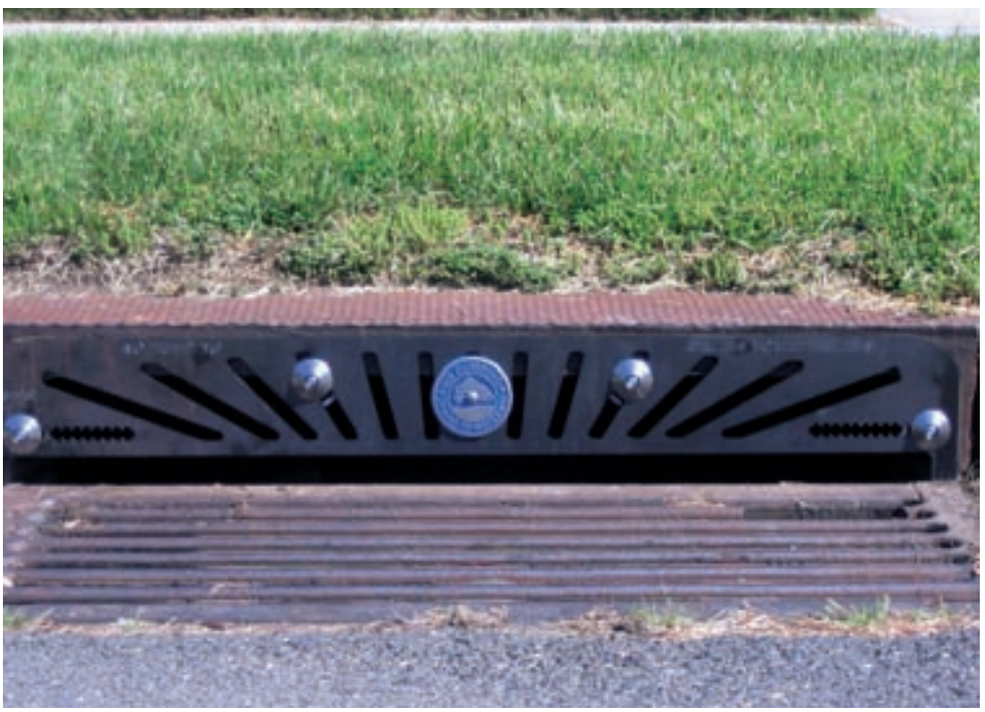
Replacement *vs.* Retrofit

Considering storm sewer system covers as a time- and cost-saving alternative to full replacements

By Ben Steltzer

Many government and private entities have developed storm water management programs in order to comply with the National Pollutant Discharge Elimination System (NPDES), also referred to as MS4 permits, Phase I and Phase II.



"No Dumping" messages and fish emblems remind residents that what goes down a sewer finds its way to local waterways.

One of the more costly aspects of storm water management program compliance is preventing debris from entering storm sewer systems. Many government agencies, particularly in the state of New Jersey and surrounding areas, are replacing their storm sewers with new inlets that have 2-in. openings, and in some cases flow holes that allow the flow of water but prevent large debris from entering. In the majority of cases, the storm sewers are made of cast iron.

Replacement Challenges

The process of replacing a storm sewer is extremely expensive and labor-intensive. In many cases, it requires burning off four bolts and lifting out a 150-lb inlet, which is discarded and replaced with the newly designed storm sewer. This time-consuming process involves heavy equipment and manpower.

Another problem is storm sewer systems that are not made of cast iron, but rather of concrete or granite. In these cases, it would require a complete overhaul and reconstruction of the storm sewers,

