Water/Sewer Systems Concession Lease Agreement

2016 Annual Report

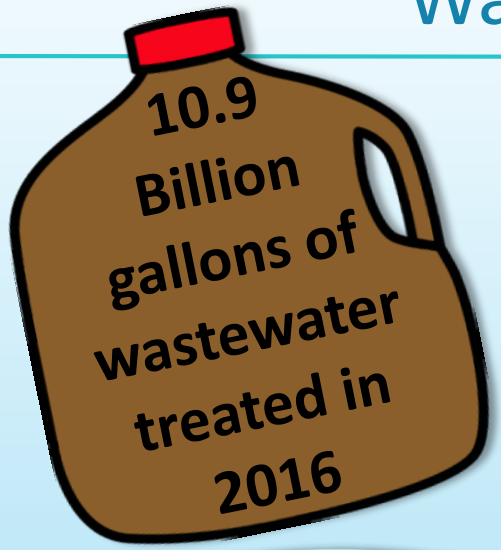
Presented by:
City of Allentown
Office of Compliance
Department of Public Works
May 23, 2017

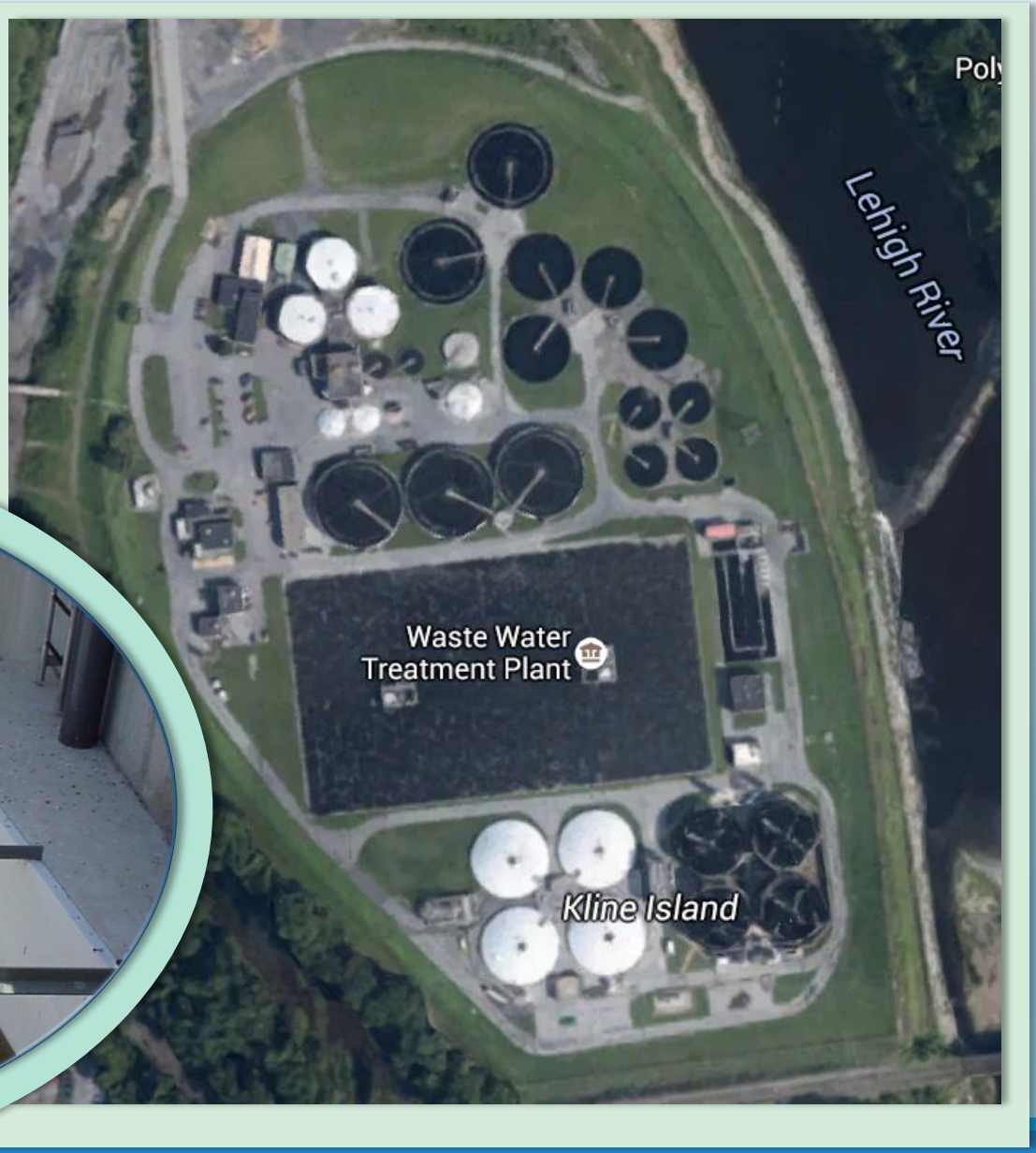
Questions?
(610) 437-7587
compliance@allentownpa.gov

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

Introduction

Wastewater Treatment

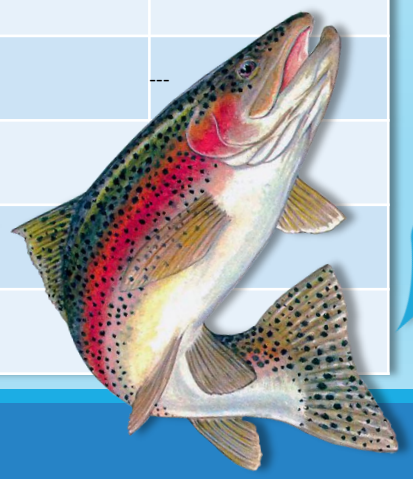




Wastewater Treatment

		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.

