

PARADIGM SHIFT

Chattanooga, Tenn., meets permit requirements through implementation of LID & green technology

By Don Green

The city of Chattanooga, Tenn.'s current NPDES Phase I MS4 permit, issued Nov. 12, 2010, virtually altered the water quality paradigm in the city. The permit's language required the city to implement low impact development/green infrastructure (LID/GI) requirements for development as the primary permanent storm water application, making Chattanooga the first city in the state to do this. It also introduced a new term: runoff reduction. The permit required new development and significant redevelopment in the city (where practical) to implement onsite volume reduction practices, in "combination or alone, that are designed, built and maintained to infiltrate, evapotranspire, harvest and/or use, at a minimum, the first inch of every rainfall event preceded by 72 hours of no measurable precipitation with no discharge to surface waters."

These LID/GI practices were not entirely new to the area; a handful of site developers who understood their effectiveness and potential cost savings on the Chattanooga water quality fee had previously implemented them on a few sites.

The new requirements were a game changer. This large-scale city initiative involved developing new policies, ordinances and processes; a new manual; and development tools relating to rainwater management and water quality. Chattanooga realized that this change not only was going to affect the water quality program, but also many other departments across the city, so the city

went through the U.S. Environmental Protection Agency's Water Quality ScoreCard to identify the program's strengths and weaknesses. This tool sent feelers across all city departments identifying where and to what extent the new requirements were going affect other city codes, work forces or processes.

Chattanooga developed a city-specific manual, Rainwater Management Guide (RMG), identifying practices, design, installation and inspection and maintenance requirements. An implementation spreadsheet tool also was created to aid site developers in applying the new design requirements.

Stakeholder Process

With the ScoreCard results, a citywide process began to develop and correlate a new ordinance with the existing water quality code and the city's regional planning code. This was not done in a vacuum: several stakeholder meetings were held during the development of these standards, along with special meetings set up especially for the development community. More than 30 community meetings were held for those interested in learning about the new journey Chattanooga was taking.

The city held multiple training sessions for site developers, engineers and landscape architects more than a year before the regulations went into effect to "step through" the new requirements and instruct individuals in how to design using the new manual and development tool.



Incentivizing Implementation

In October 2009, the Chattanooga city council quadrupled the water quality fee, its first increase since 1993. With the rate increase, the city geared up to promote the use of LID/GI. The city viewed it as a means for community revitalization and establishing Chattanooga as a leader in sustainable water quality management. The city instituted a pilot program with incentives for early adopters of the new LID/GI on development sites.

With the new rate, the city developed a robust non-residential incentives and credits package that would reduce water quality fees for properties that address water quality and water quantity on site, encouraging maintenance and retrofitting of existing practices. Any existing green infrastructure practices would receive up to a 75% reduction of the property's water quality fee and new retrofit plans would receive up to an 85% reduction. Even trees and existing detention ponds could get credit.

When the new MS4 permit regulations went into effect in December 2014, the city developed a new credit and incentive program based on the extent to which a development reached the Stay-On Volume (SOV) requirements, targeting practices such as bioretention, porous/permeable pavement, green roofs, grassy swales and storage and reuse. If new developments cannot meet the city's SOV requirements, there are credits and incentives to aid in meeting the standards:

- Paying an in-lieu-of fee so the city can develop practices targeting

needed areas;

- Doing off-site mitigation for 1.5 times the required SOV; and/or
- Buying coupons in the amount of the required SOV. Coupons can be earned if a development or redevelopment exceeds minimum requirements for SOV or retrofitting an existing development. Land developers can earn coupons for later use or to be sold in the open market.

Projects & Programs

Just before the implementation of the new LID/GI requirement, the city of Chattanooga conducted various projects on city properties and rights of way and implemented some public-private partnership projects. In addition to the pilot LID/GI projects, the city developed various programs to increase awareness and prepare the development community to meet the new requirements.

With a grant from Lyndhurst Foundation and other sponsors, the city developed a LID/GI design competition to:

- Test the city's new RMG;
- Demonstrate cost effectiveness of LID/GI alternatives;
- Present real-world design challenges; and
- Raise awareness of LID/GI and the city's new development requirements.

Through a grant with the Tennessee Stormwater Assn., the city named three winners of its LID Excellence Award

program. Both of these endeavors were a collaborative effort with input from an outside committee and funded with an agreement with the nonprofit green|spaces.

The city initiated a residential rebate program for the installation of rain gardens or rain barrels and education; homeowners agree to long-term maintenance. The city held a qualified landscaper training class to educate private companies on the RainSmart program requirements. To date, three rain gardens have been installed and two training workshops have been offered.

The city has many residential detention ponds that have been neglected. The water quality program has developed "selection criteria" and applied them to the residential storm water facilities in two watersheds. The city does one-time maintenance, bringing the qualifying facilities up to city code or retrofitting them for extended water quality benefits; this program also does outreach to homeowners and/or homeowners associations, encouraging them to engage in future routine maintenance.

This paradigm shift in regulations has permeated the city government, changing the way it does business and creating more opportunities for outreach. These initiatives have aided the city to move above the learning curve of acceptance of LID/GI's implementation. **SWS**

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