

MUNICIPAL

SEWER  
&

WATER™

FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROFESSIONALS

February 2010

www.mswmag.com

BETTER MOUSETRAPS:  
A DEVICE FOR SKIMMING  
DEBRIS FROM STREAM SURFACES

PAGE 42

HUMAN SIDE: DEVELOPING  
STRONG LEADERSHIP SKILLS

PAGE 56

TECHNOLOGY TEST DRIVE:  
LETS INSPECTION SYSTEM  
FROM ARIES INDUSTRIES

PAGE 48



CELEBRATING

30 years  
1981-2010

INSIDE:

EXHIBIT PREVIEW  
PAGE 58

# OPEN TO SUGGESTION

An Idaho  
desert town  
applies a wide  
variety of trenchless  
technologies

PAGE 24

PRSTD STD  
U.S. POSTAGE  
PAID  
COLE  
PUBLISHING

# OPEN TO SUGGESTION

A town in the high desert of Idaho finds answers to its aging infrastructure challenges by studying and applying a wide range of trenchless technology approaches

By Suzan Marie Chin



Nampa technician Kristy Ruff refills a Vactor combination truck's water tank from a fire hydrant. (Photography by Steven C. Jeffs)

**T**renchless technology has opened up a world of opportunities for cost-effective wastewater infrastructure rehabilitation and life extension for the City of Nampa, Idaho.

By being open-minded and willing to consider new technologies, the city can effectively maintain its system on time and on budget and add more projects to its capital improvement program than it could complete using dig-and-replace methods.

"Once we discovered trench-

less technology, we couldn't help but realize and recognize the cost savings and the time savings," says Michael Creager, collection system technician II. "That's not to mention the reduction in inconvenience to neighborhood residents. All in all, it's a phenomenal deal compared to open-trench."

## Consistent maintenance

Nampa, population 82,000 (industrial customers create a population equivalent of 225,000), lies in a high desert region. Recent years have brought an inflow of new residents, expanding the wastewater collection system to EPA Class 4 level with more than 300 miles of sewer main, 12 lift stations and 6,000 manholes. Most mains are concrete, 6 to 42 inches.

Nampa has an established preventive maintenance program of cleaning and CCTV inspection, using an in-house crew with two Model 2100 combination trucks by Vactor Manufacturing, and two inspection rigs from CUES Inc. The inspection and cleaning crews work together on a two-and-a-half-year cycle through the system which is divided into sections.

To stay focused and organized, Nampa uses OASIS software by Hydrologics Inc. along with its ESRI GIS system to track and analyze cleaning and inspection. Unlike many cities that set up monthly or yearly goals, Nampa sets daily goals, scheduling some mainline cleaning, inspection and lift station maintenance tasks every day.



## PROFILE:

City of Nampa,  
Idaho Public Works,  
Wastewater  
Collection Systems

**POPULATION:**  
82,000

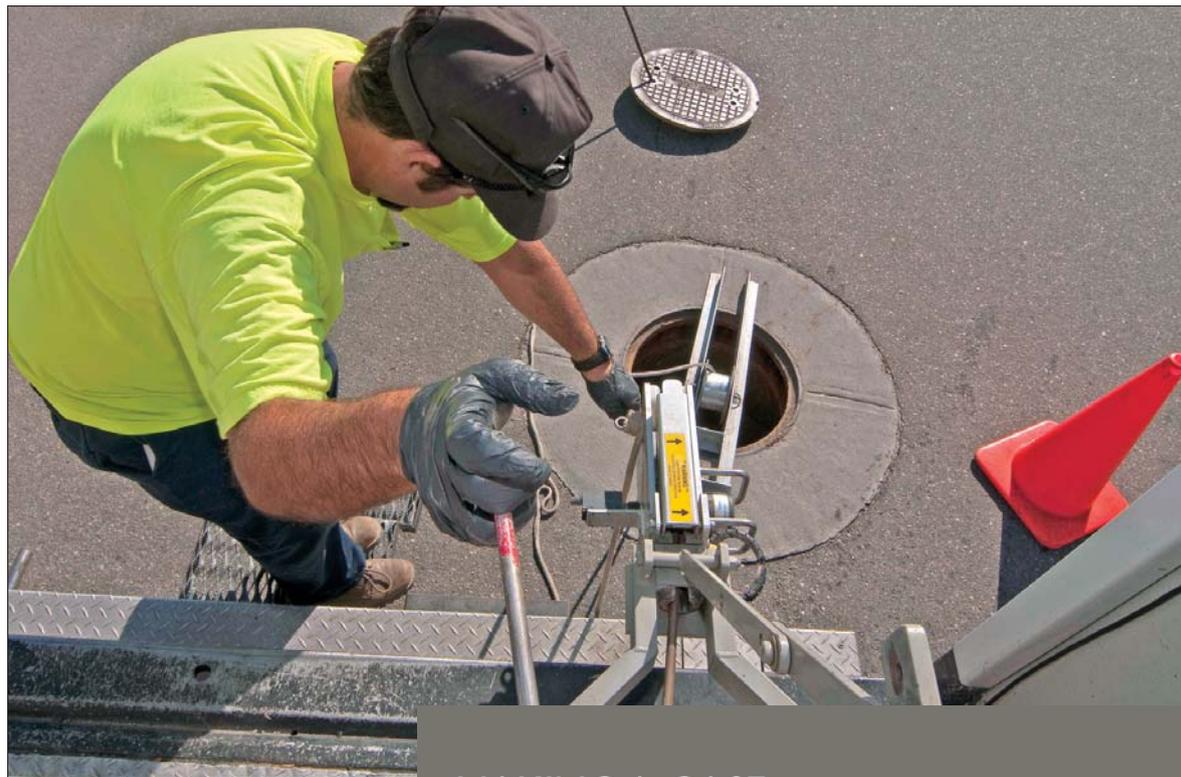
**INFRASTRUCTURE:**  
300 miles of sewer main,  
6,000 manholes,  
12 lift stations