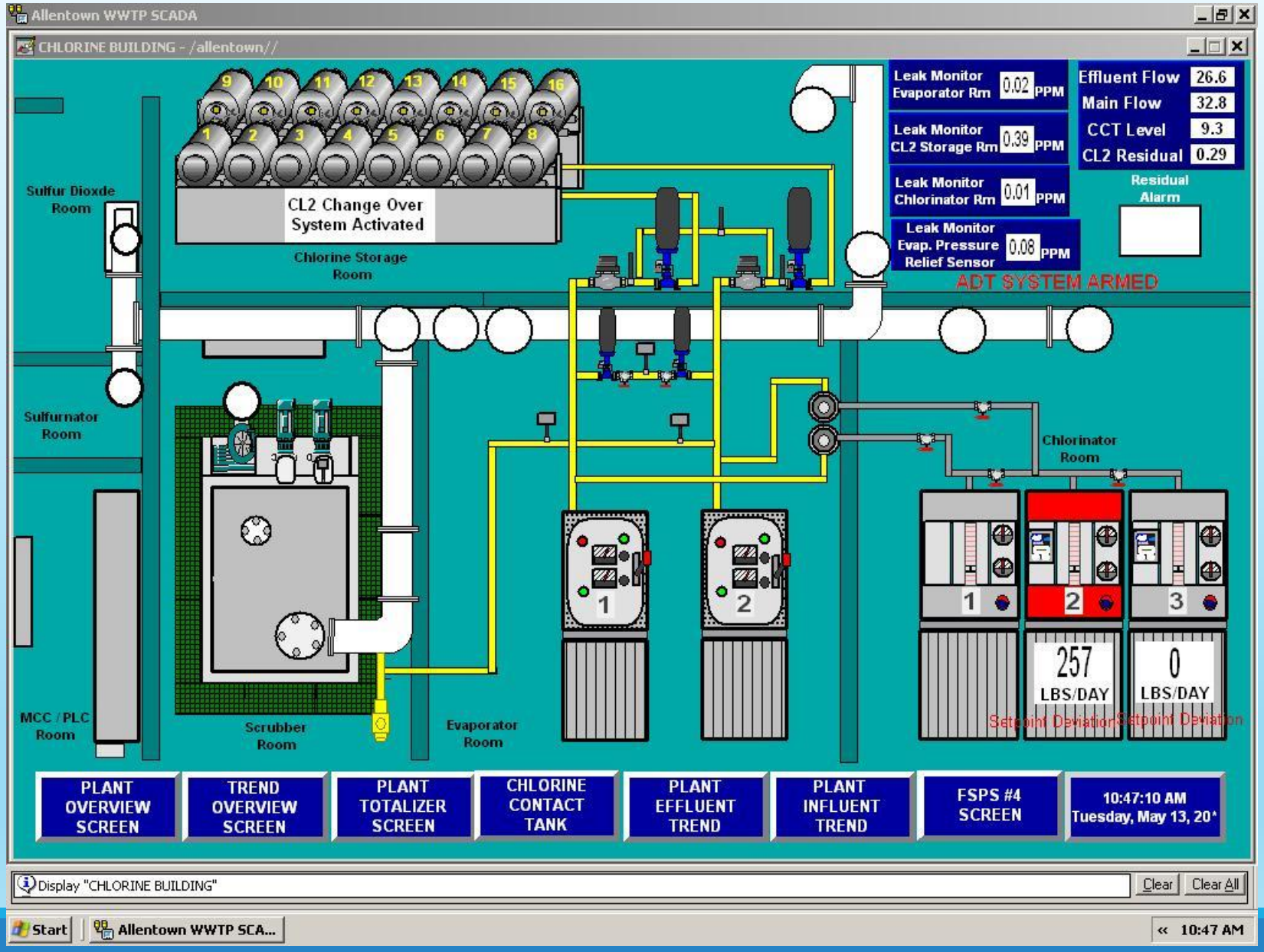
Regulatory Update

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

US Army Corps of Engineers

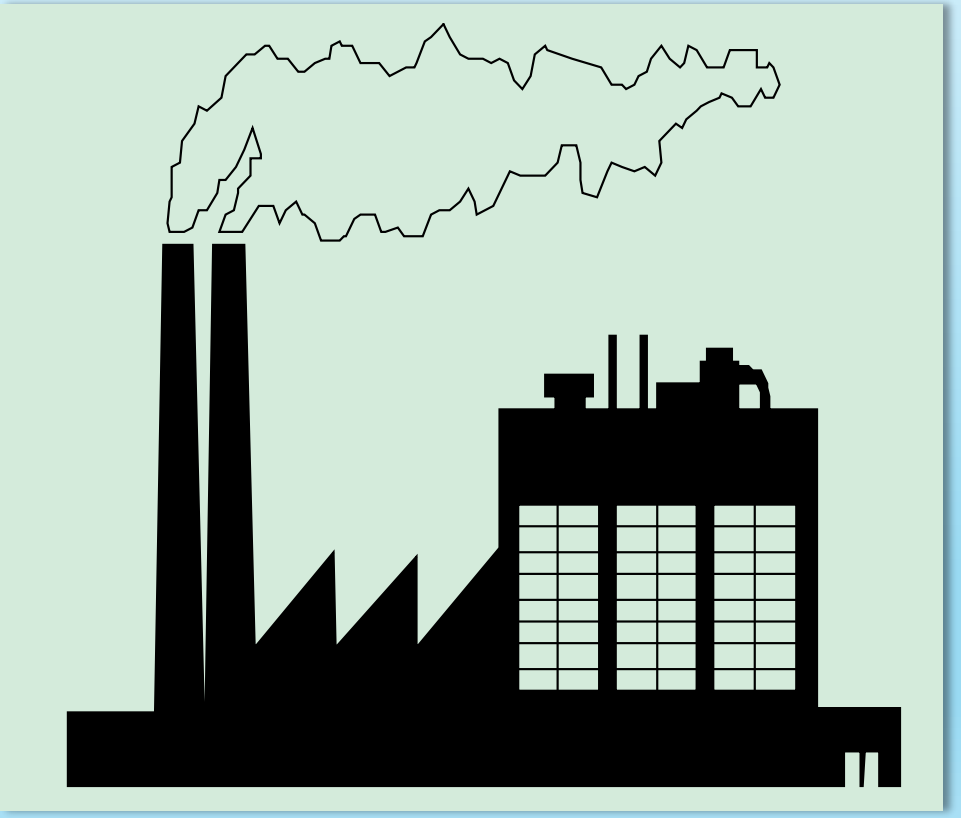
Conducted an inspection of the Allentown Federal Flood Risk Management Project along the Lehigh River. The inspection received an overall "Unacceptable" rating. In response, LCA will be conducting maintenance activities in 2017.

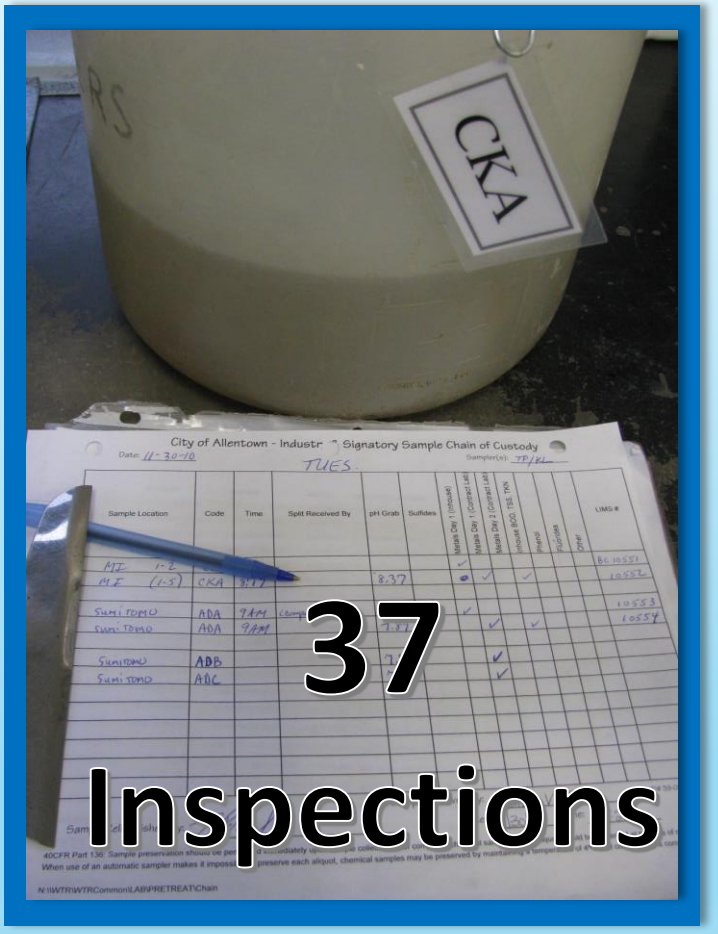
SCADA – Supervisory Control And Data Acquisition



