

Stormwater Regulations Board

May 21, 2018

3:00 pm

Regular Meeting

Topics

- NPDES Permit Types
- Pollution Prevention Activities
- Construction Program
- Monitoring & Sampling
- Combined Sewer System
- By the Numbers
 - Where has the money gone?
 - Where will the money go?
 - How do we compare?

NPDES Permit Types

Clean Water Act - Point Source Permit

“...authorized to discharge biologically treated municipal wastewater and partially treated combined sewer wastewater...”

1.0 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : All Year

<u>Parameter</u>	<u>Qualifier</u>	<u>Value</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Statistical Base</u>
Bypass of Treatment	Report	-	occur/mo	Visual	Continuous	Monthly Total
CBOD, 5-day, 20 C	<=	29190	lb/d	Composite	Daily	Monthly Average
CBOD, 5-day, 20 C	<=	25	mg/L	Composite	Daily	Monthly Average
CBOD, 5-day, 20 C	<=	35	mg/L	Composite	Daily	Weekly Average
CBOD, 5-day, 20 C	<=	40*	mg/L	Composite	Daily	Daily Maximum
Chlorine, total residual (TRC)	<=	0.28	mg/L	Grab	Daily	Instantaneous Maximum
Discharge event observation**	Report	-	Mgal/d	Continuous	Daily	Daily Maximum
Discharge event observation**	Report	-	Mgal/d	Continuous	Daily	Monthly Average
Discharge event observation - West Bank CS	Report	-	occur/mo	Visual	Continuous	Monthly Total
E. coli	<=	487	#/100mL	Grab	Daily	Daily Maximum
E. coli	<=	126	#/100mL	Grab	Daily	Geometric Mean
Flow	Report	-	Mgal/d	Continuous	Daily	Daily Maximum
Flow	Report	-	Mgal/d	Continuous	Daily	Monthly Average
IC25 Static Renewal 7 Day Chronic Ceriodaphnia	>	6.7	%	Composite	Annual	Minimum
IC25 Static Renewal 7 Day Chronic Pimephales	>	6.7	%	Composite	Annual	Minimum

Clean Water Act - Non-Point Source Permit

“...authorizes the Chattanooga MS4 to discharge stormwater to waters of the state from the city of Chattanooga MS4...”

“...permittee must develop, implement, and enforce a SWMP which is designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP)...”

Stormwater Management Program Elements

- Public Education and Outreach
- Public Involvement/Participation
- Illicit Discharge Detection & Elimination
- MS4 Mapping
- Illicit Discharge Education & Training
- Field Screening Program
- Limitation of Sanitary Sewer Seepage
- Construction Site Stormwater Runoff Control
- Permanent Stormwater Mgmt in New & Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operation

Stormwater Monitoring Program

- Wet Weather Monitoring
- Monitoring Parameters
- In-Stream Ambient Monitoring
- Biological Monitoring
- Watershed Characterization
- Field Sampling & Screening
- Industrial Monitoring Program
- Pesticide, Herbicide, & Fertilizer Program
- Monitoring MS4 Activities

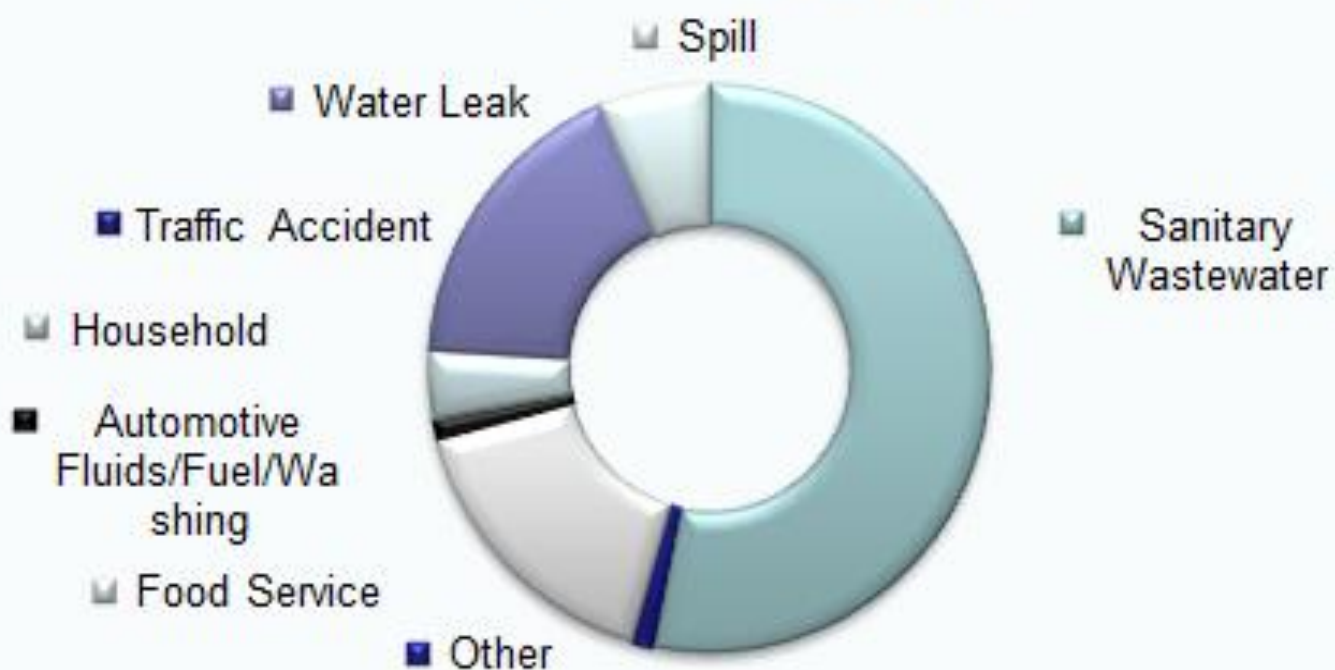
Pollution Prevention Activities

POLLUTION PREVENTION (7 FTEs)

