Integrated Planning in Action

2014 Integrated Plan

Lima, Ohio

Bike path over the Ottawa River.
Photo courtesy of City of Lima.

The City of Lima, in northwestern Ohio, is home to about 37,000 people. A combined sewer system serves about 60 percent of the city. The other 40 percent is served by separate sanitary sewers and storm sewers. Wastewater from the combined and separate sanitary sewers is conveyed to the city's wastewater treatment facility.[1] Treated wastewater from this facility and stormwater discharges flow into the Ottawa River, a central feature for the town. The 4.2-mile Ottawa River Bikeway winds alongside the river and connects the city's parks, the downtown business district, and the local high school.

LIMA, OHIO

EPA Region 5

37,000 *population*

CSO SSO WWTF

Challenges

Lima experiences sanitary sewer overflows (SSOs) and combined sewer overflows (CSOs) mainly due to inadequate capacity at the wastewater treatment facility during storms. Under a 2015 consent decree with the U.S. Environmental Protection Agency (EPA) and the state of Ohio, the city agreed to make major structural improvements to control CSOs and to eliminate sewage overflows from the sanitary sewer system. Lima also must comply with permit limits for nutrients, sediment, and bacteria entering the Ottawa River. The potential cost to address these issues traditionally exceeded the financial capability of the city and its residents.

Integrated Planning in Action

City leaders thought it was not feasible to rapidly raise utility rates to quickly accomplish the needed improvements agreed to in the consent decree, particularly in light of Lima's declining population and other economic challenges. Lima decided to develop an integrated plan to change the sequence of projects to achieve the greatest environmental benefits first while avoiding large rate increases.

Lima modeled a variety of control options within the collection systems, at pump stations, and at the wastewater treatment facility to determine which sequence of controls would achieve the greatest environmental benefits at an affordable cost. The city devised a draft plan, then engaged the public. Lima updated the public on its draft and final proposals through city council meetings, neighborhood association meetings, chamber of commerce meetings, and meetings with other stakeholder groups.

[1] "Wastewater treatment facilities" (WWTFs) is a generic term for facilities that treat or manage wastewater, including publicly owned treatment works.

The resulting integrated plan proposed first expanding treatment capacity at the wastewater treatment facility, then installing controls (i.e., sewer separation, real-time control, tank and pump station improvements) that would capture more than 97 percent of CSO volume, and finally conducting separate sanitary system upgrades such as pump station improvements to reduce SSOs. Lima prioritized the CSO projects over SSO projects because CSO volume was substantially higher than SSO volume and the CSOs had a greater potential for direct human contact.

The total capital cost of the integrated plan projects was estimated at $147.6 million over 28 years: substantially less than the city would have had to spend without using an integrated planning approach, while still meeting the performance criteria contained in the consent decree. By expanding capacity at the wastewater treatment facility first, the city was able to reduce CSOs faster and at a lower cost than if it had not developed an integrated plan as part of its consent decree. Through the implementation of the integrated plan, Lima anticipated it would significantly reduce the amount of bacteria, nutrients, organic matter, and suspended solids entering the Ottawa River.

Results

Lima's integrated plan was included in an EPA consent decree in 2015. In 2018, Lima increased its wastewater treatment facility's wet weather capacity from 53 million to 70 million gallons per day and eliminated untreated bypasses. The city also designed a storage basin that is expected to further reduce CSOs to the Ottawa River when construction is completed.

Ottawa River Bridge bike path. Photo courtesy of City of Lima.