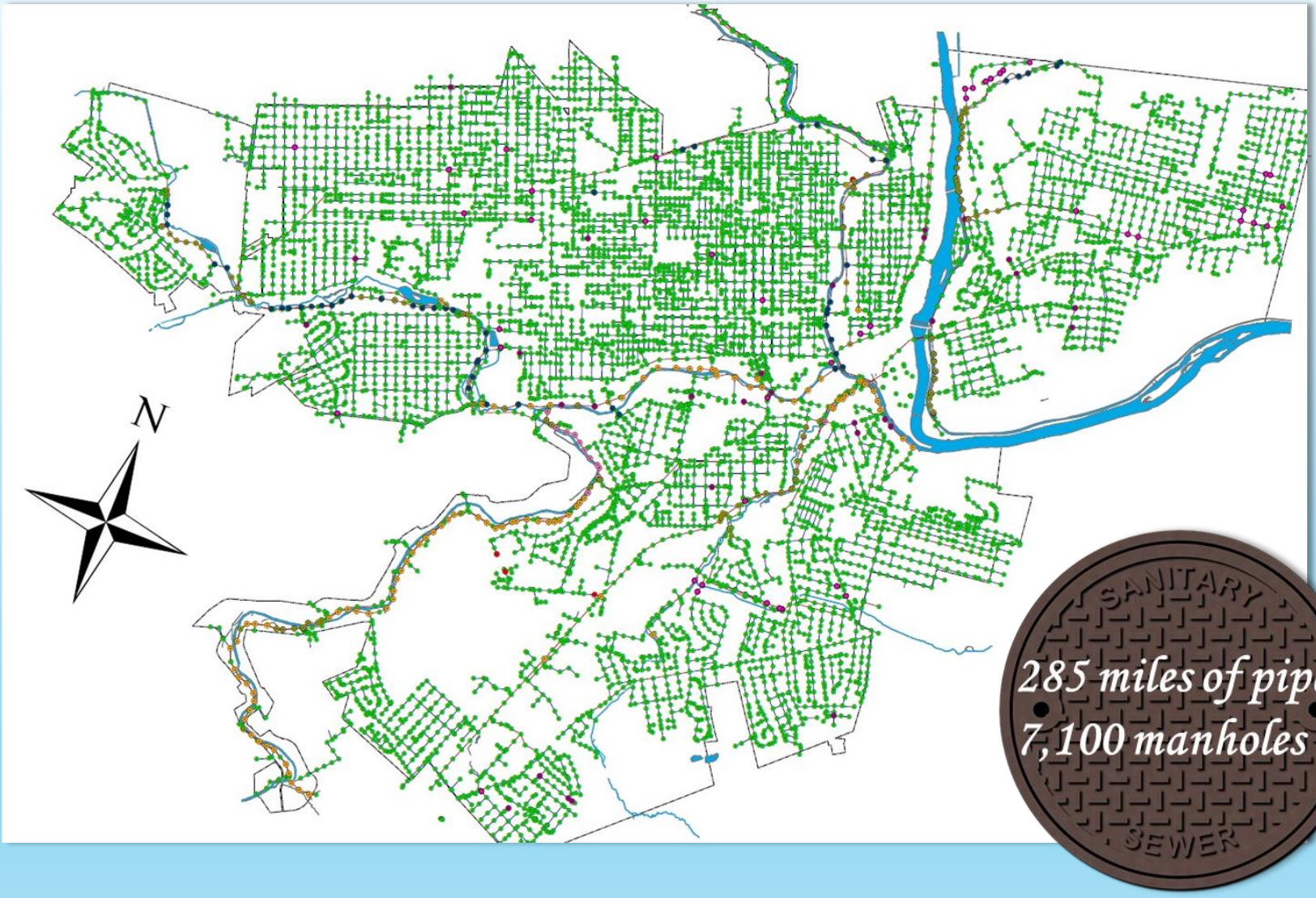
Industrial Pretreatment

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

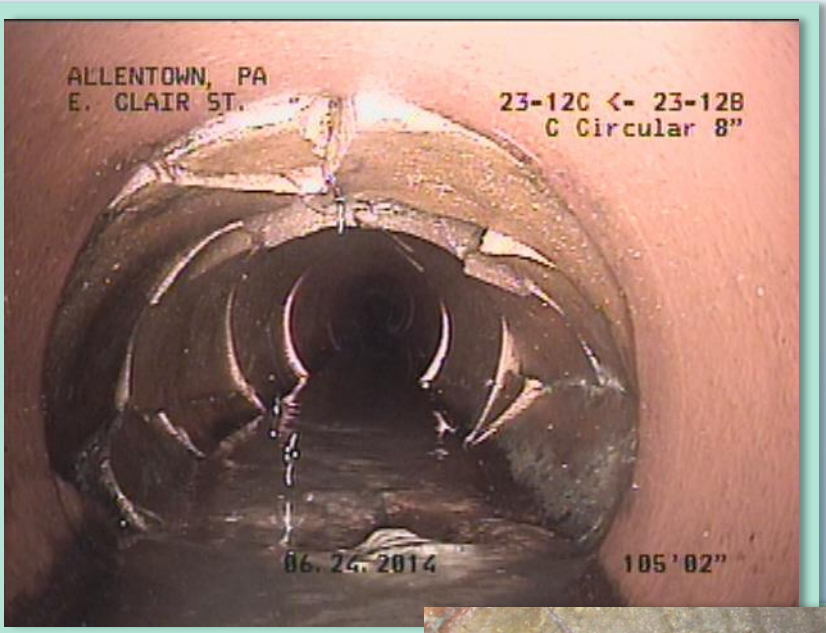


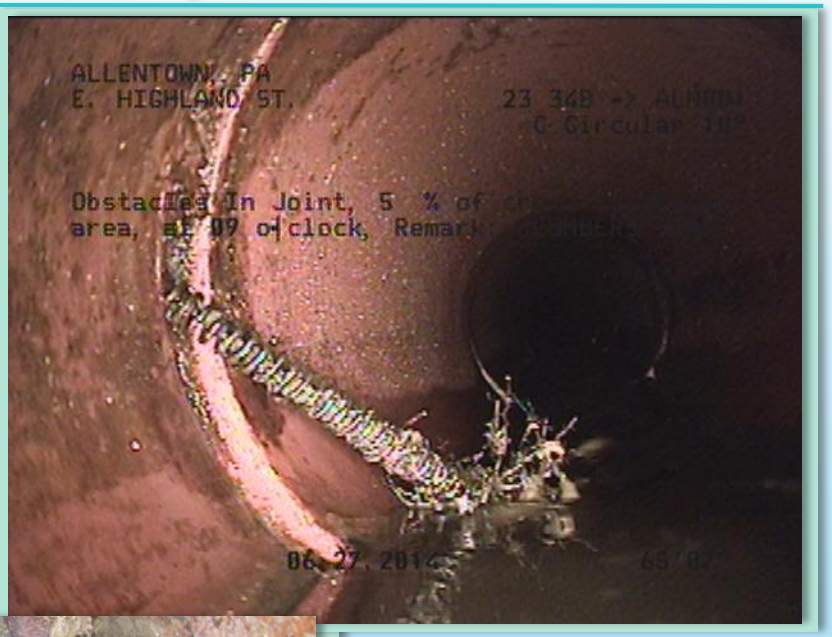


Sewage Collection System



Sewage Collection System





CCTV Minimum linear footage requirement:

55,000

LCA Performance:

157,503

Linear feet televised

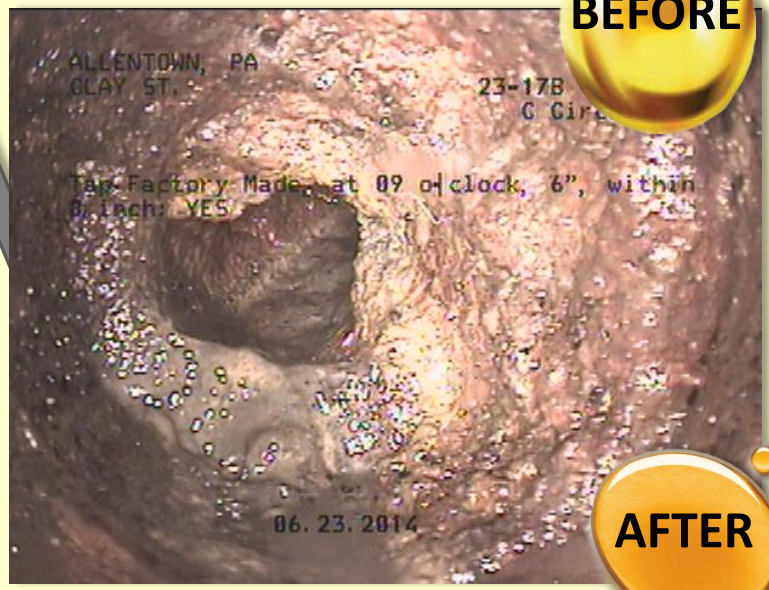
Sewage Collection System

Tree roots block sewer pipe.

Maintain the lateral from your home.