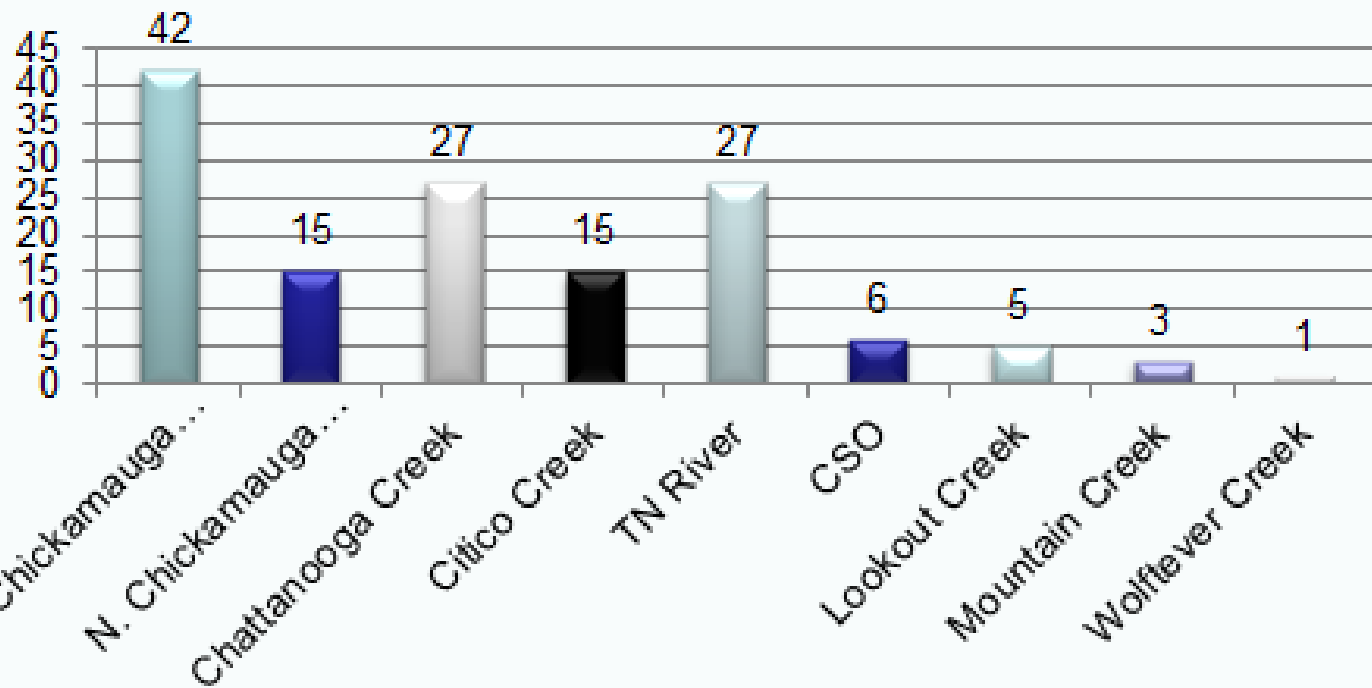
Illicit Discharge Abatement

- Field Screening 230 sites/yr (5 year avg)
- Stream Assessment 111,000 linear ft (5 year avg)
- IDDE 141 discharges 2016-17: >50% Sanitary
- Smoke Testing/SLAP Program