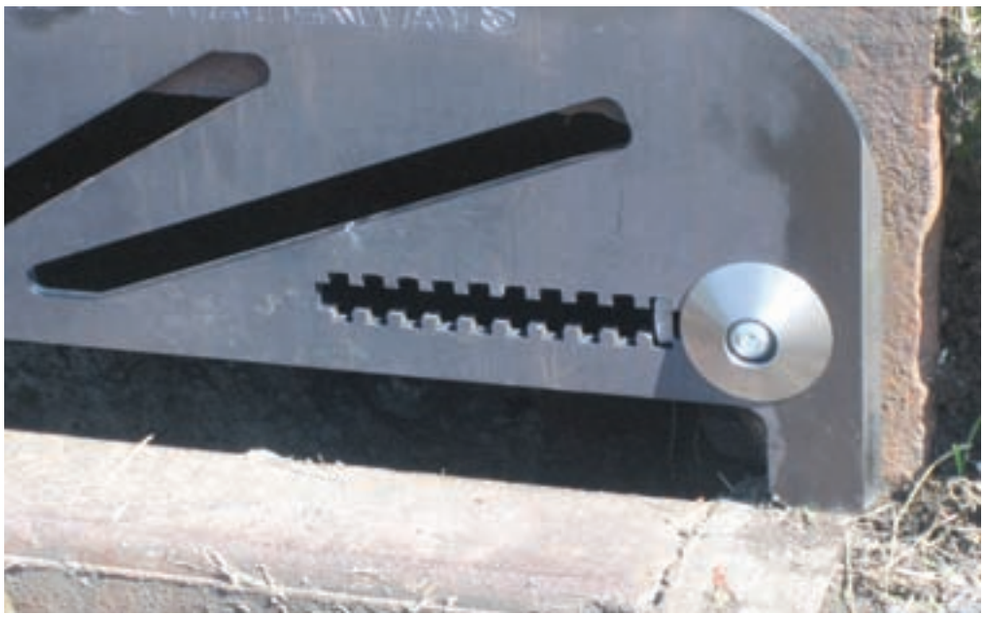
which would be extremely expensive and more time-consuming.

Curb heights can also be an issue, as they can vary from 4 to 10 in. This can cause difficulty when roads are being resurfaced, which can impact curb heights and create difficulties in matching up new storm sewers designed to comply with NPDES regulations.

Alternative Approach

Installing a storm water sewer cover can be much more practical than replacing entire storm sewer systems. New Jersey-based LMT Mercer Group, for example, offers a patented, New Jersey Department of Transportation-approved Cor-Ten steel retrofit that clamps onto existing cast-iron inlets.

A retrofit such as this can be installed in less than one minute. In the



Retrofits are generally mounted to existing catch basin curb heads using a tamper-proof bolt.

case of concrete or granite inlets, four small holes are drilled into the retrofit plate and four more into the concrete or granite before the plate is bolted onto the inlet. One person with a cordless drill can easily retrofit 40 to 50 storm sewers per day.

Retrofitting rather than replacing storm sewer systems offers the following benefits:

- Retrofits can be mounted to existing catch basin curb heads in minutes using a tamper-proof bolt;
- Installation does not require the replacement of existing curb heads;
- The amount of pollutants draining to waterways will decrease;
- The need for cleaning catch basins will be reduced or eliminated;
- Animals will be prevented from inhabiting basins; and
- Cost savings of nearly three times that of other methods.

Standard and custom-sized retrofits can accommodate most inlet openings. They feature "No Dumping: Drains to Waterway" and fish-emblem medallions to remind citizens to dispose of hazardous materials responsibly.

More than 15,000 retrofits have been installed in New Jersey and its surrounding areas, saving governments and MS4 permit holders hundreds of thousands of dollars.

Application

The municipality of Carteret, N.J., has more than 50 old-style storm sewers, particularly on its street corners. The storm sewers are made of heavy-metal, one-piece inlets that are almost impossible to remove—and very costly, if attempted.

An LMT representative met with local public works department staff to inspect several of these storm sewers. The company's Cor-Ten steel retrofits, however, are straight and would not install on rounded street corner curbs. The manufacturer offered the idea to slightly bend the retrofits using leverage and then proceeded to install one. It fit almost perfectly; some stuck out in places, but the fit was acceptable.

The retrofit solution saved Carteret a tremendous amount of work trying to remove and replace its storm sewers. Public works staff had been unsure as to whether they could remove the storm sewers cleanly. It was likely they would have had to destroy the entire curb area and inlet, and therefore reconstruct the curb and install a new inlet. SWS

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