



# 3RPORT

Ft. Wayne, IN, USA



## Project Information

**Project category:**  
Infrastructures

**Years of construction:**  
2018-2021

**Years of MAPEI involvement:**  
2018-2022

**Project owner:**  
City of Fort Wayne, Indiana

**Main contractor:**  
Salini-Lane Healy

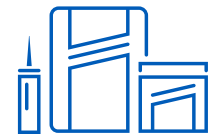
**Role of MAPEI:**  
Supplying products for TBM tunneling operations and concrete repair

**MAPEI coordinators:**  
James Pinkley, Dr. Cristina Oñate and Tanner Murt



## Project Overview

MAPEI's Underground Technology Team (UTT) worked closely with the contractor, providing innovative chemical solutions and world-renowned know-how to nearly every aspect of the \$188M 3RPORT project. Once operational, the tunnel will reduce combined sewage overflows (CSOs) by an estimated 94%, improving the water quality of Fort Wayne's three rivers and reducing flooding risk to the community.



## Products Used

**Concrete repair:**

**Epojet™ LV**  
**Planitop® 12 SR**  
**Mapecure™ DR**  
**Planitop® 18**

**Injections:**

**Cablejet**  
**Microcem 12000**  
**Resfoam® SS 75**  
**Resfoam HBA 5**  
**Resfoam 1K-M**  
**Resfoam 1K-M AKS**

**Slurries for TBM:**

**Mapebent API 5**  
**Mapeflock 10**  
**Mapedrill SA1P**  
**Mapedrill EX1/P**

**Back-filling grouts for TBM operations:**

**Mapequick CBS System 1 [NA]**  
**Mapequick CBS System 2**  
**Mapebent CBS 5**

**Tail sealant for TBM:**

**Mapeblox T**

# 3RPORT

Ft. Wayne, IN, USA

## MAPEI and Three Rivers Protection & Overflow Reduction Tunnel (3RPORT)

The **Three Rivers Protection & Overflow Reduction Tunnel (3RPORT)** is a major portion of the effort to clean up Fort Wayne's rivers and protect neighborhoods from basement backups and street flooding. **This project is crucial in reducing the number of combined sewage overflows (CSOs), events caused when heavy rains overwhelm the combined sewage and stormwater system and result in untreated discharges into the St. Marys, St. Joseph and Maumee rivers.**

Fort Wayne City Utilities has thus designed Tunnel Works, a large tunnel and network of pipes that extend through the bedrock 246 feet (75 m) below the city. This tunnel system will collect and redirect sewage from the combined sewer system to the sewage treatment plant. Tunnel Works is the city's main project for reducing the amount of diluted sewage discharged into the rivers.

The 3RPORT project includes consolidation sewers, nine drop shafts, and a deep rock tunnel to collect and convey CSOs from 22 outfalls along the St. Marys and Maumee rivers. The tunnel has a life expectancy of 100 years.

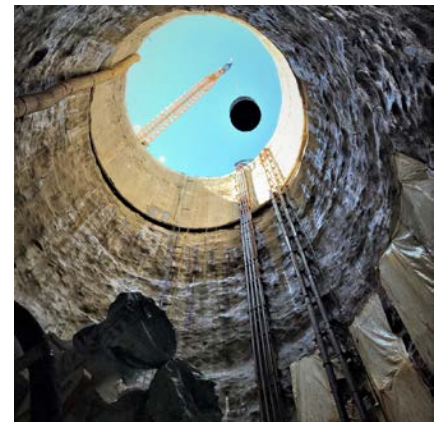
The tunnel has an approximate length of 24,500 feet (7.47 km) and an internal diameter of 16 feet (4.87 m) and was excavated by means of a Herrenknecht slurry shield TBM with boring diameter of 19 feet (5.81 m), which was designed to operate with a support pressure of up to 6.5 bar.

Due to the presence of open vertical and horizontal discontinuities in

the vuggy dolomitic limestone, the hydraulic conductivity was extremely high, making the management of the water inflow during advance and during standstill the greatest challenge for the contractor.

### MAPEI products for different applications

Some MAPEI products – like *Epojet LV*, *Planitop 12 SR*, *Mapecure DR* and *Planitop 18* – were used for repairing concrete elements. Others – like *Cablejet*, *Microcem 12000*, *Resfoam SS 75*, *Resfoam HBA 5*, *Resfoam 1K-M* and *Resfoam 1K-MAKS* – were used for injections to improve the properties of the ground, stop water leakages, improve internal cohesion, anchoring, bolting, etc. *Mapebent API 5*, *Mapeflock 10*, *Mapedrill SA1P* and *Mapedrill EX1/P* were used to prepare slurries to help the TBM excavation operations. The *Mapequick CBS System* was used to produce the two-component annulus backfill grout. *Mapeblox T* was used as a tail sealant and continuously pumped during the TBM advance, to seal the tail brushes and to prevent inflows of water, mud, grout, etc., through them into the TBM working area.



### MAPEI Headquarters of North America

1144 East Newport Center Drive  
Deerfield Beach, Florida 33442  
1-888-US-MAPEI (1-888-876-2734) · (954) 246-8888

### Technical Services

1-800-992-6273 (U.S. and Puerto Rico)  
1-800-361-9309 (Canada)

### Customer Service

1-800-42-MAPEI (1-800-426-2734)

### Services in Mexico

0-1-800-MX-MAPEI (0-1-800-696-2734)