Residents can help **STOP** SSO's

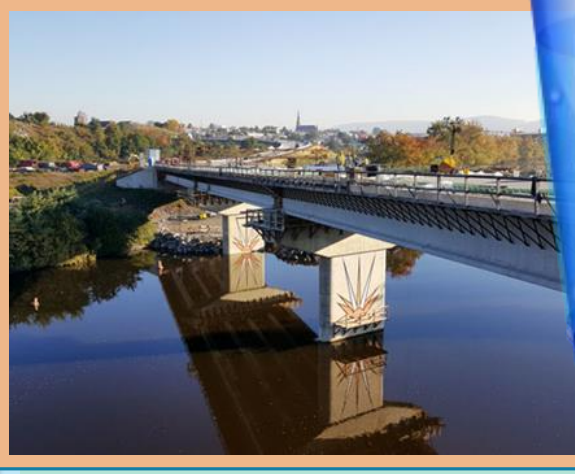
BEFORE



AFTER

Drinking Water Treatment and Production

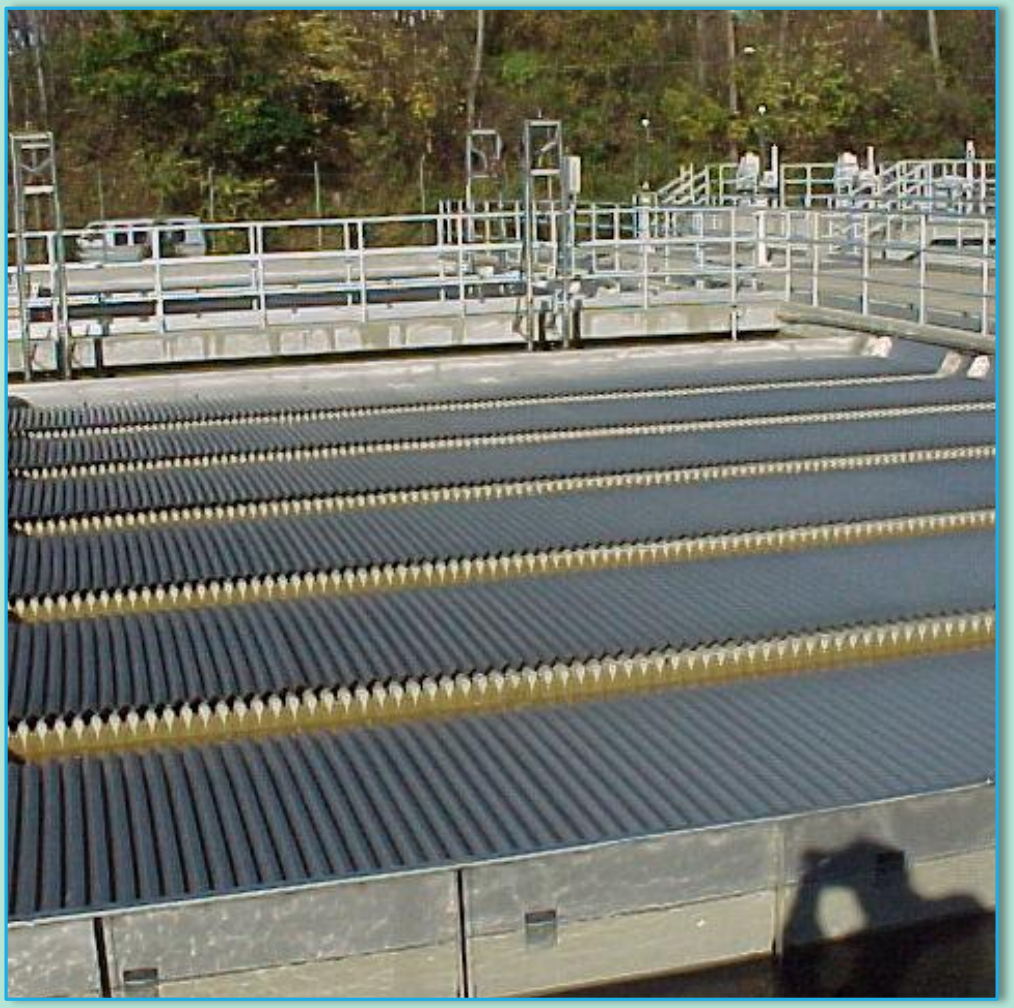
Finished Water is produced from 4 sources: Little Lehigh Creek, Schantz Spring, Crystal Spring & Lehigh River

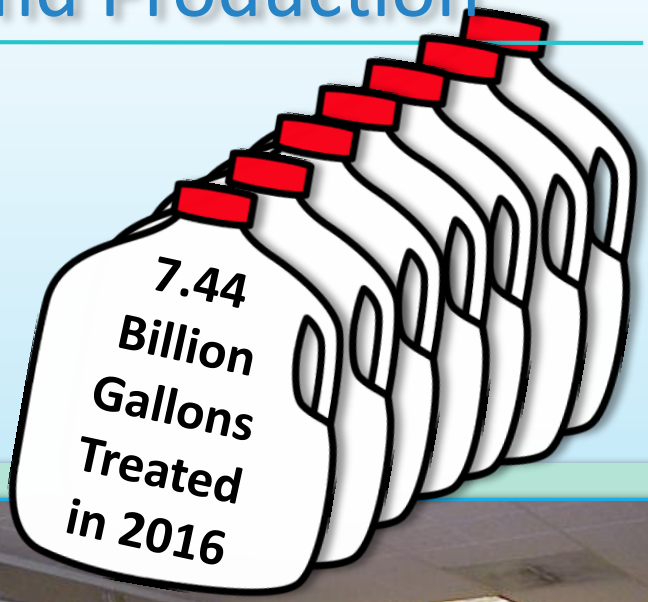


The Allentown Water Filtration Plant averaged 20.35 mgd

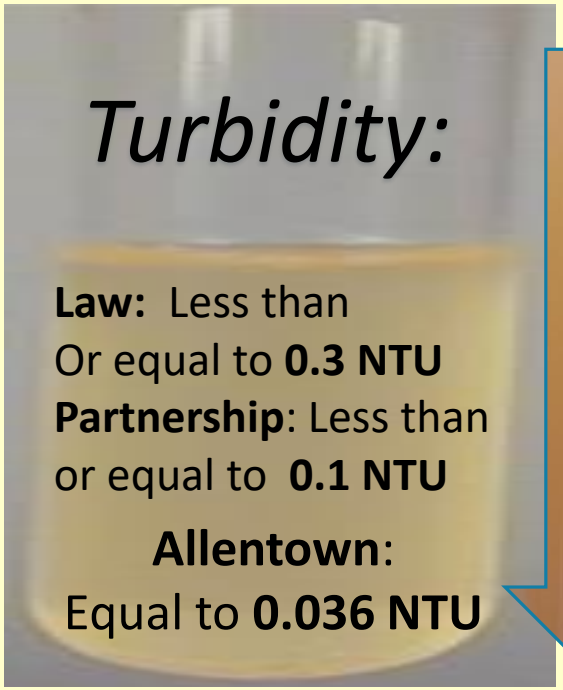
48% of finished water is from the Springs

Drinking Water Treatment and Production





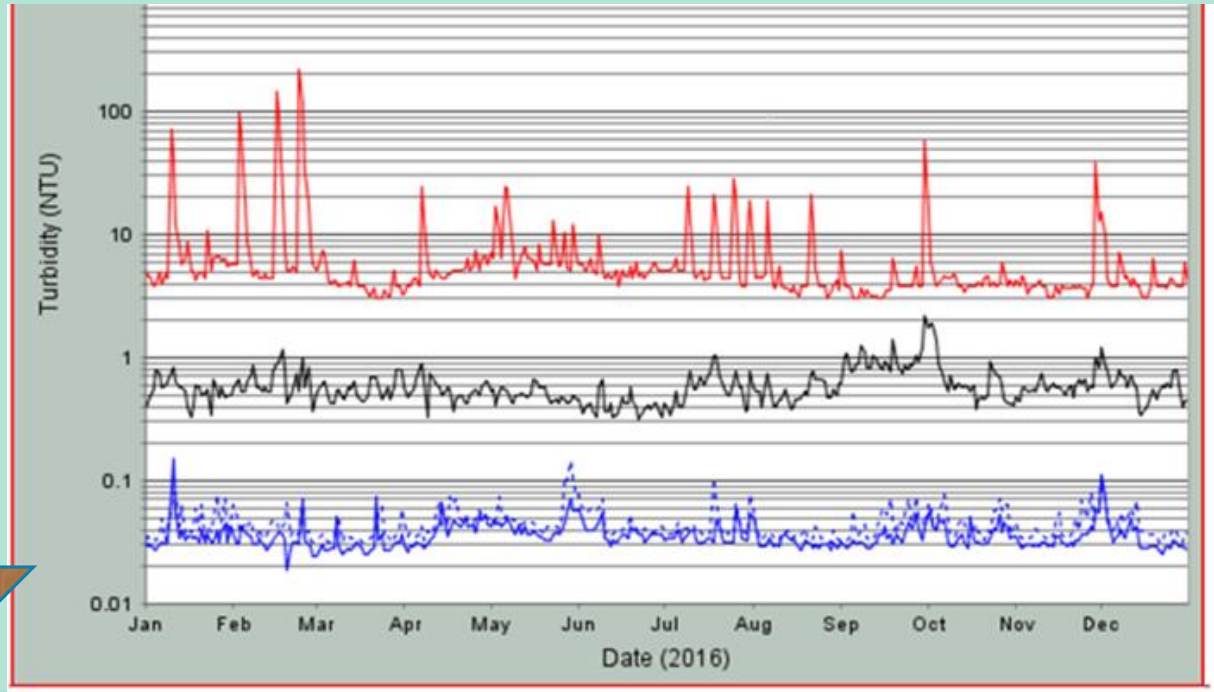
Drinking Water Treatment and Production



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

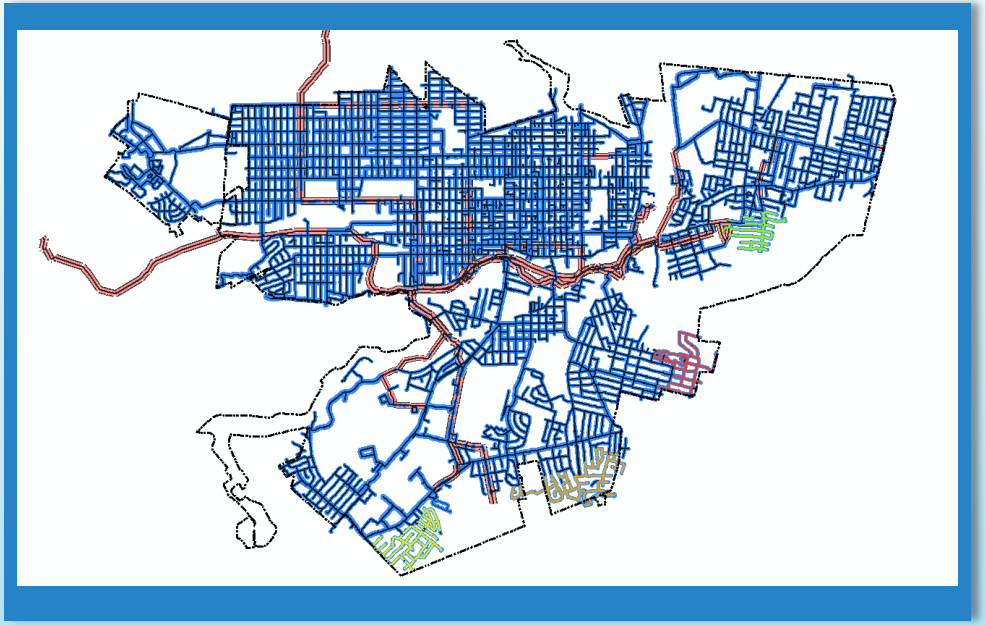
Drinking Water Treatment and Production

NO
Maximum Contaminant Levels were exceeded.

