

Water/Sewer Systems Concession Lease Agreement



2016 Annual Report

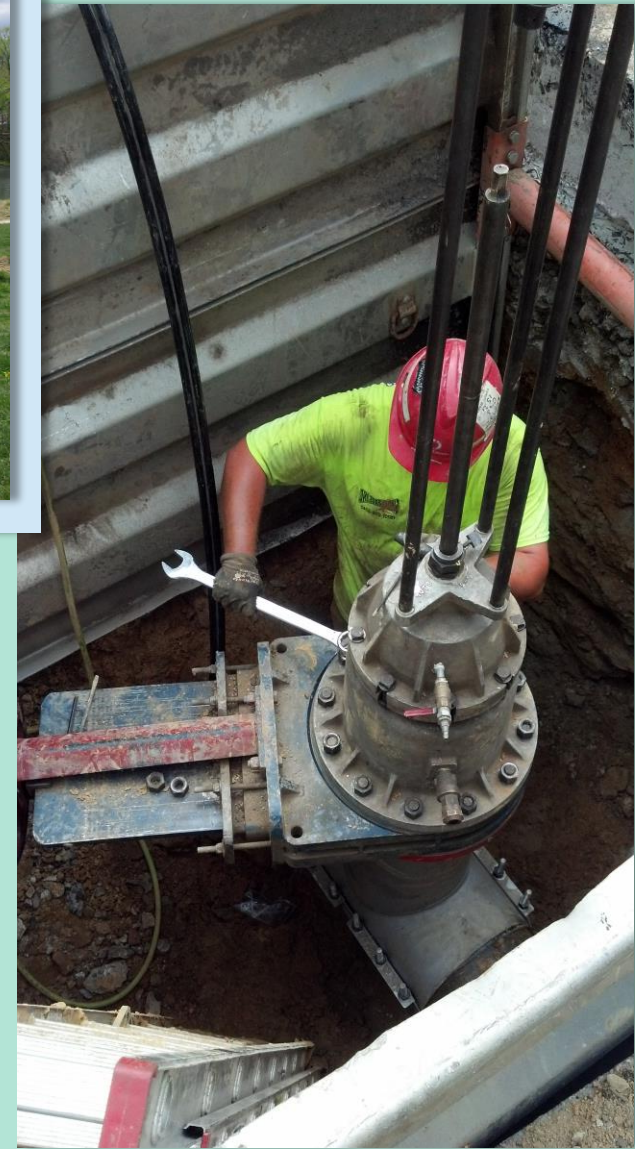


Presented by:
City of Allentown
Office of Compliance
Department of Public Works
May 23, 2017

Questions?
(610) 437-7587
compliance@allentownpa.gov

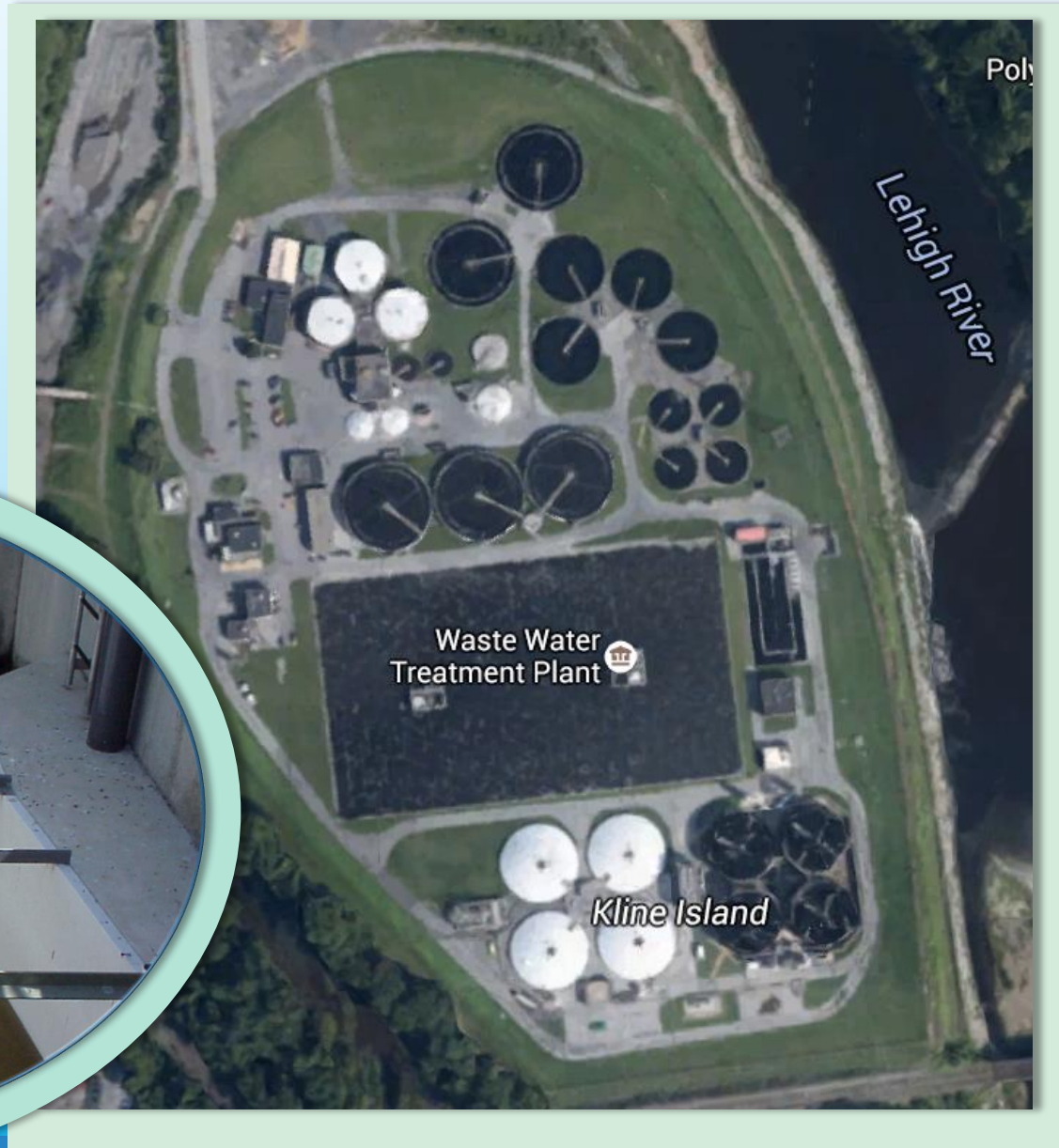
Visit: www.allentownpa.gov/Public-Works/Compliance-Office

Introduction



Wastewater Treatment

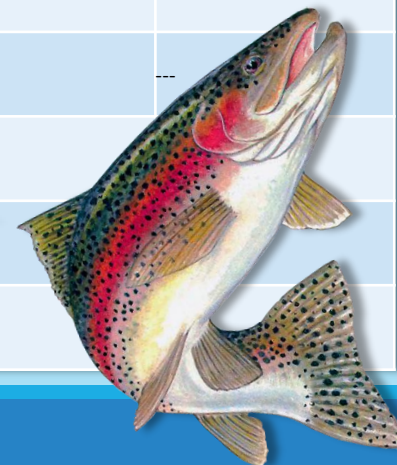
10.9
Billion
gallons of
wastewater
treated in
2016



Wastewater Treatment

		Performance Standards	NPDES Discharge Permit Effluent Limitations		
Parameter	LCA	Monthly Average Effluent Concentration	Monthly Average Effluent Limit	Weekly Average Effluent Limit	Instantaneous (Daily) Maximum Effluent Limit
Carbonaceous Biochemical Oxygen Demand (CBOD ₅)	Met Requirement	≤ 12 mg/L	20 mg/L	30 mg/L	40 mg/L
CBOD5 Percent Removal	Met Requirement	≥ 90 %	≥90 %	---	---
Total Suspended Solids (TSS)	Met Requirement	≤12 mg/L	30 mg/L	45 mg/L	60 mg/L
TSS Percent Removal	Met Requirement	≥90 %	≥90 %	---	---
Ammonia Nitrogen (NH ₃ -N) May 1 to October 31	Met Requirement	≤4.0 mg/L	5 mg/L	---	10 mg/L
Ammonia Nitrogen November 1 to April 30	Met Requirement	≤12.4 mg/L	15 mg/L	---	30 mg/L
Fecal Coliform May 1 to September 31	Met Requirement	200/100 ml geometric mean		---	---
Fecal Coliform October 1 to April 30	Met Requirement	2,000/100 ml geometric mean		---	---
Residual Chlorine	Met Requirement	≤0.5 mg/L		---	---
pH	Met Requirement	6.0 to 9.0 SU		---	---
Dissolved Oxygen	Met Requirement	5.0 mg/L minimum		---	---

