



# Integrated Planning in Action 2015 Integrated Plan

Akron, Ohio

Chittenden Green Project, Bioretention and Rain Garden.  
Photo courtesy of City of Akron.

The City of Akron, in northeastern Ohio, has a population of about 200,000. Akron operates combined and separate sanitary sewer systems in addition to storm sewers. The combined and separate sanitary sewer systems transport wastewater to the city’s wastewater treatment facility,<sup>1</sup> which discharges to the Cuyahoga River, while the storm sewer system discharges to the Ohio Canal and Little Cuyahoga River. These tributaries flow to the Cuyahoga River, which is the southern gateway to the Cuyahoga Valley National Park. In 2019, the national river conservation organization American Rivers named the Cuyahoga River its “River of the Year” to celebrate the environmental progress made during the prior 50 years.

## Challenges

Akron historically has discharged an estimated 1.2 billion gallons of combined sewer overflows (CSOs) per year. Also due to excess flows during heavy rainfall events, the city’s wastewater treatment facility discharged an average 1.2 billion gallons of partially treated wastewater per year into the Cuyahoga River and its tributaries resulting from bypasses of the secondary treatment units. The Cuyahoga River is impaired by bacteria, nutrients, and dissolved oxygen. In 2014, a U.S. District Court entered a consent decree with U.S. Environmental Protection Agency (EPA), the Ohio Environmental Protection Agency, and Akron that required Akron to implement its long-term control plan (LTCP) (as updated in 2011). At the time of the consent decree, Akron had already reduced its CSO volume to 816 million gallons per year. The LTCP included separating a portion of its combined sewers, installing 10 storage basins and 2 wastewater storage tunnels, upgrading the wastewater treatment facility, and completing collection system projects. The city estimated it would cost more than \$1.14 billion to implement the required projects by 2027 to meet the required level of control of zero untreated overflows in a typical year and zero bypasses of secondary treatment at the wastewater treatment facility. Akron raised sewer rates significantly between 2005 and 2015 but determined that current sewer rates were not high enough to pay for the consent decree projects and meet other Clean Water Act obligations, such as stormwater requirements.

## Integrated Planning in Action

In December 2013, Akron began an integrated planning process to consider green infrastructure and other innovative solutions that might improve water quality faster and more cost-effectively than the existing LTCP projects. The city involved the public throughout this process through educational events, meetings, and a

<sup>1</sup> “Wastewater treatment facilities” (WWTFs) is a generic term for facilities that treat or manage wastewater, including publicly owned treatment works.



Akron Waterways  
Renewed!

EPA Region 5

200,000 population



stakeholder group it formed. Akron also communicated with stakeholders through newspaper articles, utility bill mailers, and a website. The city rebranded its CSO program as Akron Waterways Renewed! to better communicate the benefits of improving water quality to the public.

Akron first chose projects to include in the integrated plan and prioritized them based on environmental, economic, and social benefits (graphic below). The prioritization process identified which projects would be implemented first. The city scored projects based on weighted criteria (see chart below). The highest-scoring projects included some of the original LTCP projects as well as alternatives to LTCP projects. These included improvements to the wastewater treatment facility, the use of green infrastructure to attenuate CSO flows and capture stormwater in the separate storm sewer areas, dam removal, streambank restoration, flood mitigation, and sanitary sewer rehabilitation.

The city used a financial model to compare integrated plan project scenarios with the original LTCP projects. The model was able to prioritize and sequence projects based on funding availability, rate requirements, cost, affordability, and construction schedules. Once the

modeling framework was set up, Akron assessed alternative scenarios to estimate costs, future schedules, affordability, and rate increases. The city modeled scenarios with construction completion by 2027 and 2040. Akron concluded that the integrated plan projects would require a cumulative lower rate increase through 2040 compared to the original LTCP projects.

As part of the integrated planning process, Akron also modeled the environmental benefits of the integrated plan projects compared to the original LTCP projects. Akron concluded that the integrated plan would reduce the same CSO and bypass volume as the original LTCP, through a suite of projects carried out earlier than in the original LTCP schedule. Proposed green infrastructure would reduce total suspended solids and bacteria in stormwater while providing additional community benefits.

## Results

Akron submitted the *City of Akron Integrated Plan* in 2015. In 2016 and 2019, EPA agreed to amend the consent decree to require Akron to complete some of the projects in the integrated plan by 2027. These included some green infrastructure projects, partial sewer separation, and a bypass treatment technology at the wastewater treatment facility—along with revised project sequencing. As of 2019, the city had completed or started 92 percent of the projects required under the consent decree, and it had saved an estimated \$158 million on project costs through integrated planning since 2015. In addition, by prioritizing bypass treatment technology at the wastewater treatment facility, Akron was able to expand secondary treatment capacity faster than anticipated, resulting in secondary treatment of 826 million gallons of wastewater above what the consent decree required.

In March 2020, Akron accepted the Outstanding Achievement Award from the American Council of Engineering Companies for one of the integrated plan projects: the Aqueduct Street Green Improvement project, completed in 2018. Akron also received Gold Level recognition in the Ohio EPA’s Encouraging Environmental Excellence program.

**Triple Bottom Line Weighted Criteria Based on Economic, Social, and Environmental Categories**

