



Case Study: Addressing threatened water resources

Development pressure, failing septs and agricultural runoff threaten Ottertail's lakes, streams and wetlands.

Introduction

In 2003, the West Central Initiative (WCI) conducted a study to estimate the current and future needs for water, wastewater, and storm sewer repair and replacement for the communities within WCI's nine-county service area. The study found those communities to be in need of substantial repairs, amounting to more than \$800 million.

In response, WCI commissioned an infrastructure pilot project in three communities in west central Minnesota. The City of Ottertail, as a community facing development pressure and pressing water system issues, was chosen to be part of the pilot project.

The resident population of the City of Ottertail is around 480. The City experienced significant population growth during the 1990s and property values along the lakeshore went from the \$20,000

to 30,000 ranges up to \$160,000 overnight. The resident population is about half old-timers and half newcomers. In the summer, the population doubles, mostly with weekend residents.

Government officials and residents of the City of Ottertail seek to be effective stewards of their water resources. The major problems facing the city were identified as development pressure, groundwater contamination, failing septic systems, lack of environmental education, habitat destruction, contaminated runoff, declining water clarity, erosion, over-application of fertilizers, and stormwater management.

The Process

Effective water stewardship begins with an understanding of local water resources and the local water budget. Generally speaking, water is

plentiful in West Central Minnesota. Water quality has been affected by naturally occurring conditions, agricultural and domestic land use practices, and lakeshore development. Yellow Wood worked with Ottertail to evaluate the city's watershed and identify potential opportunities for reducing threats and improving water quality.

A water budget simply states that the rate of change of water stored in an area, such as a watershed, is balanced by the rate at which water flows into and out of the area.

Recommendations were developed in response to existing conditions in Ottertail's stormwater management, shoreline practices and lake water quality.

Recommendations

Yellow Wood developed a suite of recommendations to provide Ottertail with an action plan for addressing threats to city's water quality in a systematic way. Recommendations addressed:

- Shoreline stabilization practices
- Water quality protection
- Phosphorous reduction

- Regulatory protections
- Centralized wastewater management
- Lakefront zoning
- Water quality data collection
- Citizen involvement in water quality monitoring
- Agriculture and water resource protection
- Nitrate contamination of drinking water
- Drinking water sourcing
- Water conservation
- Water system rate setting
- Decentralized Wastewater management

Stormwater recommendations specifically targeted at:

- Construction related activities
- Golf course management
- Agriculture
- Road salt reduction
- Walking paths
- Effective use of wetlands in stormwater treatment

This systems approach ensures that improvements in one area would not be erased by continuing threats in another area of infrastructure or watershed.

Low Impact Development in Action: Ottertail County Sheriff's Building

Ottertail County is in the process of constructing a 30,500 square foot operation center to house an office, garage and holding facility for the Ottertail County Sheriff's Department. The building is being designed to meet a LEED (Leadership in Environment and Energy Design) certification of Silver. To meet the certification requirements of LEED, a Stormwater Management Plan was designed to minimize long-term environmental damage to the building lot during the construction process by reducing impervious cover, promoting infiltration and capturing or treating stormwater runoff.

The Sheriff's building makes use of a 7,200 gallon cistern for storing runoff from the roof, to be used for irrigation purposes. Additionally, the development will make use of other low impact development features including a combination of vegetated swales, filtration strips between the impervious areas, and infiltration ponds to ensure that runoff from 90% of the average rainfall is captured or treated. To learn more about low impact development, visit: www.lowimpactdevelopment.org.