**NO
Effluent
Quality
Standards
were
exceeded**



Wastewater Treatment Plant

Headworks Overflow



Outfall 003

No Odor Complaints



Biosolids



• Deliver to
Farm

• Land apply

• Improved
Soil
Conditions

Wastewater Treatment Plant



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

**Draft
NPDES Permit
still under
review by
PaDEP.**



**PaDEP
conducted a Sewage
Compliance
Inspection of the
treatment facilities on
August 1, 2016**

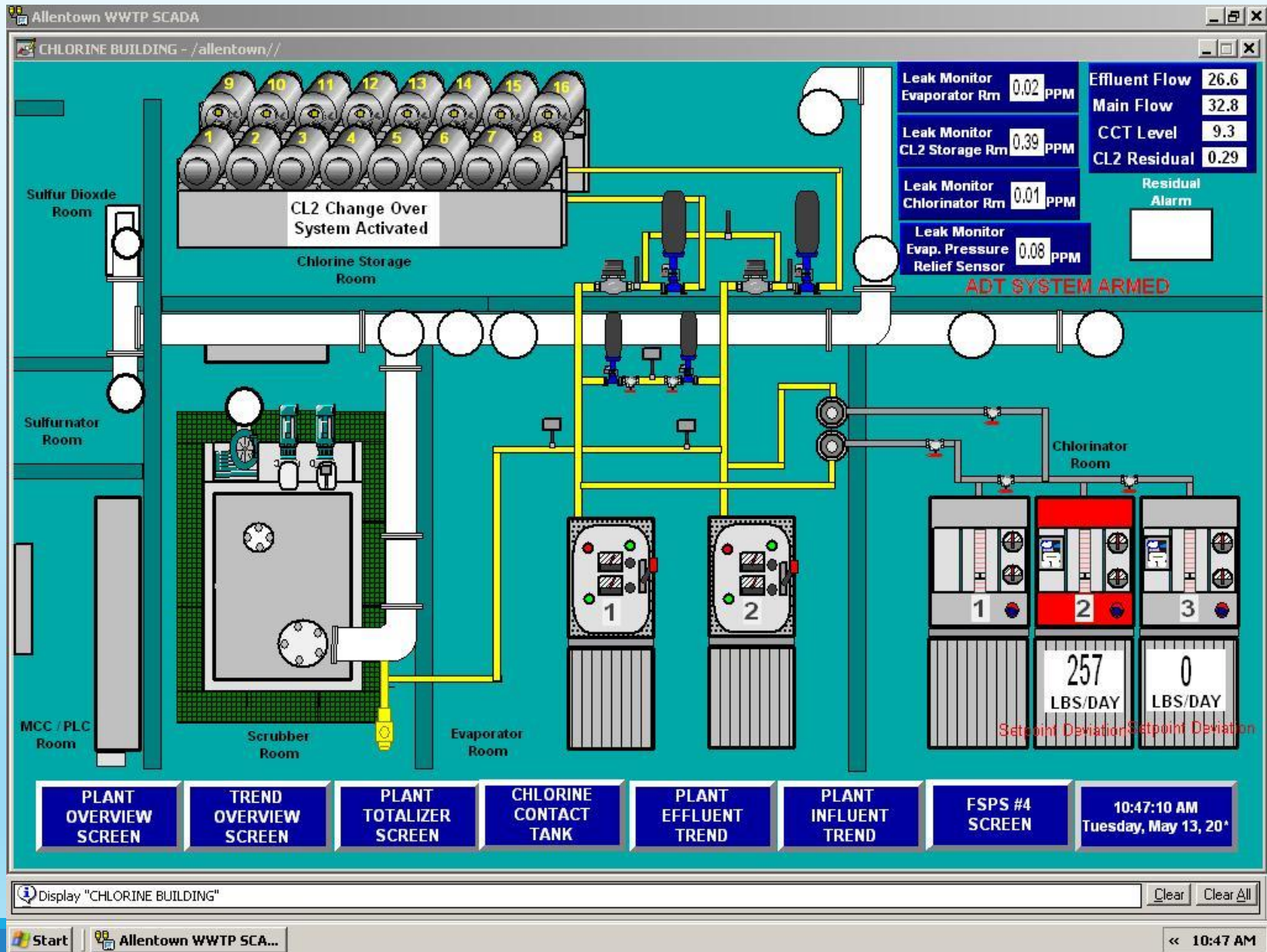


US Army Corps of Engineers

Conducted an inspection of the Allentown Federal Flood Risk Management Project along the Lehigh River. The inspection received an overall "Unacceptable" rating. In response, LCA will be conducting maintenance activities in 2017.

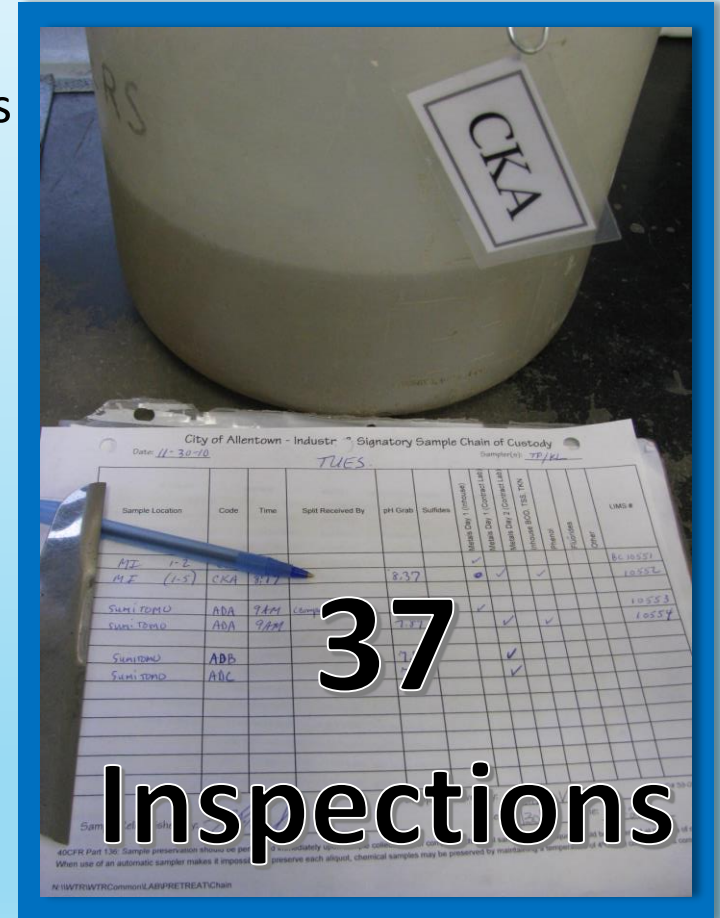
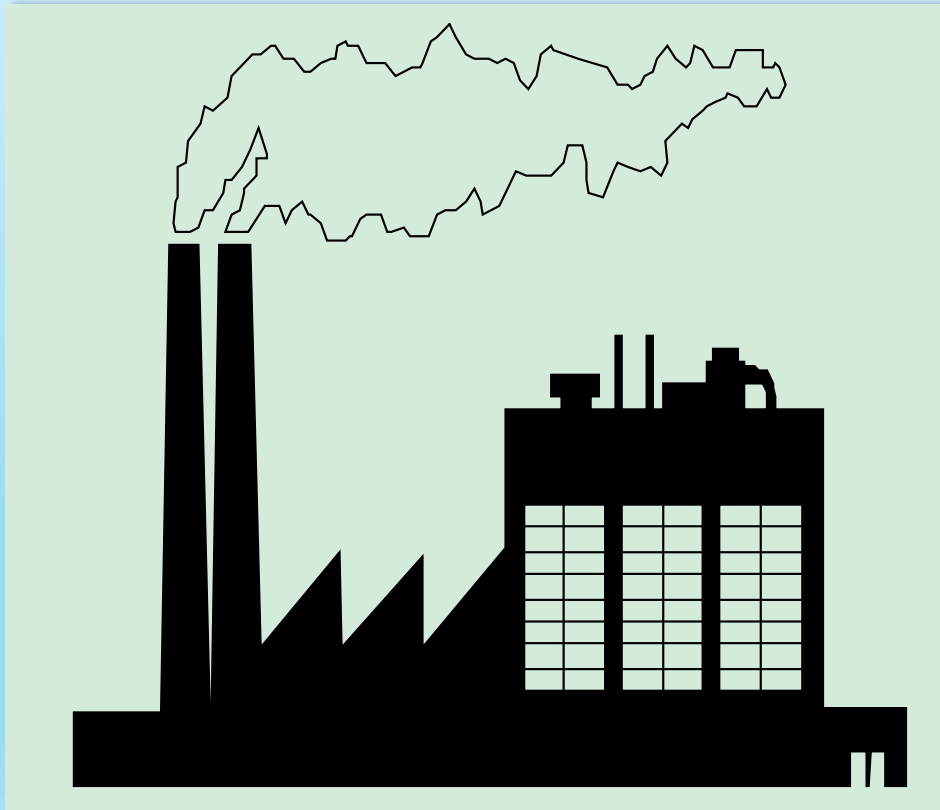


