

*The latest updates on the Waterway Protection Tunnel, a key part of MSD's plan to capture and treat 98 percent of the combined sewer overflow volume by 2020.*

### TUNNEL BORING MACHINE 'BUMBLEBEE' ARRIVES

*412-foot-long workhorse will excavate Waterway Protection Tunnel 18 stories underground*

MSD's \$200 million Waterway Protection Tunnel project is preparing to move to the tunneling phase with the arrival of a massive tunnel boring machine named "Bumblebee."

MSD celebrated the arrival of the machine's signature piece — a 22-foot diameter cutterhead — at a ceremony on November 5. Project engineers and community leaders signed a banner unveiling the machine's name "Bumblebee," inspired by the Muhammad Ali's famous line, "Float like a butterfly, sting like a bee."

Parts for the 412-foot long machine have been arriving in Louisville on more than 50 tractor-trailer trucks during the past month. A crane is used to lower Bumblebee's components into the working shafts at the 12th and Rowan streets site. Workers will then assemble the machine underground. Tunneling of the Waterway Protection Tunnel is planned to begin this month.



MSD officially welcomes the "Bumblebee" to the tunnel construction site

### MSD EMPLOYEE NAMES TUNNEL BORING MACHINE



Mike Fitzner proudly stands by the massive 22-ft cutterhead he named.

MSD Accounting Analyst Mike Fitzner submitted the name Bumblebee as part of a naming contest MSD conducted among its employees. Fittingly, Bumblebee smashed the competition. Fitzner has a special connection to Muhammad Ali, which led to his naming choice. The heavyweight champion came to the bank branch where his mother was working to sign autographs for charity. His mom had baked cookies for the event. "Ali enjoyed the cookies and asked to meet the baker. He told her that she was wasting her time working in a bank and should own a bakery," said Fitzner. "Ali gave her the confidence to do just that."



Over the next 12 months, Bumblebee will carve through more than four miles of solid bedrock, 18 stories underground. It will move forward with 3.5 million pounds of thrust, applying nearly 1.5 million pounds per foot of torque.

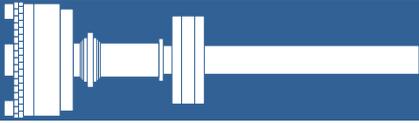
"Tunnel boring projects are wonders of engineering and technology, and we are excited to bring this type of solution to Louisville to help create safe and clean waterways," said MSD Executive Director Tony Parrott.

Once complete, MSD's Waterway Protection Tunnel will help prevent wastewater and stormwater from overflowing during periods of heavy rain — ultimately reducing pollution in the Ohio River and Beargrass Creek. The Waterway Protection Tunnel will have the capacity to store 55 million gallons of combined wastewater and stormwater until capacity is available in the MSD sewer system. The contents are then pumped back into the system, conveyed to MSD's Morris Forman Water Quality Treatment Center for proper treatment and release to the Ohio River. The tunnel is slated to be operational by the end of 2020.



Attendees "christen" the cutterhead with bottles of Louisville Water's pure tap"





### ADVENTURES IN WATER FESTIVAL BRINGS SCIENCE TO LIFE

With the Ohio River as a backdrop, hundreds of students explored water's role in our community at the Adventures in Water Festival. MSD's Waterway Protection Tunnel project was a highlight for students who examined rock core samples and learned how a deep tunnel will protect local waterways.

Now in its 11th year, the festival at Louisville Water Tower Park hosted students from 24 Louisville public and private schools. The students rotated through educational and interactive programs that included an opportunity to spray a fire hose, test out a new tool to haul water, and view a giant fish tank filled with an amazing assortment of fish pulled right from the Ohio River.



Each educational station provided a 20-minute interactive learning experience giving the students an opportunity to try things out and ask lots of questions. At the Waterway Protection Tunnel station, students enjoyed learning about the tunnel and the geological make up of our region through rock core samples. Students also learned about the land and sea creatures that lived here 350 million years ago!

Highlighting the engineering and innovation of the MSD's project is a great way to connect science to the real-world. When the project concludes in 2020, the tunnel will capture stormwater and wastewater and hold it until there's capacity at MSD's water quality treatment center. This innovation underground will eliminate the combined water from spilling into local waterways.

To learn more about the Waterway Protection Tunnel visit [LouisvilleMSD.org/tunnel](http://LouisvilleMSD.org/tunnel).



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# DID YOU KNOW?

- THE OHIO RIVER BEGINS IN PITTSBURGH, PA AND ENDS IN CAIRO, IL WHERE IT EMPTIES INTO THE MISSISSIPPI RIVER.
- THE OHIO RIVER IS FORMED BY THE CONFLUENCE OF THE ALLEGHENY AND MONONGAHELA RIVERS.
- THE OHIO RIVER IS 981 MILES LONG.
- THE DEEPEST POINT IN THE OHIO RIVER IS 132 FEET RIGHT HERE IN LOUISVILLE, KY.