THE DEEP TUNNEL

Data Centers #9 · Teens 10–15

with Dess, the Infrastructure Guard and Lena Ashgrove of Channel 5

CREDITS

The Deep Tunnel · Data Centers #9 · Teen edition (ages 10–15)
Story and production: GOTB Consulting, Chicago
Lead: Dess · Heroes: Undertow, Commons, Gridline, The Auditor · On screen: Lena Ashgrove, Channel 5

AI-GENERATED ART, FICTIONAL CHARACTERS

All characters, the town of Prairie Bend and Channel 5 are fictional. Any resemblance to real people is a coincidence. No real logos are shown. Real institutions are described by role. Every number in this book was checked against public sources before printing; see 'Sources' near the end.
Never enter storm drains, sewers, tunnels or fast-moving water. Stay out of flooded streets.

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THE CREW

DESS

Our lead. Asks where the rain goes.

UNDERTOW

Walks the Deep Tunnel.

COMMONS

Hero of crews. Lantern up.

THE AUDITOR

Sees and reports. Cannot stop anything.

DESS

EVERY STORM, THE CITY SWALLOWS RIVERS OF RAIN. WHERE DOES IT GO?

THE AUDITOR

MOST OF CHICAGO HAS COMBINED SEWERS: RAIN AND SEWAGE SHARE ONE PIPE. THEY WERE BUILT BEFORE TREATMENT PLANTS EXISTED.

FACT FILE

Most of Chicago has combined sewers: sewage and rainwater share the same pipes. They were built before wastewater treatment existed and were designed to empty into the river; in the early 20th century MWRD built intercepting sewers to send sewage to new treatment plants.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"

THE AUDITOR

THEY WERE DESIGNED TO EMPTY STRAIGHT INTO THE RIVER. EARLY 1900S FIX: INTERCEPTING SEWERS TO NEW TREATMENT PLANTS.

FACT FILE

Most of Chicago has combined sewers: sewage and rainwater share the same pipes. They were built before wastewater treatment existed and were designed to empty into the river; in the early 20th century MWRD built intercepting sewers to send sewage to new treatment plants.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"

LENA (ON SCREEN)

THE MODERN FIX: TARP, THE DEEP TUNNEL. FOUR TUNNEL SYSTEMS, 110 MILES, 150 TO 300 FEET DOWN.

FACT FILE

TARP, "The Deep Tunnel," is a system of deep, large-diameter tunnels and vast reservoirs designed to reduce flooding, improve water quality in area waterways and protect Lake Michigan from sewer-overflow pollution. Four tunnel systems totaling 110 miles; tunnels 8 to 33 feet in diameter, 150 to 300 feet underground. The Des Plaines TARP Tunnel is 26 miles long.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"