SCADA – Supervisory Control And Data Acquisition

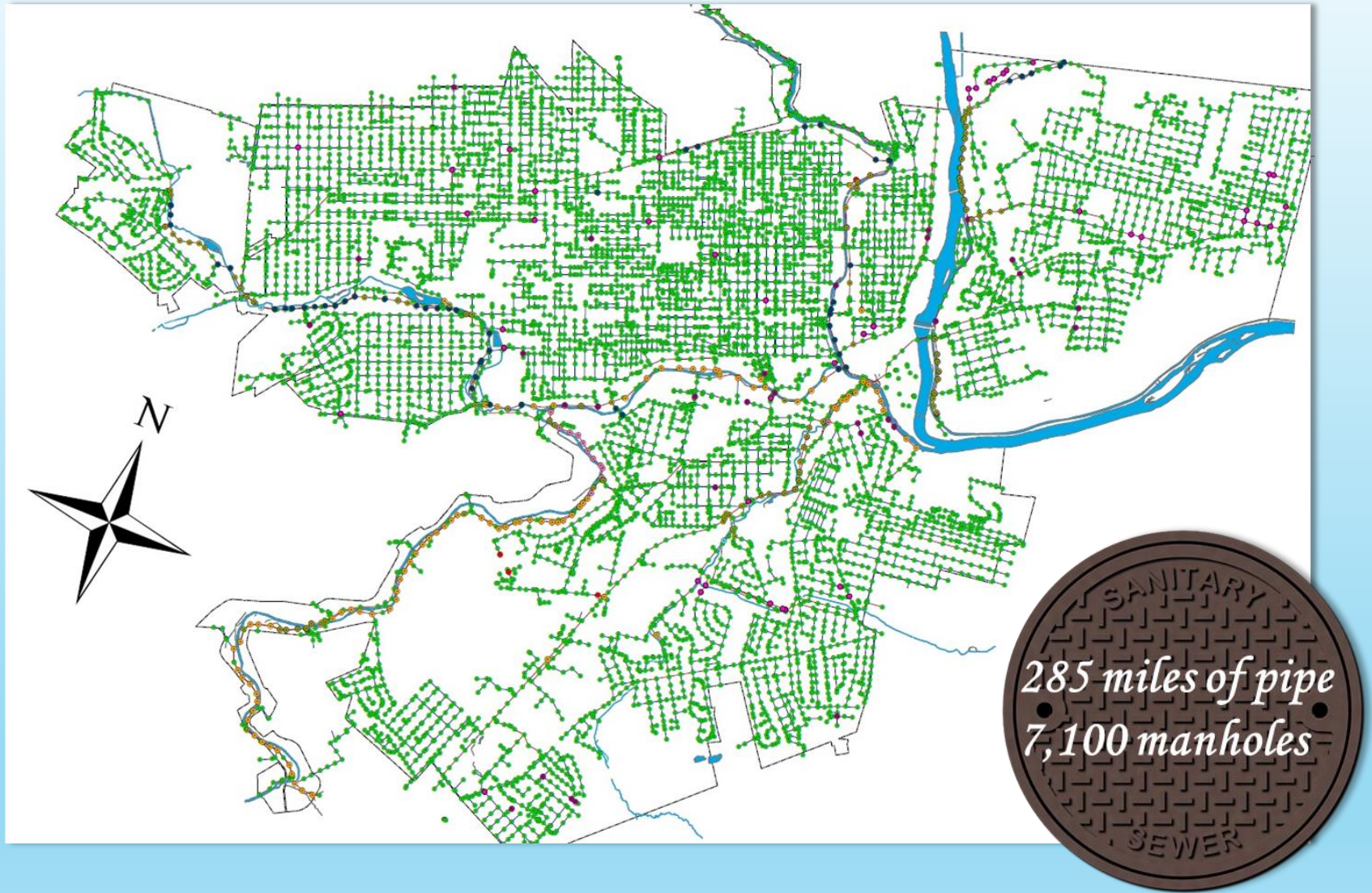


Industrial Pretreatment

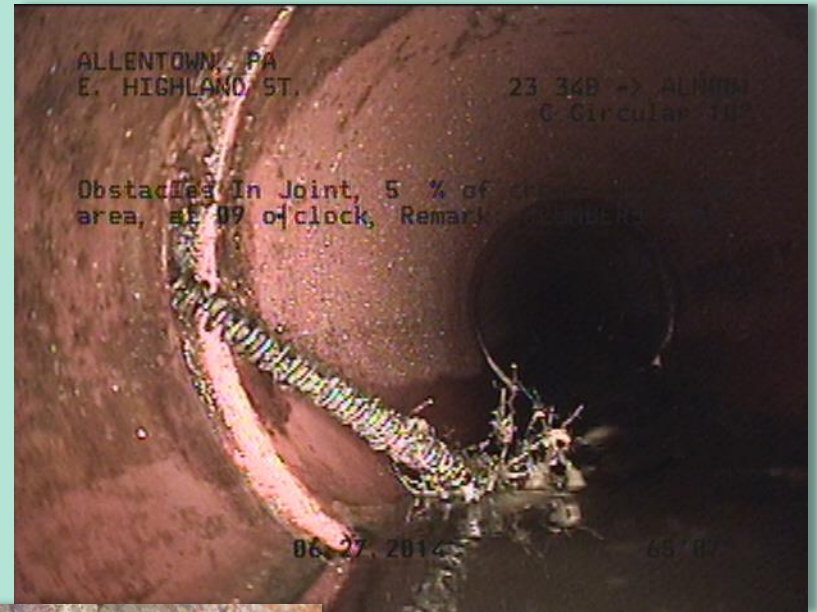
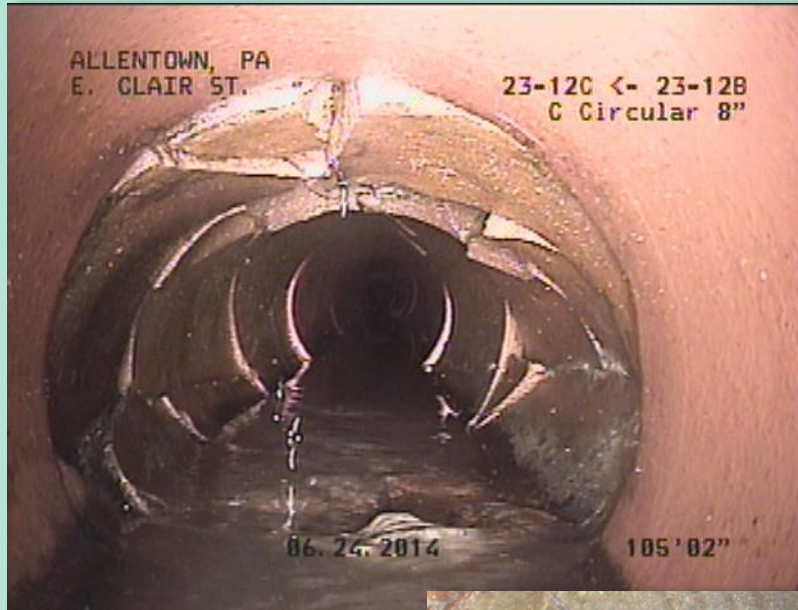
- Control interference with WWTP operations
- Control pass through of pollutants
- Control sludge quality
- Control exposure of workers to chemical hazards



Sewage Collection System



Sewage Collection System



*CCTV Minimum
linear footage
requirement:
55,000*

*LCA Performance:
157,503
Linear feet televised*

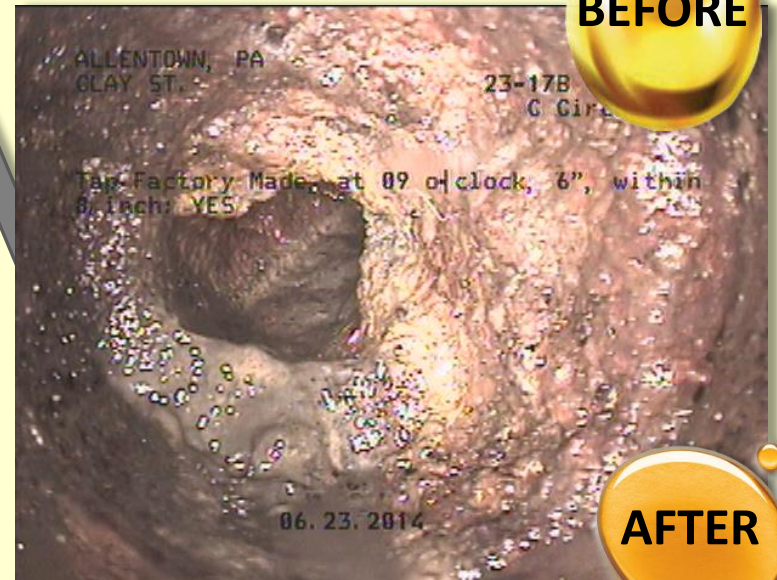
Sewage Collection System

Tree roots
block sewer pipe.
Maintain the lateral
from your home.

Residents
can help
STOP
SSO's



BEFORE

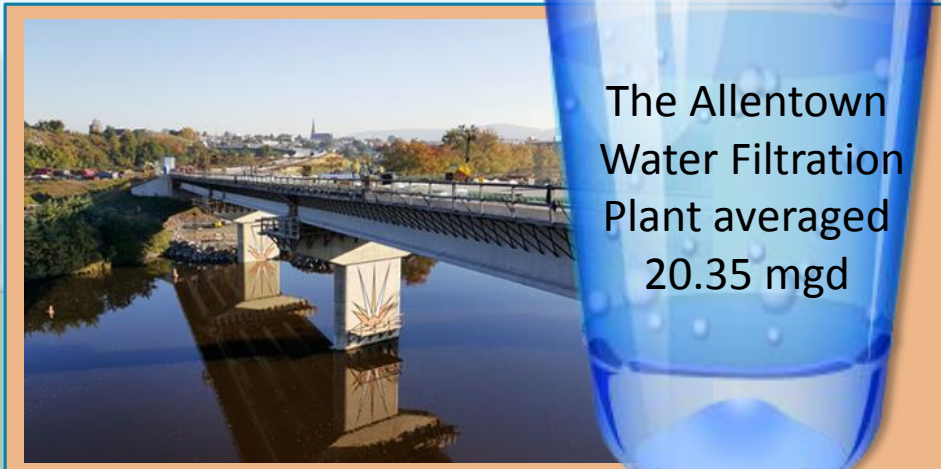


AFTER

Drinking Water Treatment and Production



*Finished Water is produced
from 4 sources:
Little Lehigh Creek, Schantz Spring,
Crystal Spring & Lehigh River*



The Allentown
Water Filtration
Plant averaged
20.35 mgd



48% of finished water is from the Springs

Drinking Water Treatment and Production



**7.44
Billion
Gallons
Treated
in 2016**



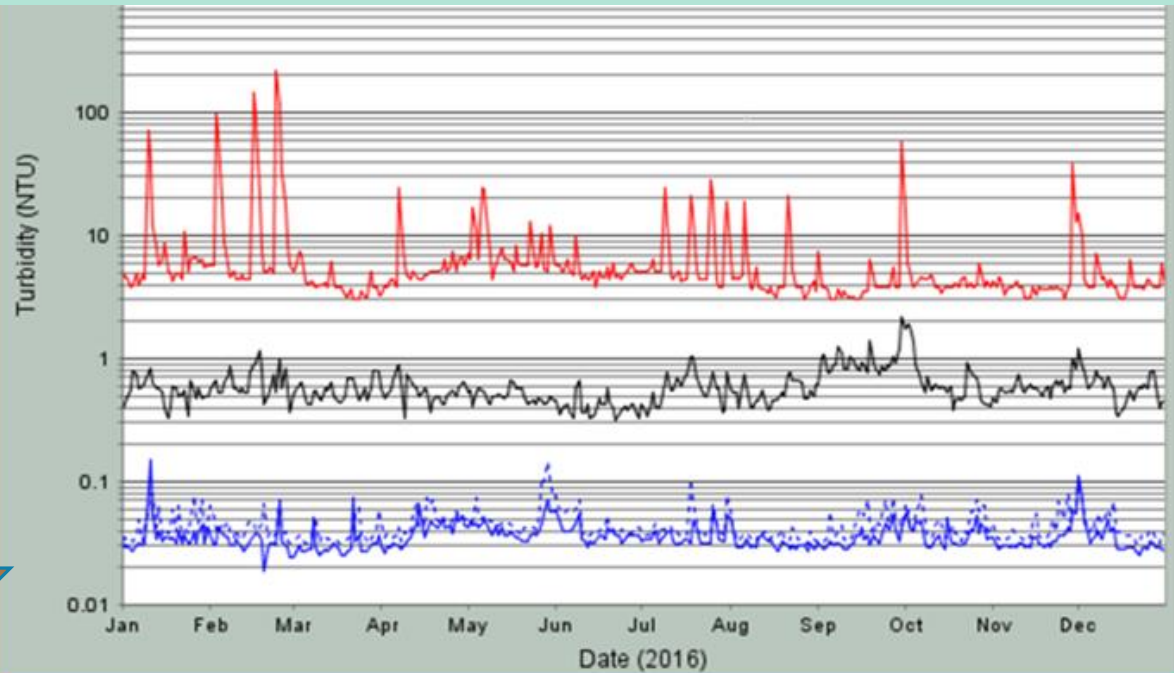
Drinking Water Treatment and Production

Turbidity:

Law: Less than
Or equal to **0.3 NTU**

Partnership: Less than
or equal to **0.1 NTU**

Allentown:
Equal to **0.036 NTU**



ANNUAL DATA	Avg (NTU)	Min (NTU)	Max (NTU)	RSQ	95% (NTU)	Opt. Goal % Values	Reg % Values
Raw Turbidity	8.14	3.01	214.94	n/a	20.89	n/a	n/a
Max. Settled Turbidity	0.6	0.32	2.16	0.03	0.98	95.4	n/a
Max. Filtered Turbidity	0.045	0.031	0.143	0.02	0.071	98.6	n/a
Combined Filtered Turbidity	0.036	0.019	0.151	0.43	0.053	99.5	100

RSQ = Correlation Coefficient for two selected data sets.

95% = 95th Percentile value for data set.

Opt. Goal = % of values in data set that are less than or equal to the selected optimization turbidity goal.

Reg. % = % of values in data set that are less than or equal to the regulated turbidity requirement.

Partnership for Safe Water



Drinking Water Treatment and Production



**NO
Maximum
Contaminant
Levels
were exceeded.**



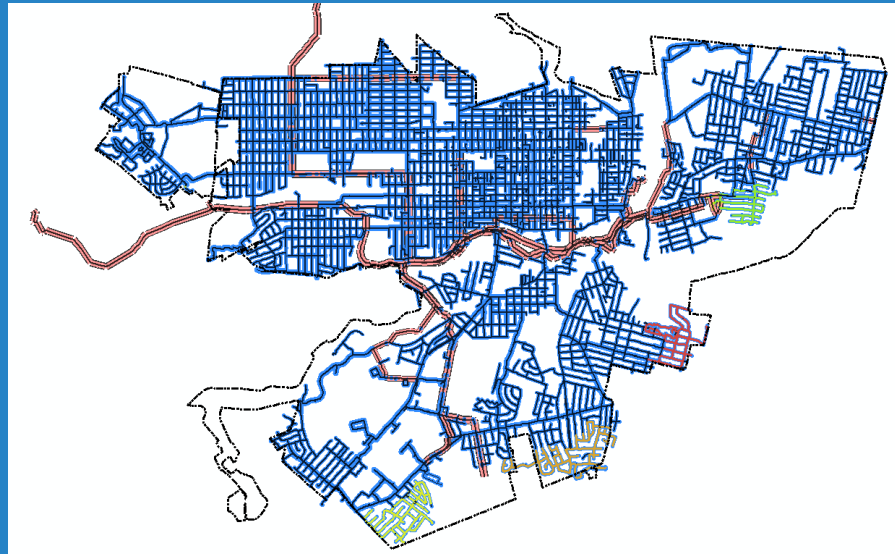
Contaminant Testing



Drinking Water Distribution System



325 Miles of Pipe



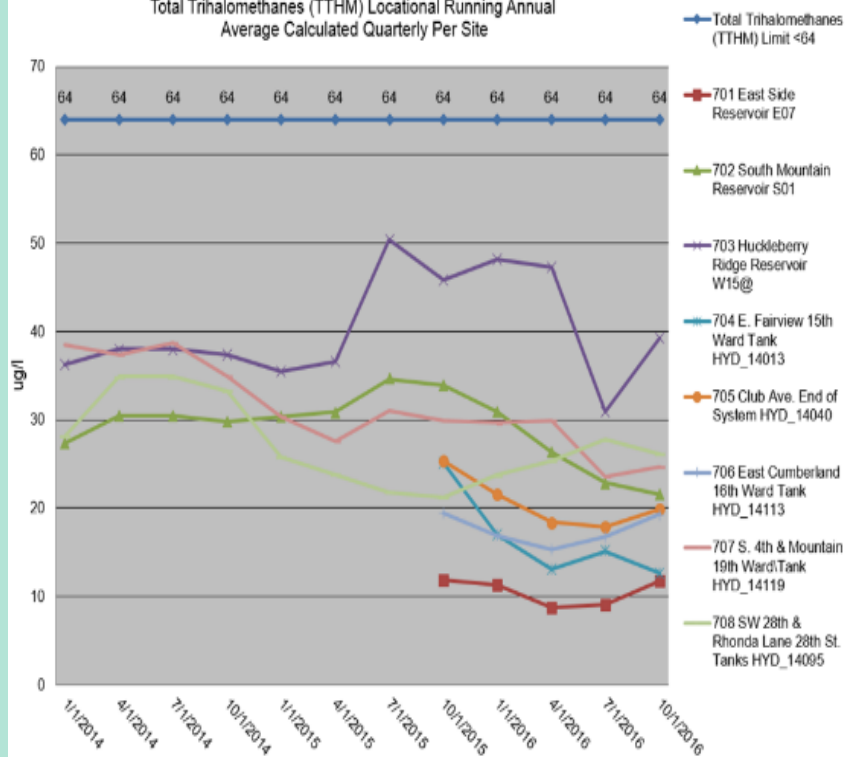
33,400 Service connections



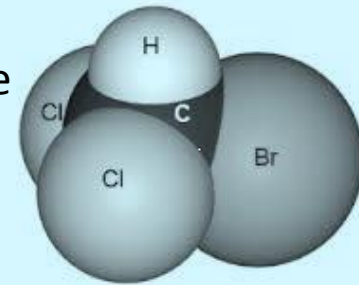
8,060 Valves

Disinfectant Byproducts

Total Trihalomethanes (TTHM) Locational Running Annual Average Calculated Quarterly Per Site

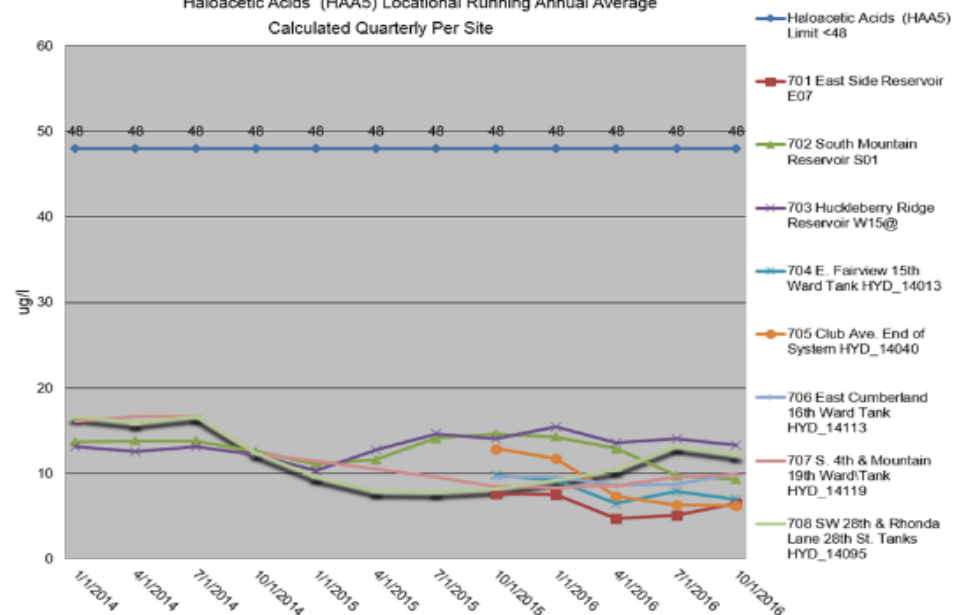


TTHM
Trihalomethane



HAA5
Haloacetic Acid

Haloacetic Acids (HAA5) Locational Running Annual Average Calculated Quarterly Per Site



