

Clean Sewers with Half the Water.

Addressing Water Scarcity without
Sacrificing Sewer Maintenance.



Venay Sehgal Bhatia
Digital Marketing Manager
Envirosight

In drought-stricken cities, water conservation means jetting smarter. With numerous states facing their driest spells in history, many are being forced to find new ways to conserve water. Sewer cleaning is a municipal activity that consumes tremendous quantities of fresh water, and yet many municipalities lack a plan to clean smarter in the midst of dwindling water supplies.

According to research, up to 35% of sewer lines are jetted unnecessarily as part of regularly scheduled cleaning and maintenance (Phased 2015). Most cleaning crews have no way to determine in advance whether a pipe actually needs cleaning. And even when cleaning is warranted, choosing the right nozzle is seldom more than a guessing game. While the technology to visually assess pipe condition exists, the savings in time and money are easy to ignore when budgets and workload are already established. But now, scarce water supply is changing the equation in many cities. Municipal supervisors are compelled to pre-screen sewer pipes in order to identify which ones warrant jetting, and to assess what tools are needed to clean the pipes most effectively.

Double Trouble

Typically sewers are cleaned blindly. Without knowing what's in a pipe, a jetter operator runs a nozzle up and down the pipe until the effluent in the manhole shows no more debris. This is inefficient in two ways:

- For pipes that are already clean, thousands of gallons of water can be used just to determine jetting wasn't necessary. A high-pressure jetter consumes up to 80 gal/minute, depending on water pressure and pipe size/condition (Jetter 2015). Jetting a 300' segment of 8" pipe can take up to 20 minutes. This means a jetter crew can consume as much as 1,600 gallons of water before realizing jetting wasn't even necessary. To put this into perspective, the average person uses 80

gallons of water per day and would consume 1,600 gallons in 20 days (USGS, 2015).

- Even when a pipe needs cleaning, not knowing the condition of the pipe makes selecting the proper nozzle a guessing game. Improper nozzle selection often results in multiple cleaning passes. Water consumption quickly multiplies with each pass—as does the need to refill the jetter truck with water. An informal survey of operators reveals this inefficiency accounts for 22-31% of total time spent jetting. As Ken Wysocky puts it, “without the correct nozzles, a water jetter is like a Ferrari without wheels—all revved up but incapable of delivering peak performance” (Cleaner 2015).

Get the Picture

The cost of jetting blind can be measured in dollars, hours and gallons of water. And while traditional inspection methods like CCTV are too slow and expensive to offset those costs, visual assessment technologies such as zoom cameras can help a cleaning crew understand pipe condition in fraction of the cost and time—without the use of additional water.

Zoom cameras offer a quick, inexpensive way to determine which pipes need to be cleaned, and how to clean them. A zoom camera uses focused illumination and high-powered zoom optics to view an entire

fig. 1: Potential Water Savings

without zoom pre-screening

100%
of historical usage

with zoom pre-screening

45-50%
of historical usage

savings due to
proper nozzle
selection

savings due to
pre-screening
for clean pipes



pipe from an adjoining manhole. An operator simply lowers the camera into the manhole, and then zooms the full length of the pipe to assess condition. The visual assessment allows the operator to determine whether the pipe needs to be cleaned and what nozzle to use.

If the zoom assessment shows no grease, roots, debris or sludge, the line needs no jetting and the crew can move to the next manhole. Otherwise, the crew can select the best nozzle for the conditions found, with the assurance that an appropriate nozzle will clean the line in the shortest time, with minimal operating cost and water.

The Workflow

Zoom assessment integrates seamlessly with any existing sewer cleaning workflow, delivering valuable information with minimal disruption:

- Cleaning crews are dispatched to clean lines in the traditional manner, either according to an established cleaning schedule, or in response to an emergency call-out.
- On location, the crew first performs a quick zoom assessment to understand conditions within the pipe. The zoom camera travels in the cleaning truck's tool compartment for ready access.
- Based on what's revealed within the pipe, the crew can avoid jetting pipe that's already clean, and can more effectively clean a soiled pipe.

In the world of sewer jetting, knowing what you are up against has many benefits. It allows municipalities to accomplish routine maintenance cleaning more effectively and efficiently. It allows jetter operators to use the right tools for the job. Most importantly, it saves municipalities from wasting time, money, and particularly water.

Sources:

1. *United States Environmental Protection Agency Office of Water Washington, D.C. EPA 832-F-99-031 September 1999 Collection Systems O&M Fact Sheet Sewer Cleaning and Inspection.*
http://water.epa.gov/scitech/wastetech/upload/2002_06_28_mtb_sewcl.pdf
2. *Phased Assessment Strategy for Sewers. EnviroSight. July 2015.*
<http://inbound.envirosight.com/phased-assessment-strategy-for-sewers>
3. *Cleaner Classroom: Jetting 301. Ken Wysocky. 29 July, 2015.*
http://www.cleaner.com/online_exclusives/2015/07/cleaner_classroom_jetting_301
4. *Cleaner Classroom: Jetting 101. Ken Wysocky. 17 June, 2015.*
http://www.cleaner.com/online_exclusives/2015/06/cleaner_classroom_jetting_101
5. *USGS Water Questions & Answers- How much water does the average person use at home per day? 7 August, 2015.* <http://water.usgs.gov/edu/qa-home-percapita.html>
6. *Jetter Cuts Downtime. Ken Wysocky. Cleaner Magazine. February 2015.*
http://www.cleaner.com/editorial/2015/02/no_time_for_downtime