FY2016-17 Illicit Discharge by Type

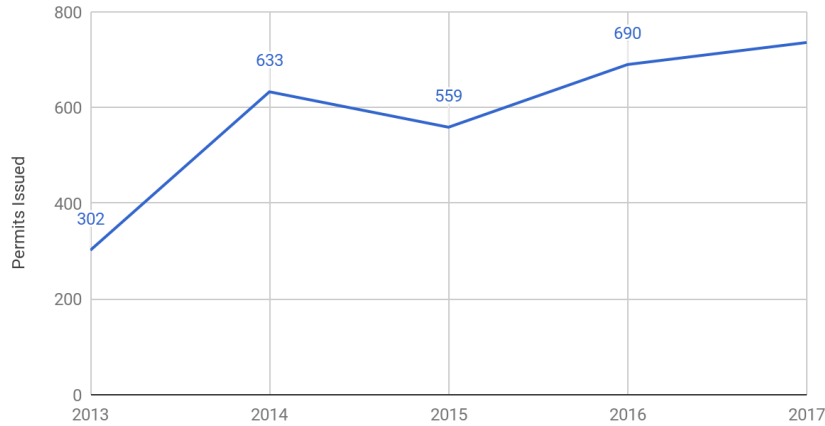


FY2016-17 Illicit Discharge by Watershed



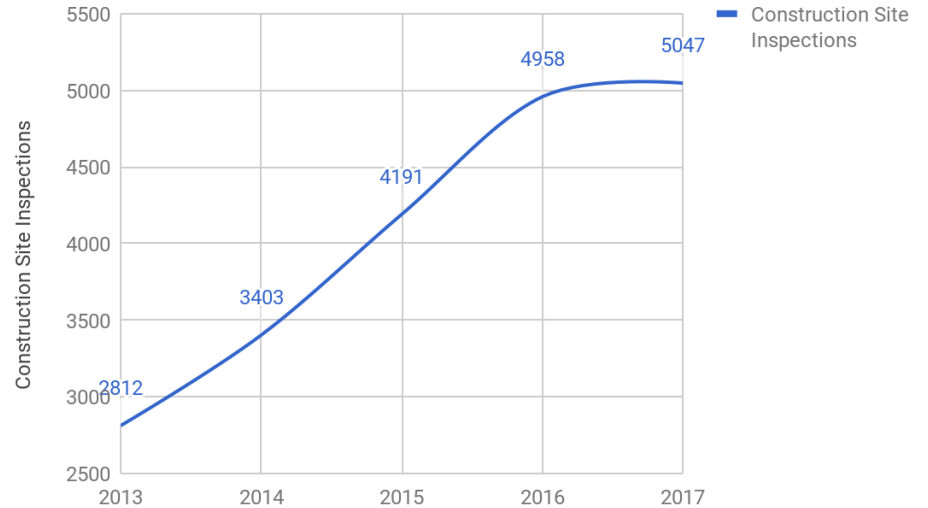
Construction Program

Permits Issued



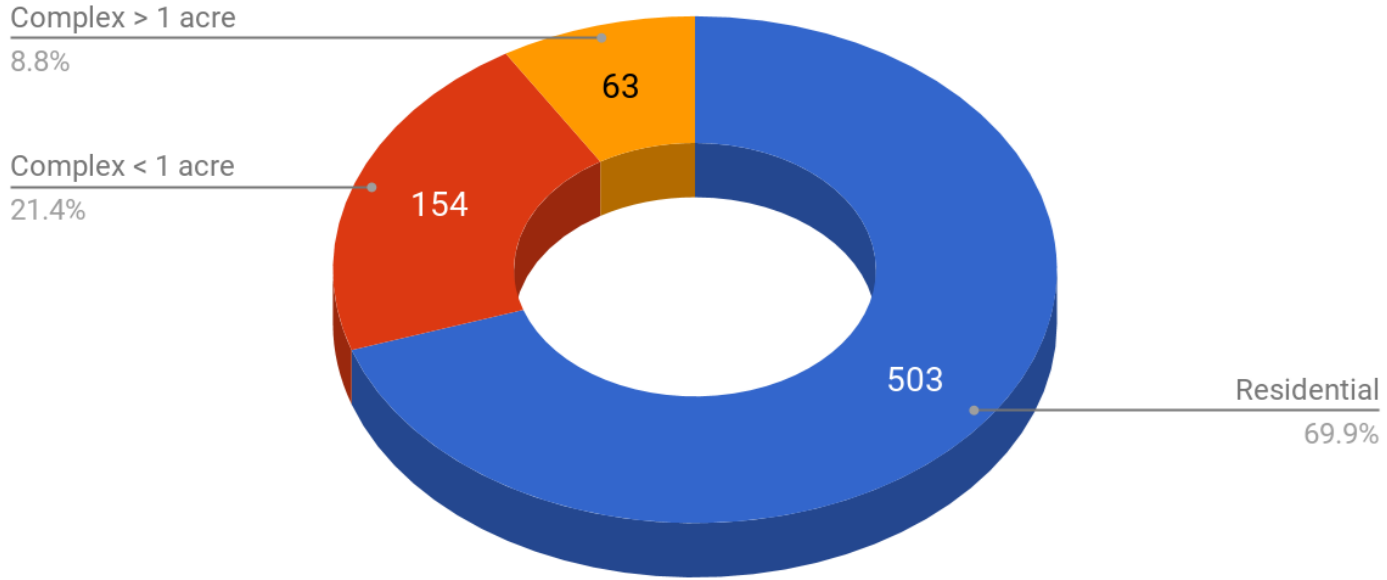
LDO Construction Site Oversight (JULY 2016 - JUNE 2017)

Construction Site Inspections



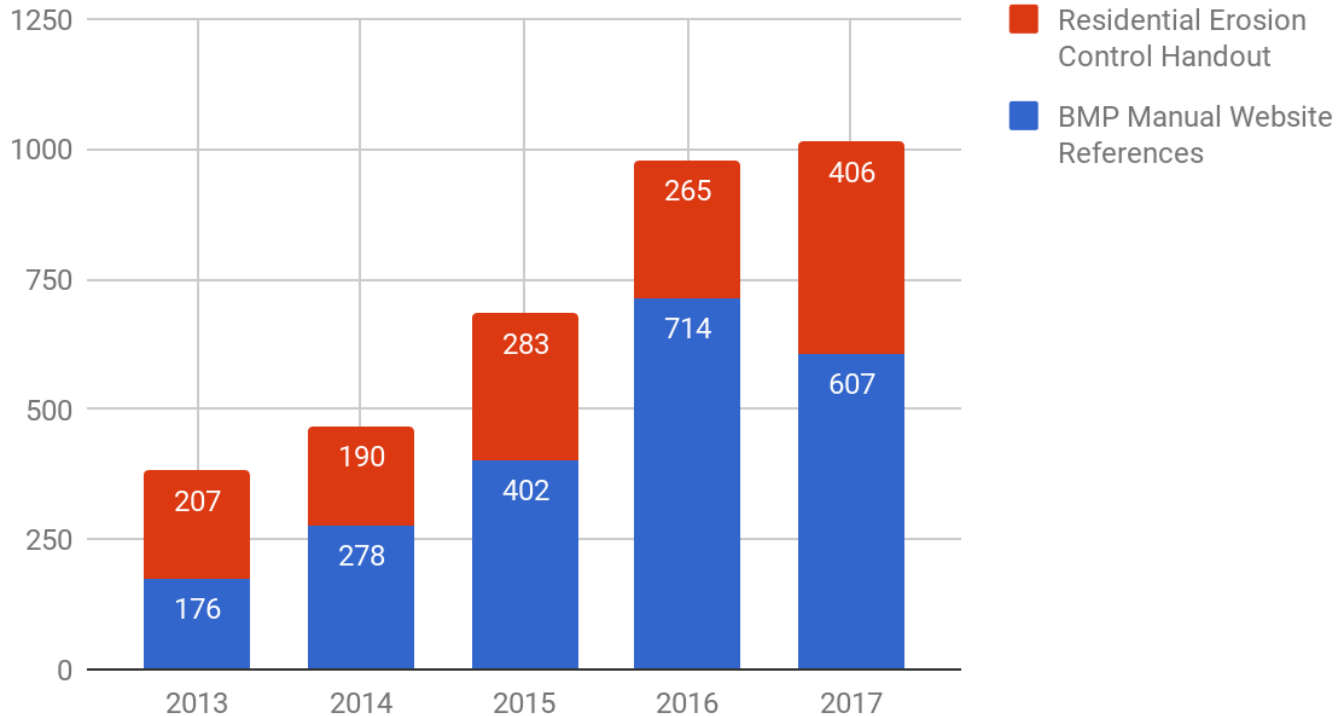
LDO Construction Site Oversight (JULY 2016 - JUNE 2017)