Drinking Water Distribution System

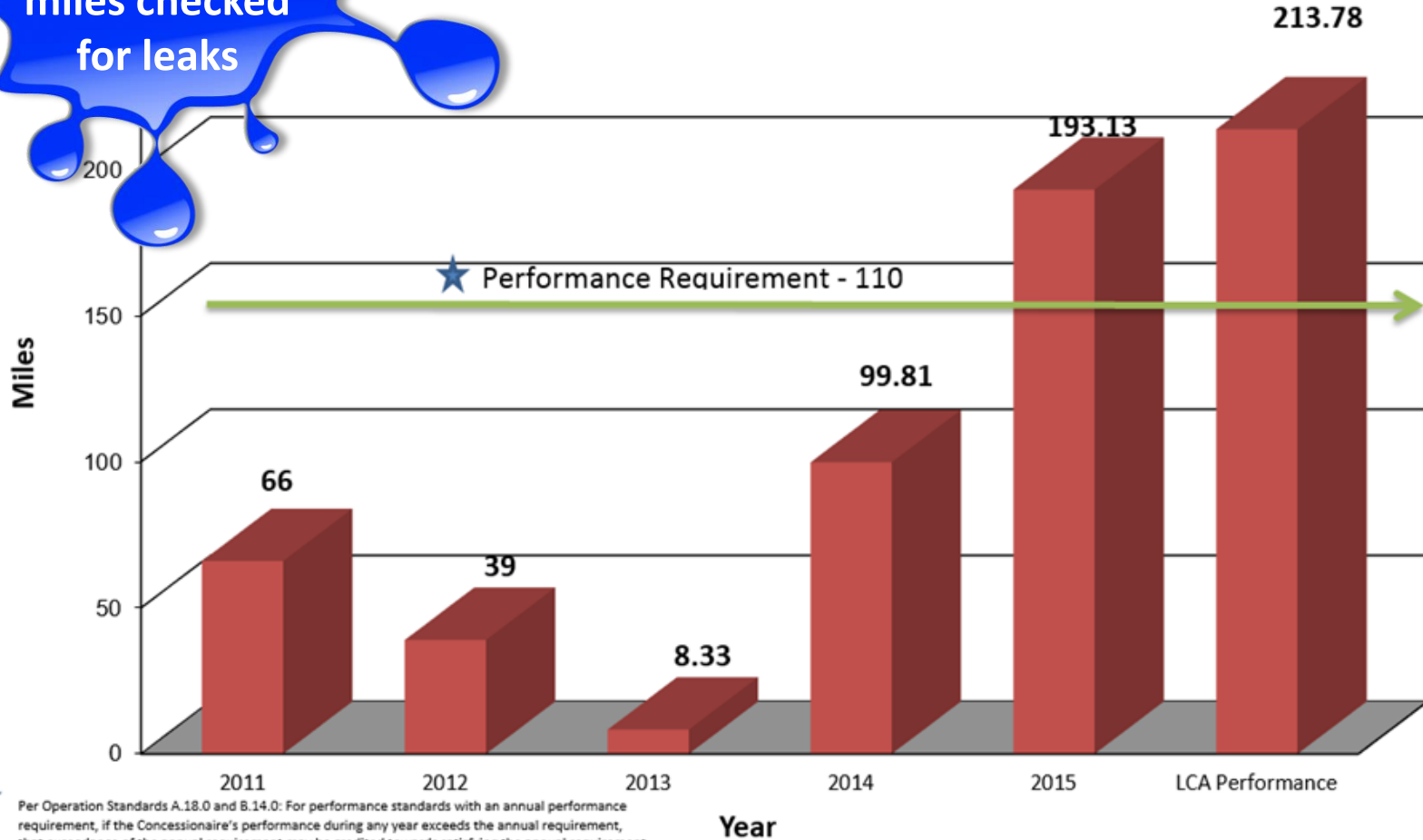


Drinking Water Distribution System

Miles Leak Surveyed

Metrics Update

213.78
miles checked
for leaks



Per Operation Standards A.18.0 and B.14.0: For performance standards with an annual performance requirement, if the Concessionaire's performance during any year exceeds the annual requirement, that exceedance of the annual requirement may be credited towards satisfying the annual requirement during the following year. Such credits do not apply to water quality requirements.

Drinking Water Distribution System

Cu

Copper

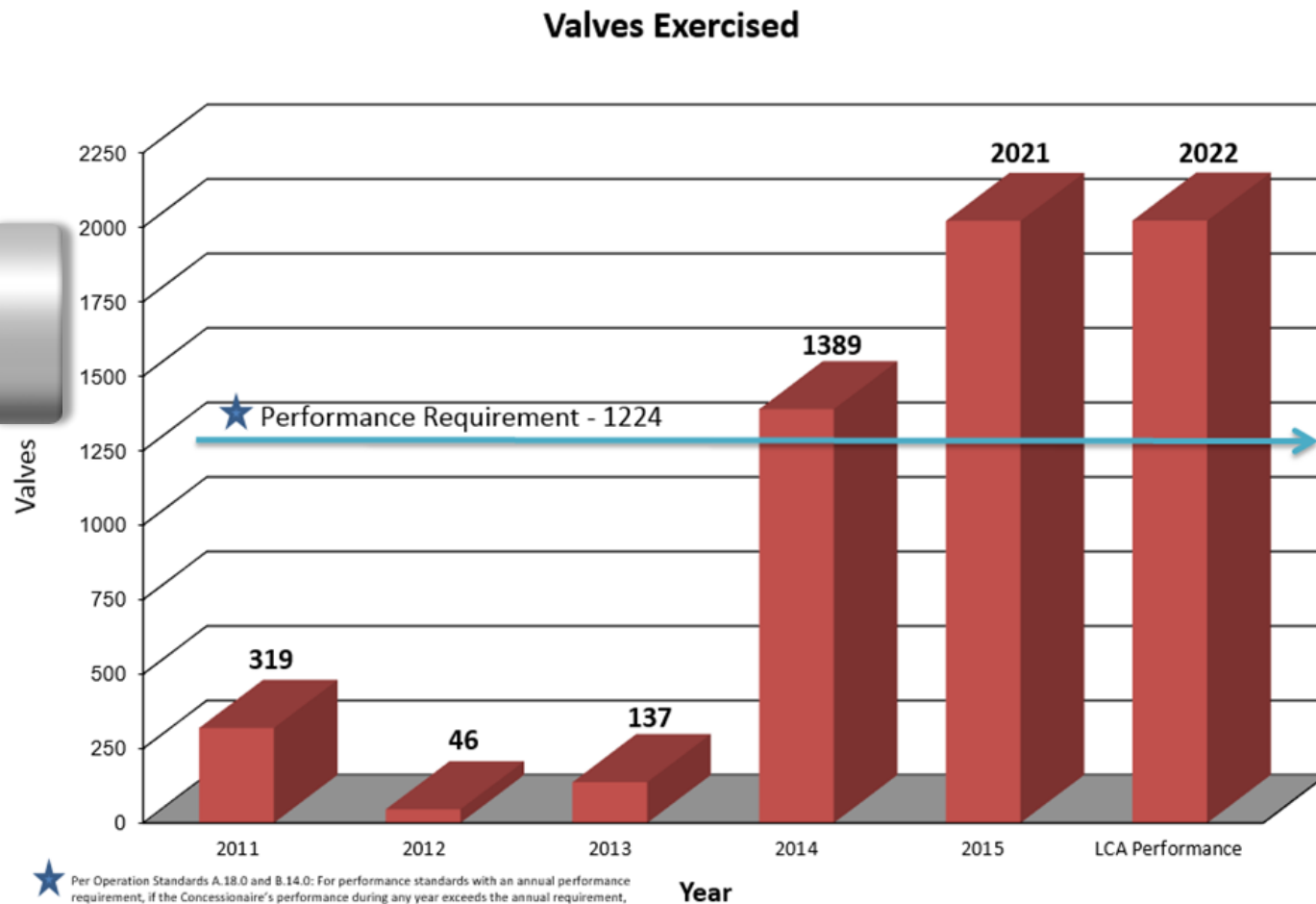
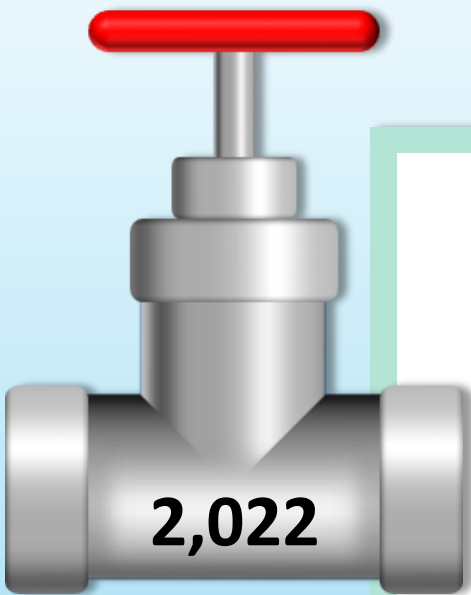
Pb

Lead

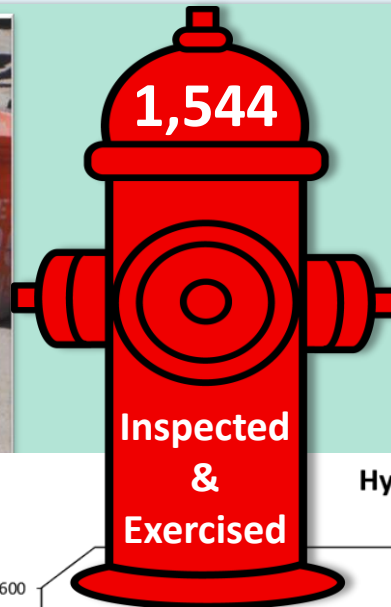
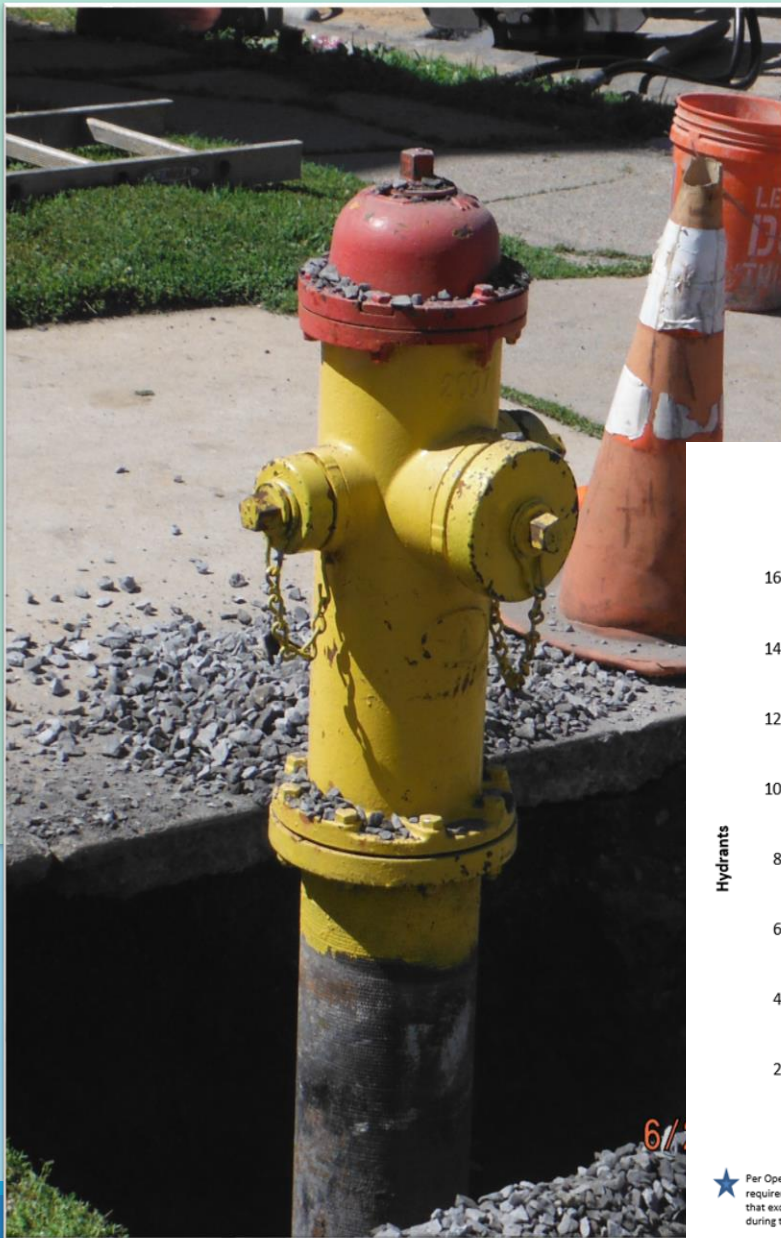