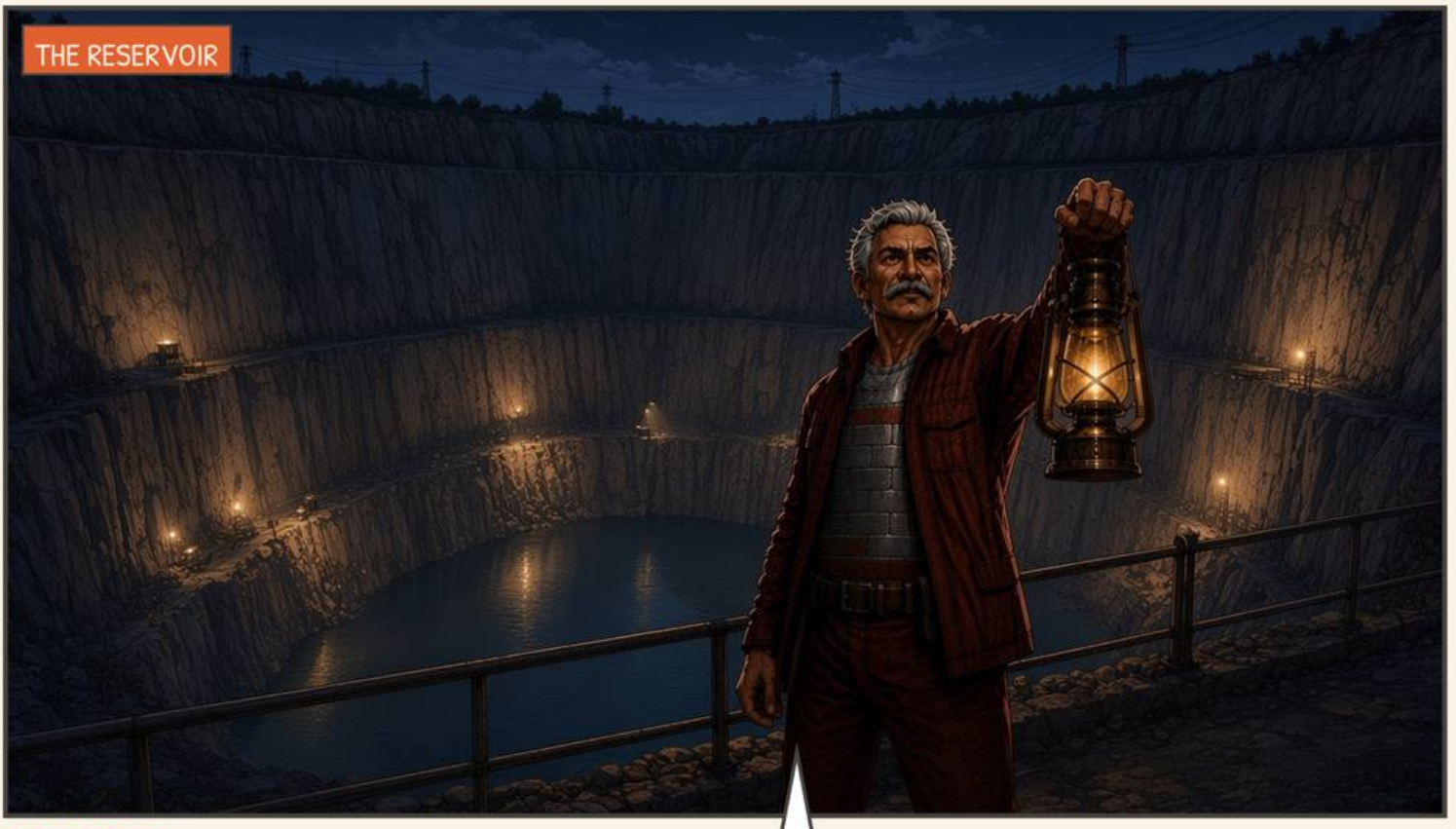
UNDERTOW

UP TO 33 FEET WIDE. WHEN THE PIPES UP TOP OVERFLOW, THE EXTRA DROPS DOWN HERE INSTEAD OF INTO THE RIVER.

FACT FILE

Four tunnel systems totaling 110 miles; tunnels 8 to 33 feet in diameter, 150 to 300 feet underground. The Des Plaines TARP Tunnel is 26 miles long. TARP captures and stores combined stormwater and sewage that would otherwise overflow; stored water is pumped to MWRD water reclamation plants to be cleaned before release.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"



COMMONS

THREE RESERVOIRS: MAJEWSKI, THORNTON, MCCOOK. BLASTED OUT OF SOLID ROCK WITH EXPLOSIVES.

FACT FILE

Three reservoirs: Majewski (near Elk Grove Village), Thornton Composite (near South Holland), McCook (Bedford Park). Explosives are used to excavate the large TARP reservoirs.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"

LENA (ON SCREEN)