2017 Land Disturbing Permit by type



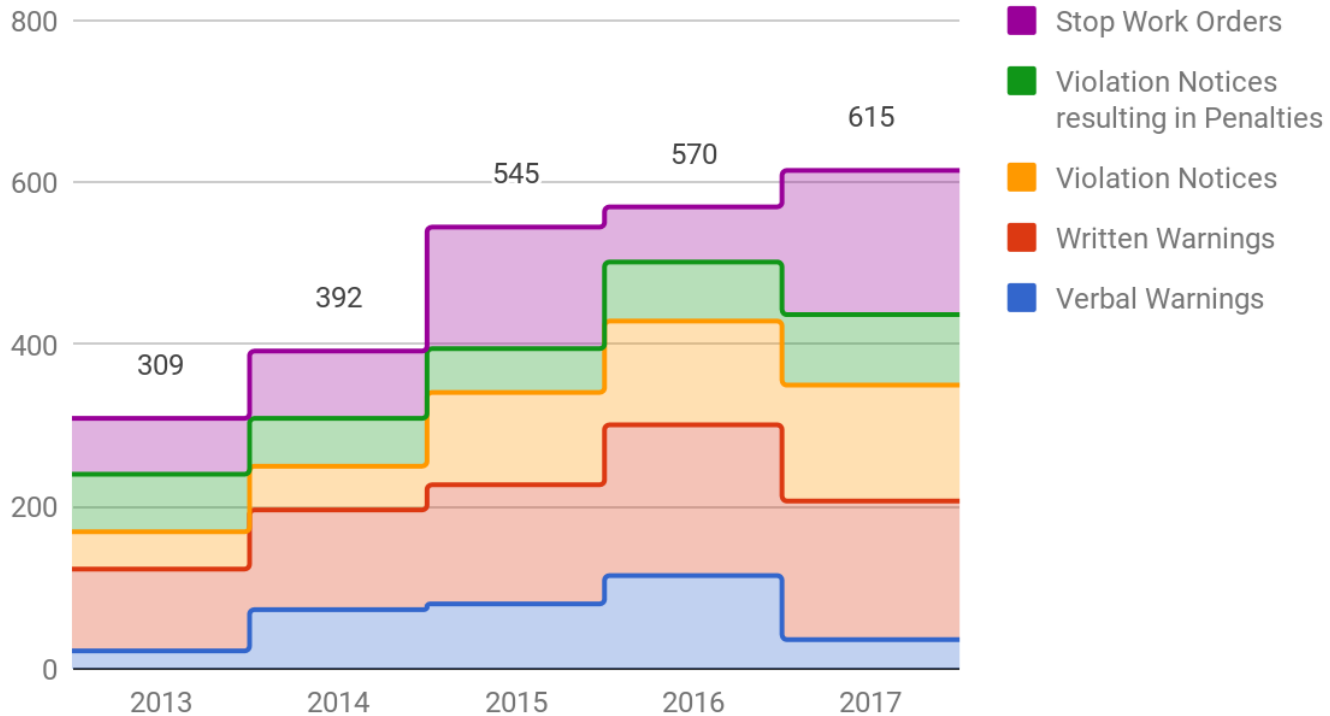
LDO Construction Site Oversight (JULY 2016 - JUNE 2017)

Land Disturbing Education



LDO Construction Site Oversight (JULY 2016 - JUNE 2017)

Land Disturbing Enforcement



POST-CONSTRUCTION

— Private Property O&M Management

- 752 private SCM/BMPs inspected/yr
- 162 enforcement letters mailed/yr

Industrial & Municipal Inspections

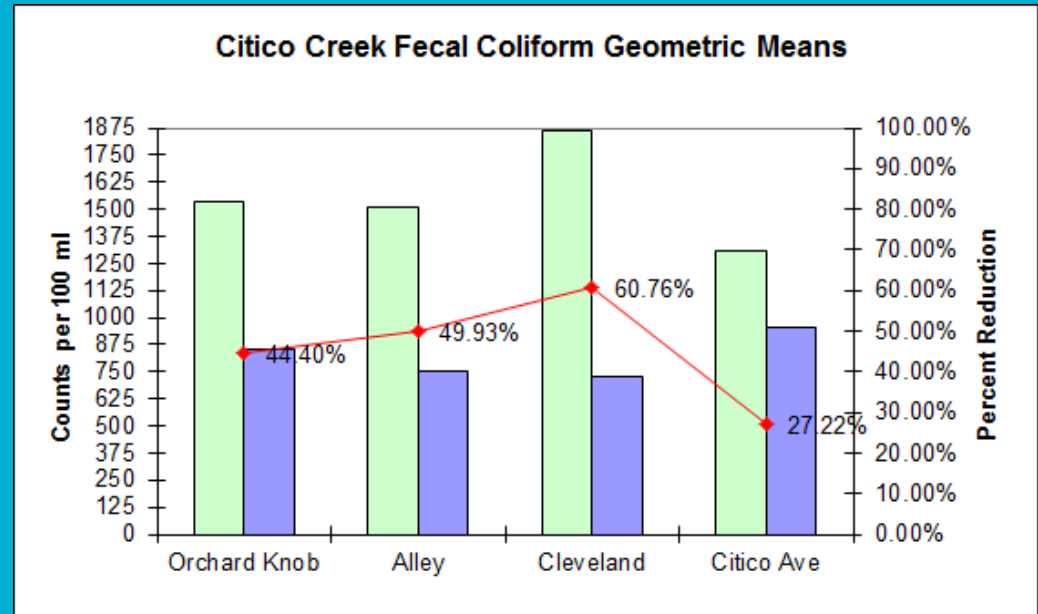
- 90 sites inspected per year



Monitoring & Sampling

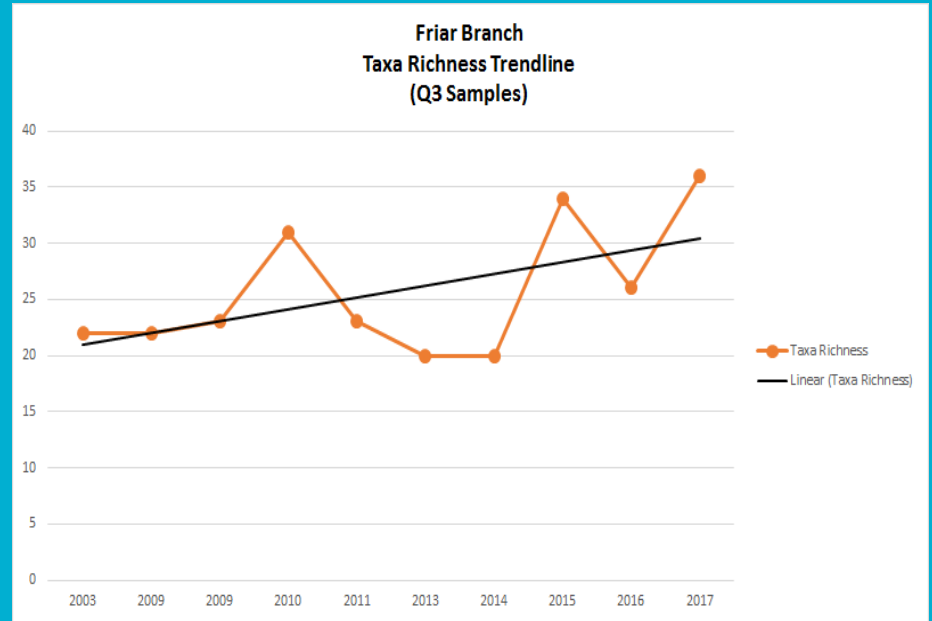
MONITORING SAMPLING - Trend Analysis

- Citico Creek restoration - pathogen levels decreased post-stream restoration.



