



Envirosight Article: “Rethinking Manhole Inspection” (2018)

Summary

- Manhole inspection is quicker and cheaper than pipeline inspection
- Manholes do not require trenching to mitigate I &I, are uniformly sized, and are easier to access than pipelines: “low-hanging fruit”
- Up to 90% of all system I&I is found in manholes
- EPA, 2014: 25-60% of all flow in sewer lines is I&I
- By this statistic, a 10mgd WWTP incurs an excess cost of \$3k - \$8k per day, \$1.0m+ a year
- EPA, 2014: Eliminating SSOs decreases water pollution and public health risks; offsets environmental and regulatory impact of sewer expansion; reduces capital and regulatory costs of WWTPs, which are increasingly overwhelmed due to heightened water demand (10% population growth over the next 20 years)
- EPA has strict policies/penalties for deferred sewer maintenance, “a paramount concern”
- A single ½ inch diameter hole can admit 5mg/\$13k per year (Goff, 2010).
- 20 million manholes in the US; more than half installed before 1960 (over their estimated life cycle of 50 years)
- Large percentage of manholes fall into a “high risk” category
- Manholes are prone to higher surface stress due to traffic, storms, freeze/thaw cycles
- Repairing/rehabilitating manholes to reduce or eliminate I&I offers a better return on investment than repair of pipeline I&I
- Repairing manholes cuts annual treatment costs by as much as \$20,000 per manhole (Van Note, et al. 2017).
- “The cost of rehabilitating manholes is lowest among sources [of I&I]. Clearly, manhole rehabilitation delivers an excellent ‘bang for the buck.’” (Goff, 2010).