VERIFIED

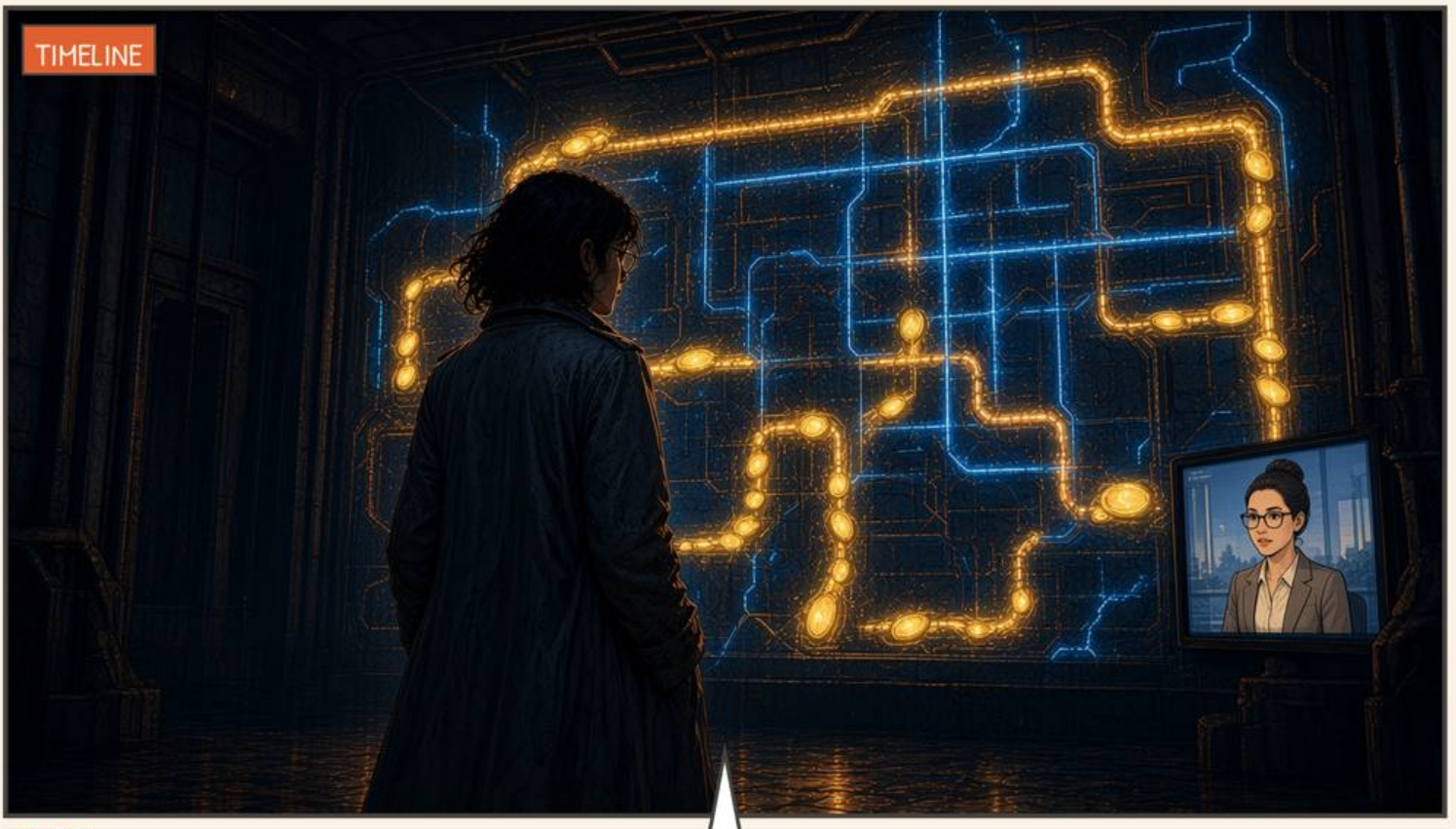
TODAY: MORE THAN 11 BILLION GALLONS OF STORAGE. WHEN MCCOOK'S SECOND STAGE IS DONE: 17.5 BILLION.

FACT FILE

Current capacity: more than 11 billion gallons. When McCook Stage 2 is complete: 17.5 billion gallons, more than 4,666 gallons for each person in the service area.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"