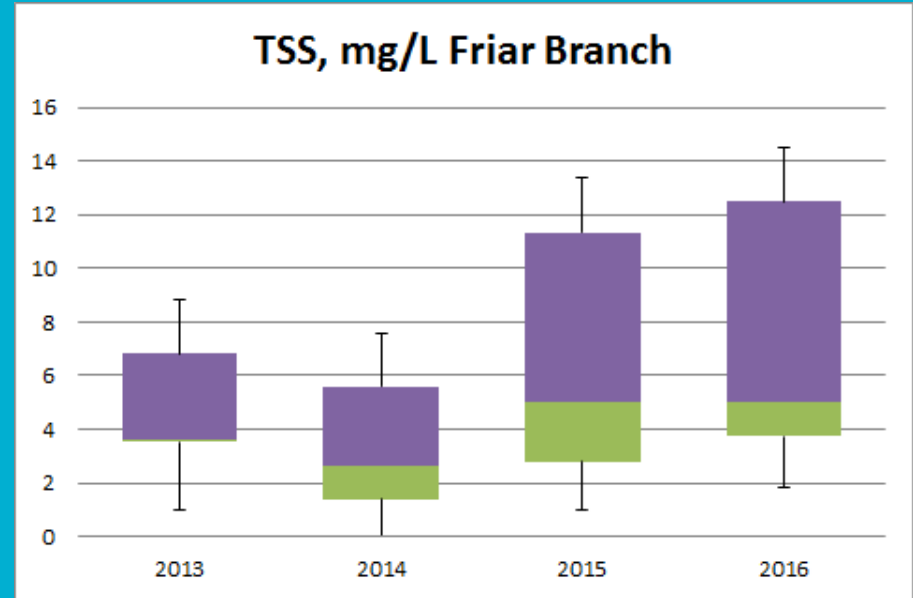
MONITORING SAMPLING - Trend Analysis

- Macroinvertebrate monitoring in Friar Branch show an increase in Taxa Richness over time.

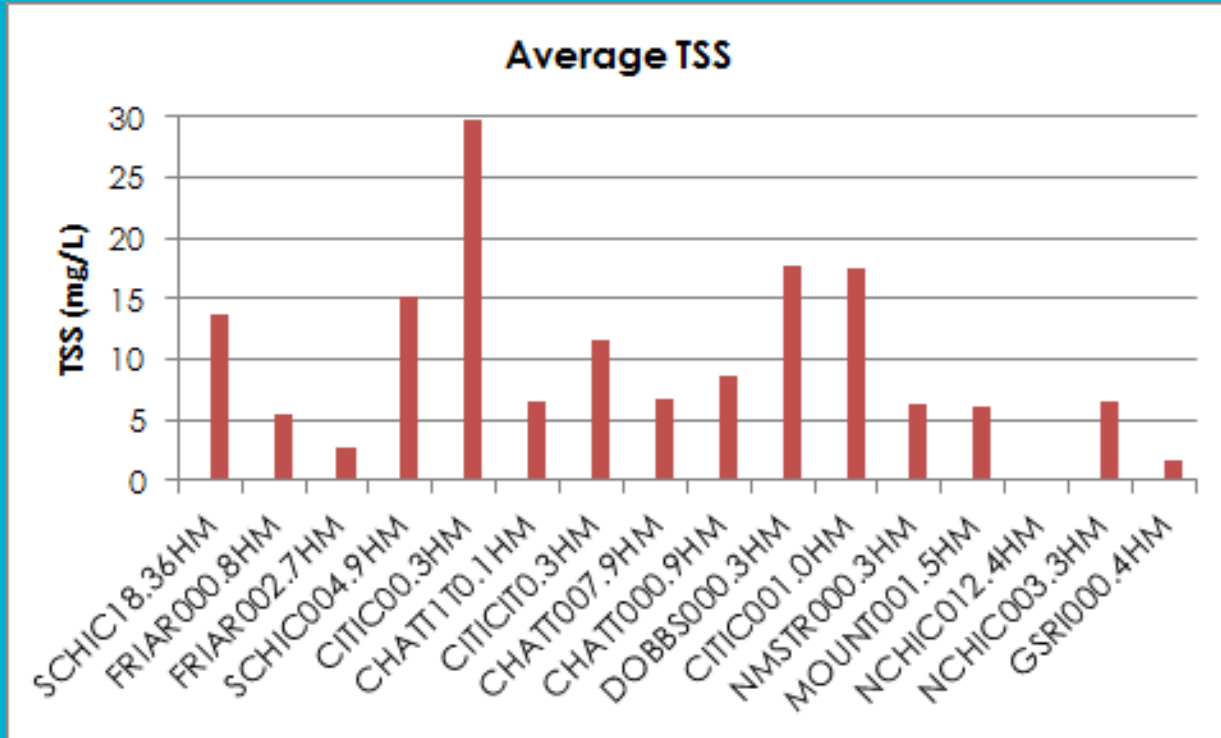


Watershed Characterization Trend Analysis

- TSS levels are increasing in Friar Branch!

