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Using Azure cloud power to improve Kansas City's water quality

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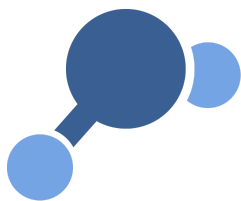Kunal Tanwar (https://cloudblogs.microsoft.com/industry-blog/author/kunal-tanwar/)

Director, Modern Government Partner Solutions, Microsoft

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Andy Shively is on a mission to save Kansas City Water (http://www.kcmo.gov/) ratepayers $1 billion, while delivering environmental benefits and enhancing the lives of those who make Missouri's largest city their home.

It's a tall order but the special assistant city manager is up to the challenge of directing Kansas City's largest-ever infrastructure investment, a 25-year program to meet the requirements of a 2010 federal consent decree requiring a reduction in the volume and frequency of sewer overflows. Now entering year eight of the $4.5 billion program, Shively is working toward his objective by implementing a Microsoft Azure (https://azure.microsoft.com/en-us/)-powered solution from Opti (https://optirtc.com/), which specializes in improving water quality, preventing localized

flooding and reducing combined sewer overflows (CSOs). "It's very important that we find strategic, data-driven solutions that provide cost-effectiveness in order to control the amount of rainwater that enters the combined sewer system," Shively said. "The hope is to reduce the overall cost of the program by almost a billion dollars over 25 years."

Last April, Kansas City installed OptiNimbus to automatically control the timing and rate of storm water flowing through its 1.1 million-gallon Gardner Avenue Detention Facility's combined sewer system, which channels both waste water and storm water through a single pipe, affecting water quality in local streams, rivers and lakes. "We chose the Opti product and the Azure cloud because it's a smart, intelligent solution," Shively explained. "Using Opti's logic, tied to real-time rainfall forecasts and automated controls, allows us to manage the rate of discharge from the detention facility much more efficiently." In addition to keeping rainwater out of its combined sewer system, the Opti solution is helping Kansas City realize cost savings and comply with the City's consent decree. "We calculated the cost to implement the OptiNimbus solution at the Gardner Detention Facility at 2 cents per gallon ... and that is an incredible value," he said, noting that other storage solutions range in price from $3.50 to $8 per gallon or more.

Gardner Avenue Detention Facility

Andy Sauer, of Kansas City's consulting partner Burns & McDonnell (https://www.burnsmcd.com/), credited the Opti solution's automatic management and the Gardner facility's large scale for driving down costs. "We took advantage of an existing site that has the land area—a little over three acres—and we've been able to maximize the storage at that location," he said. "That's why our cost per gallon is so much more efficient."

Kansas City is one of more than 130 Opti installations across 21 states, according to Marcus Quigley, Opti founder and CEO. "We are the only company in the world that directly controls storm water infrastructure," he said "We control, minute by minute, more than 65 million gallons of storage to prevent flooding, improve water quality and reduce combined sewer overflows. Our services that run on Azure control that infrastructure in real time."

For Shively, who has dedicated his career to providing solutions that are

not only cost-effective but will serve Kansas City residents for the next century, it's critical for utility managers to deliver a return on investment. "It's our responsibility to provide transparency to residents and to demonstrate the value of service being provided," he said. "We take that responsibility to heart here in Kansas City. The Opti-Azure system helps us make our sewers smart and helps make the lives of Kansas Citians better."

While Kansas City is a leader in using the power of the cloud to address its CSO challenges, Opti's Quigley notes that 770-plus U.S. cities will spend more than $60 billion over the next 20 years to address the same requirement. "We're saving money, we're reducing the cost for compliance, we're reducing (Kansas City's) capital expenditure for new facilities—but the unique thing we do: actually reduce the wet-weather flow going into the combined sewer when it's raining means that the receiving waters are cleaner."

Microsoft CityNext (https://enterprise.microsoft.com/en-us/industries/citynext/) is excited to partner with Opti and empower Kansas City and other cities to become smarter and more sustainable. We look forward to Opti leveraging our secure, trusted cloud for Kansas City's second implementation later this year and supporting U.S. cities facing similar CSO challenges. Please learn more by visiting:

- Opti (https://optirtc.com/)
- Microsoft CityNext sustainable cities (https://enterprise.microsoft.com/en-us/industries/citynext/sustainable-cities/)

- [Philadelphia uses smart technology to manage storm water runoff and reduce pollution (https://customers.microsoft.com/en-us/story/philadelphia-government-azure)](https://customers.microsoft.com/en-us/story/philadelphia-government-azure)
- [Kansas City's Billion-Dollar Smart Infrastructure Challenge (https://www.wateronline.com/doc/kansas-city-s-billion-dollar-smart-infrastructure-challenge-0001)](https://www.wateronline.com/doc/kansas-city-s-billion-dollar-smart-infrastructure-challenge-0001)
- [Storm water Made Sustainable – Opti Prepares Us for Tomorrow's Storms (https://blogs.microsoft.com/newengland/2016/04/22/stormwater-made-sustainable-opti-prepares-us-for-tomorrows-storms/)](https://blogs.microsoft.com/newengland/2016/04/22/stormwater-made-sustainable-opti-prepares-us-for-tomorrows-storms/).

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