Contaminant Testing

Drinking Water Distribution System

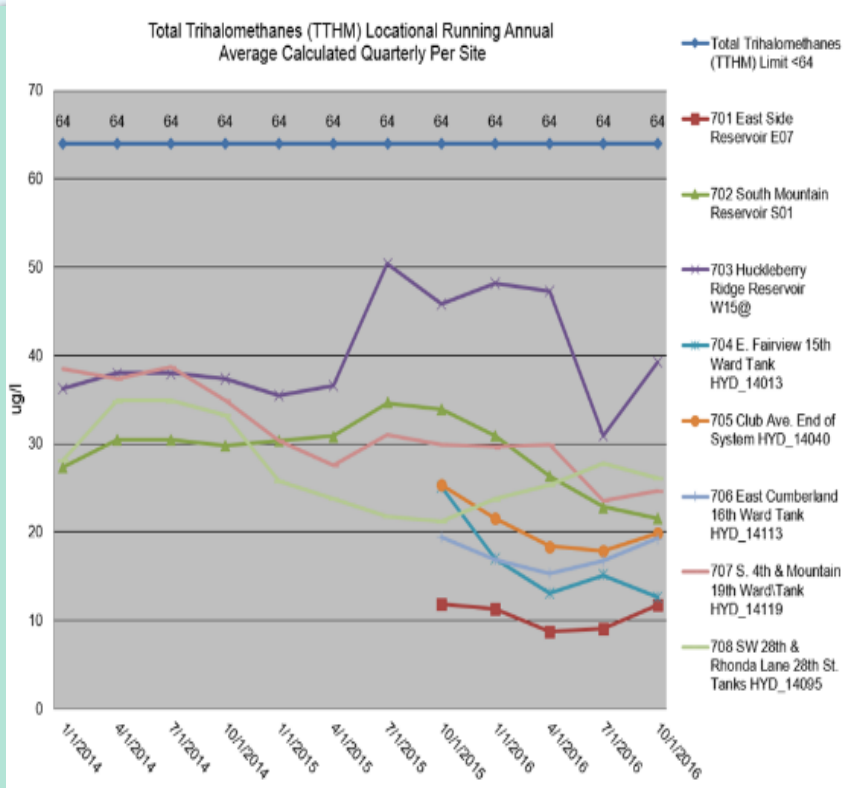
325 Miles of Pipe



33,400 Service connections

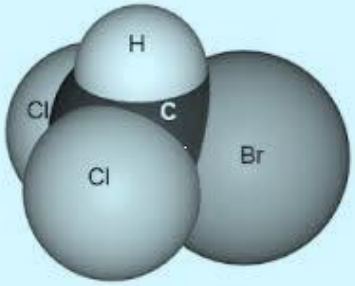
8,060 Valves

Disinfectant Byproducts



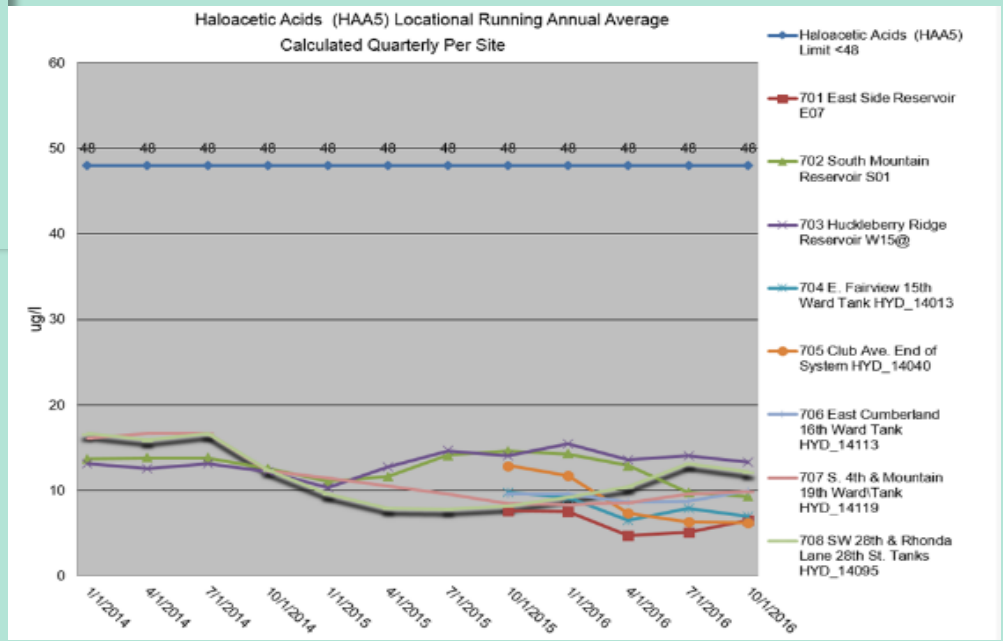
TTHM
Trihalomethane

CH_4



CH_2ClCO_2H

HAA5
Haloacetic Acid

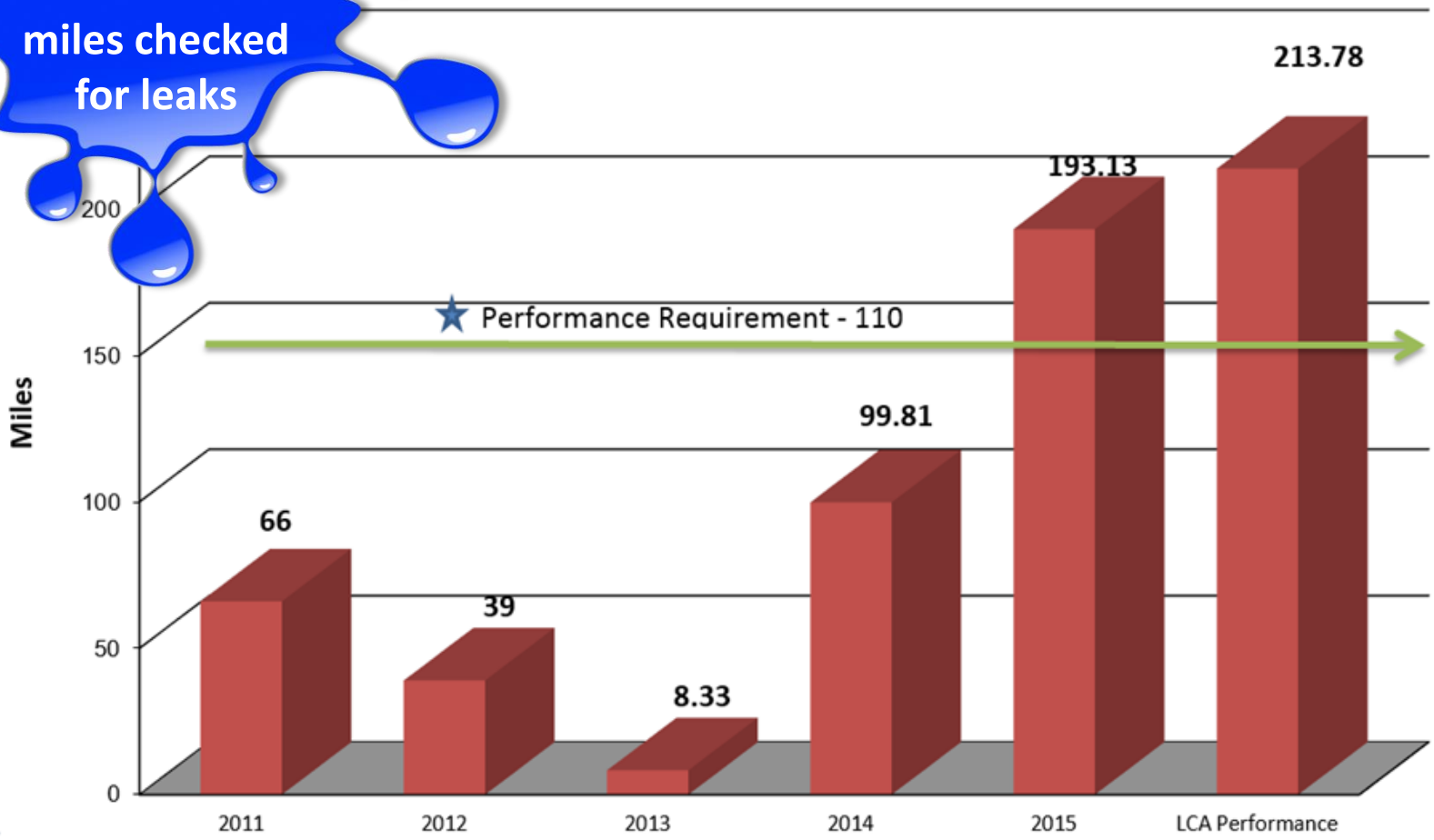


Drinking Water Distribution System

Drinking Water Distribution System

213.78