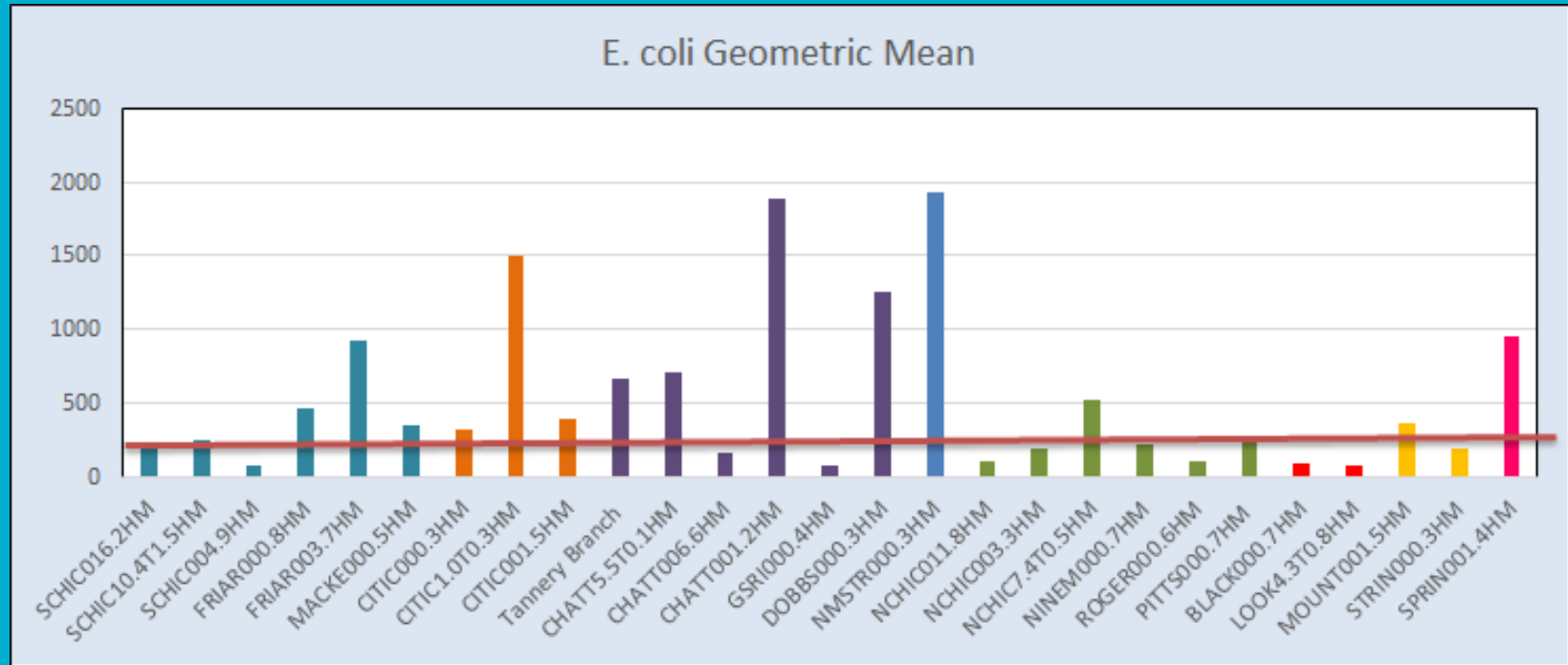


TMDL Monitoring - Once every 5 years



TMDL Monitoring

27 locations - Once every 5 years



Combined Sewer System

CSS Area 2,300 Acres



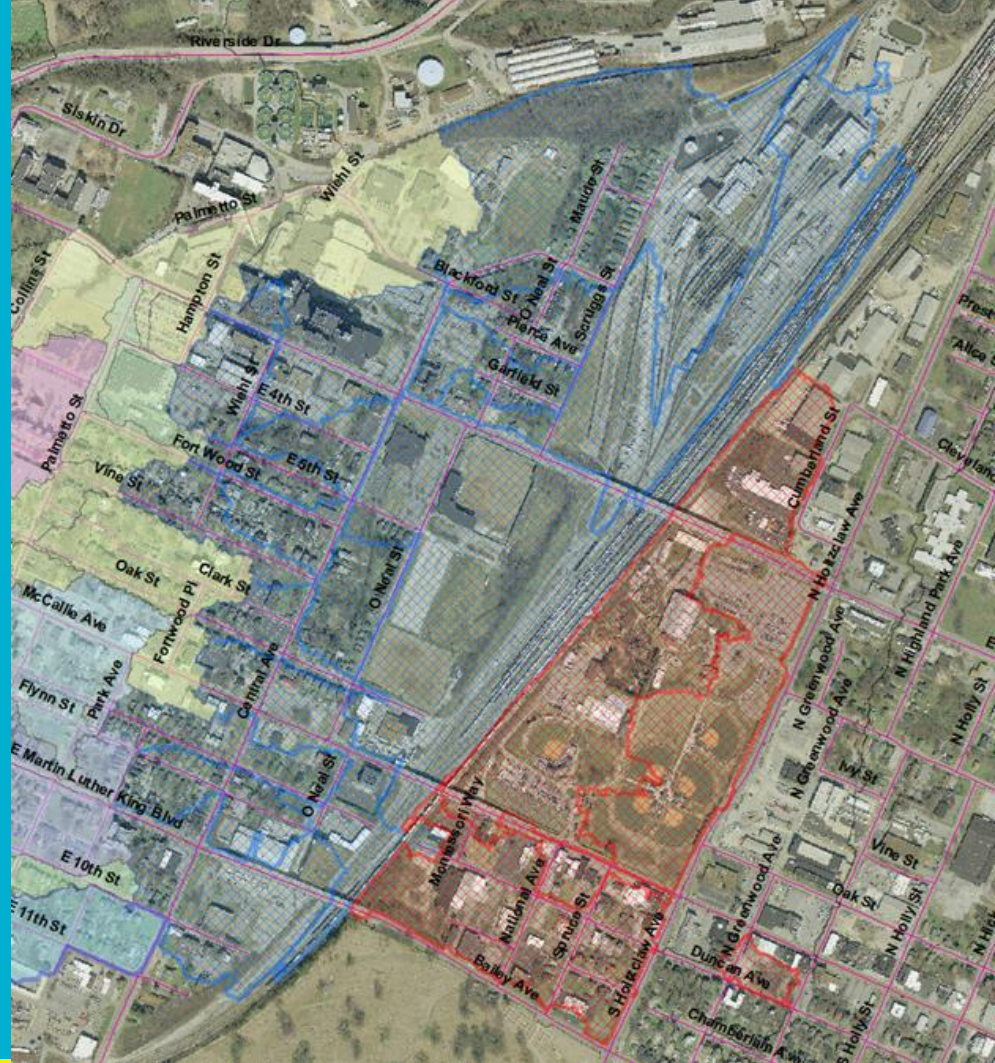
Combined Sewer System (CSS)

- 1990 Consent Order to control Combined Sewer Overflows (CSO)
- Alternative Analysis
 - \$400M separation
 - \$80M treatment
- Treatment Option
 - \$40M Wet Weather WWTP Capacity Increase
 - \$40M CSO Treatment Facility Construction & Separation
- WQ financed \$17M for CSOTF construction