TIMELINE



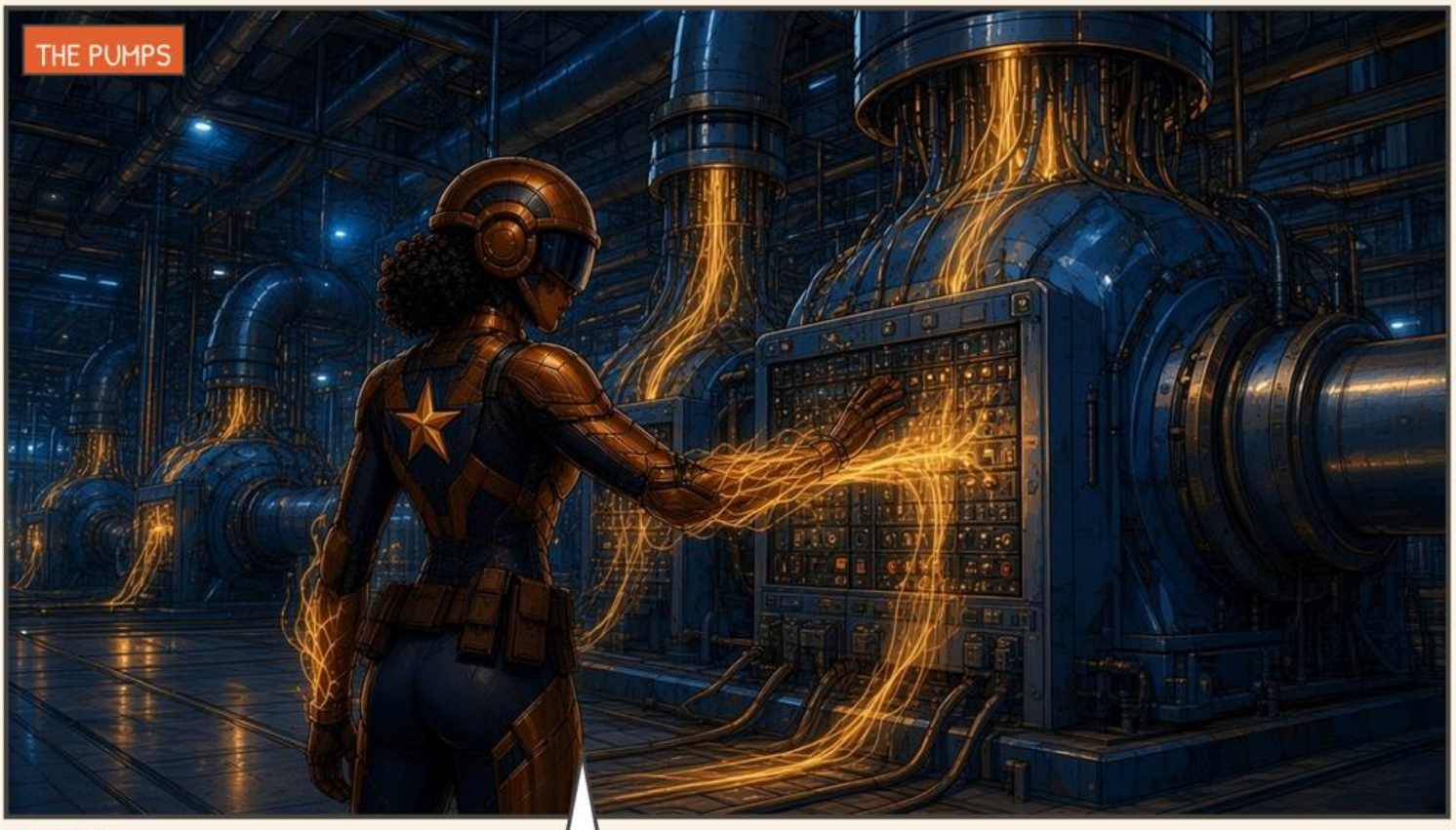
DESS

FIRST TUNNELS RUNNING: 1981. WATER FIRST HIT MCCOOK: 2018. SOME PUBLIC WORKS TAKE GENERATIONS.

FACT FILE

First portions went into operation in 1981; water first entered McCook Reservoir in 2018, from the 33-foot Mainstream TARP Tunnel.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"



GRIDLINE

AFTER THE STORM, PUMPS LIFT IT TO RECLAMATION PLANTS FOR CLEANING. NO POWER, NO PUMPS.