**EMPLOYEES:**  
9

**ANNUAL BUDGET:**  
\$13 million

**WEB SITE:**  
[www.cityofnampa.us](http://www.cityofnampa.us)

Below, a CUES camera is deployed to inspect a section of mainline for infiltration. Right, technician Michael Creager lowers a camera and transporter into position.



**“Once we discovered trenchless technology, we couldn’t help but realize and recognize the cost savings and the time savings. That’s not to mention the reduction in inconvenience to neighborhood residents. All in all, it’s a phenomenal deal compared to open-trench.”**

**Michael Creager**

Although several of the city’s CCTV operators are certified in the NASSCO Pipeline Assessment and Certification Program (PACP) coding system, the city still uses its own coding on the grounds because it is less time-consuming for operators and does not compromise data quality.

Since some parts of the collection system are more than 100 years old, maintenance could only carry the system so far, and many components were nearing the end of their life cycles. So the hunt began for cost-effective rehabilitation methods that would offer the best return on investment and the least disruption to the community.

#### **Obvious choice**

Trenchless methods were an obvious choice, and the city was willing to experiment with the new tools. Starting with linked pipe and working through cured-in-place pipe (CIPP), point repair, grouting, slip-lining, pipe bursting and spray-applied polyurethanes, Nampa tried

almost everything. “As trenchless technology has grown, we’ve remained open to any new ideas, as every project scenario could require a different method,” says Creager. “Keeping all options open has worked exceedingly well for us.”

Collection team members attend conferences to collect information, research and learn about emerging technologies. Nampa also relies on the input of one of its contractors, Scott Wendling of Pipeline Inspection Services, who actively pursues new technology and shares his findings with the city.

The most important criteria for choosing any technology are capital cost and cost savings based on the effectiveness and lifespan of the repair. Sometimes a single technology stands out, and at other times, a combination of methods proves to be the best solution.

Underneath one of the busiest intersections on the high-traffic Northside Boulevard, three line segments had areas of extreme erosion, resulting in 780 feet of

## MAKING A CASE

“One of the biggest challenges facing municipalities is imparting to others outside our industry the urgency in being preventive and proactive as opposed to reactionary and responding to emergencies,” says Michael Creager, collection system technician II for the City of Nampa.

Educating residents, city council members and other decision makers about the importance of rehabilitation and maintenance can be difficult, so public information officer Sharla Arledge enlisted the help of CCTV inspection data and the age-old rule of “a picture is worth a thousand words” to get the message across.

Creager compiled five hours of CCTV pipe survey video files and placed timeline marks where sections of pipe needing repair could be found. Arledge then extracted those sections and edited them into an engaging four-minute video for showing to city decision makers.

“The response was amazing,” says Creager. “It allowed them to see why we were asking for funds for repairs. They were quite shocked to see the condition of the system. It went a lot farther than someone telling them, ‘It’s bad and we need to replace it.’ Once they got over their disbelief, they could comfortably make the necessary decisions on expenditures and projects.”

The video presentation now serves multiple purposes. It is used as a key component for educating customers about a proposed rate increase to pay for repairs to the system. Residents can view the visual explanation and buy into the importance of caring for the infrastructure.

exposed aggregate that was creating high losses of flow and velocity. In addition, the associated manholes desperately needed repair.

For a traditional cut-and-replace of the mainlines and manholes, Nampa faced a four-lane road clo-

sure lasting some three weeks, plus high restoration costs for pavement, sidewalks and landscaping. The city chose CIPP lining from Insituform Technologies Inc., to repair the damaged sections. The repair took three days and caused

**“If we know a structure is in a high-risk situation, we will absolutely consider protective coating. The cost to protect as opposed to repair and rehabilitate down the road is much smaller. It’s just a smart economic move.”**

**Michael Creager**

minimal traffic disruption.