CSS - SEPARATION & ATTENUATION PROJECTS

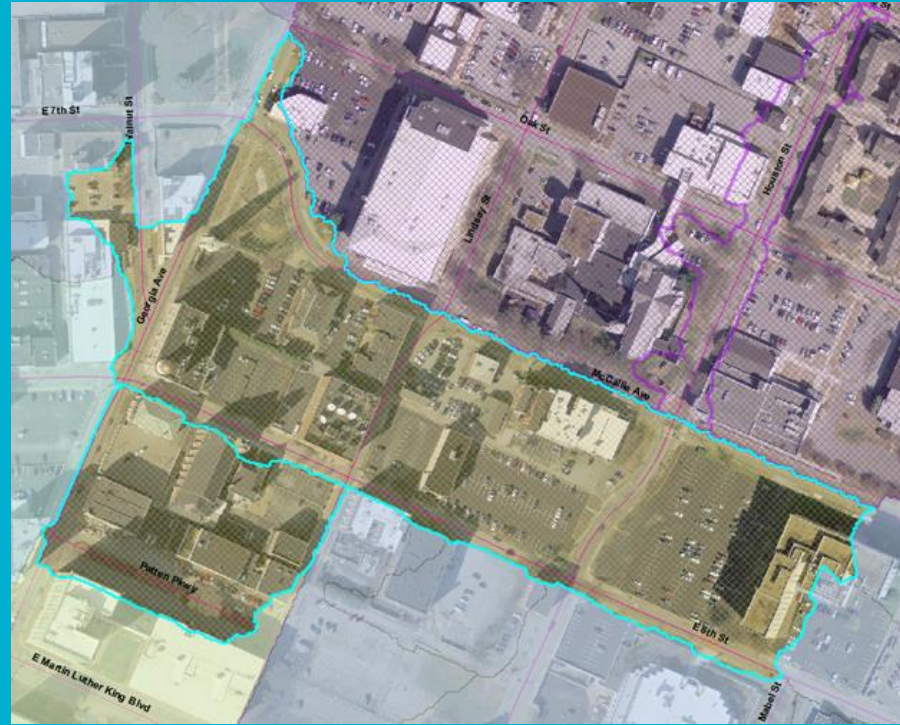
Central Ave Sub-basin
Separation Project (Blue)
278 Acres - \$5,426,205 (Initial Phase)
(Planning)

Warner Park - Attenuation Project (Red)
100 Acres - \$3,000,000 (Complete)





Vine St - Separation Project – 62 Acres
\$6,500,000 (Future)



Patten Parkway – Attenuation Project - 16 Acres
\$7,432,474 (Planning)



Riverfront Pky - Separation Project (Phase I Complete
CWS \$280,000) – 67 Acres - \$1,527,522 (Future)

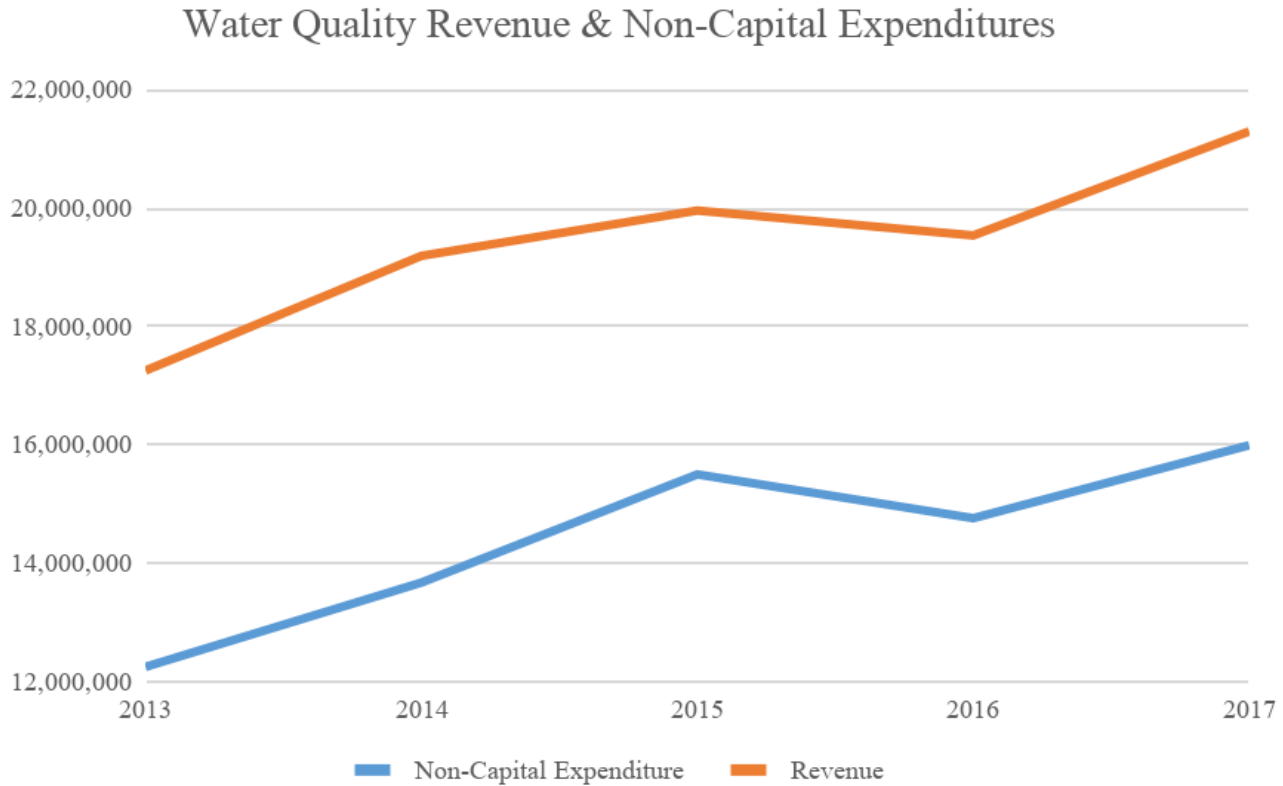


Tremont St - Separation Project
105 Acres - \$2,705,872 (Future)