FACT FILE

TARP captures and stores combined stormwater and sewage that would otherwise overflow; stored water is pumped to MWRD water reclamation plants to be cleaned before release.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"

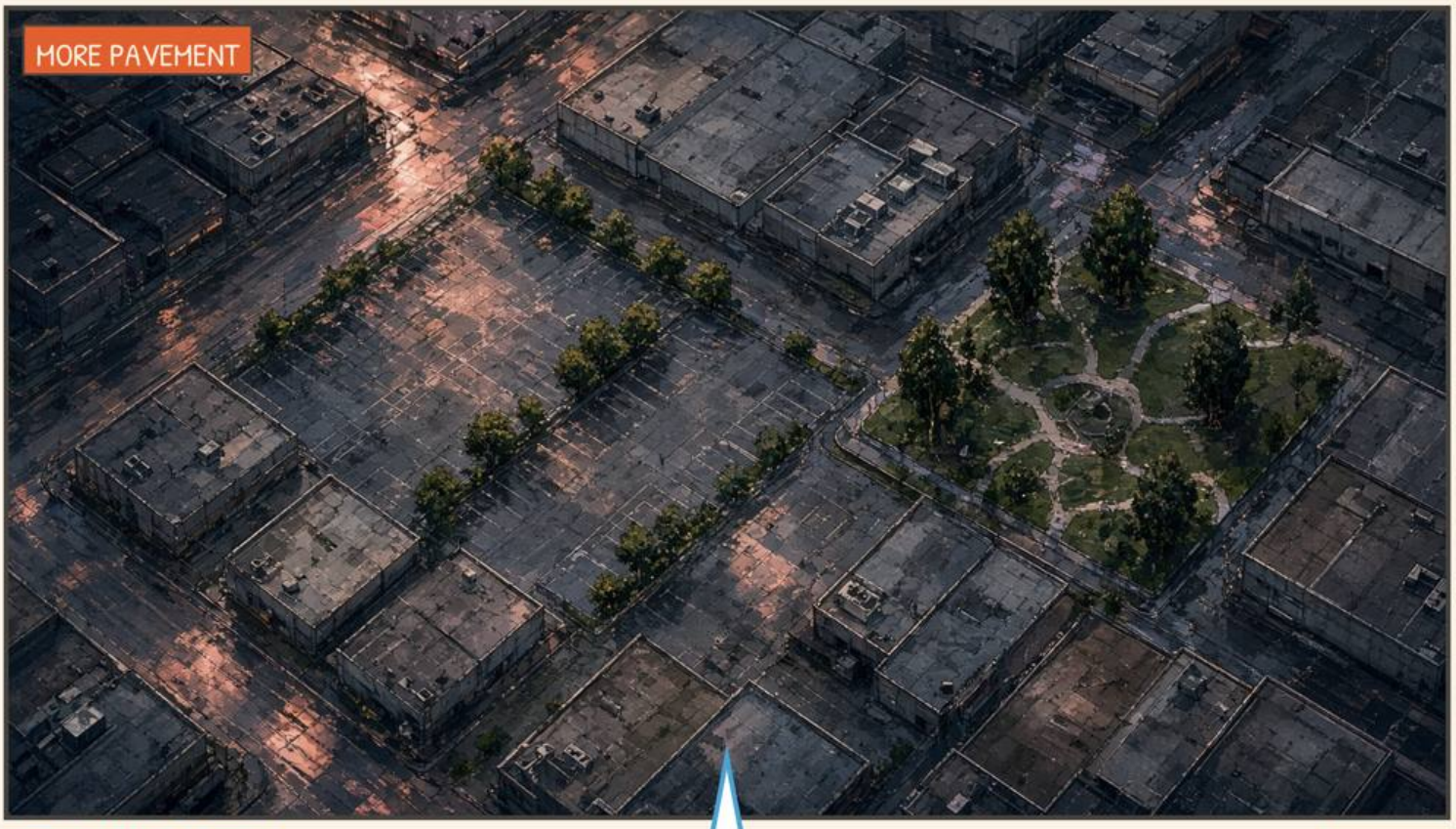
THE AUDITOR

LIMIT: IF TARP IS FULL AND RAIN KEEPS COMING, SEWERS CAN STILL OVERFLOW TO WATERWAYS.