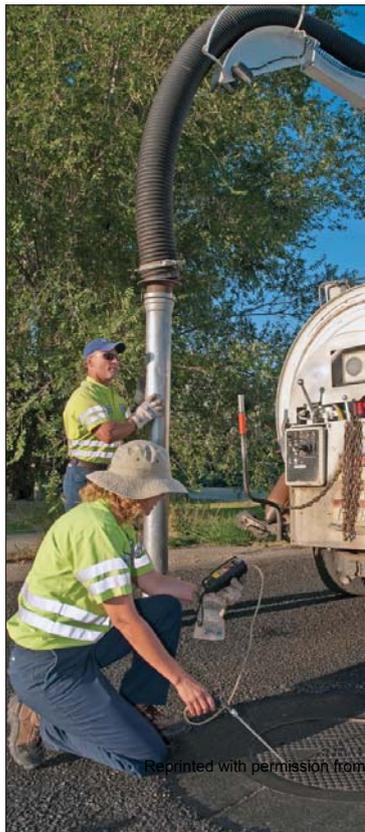
To address the manholes, the city hired Pipeline Inspection Services, which used various cementitious products from Quadex Inc. for rebuilding and patching. Once the structure surfaces were prepared, an application of SprayWall structural polyurethane coating from Sprayroq Inc. restored the manholes to brand-new condition.

### Smaller can be better

Slip-lining saved the day when Doug Jenkins, collection system supervisor, presented wastewater superintendent Greg Pearce with inspection footage of a 486-foot span of pipe that was failing directly underneath the I-84. Pearce consulted with an engineering firm about repair options, as the ground was high in lava rock and the location itself was challenging.

The engineering firm said a new bore under the highway would be needed at a cost of about \$500,000. Pearce decided to look

**Jeff Richmond and Kristy Ruff use a Vactor Model 2100 combination truck to dislodge and vacuum debris from a wastewater mainline.**



at slip-lining instead. The city obtained a flow meter and conducted a flow study for several weeks and found that the smaller slip-lined pipe would have the needed capacity. When an engineering firm confirmed the finding, the city moved forward. “We didn’t have to impede a single bit of traffic,” Pearce says. “And the repair was completed over one night, all for about \$40,000.”

With its positive experiences using trenchless technology on pipes and manholes, Nampa looked at using it on other structure rehabilitation and maintenance. One lift station was receiving a high flow from an industrial customer, causing a huge hydrogen sulfide odor problem. The flow was also causing rapid erosion in upstream manholes.

To mitigate the odor, Pipeline Inspection Services applied SprayWall polyurethane. It dissipated the odor, allowing the manholes to vent, as opposed to the porous base structure material absorbing and retaining the odor. The coating also prevents further erosion of the structure from the hydrogen sulfide.

“At the rate the manholes were deteriorating, we figured we’d have to go back in there in 12 to 15 years and rebuild them,” says Jenkins. “Because we coated them, 30 to 40 years from now we’ll still have good manholes that we may never have to replace.”

As a preemptive measure, when the manholes were coated, Nampa had the wet well associated with the lift station and two other manholes treated. The aim is to prevent further erosion and extend the lifespan of these structures against the industrial flow.

“If we know a structure is in a high-risk situation, we will absolutely consider protective coating,” says Creager. “The cost to protect as opposed to repair and rehabilitate down the road is much smaller. It’s just a smart economic move.”

### Endless potential

The list of applications for



**Juan Pena performs maintenance on a lift station grinder pump.**



**Cody Aberasturi (in white) applies SprayWall structural polyurethane coating from Sprayroq to a manhole, assisted by Anthony Johnson and Patrick Swenson.**

trenchless technologies is long, and the options will continue to grow. “With all the new technologies, outside of an extremely shallow repair, open-trench is our last resort,” says Creager. “We might be comfortable with the old ways, but we all need to let them go away and grow.”

“If you don’t know about what’s available, go out there and do your research, find a way to do it trenchless, learn about every available option, and use it. Money, time, disruption — trenchless just saves municipalities in every respect.” ♦

### MORE INFO:

- 18 CUES Inc.**  
800/327-7791  
[www.cuesinc.com](http://www.cuesinc.com)
- 220 ESRI**  
909/793-2853  
[www.esri.com](http://www.esri.com)
- 477 Hydrologics Inc.**  
410/715-0555  
[www.hydrologics.net](http://www.hydrologics.net)
- 410 Insituform Technologies Inc.**  
636/530-3329  
[www.insituform.com](http://www.insituform.com)
- 431 Quadex Inc.**  
888/831-1650  
[www.quadexonline.com](http://www.quadexonline.com)
- 320 Sprayroq Inc.**  
205/957-0020  
[www.sprayroq.com](http://www.sprayroq.com)
- 5 Vactor Manufacturing**  
800/627-3171  
[www.vactor.com](http://www.vactor.com)