Drinking Water Distribution System

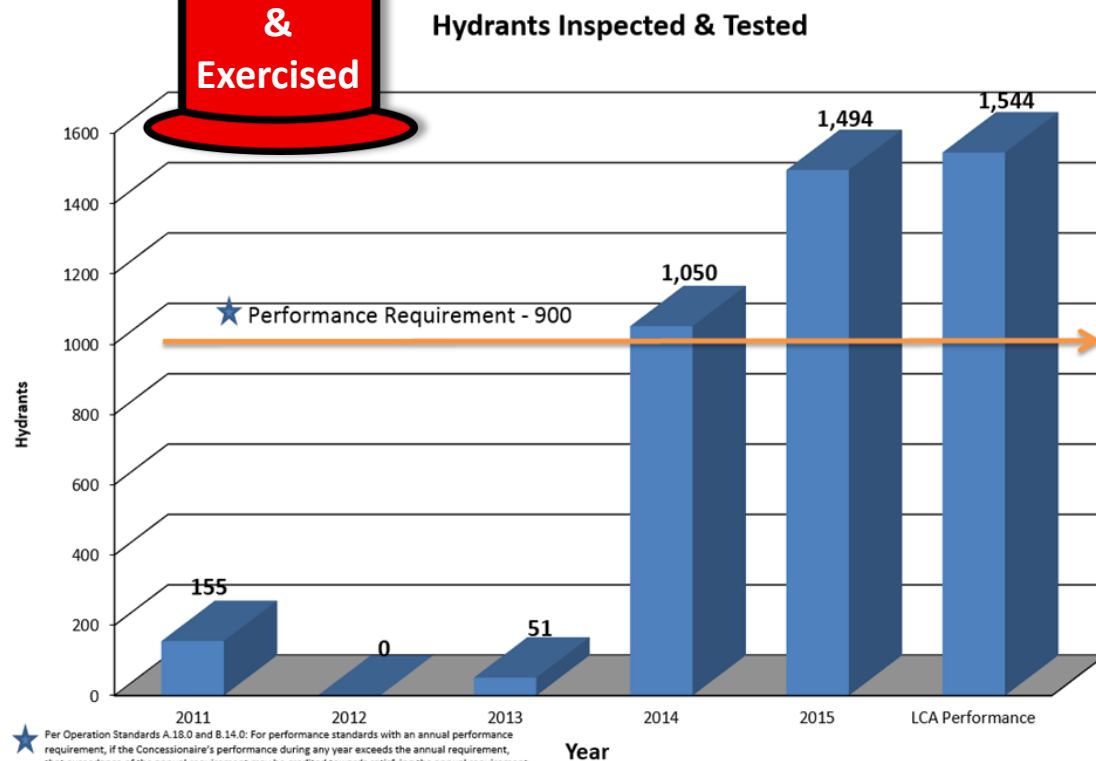
Metrics Update



Drinking Water Distribution System



Metrics Update



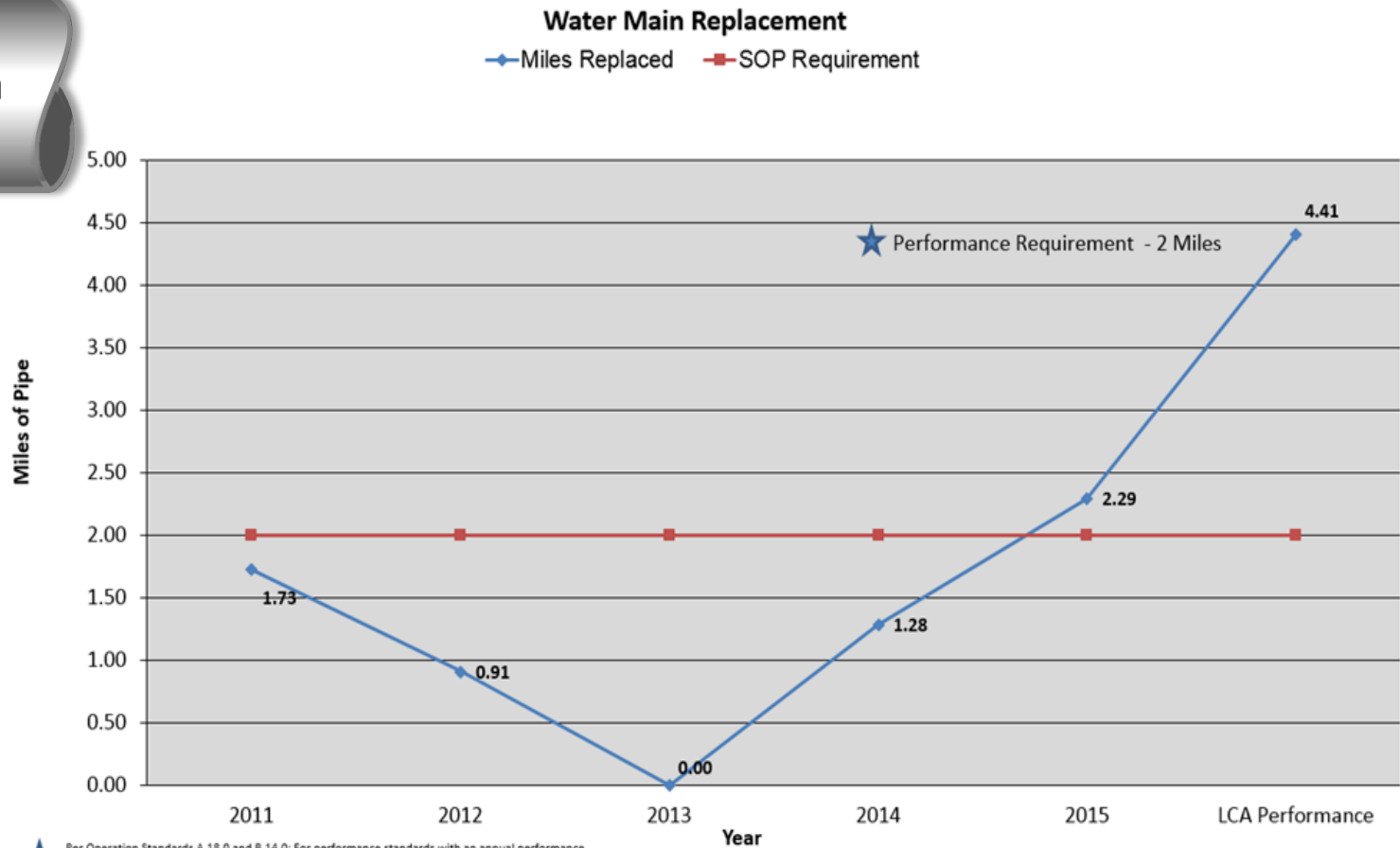
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Drinking Water Distribution System

Metrics Update

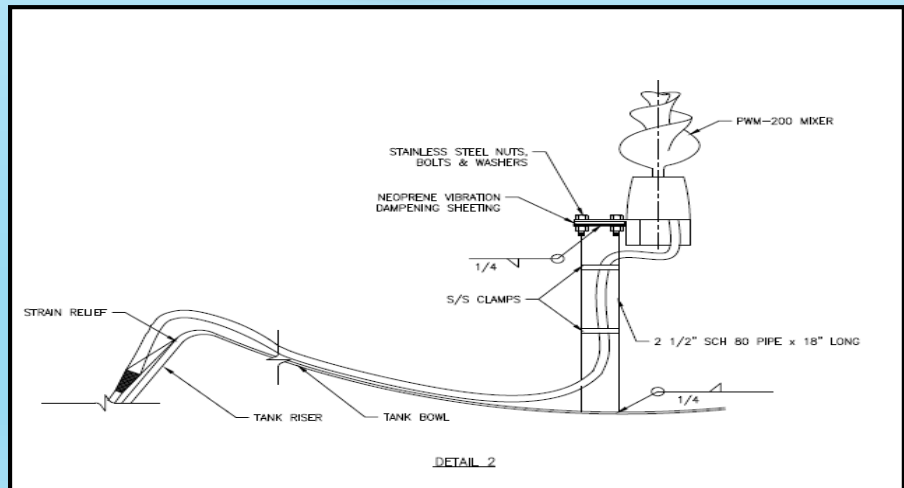
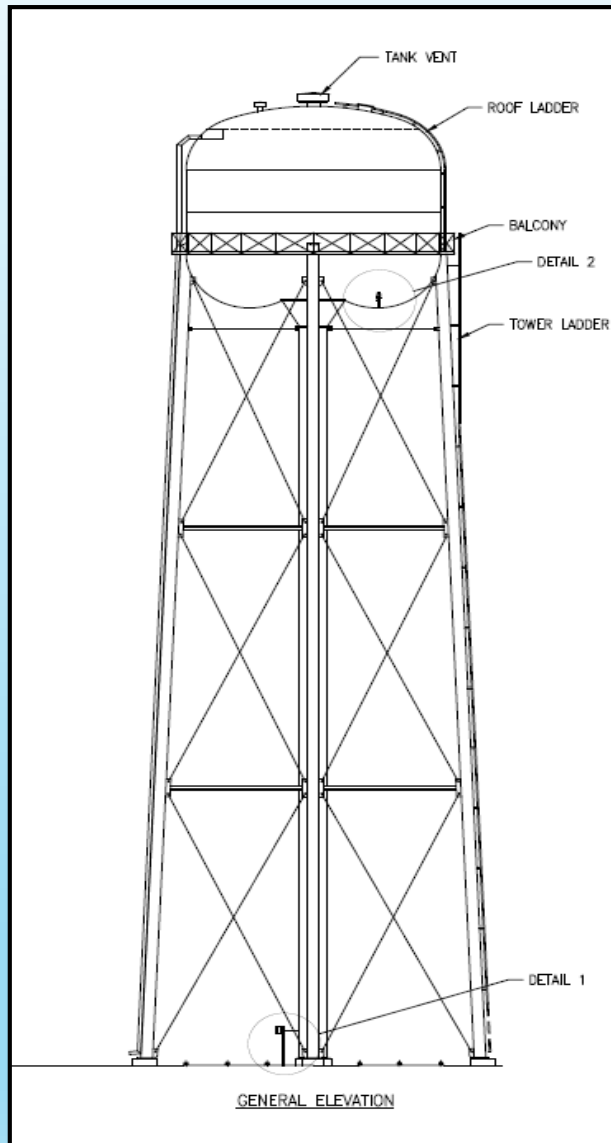
4.41
Miles

