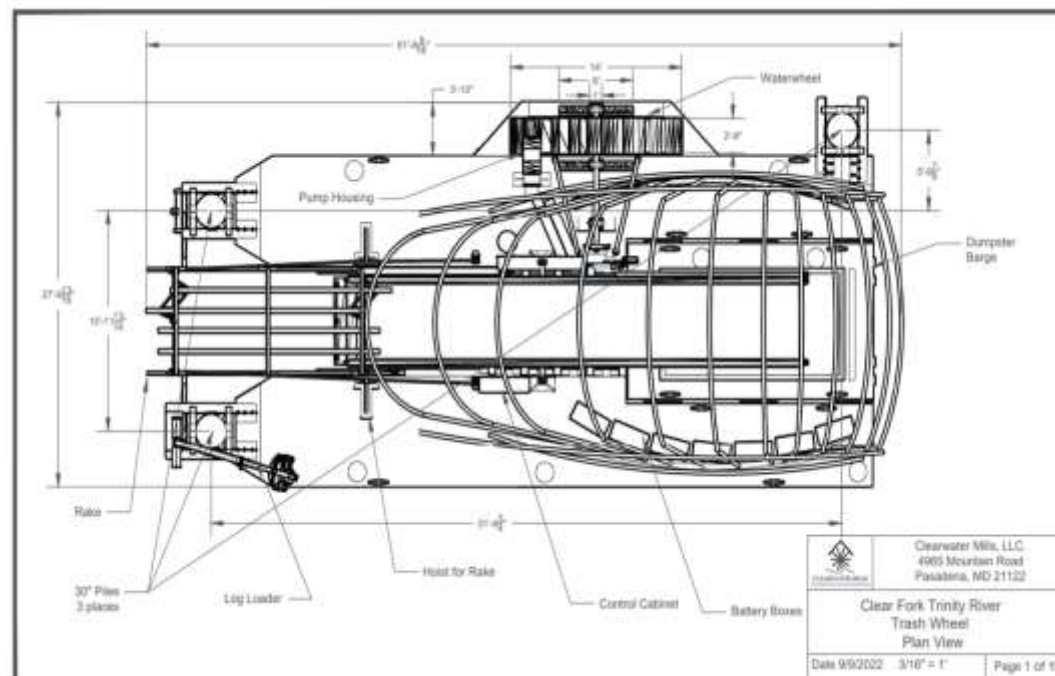


Figure 4: Aerial Drawing of Waterwheel



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Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) has been involved in the review and approval of the waterwheel project; this is required to install infrastructure in the Trinity River. The TRWD has received the necessary approvals and permitting from the USACE that is required to move this project forward.

Waterwheel Project Funding

In FY2021, City Council authorized M&C21-0985 to begin accepting donations for the installation of a waterwheel up to \$2.5 million. A special projects capital project fund was created for donations received. A webpage for the Trinity River Waterwheel Initiative was also created to accept donations for this project through the City of Fort Worth website. At this time, \$660,000 in private donations has been secured.

The adopted FY24 Budget for the Environmental Protection Fund included \$350,000 to cover one half of estimated capital costs, and the other half is in the FY24 budget for the TRWD. In addition to the capital funds, the City and TRWD have agreed to share the estimated annual maintenance expenses with a 50/50 split. Maintenance costs are anticipated to be \$50,000 and no more than \$75,000, annually.

The City and its partners will continue to engage in private fundraising efforts. A summary of the initial funding to date is listed below. To learn more about the waterwheel project, project donors to date, and to contribute, please visit: www.fortworthtexas.gov/waterwheel.

Funding Source	Value
Private Donors	\$660,000 received or committed
Tarrant Regional Water District Funding	\$350,000
Environmental Protection Fund - Capital Funds	\$350,000

The City of Fort Worth, TRWD, and Streams & Valleys offer a special thanks to our current donors included in the table, below. Additional donors will be announced as donations are received.

