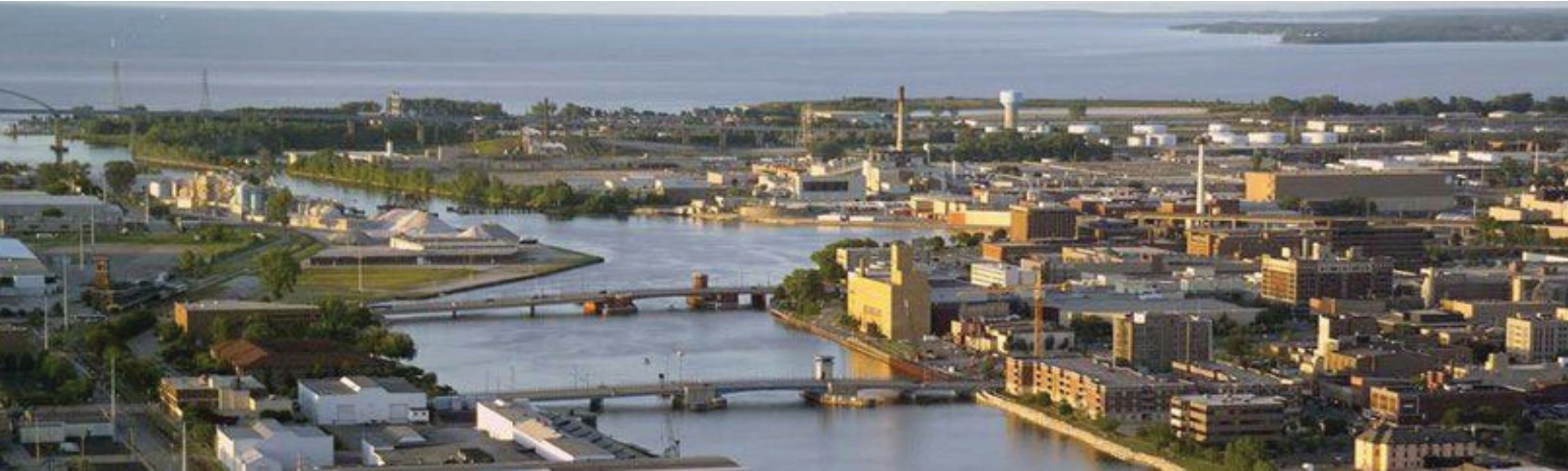


SMARTCOVER

WE'VE GOT IT COVERED™



"TITLE TOWN USA" SCORES BIG RESULTS WITH SMART SEWER TECHNOLOGY

BACKGROUND

Green Bay is the third largest city in Wisconsin, located at the mouth of the Fox River approximately 100 miles north of Milwaukee. With a city population of 108,000, it is also the seat of Brown County that has over 268,000 thousand residents.

Also known as "Tittletown USA," the city is home to the National Football League's Green Bay Packers.

The Green Bay sewer department is responsible for maintaining 465 miles of sanitary sewers and 408 miles of storm sewers.

THE CHALLENGE

Due to its location at the confluence of the Fox and East Rivers, along with significant seasonal weather changes, Green Bay's sewer and

stormwater systems are susceptible to I&I problems during heavy rainfall and water surges.

According to David Wiesman, City Superintendent, "Rapidly rising river levels have historically presented significant challenges with regard to spills. Our ongoing use of SmartCover, along with our adaptive deployment approach, is enabling Green Bay to respond quickly with data-based decisions for managing inflow and infiltration, as well as gain insights into longer term planning, maintenance and capital improvement decisions."

Green Bay needed a proactive way to monitor rapidly changing water levels during heavy rainfall episodes, along with real-time alerts to enable quick preemptive response to emerging problems before they became spills.

THE SOLUTION

In 2016, Green Bay initially deployed SmartCover to help manage changing water levels within its sanitary sewer and stormwater collection systems.