FACT FILE

If TARP is full and heavy rain continues, sewers can still overflow to waterways.

Source: Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"



LENA (ON SCREEN)

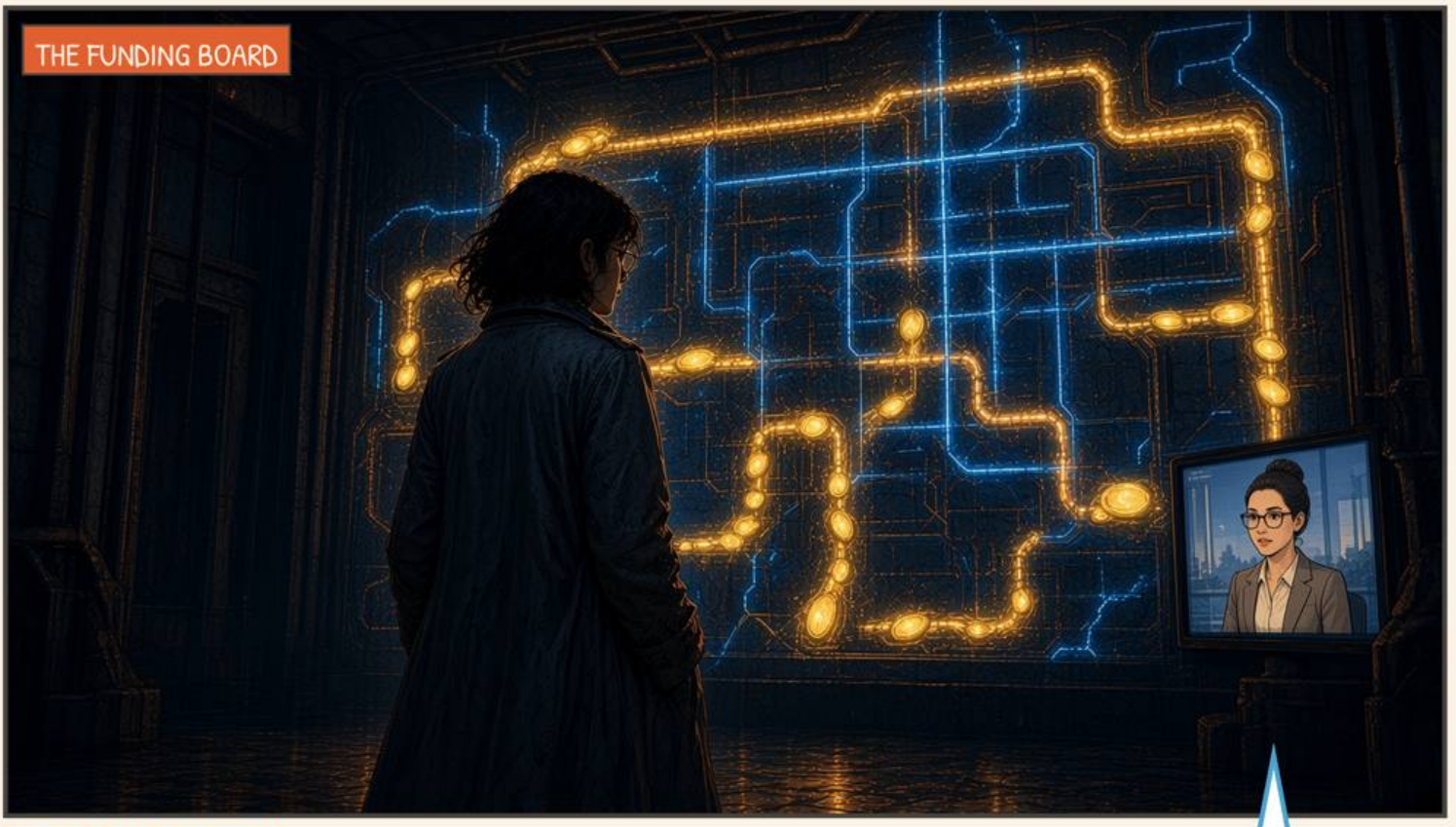
REPORTED

NATIONALLY: ABOUT 3.5 MILLION MILES OF STORM SEWERS. PAVED SURFACES GROW ABOUT 1% EVERY FIVE YEARS. MORE PAVEMENT, MORE RUNOFF.