of Water Main
replaced



★ Per Operation Standards A.18.0 and B.14.0: For performance standards with an annual performance requirement, if the Concessionaire's performance during any year exceeds the annual requirement, that exceedance of the annual requirement may be credited towards satisfying the annual requirement during the following year. Such credits do not apply to water quality requirements

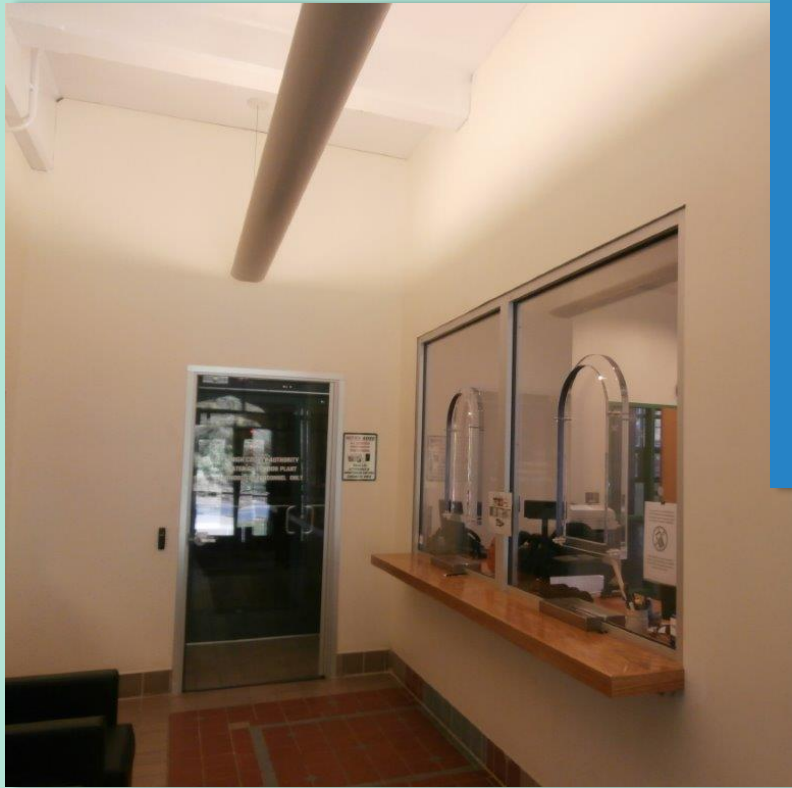
Drinking Water Distribution System



Halstead Water Tank Rehabilitation

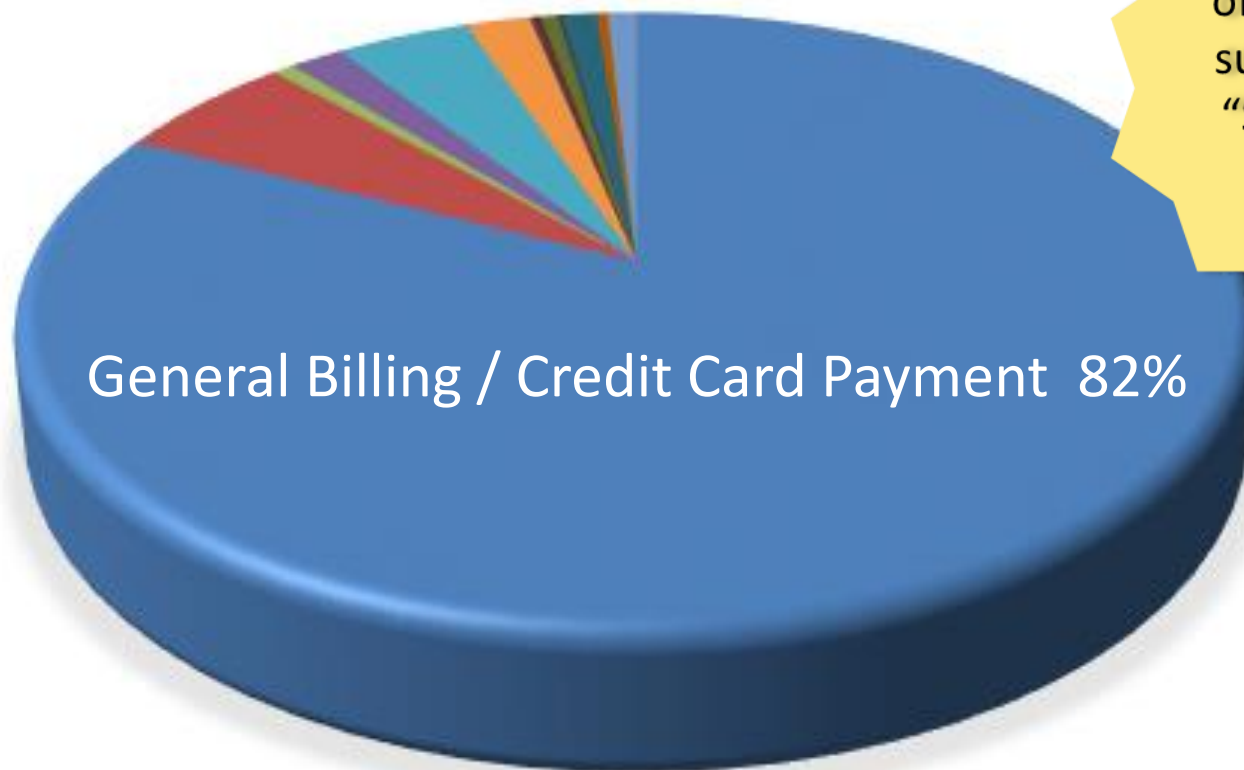
Customer Service

Customer Service Center & Drop Box



Customer Service

2016 CUSTOMER SERVICE CALLS



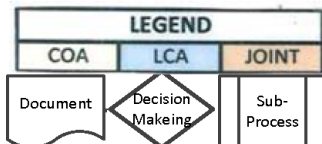
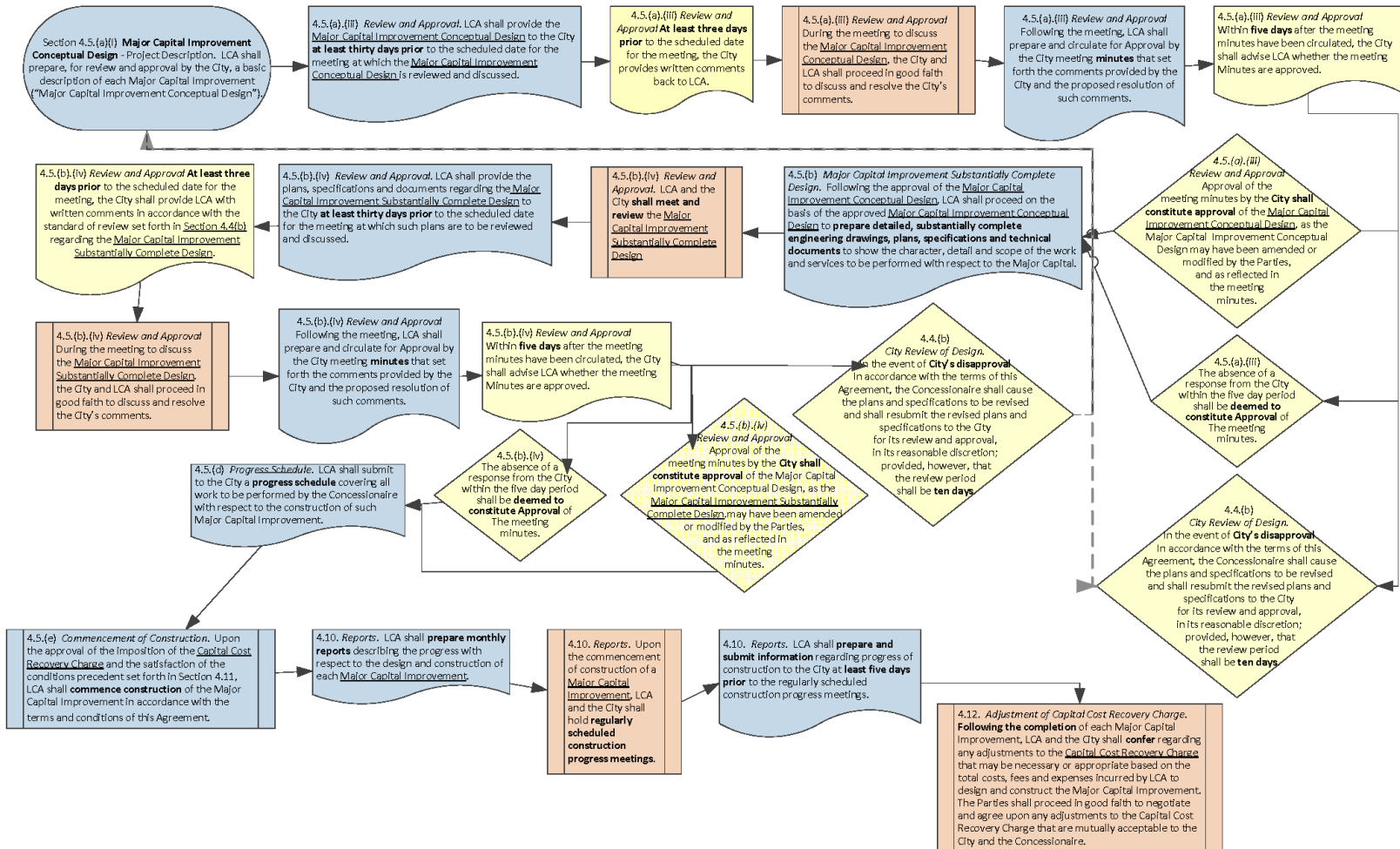
General Billing / Credit Card Payment 82%