The city began using SmartCover to get real-time visibility of several manhole locations as they grappled with the need for an estimated \$150 million in sewer/storm water infrastructure repairs and upgrades.

Since then, Green Bay has expanded the usage of SmartCover technology to address rapidly changing surface water levels during heavy rainfall.

The fusion with rain data also helps Green Bay gather a clearer picture of when and where water infiltrates during flooding events.

The SmartCover reports showed a correlation of dynamic infiltration levels with nearby flooding waterways.

It became evident that the city needed more information about dynamic infiltration level changes from rivers.



408

Miles of Storm Sewers

465

Miles of Sanitary Sewers

900

Miles of Infrastructure

3

Lift Stations

9K

Manholes

108K

Connections



TRACKING CHANGES IN RIVER LEVELS PROVIDES CRITICAL DATA FOR DECISIONS

THE RESULTS

SmartCover has transformed Green Bay's ability to monitor rapidly changing river levels during storm events and manage the impact on their sewer and stormwater systems while preemptively preventing spills.

HIGHLIGHTED FEATURES

River Level Monitoring: In addition to the units deployed at key manhole locations, Green Bay uses SmartCover to monitor the East River and Fox River to gain visibility of how upstream flow and river level changes impact downstream flooding in the sewer and stormwater collection systems.

The East River uses an innovative configuration in which a SmartCover sensor, encased in a NEMA box, is hung below a bridge to monitor river water level.

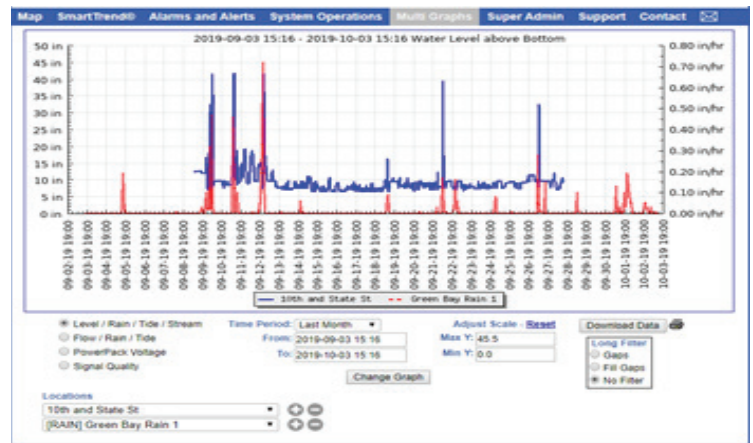
During significant rainfall events, the bridge-mounted unit played an important role in identifying river level changes. The East River registered "high" at 74 inches below the sensor and rose to just seven inches below the bridge at one point.



Visibility During Rain Events:

Rapid rain infiltration was identified as the cause for some SmartCover high-level alarms and subsequent submerging of sensors. Loss of visibility, even for short periods of time, hampers the ability to understand these rapid changes and make real-time decisions for allocating valuable resources.

The unique SmartCover SubSonic dual sensor design extends visibility throughout the entire manhole from the bottom of the channel to the cover, combining the accuracy of ultrasonic with the wide range of a pressure sensor. The pressure sensor detects water level changes from the outset with continued coverage beyond the point when the ultrasonic sensor becomes submerged.



SUMMARY

By monitoring the rapid rise and fall of local rivers, Green Bay is able to correlate river level changes with stormwater infiltration into the collection system. The ability to aggregate and analyze data from the SmartCover system helps Green Bay more clearly understand the dynamic relationships between upstream flows and downstream infiltration impacts, prepare for water surges, and improve resource allocation, while successfully preventing spills.

“Rapidly rising river levels have historically presented significant challenges with regard to spills. Our ongoing use of SmartCover enables Green Bay to respond quickly for managing inflow and infiltration.”

- - David Wiesman, City Superintendent, Green Bay, WI