FACT FILE

A 2021 estimate: about 3.5 million miles of storm sewers and 270 million storm drains in the U.S.; impervious surfaces expand about 1% every five years, increasing runoff and urban flooding.

Source: ASCE 2025 Report Card, "Stormwater"



LENA (ON SCREEN)

RECENT FEDERAL LAWS PUT $46 BILLION INTO STORMWATER, WASTEWATER AND DRINKING WATER, 2022 TO 2026.

FACT FILE

The 2021 infrastructure law and 2022 Inflation Reduction Act provided $46 billion (2022–2026) for stormwater, wastewater and drinking water.

Source: ASCE 2025 Report Card, "Stormwater"

DESS

BIGGER TUNNELS, OR MORE GREEN SPACE TO SOAK RAIN UP? NEIGHBORS WEIGH BOTH. BOTH COST MONEY.

DESS

NEXT: THE PIPES THAT BRING WATER IN, AND THE LEAD STILL IN SOME OF THEM.

GOTB Consulting works on the infrastructure and procurement behind projects like these.

BY THE NUMBERS

110 MILES

Four TARP tunnel systems, 8 to 33 feet wide, 150 to 300 feet down. (MWRD)

11 BILLION GALLONS

Storage today. 17.5 billion when McCook Stage 2 is done. (MWRD)

1981 • 2018

First tunnels running; water first enters McCook Reservoir. (MWRD)

3 RESERVOIRS

Majewski, Thornton Composite, McCook. Blasted out of rock. (MWRD)

3.5 MILLION MILES

U.S. storm sewers; 270 million storm drains. (2021 estimate, Reported)

$46 BILLION

Federal money for storm, waste and drinking water, 2022–2026.

TWO SIDES

The strongest case on each side, labeled. Nonpartisan.

BUILD BIG

Deep tunnels and reservoirs catch huge storms in one system and protect the lake.

GO GREEN

Rain gardens, trees and permeable pavement soak rain where it falls.

THE LIMIT

If TARP is full and rain keeps falling, sewers can still overflow. Both approaches help.

WHAT BOTH SHARE

Cleaner rivers, drier basements, decisions made in the open.

YOUR TURN

What would you add on your block to soak up rain? _____

WATER WORDS

COMBINED SEWER

One pipe for rain and sewage.

TARP

Tunnel and Reservoir Plan, the Deep Tunnel.

RESERVOIR

A giant basin that stores water.

WATER RECLAMATION PLANT

Where used water is cleaned.

OVERFLOW

When pipes are too full and spill to waterways.

IMPERVIOUS SURFACE

Pavement or roof that rain cannot soak into.

QUICK QUIZ

1. TOTAL LENGTH OF TARP TUNNELS?

a) 11 miles b) 110 miles

2. STORAGE TODAY?

a) 11 billion gallons b) 11 million

3. FIRST TUNNELS RUNNING?

a) 1981 b) 2018

4. CAN SEWERS OVERFLOW IF TARP IS FULL?

a) Yes b) No

ANSWERS

1 b · 2 a · 3 a · 4 a

SOURCES

Full list with fact IDs: FACT_BASE.md and NUMBER_CHECK.md (GOTB internal).

METROPOLITAN WATER RECLAMATION DISTRICT

Metropolitan Water Reclamation District of Greater Chicago (MWRD), "Tunnel and Reservoir Plan (TARP)"

ASCE 2025 REPORT CARD

ASCE 2025 Report Card, "Stormwater"

ABOUT GOTB CONSULTING

WHO WE ARE

A Chicago firm working on infrastructure and procurement for the systems communities depend on.

DATA CENTERS

Siting, delivery and community questions.

POWER

Grid connections, substations and lines.

WATER

Supply, treatment and cooling.

PUBLIC WORKS

Roads, pipes and public spaces.

THE END

THE CITY DRINKS THE STORM, AND THE RIVER RUNS CLEAN.

Next time: more from the Infrastructure Guard.

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AI-generated art, fictional characters