

Delaware River Clean-up

RFP by the City of Philadelphia Department of Public Health Division of Environmental Health Services



INTREPID
ENVIRONMENTAL



Meet the Team



Donarly Fernandez
Junior Mechatronic Engineer



Mariel Firpo
Senior Environmental Engineer



Safeerah Moteen
Senior Sustainability Consultant



James Perez
Recycling Specialist

Today's Agenda

01

PROJECT MOTIVATION

The present condition of the Delaware River and the incentive by the City of Philadelphia

02

Project Proposal

Recovery of waste in the River through different technologies

03

Waste Management

Management and processing of recovered waste

04

Budget and Remunerations

Itemized budget description and Company remunerations

05

Impact of the Project Proposal

Environmental, recreational and health improvements by the implementation of Present Initiative

The Delaware River is the largest source of plastics pollution in North America.

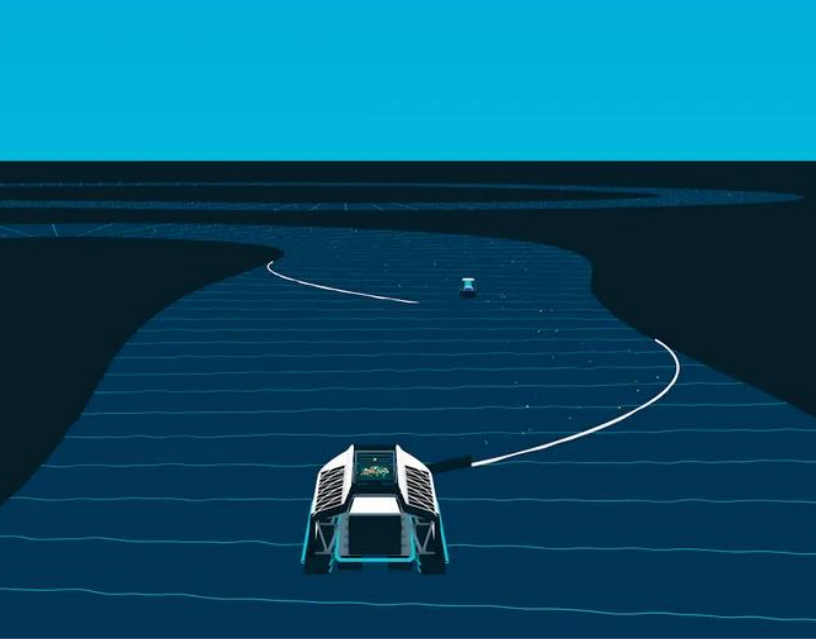
-On average, 141 tons of plastics pollution from the Delaware .

-In Philadelphia, the mismanaged plastic waste generation rate that ends up in the Delaware River is 200 Kg/Km²/ year.



A photograph showing a river surface heavily contaminated with plastic debris. The water is a dark teal color. Numerous small, multi-colored plastic particles (microplastics) are scattered across the surface, along with larger pieces of trash like a white plastic cup and a dark jacket. The text is overlaid on a dark blue semi-transparent bar at the bottom of the image.

The densities of microplastics of throughout the Delaware River are between 28,000 to 3 million plastic particles per square kilometer.



The Collector

A two-maned machine that's sole purpose is to work by itself and collect and stop trash from flowing downstream. This is done through a series of guide netting, sensors, converter belts, and trash collectors.



Collector “Barrier”

The Collector “Barrier” variant follows a simpler approach. That being by a large net.

The barrier catches debris and is emptied by a Collector “Tender”