88%
of customers
surveyed are
"Satisfied or
Very
Satisfied"

- General Billing/Credit Card Payment 82%
- Change Address / Property Settlement 6%
- Delinquency 1%
- Credit Card Payment 2%
- Turn On / Turn Off 4%
- Meter / Technical Problem 2%
- Water Quality 0%
- Water Pressure 0%
- Sewer Backup 1%
- Sewer Service (other) 0%
- Service Disruption / Leak 1%
- Curb Box Maintenance 0%
- Other 1%

Completed Major Capital Improvement Projects

Major Capital Improvement *Per-Project* Implementation Work Flow



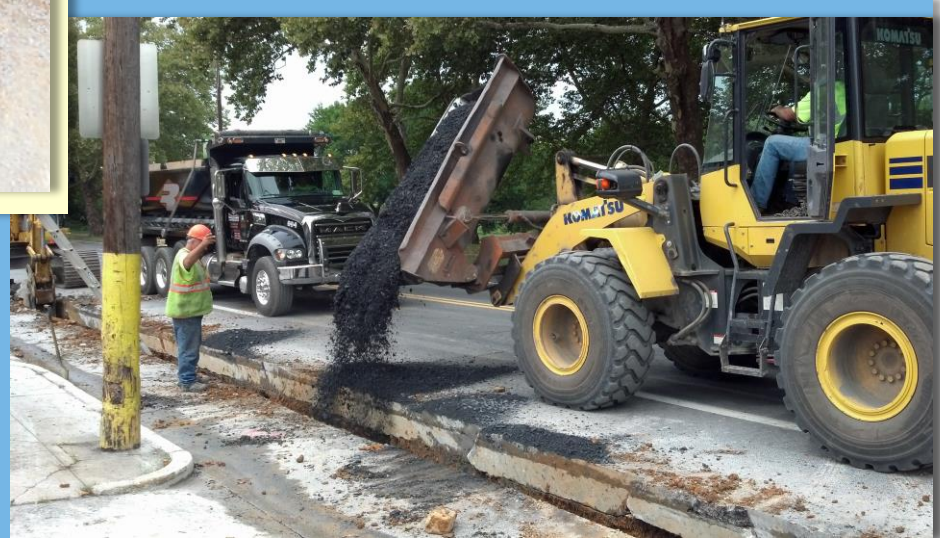
Distribution System Capital Projects - 2016



Cost: \$2,284,830
Cycle II 2015
Category: Schedule 7

Water Main Replacement

The Pipe Prioritization Assessment Program identifies mains that will need to be replaced using various sources of data: pipe age, break history, geology and ground subsidence history.



Wastewater Treatment Plant Capital Project - 2016



Cost: \$2,296,228
Completed: Spring 2016
Category: Schedule 7

Motor Control Centers

Replaced five aged motor control centers that provide 24/7 power to various parts of the WWTP.



Administrative Orders



**Borough of Alburtis
Borough of Emmaus
Borough of Macungie
City of Allentown
Coplay-Whitehall Sewer Authority
Hanover Township
Lehigh County Authority (LCA)
Lower Macungie Township
Lowhill Township
Salisbury Township
South Whitehall Township
Upper Macungie Township
Upper Milford Township
Weisenberg Township**

Administrative Orders

- CWA-03-2007-0332DN
- CWA-03-2009-0313DN

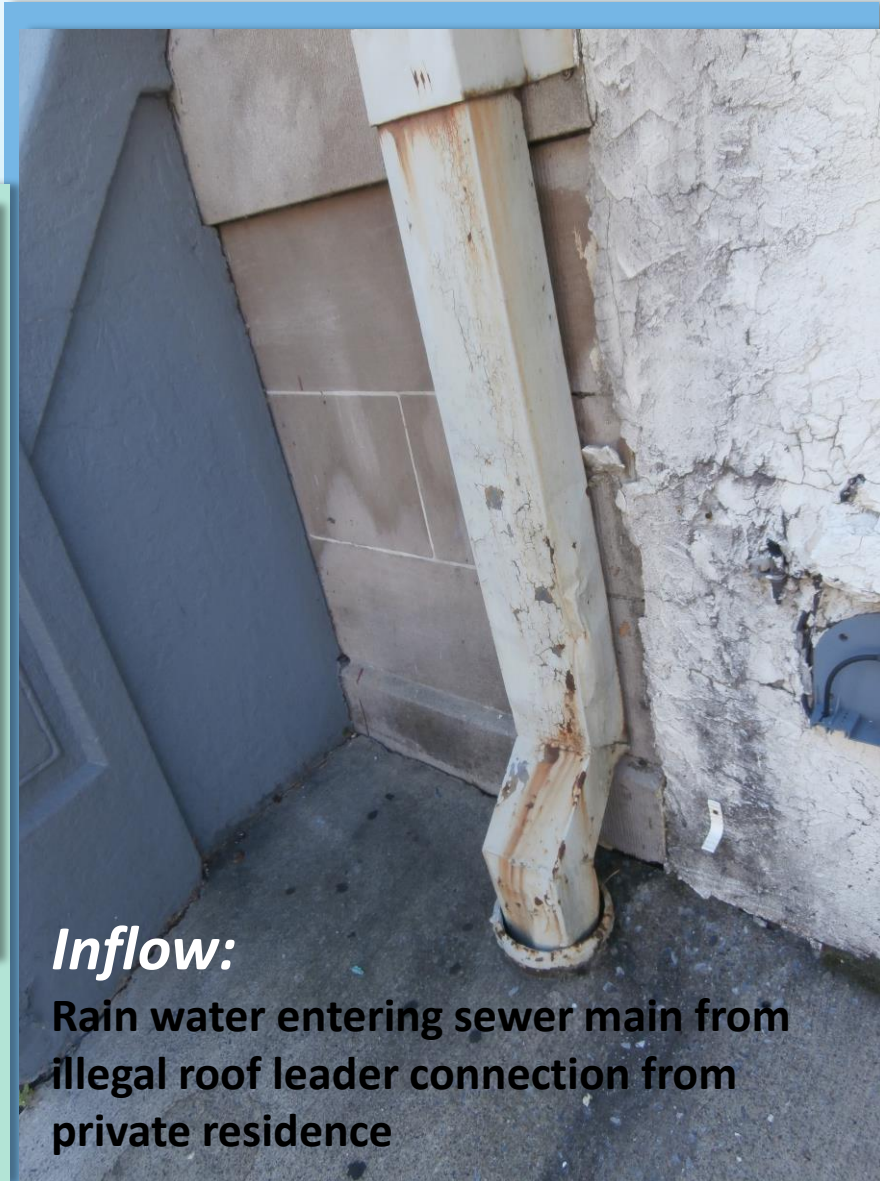
Administrative Orders

Examples of Sources of ...



Infiltration:

Rain or groundwater entering joint, broken sewer main or private lateral



Administrative Order Projects - 2016

Sanitary Sewer Manhole



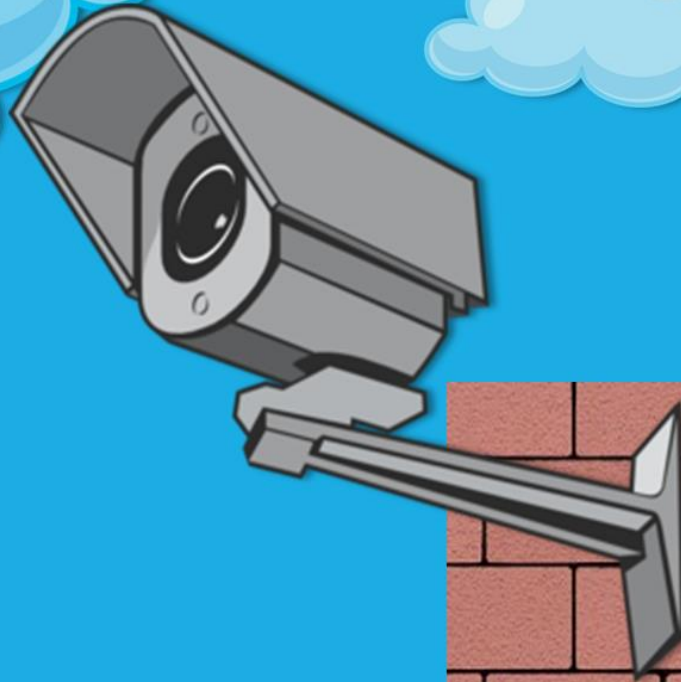
Sanitary Sewer Manhole Collars /Covers



151 manhole structures were rehabilitated through the lining and collar projects

Security

*One
security breach
occurred*



Notices of Violation



Awards



Directors Award

In recognition for your commitment
to superior water quality.

*The Partnership for Safe Water is sponsored by the American Water Works Association,
Association of Metropolitan Water Agencies, Association of State Drinking Water Administrators,
United States Environmental Protection Agency, National Association of Water Companies,
and the Water Research Foundation.*

The Water Filtration Plant received the Partnership for Safe Water's Directors Award for 2016.

Thank you

Visit us on the web for more information including helpful homeowner resources:

www.allentownpa.gov/Public-Works/Compliance-Office

Email: compliance@allentownpa.gov

Call: (610) 437-7587