miles checked for leaks

Metrics Update



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

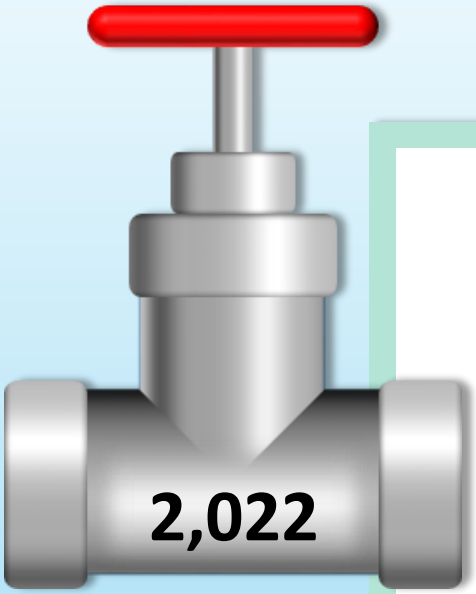
Copper

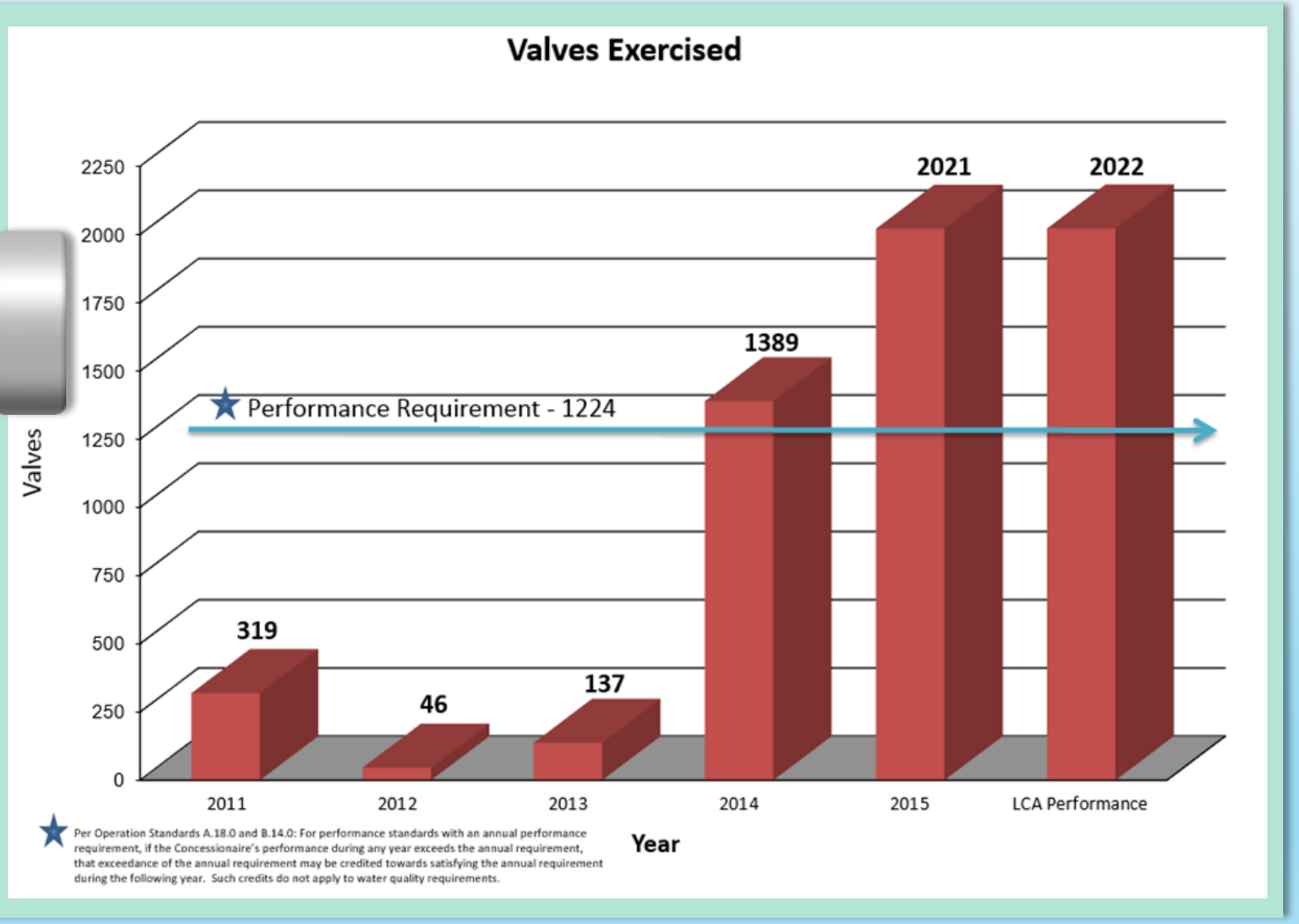
Pb

Lead

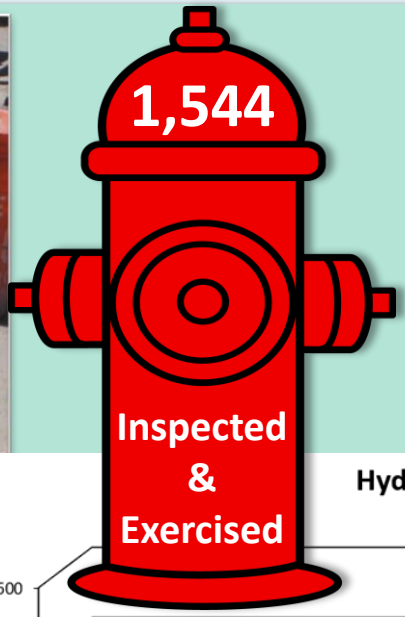
Drinking Water Distribution System

Metrics Update

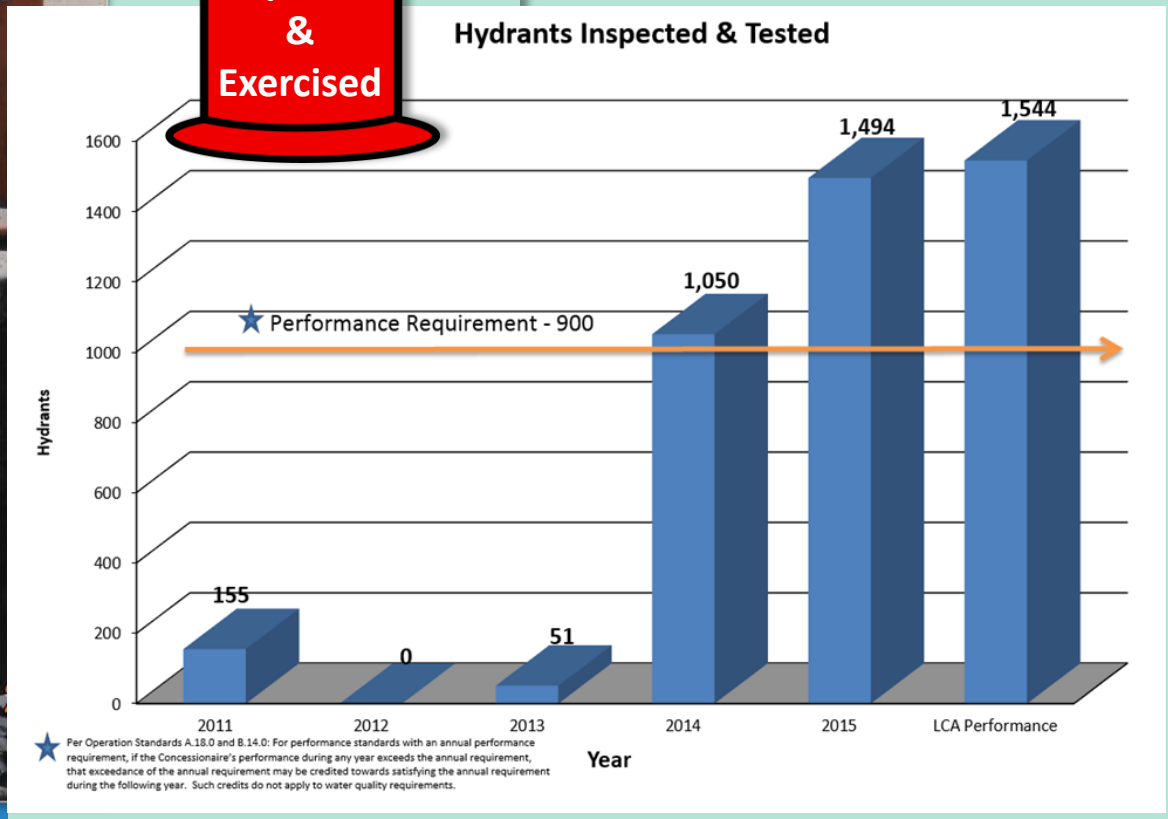




Drinking Water Distribution System



Metrics Update

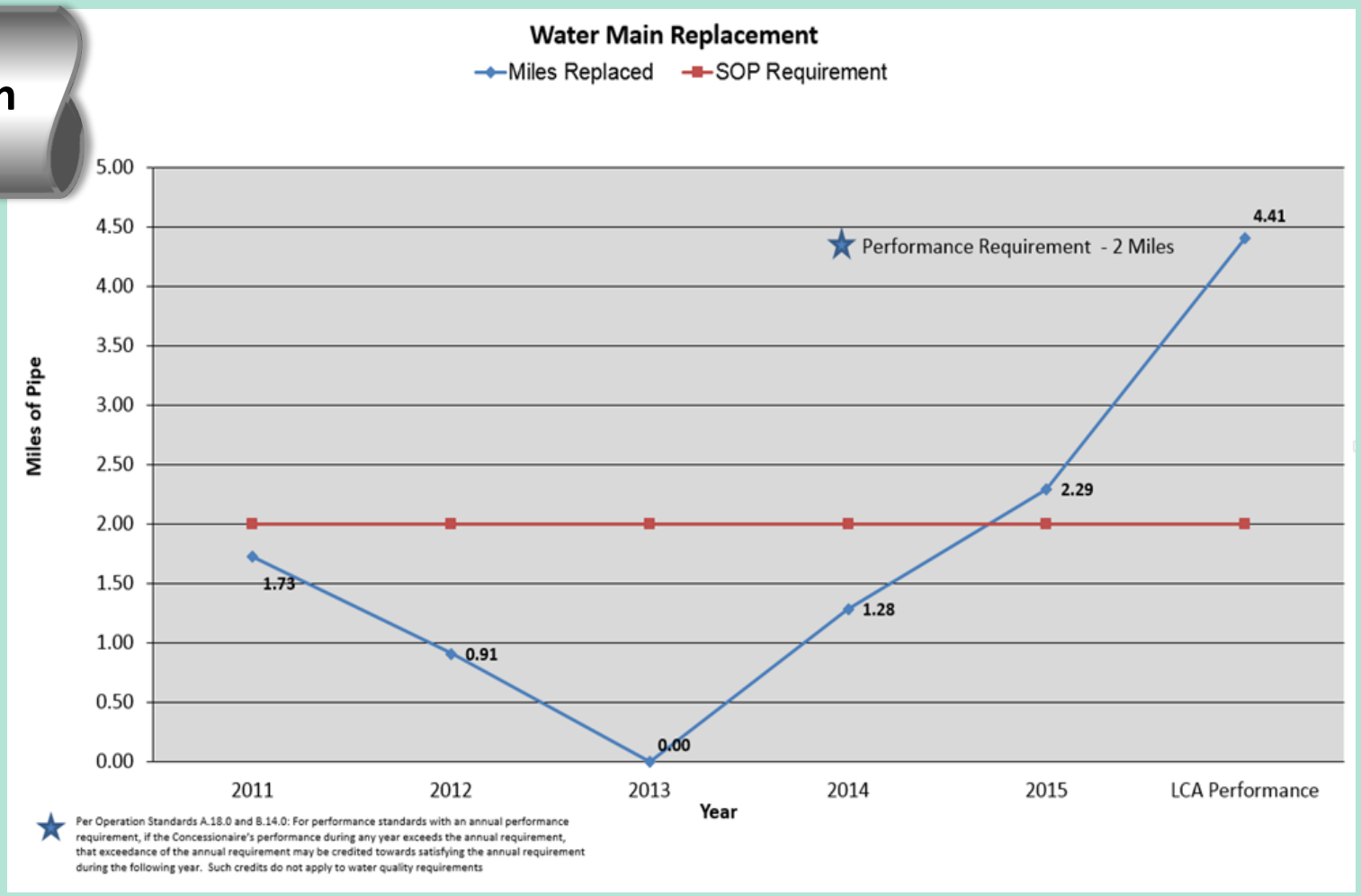


Drinking Water Distribution System

