



DRAINAGE TUNNEL

What is the I-94 drainage tunnel?

A drainage tunnel is a deep, large-diameter underground pipe designed to store and transport stormwater during heavy rain events. The I-94 drainage tunnel will upgrade the freeway's drainage system to better handle intense and frequent storms and reduce the risk of flooding both on the freeway and in nearby neighborhoods.

Why build a drainage tunnel?

Tunnels provide the ability to store large amounts of stormwater. Unlike traditional drainpipes that quickly send water into the sewer system, the tunnel will hold the water and discharge it slowly into the Conner Creek combined sewer system. This reduces pressure on the city's sewer system, making it more efficient and helping protect homes, businesses and streets from overflow.



What are the main benefits of a drainage tunnel?

The size of the tunnel is designed using recent rainfall data to handle heavier and more frequent storms and reduces the risk of flooding. It keeps water from the freeway and service drives separate from the city's combined sewer system, reducing the peak flow of stormwater from I-94 to the city's system by 82 percent.

How will the tunnel work?

During heavy rain events, the stormwater flows from the freeway and service drive in a network of pipes that direct flow into "drop shafts" (large pipes). These shafts connect to the tunnel below, where the stormwater then flows to a pump station. The pump station lifts the water and discharges it into the Great Lakes Water Authority combined sewer system. Flip to the back for a visualization of the tunnel and key technical terms defined.

Project Details

Tunnel location: Below the westbound I-94 service drive between Cadillac and Barrett avenues

Tunnel depth: Approximately 50 to 85 feet below ground

Tunnel launch and mining site: Located along the north side of the I-94 westbound service drive between Cadillac Avenue and Bewick Street

Construction timeline: Late 2026 - 2028

Estimated cost: \$161 million

Drainage Tunnel Size

Estimated diameter (size)

14.5 to 17 feet
(minimum)

Estimated capacity (volume)

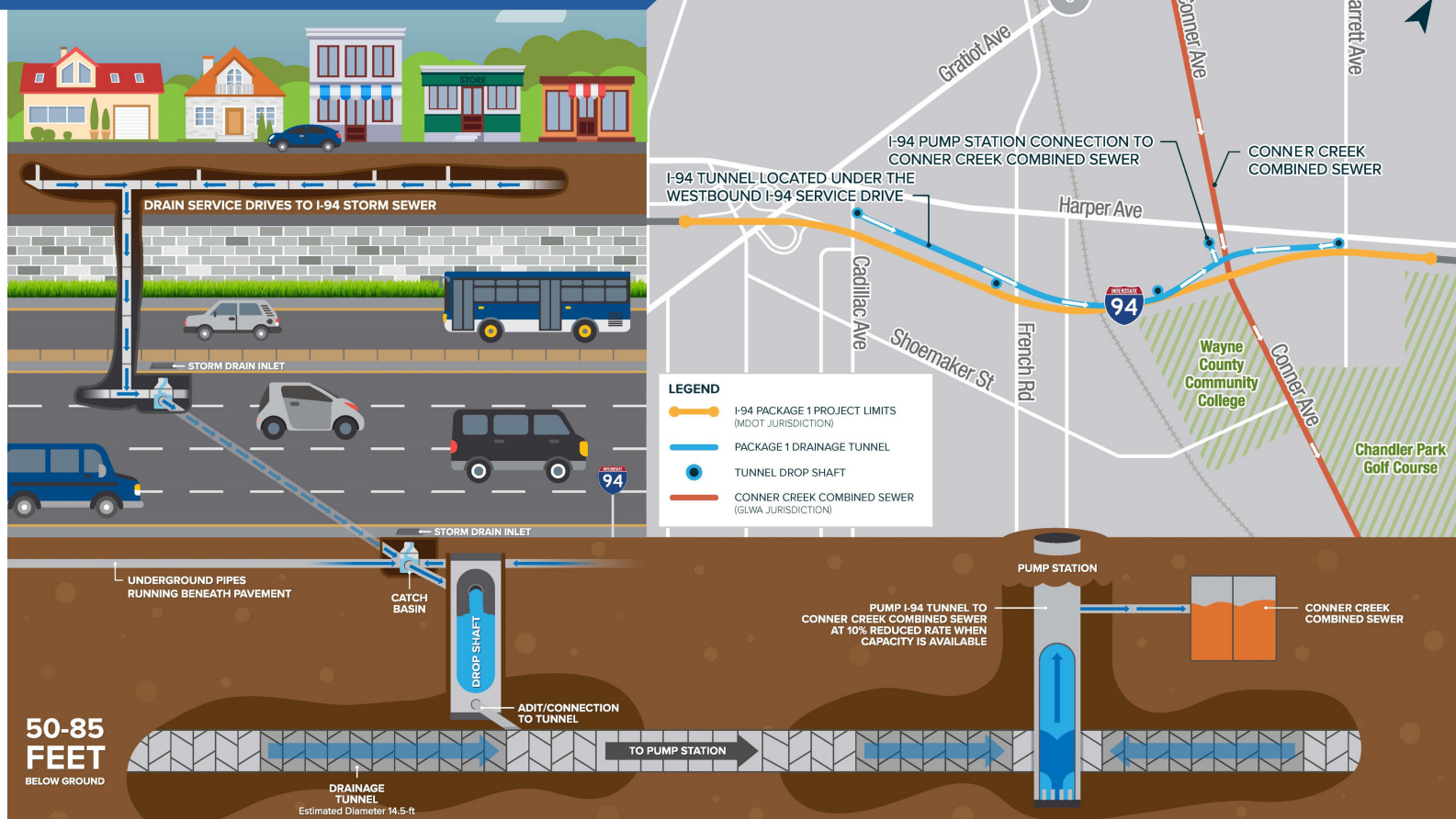
8 MG
(million gallons)

Estimated tunnel length

5,700 feet
(just more than 1 mile)

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Visual Overview



Key Technical Terms

- 1. Tunnel boring machine (TBM)** - A large underground steerable drill that digs tunnels to their full size in one step. It uses a rotating cutterhead to dig through the ground while protecting workers inside. It can install curves in the tunnel with an accuracy of less than a quarter-inch.
- 2. Launch shaft** - A deep vertical hole that's dug from the surface down to where the tunnel will be built. It is used to lower the TBM into place so it can start digging the tunnel under ground.
- 3. Retrieval shaft** - A deep vertical hole used to lift the TBM out of the ground once it completes digging the tunnel.
- 4. Drop shaft** - A vertical pipe that carries rainwater from street-level drains down into the tunnel. It also lets workers access the tunnel and helps release air when the tunnel fills during storms.
- 5. Pump station** - A deep structure housing the pumps needed to empty the deep drainage tunnel into the Conner Creek combined sewer after a rain event. It includes a backup power source to mitigate potential power loss during storms.
- 6. Adit** - A short, horizontal or near-horizontal tunnel connecting the drainage tunnel and drop shaft.

Questions?

For more information, visit our website:

<https://bit.ly/MDOTi94Project>

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