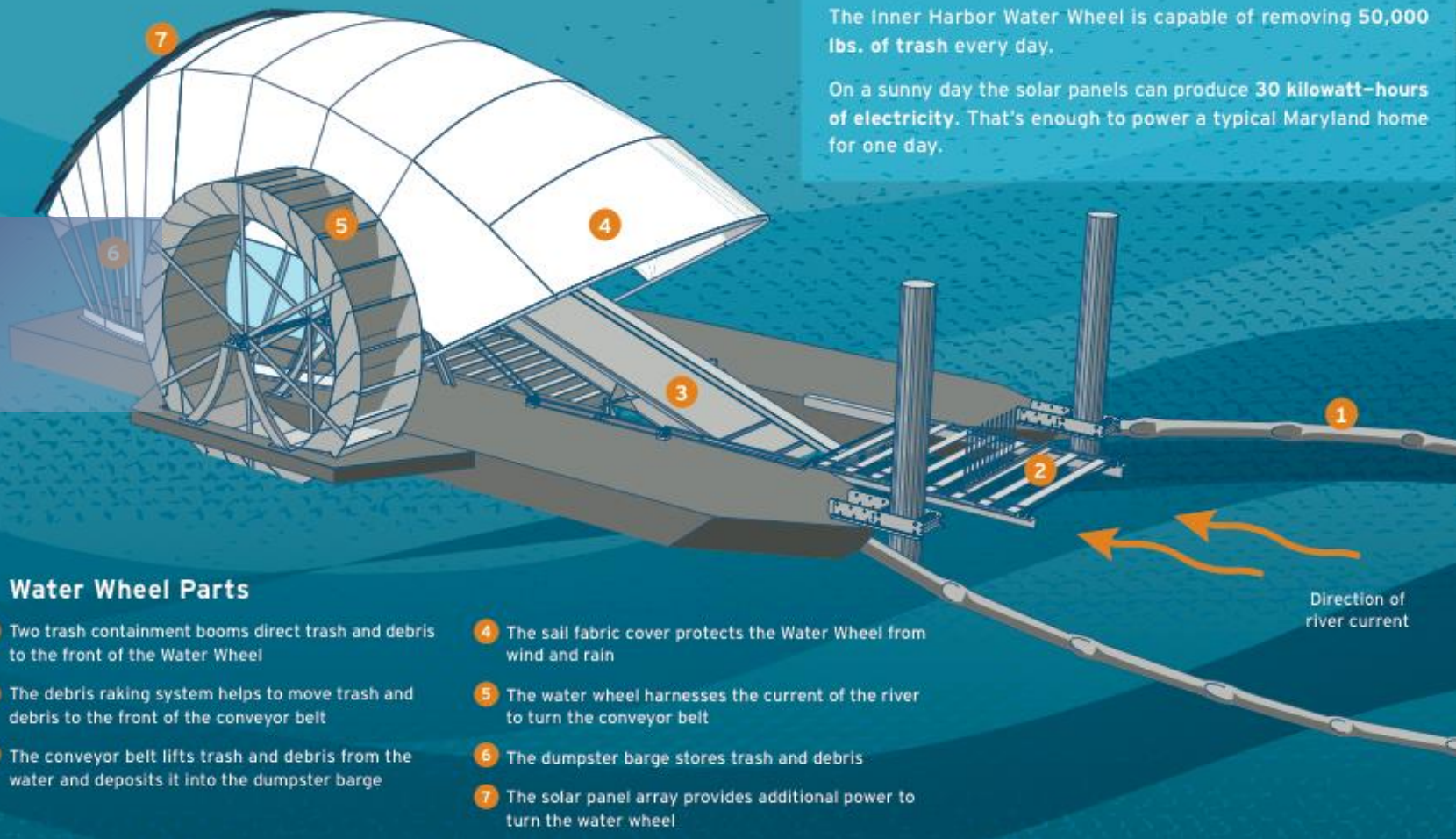
The Collector “Tender (figure to the right) is a rigid inflatable boat. This tiny boat serves to be worth alongside the Collector (Original) and Barrier. It works by loading and offloading the trash collected.

Collector “Tender”

Water Wheel Facts

The Inner Harbor Water Wheel is capable of removing 50,000 lbs. of trash every day.