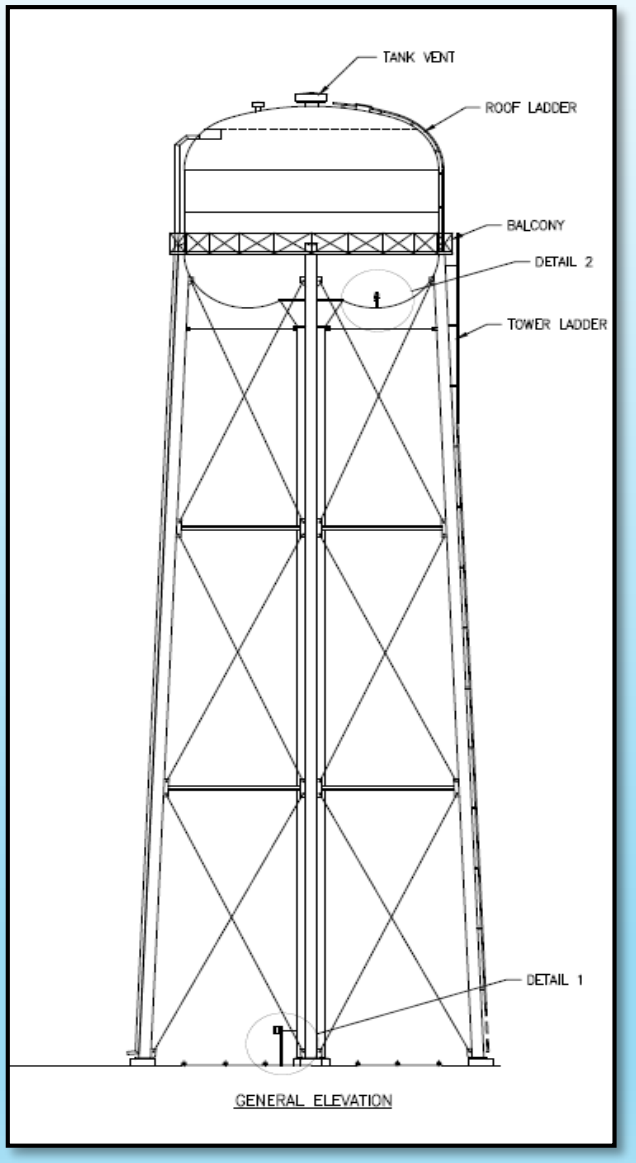
Metrics Update

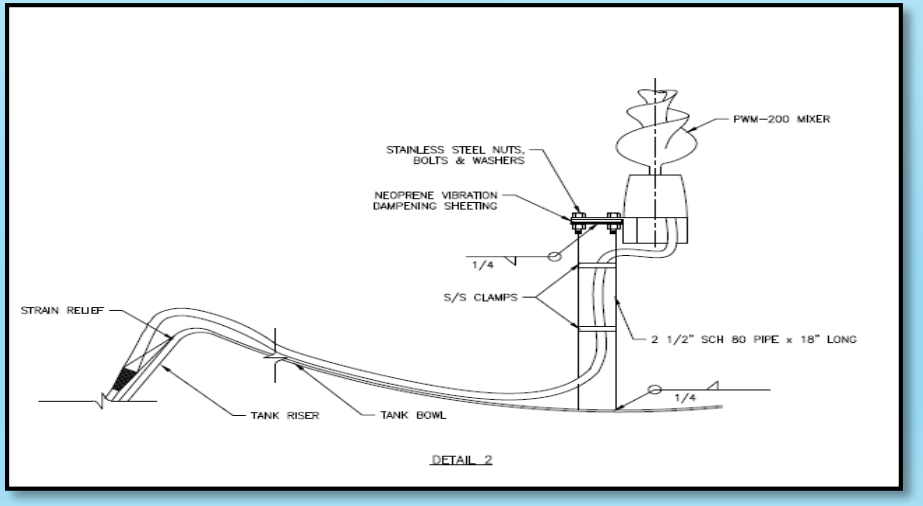
4.41
Miles

of Water Main replaced



Drinking Water Distribution System





Halstead Water Tank Rehabilitation

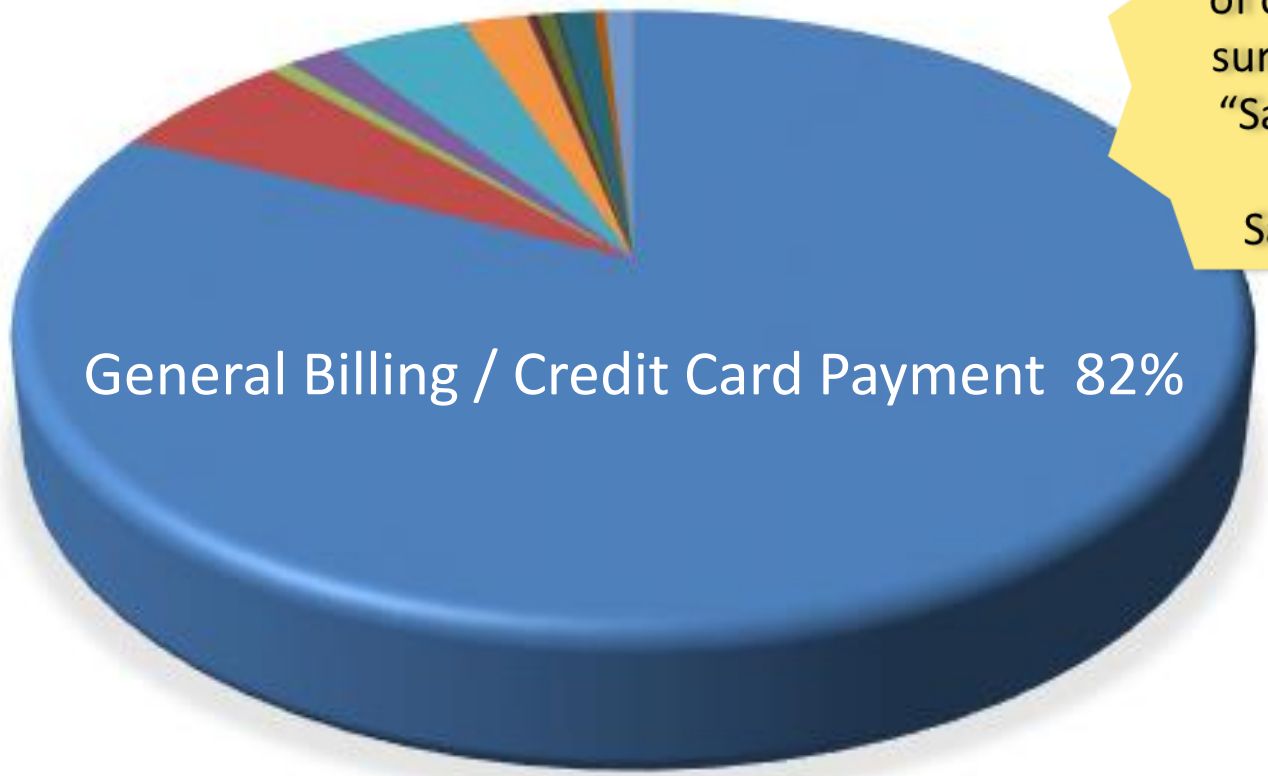
Customer Service

Customer Service Center
&
Drop Box

Customer Service

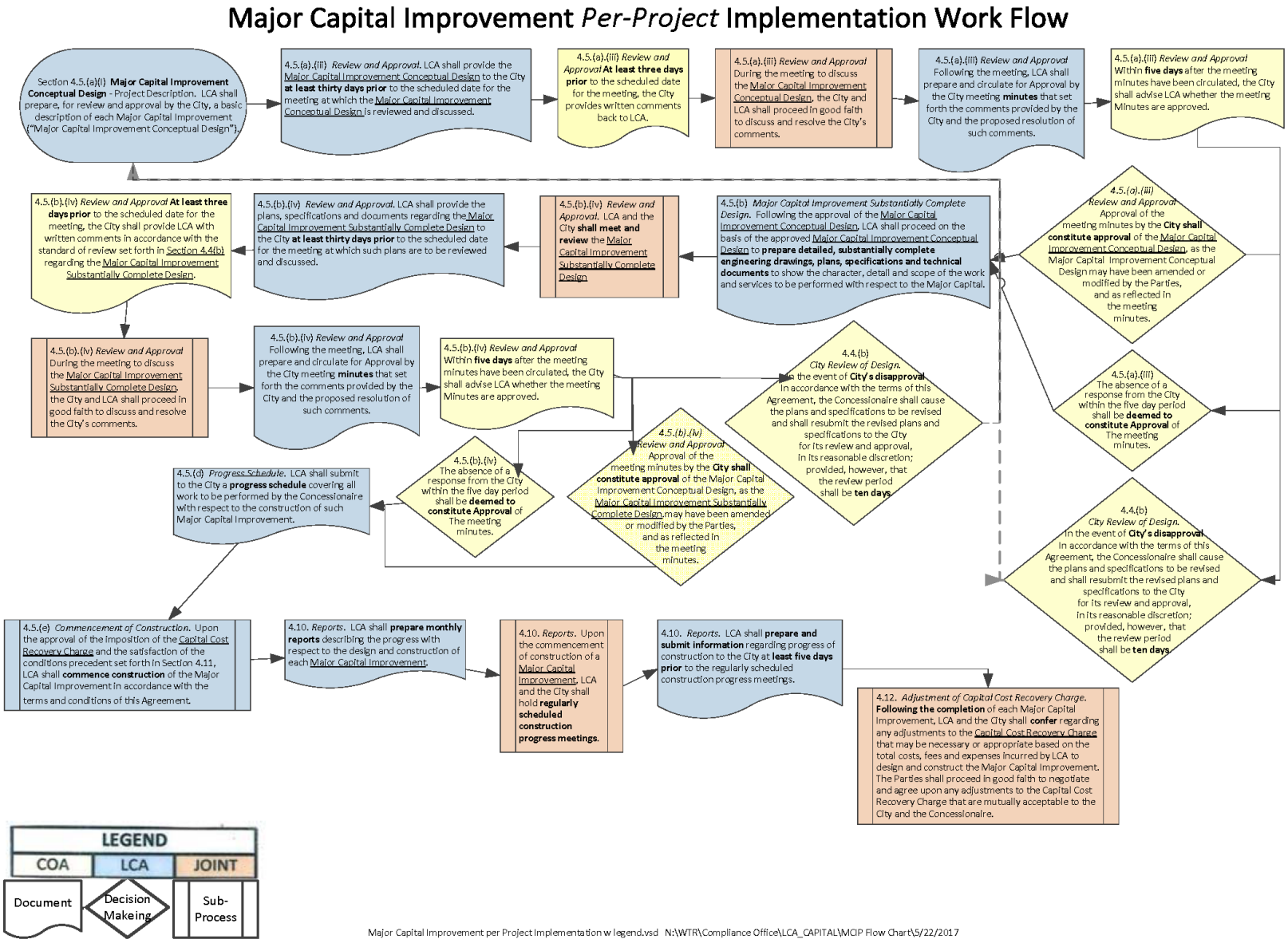
2016 CUSTOMER SERVICE CALLS

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