Christine A Miller & Gary H Glaser Charitable Fund	Mrs. Renfro's
Freese & Nichols	Nicholas Martin Jr. Family Foundation
Greater Fort Worth Assoc. of Realtors	Terracon
GWR Foundation Fund	TTI, Inc.
Leggett & Platt	Wilkes Family Charitable Fund
META	Other Individual Donors

For any questions on this report, please contact Cody Whittenburg, Interim Environmental Services Director, at 817-392-5455.

David Cooke
City Manager

To the Mayor and Members of the City Council

June 4, 2024

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SUBJECT: TRINITY RIVER WATERWHEEL INITIATIVE UPDATE

The purpose of this Informal Report is to provide an update on the Trinity River Waterwheel Initiative which is a collaborative and innovative partnership project between the City of Fort Worth, Tarrant Regional Water District (TRWD), Streams & Valleys, Inc. and private donors to support a clean and healthy Trinity River. This report supplements the information provided in a previous Informal Report issued on October 24, 2023 and will provide an update on anticipated project timing.

Waterwheel Procurement and Funding Status

Funding for the waterwheel project comes from the following sources listed in the table below.

Donations and Commitments (as of June 2024)	
Funding & donations received	\$240,700
City of Fort Worth	\$350,000
Tarrant Regional Water District	\$350,000
Other committed donations	\$400,000
Available project funding	\$1,340,700

Waterwheel Fundraising

The City and its partners continue to engage in private fundraising efforts. Fundraising efforts include outreach to corporations, private foundations, and individuals who are being referred through partners. Additional donors will be announced as donations are received. The City, TRWD, and Streams & Valleys offer special thanks to our current donors, included in the table, below.

Christine A Miller & Gary H Glaser Charitable Fund	Mrs. Renfro's
Freese & Nichols	Nicholas Martin Jr. Family Foundation
Greater Fort Worth Assoc. of Realtors	Terracon
GWR Foundation Fund	TTI, Inc.
Leggett & Platt	Wilkes Family Charitable Fund
META	UpSpire
Fort Worth City Credit Union	Plummer Associates, Inc.
Keep Texas Beautiful	Other Individual Donors

The City, TRWD, and Streams and Valleys continue to work together to strategize on additional donors.

Project Procurement and Estimated Costs

The initial Request for Proposal (RFP), released in 2023, was for the installation of two Waterwheels in the Trinity River. Funding was inadequate to install waterwheels in two locations therefore, the City and its partners focused on fundraising and installing a single Waterwheel at the Purcey Street Outfall. A second (RFP) was issued, and closed in January 2024. The responses were evaluated and for the second time, each response exceeded available funding. The presented prices for the scope of work exceeded the engineering estimates provided in the RFP and available

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project budget. Cost drivers are related to increased construction material prices for steel and concrete, subcontractor availability, and the increased cost of labor.

After evaluation and interviews, staff requested last and final proposals from respondents. Last and final proposals did not reduce the cost estimates. The proposals received in January 2024 are listed in the table below.

Proposals Received January 2024		
Proposal	A	B
Construction of Mooring Pilings	\$1,274,200	\$1,203,450
Waterwheel	\$582,000	\$582,000
Project Expenses	\$1,856,200	\$1,785,450
Current Project Funding Available	\$1,340,700	\$1,340,700
Funding Gap	\$515,500	\$444,750

Waterwheel Next Steps

The next steps include a detailed review of the costs associated with each proposal and the impacts by inflationary factors. Adjustments to the RFP scope of work and continued outreach to the fundraising community will be made to advance the project. An update on fundraising efforts needed to close the gap will be provided at a work session in the Fall of 2024.

To learn more about the waterwheel project, and project donors to date, or to contribute, please visit: www.fortworthtexas.gov/waterwheel.

For questions regarding information in this report, please call: Environmental Services Director, Cody Whittenburg, at (817) 392-5455.

David Cooke
City Manager