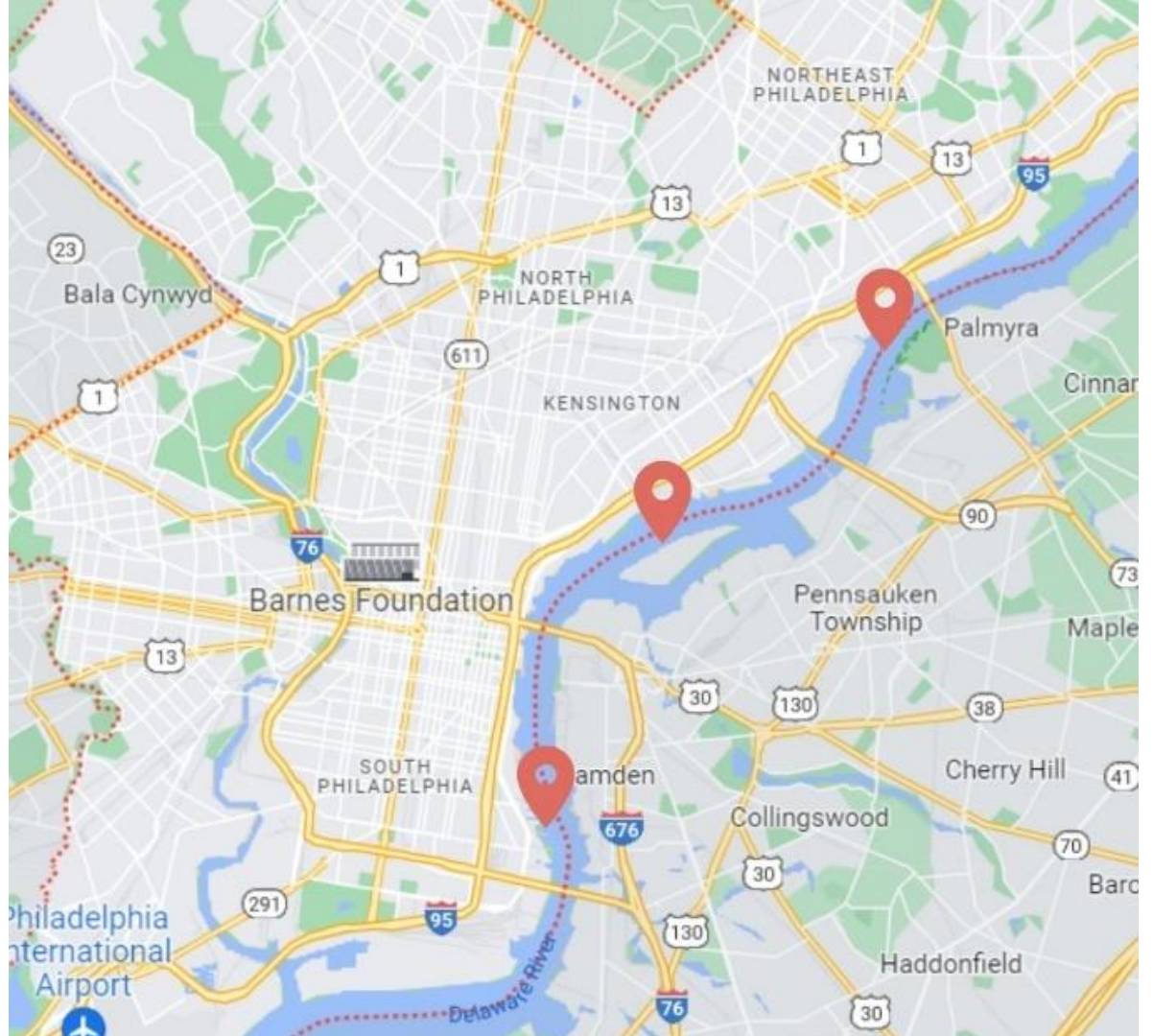
On a sunny day the solar panels can produce 30 kilowatt-hours of electricity. That's enough to power a typical Maryland home for one day.