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

Administrative Orders

Examples of Sources of …

Infiltration:

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

Inflow:

Rain water entering sewer main from illegal roof leader connection from private residence

Administrative Order Projects - 2016

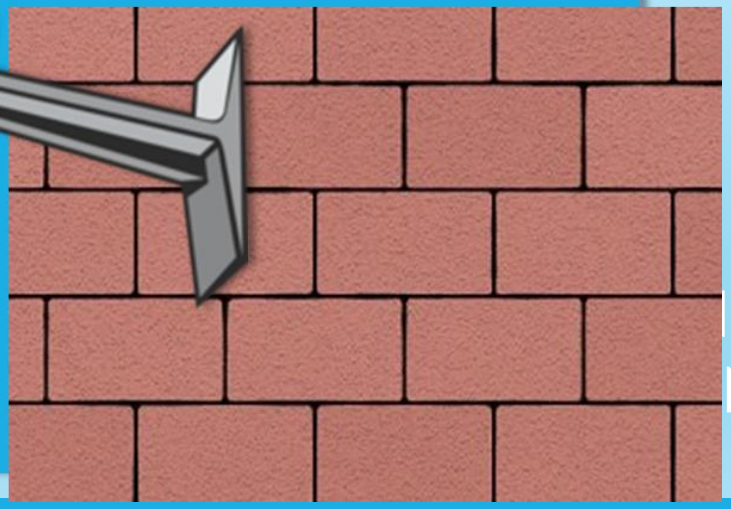
Sanitary Sewer Manhole

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

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