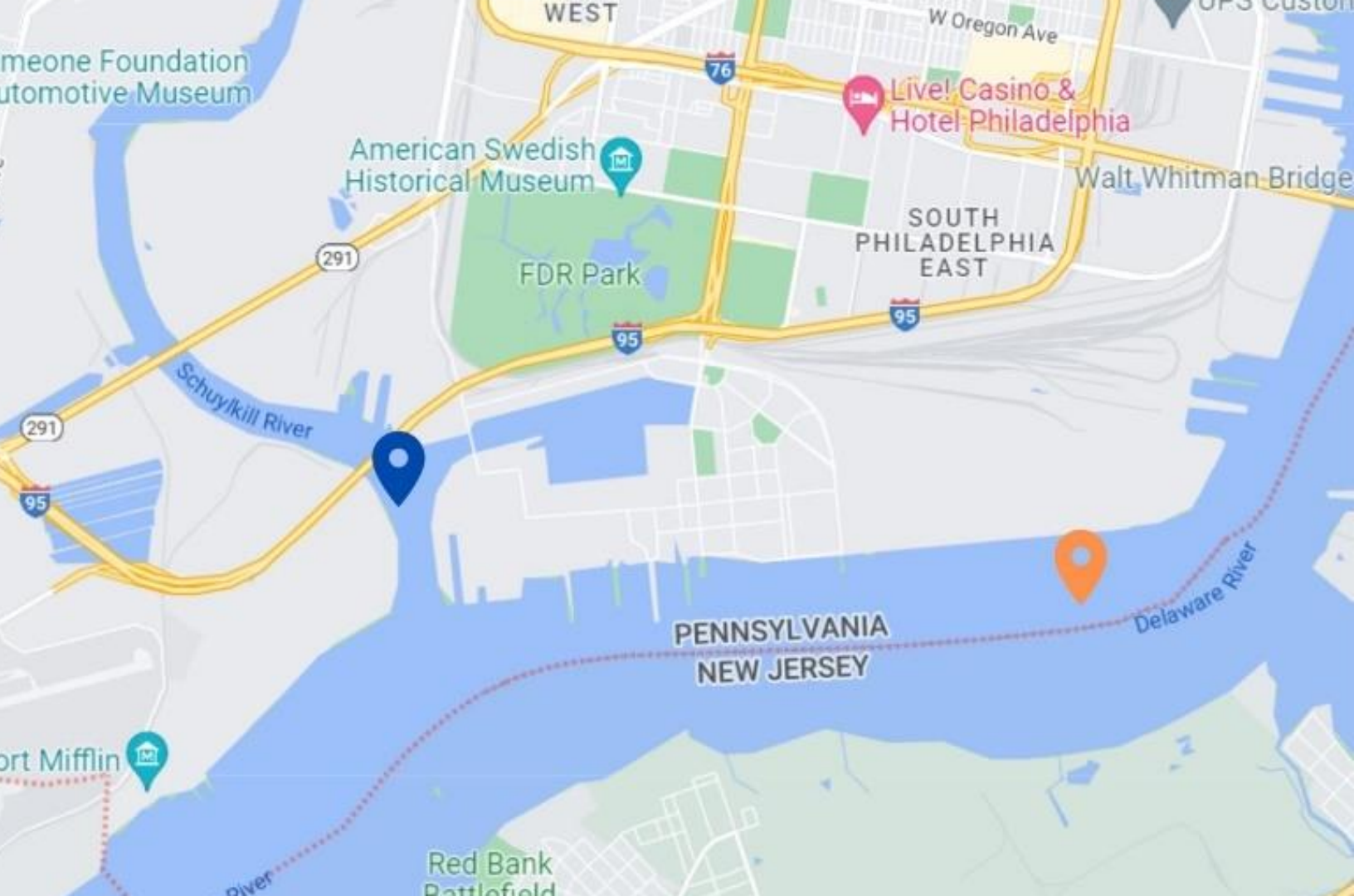


Water Wheel Parts

- 1 Two trash containment booms direct trash and debris to the front of the Water Wheel
- 2 The debris raking system helps to move trash and debris to the front of the conveyor belt
- 3 The conveyor belt lifts trash and debris from the water and deposits it into the dumpster barge
- 4 The sail fabric cover protects the Water Wheel from wind and rain
- 5 The water wheel harnesses the current of the river to turn the conveyor belt
- 6 The dumpster barge stores trash and debris
- 7 The solar panel array provides additional power to turn the water wheel

Location of Water Mills





Location of Water Mills



WASTE MANAGEMENT

BUDGET & RENUMERATIONS



Machinery

- 74,4% of the budget
- Includes the Collector and 3 Water Mills
- Also includes Warehouse for manufacturing



Workers

- 11,8% of the Budget
- Specialists and Design Personnel
- Maintenance services for 3 years



Transportation

We plan on using basic methods of transport from and to our warehouse in New Jersey. We will be moving our machines through trucks. This accounts for about 3,8% of our budget.



Renumerations

- 10% of the cost of manufacturing, services and materials
- Right to process all salvageable materials

Budget Total: \$3,304,000