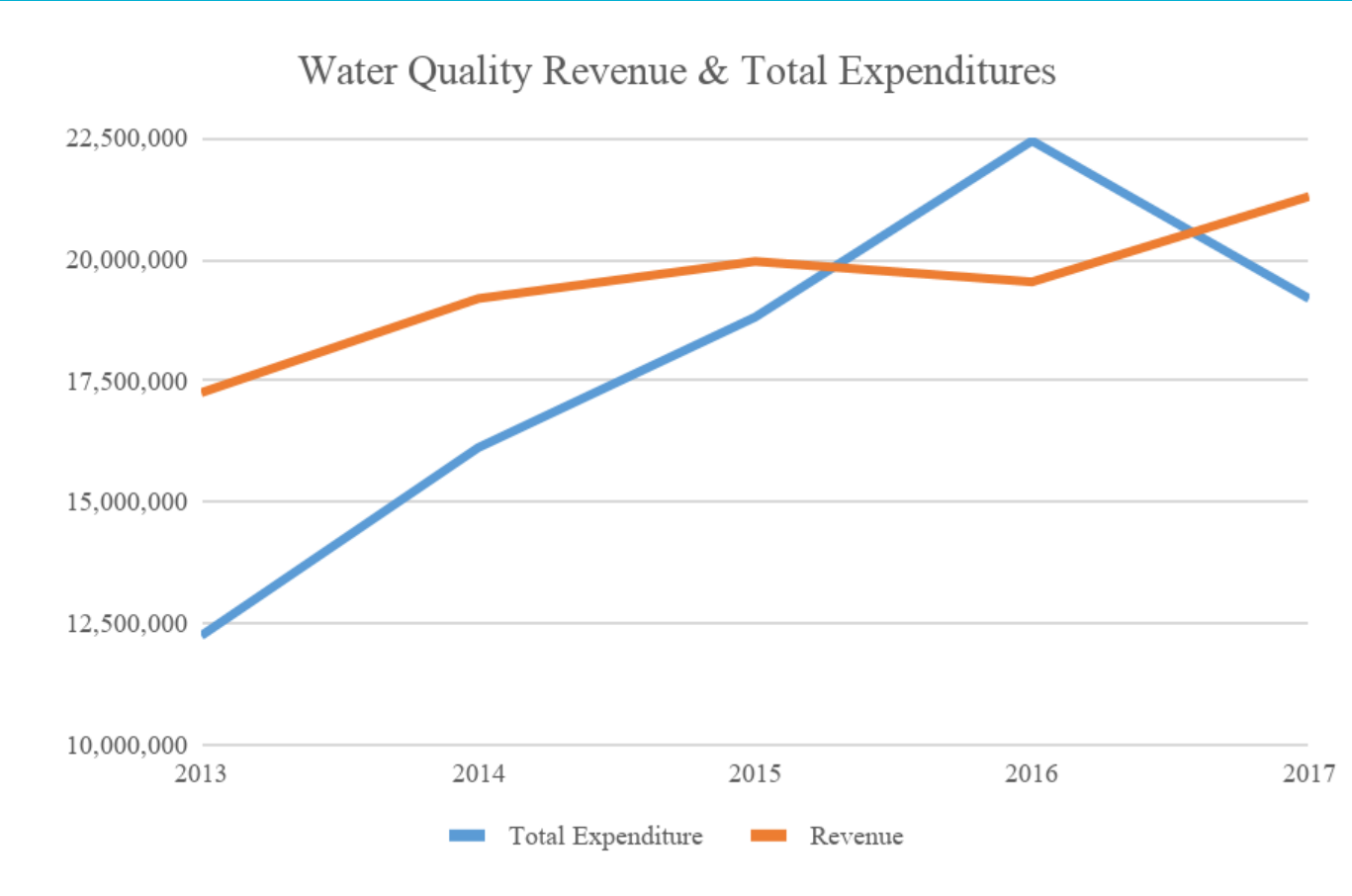
By the Numbers

**Where has the
money gone?**

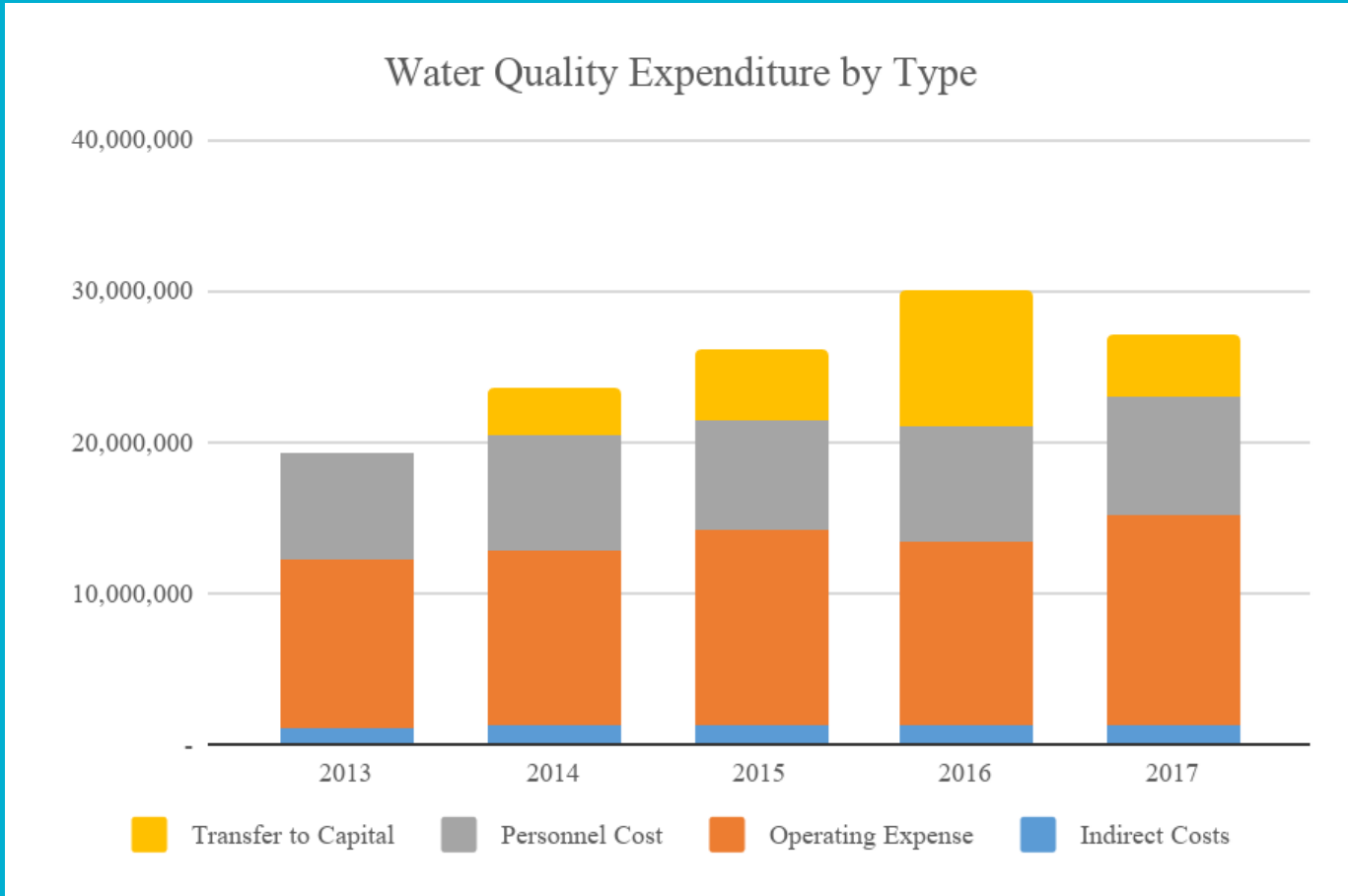
FEE REVENUE & NON-CAPITAL EXPENSES



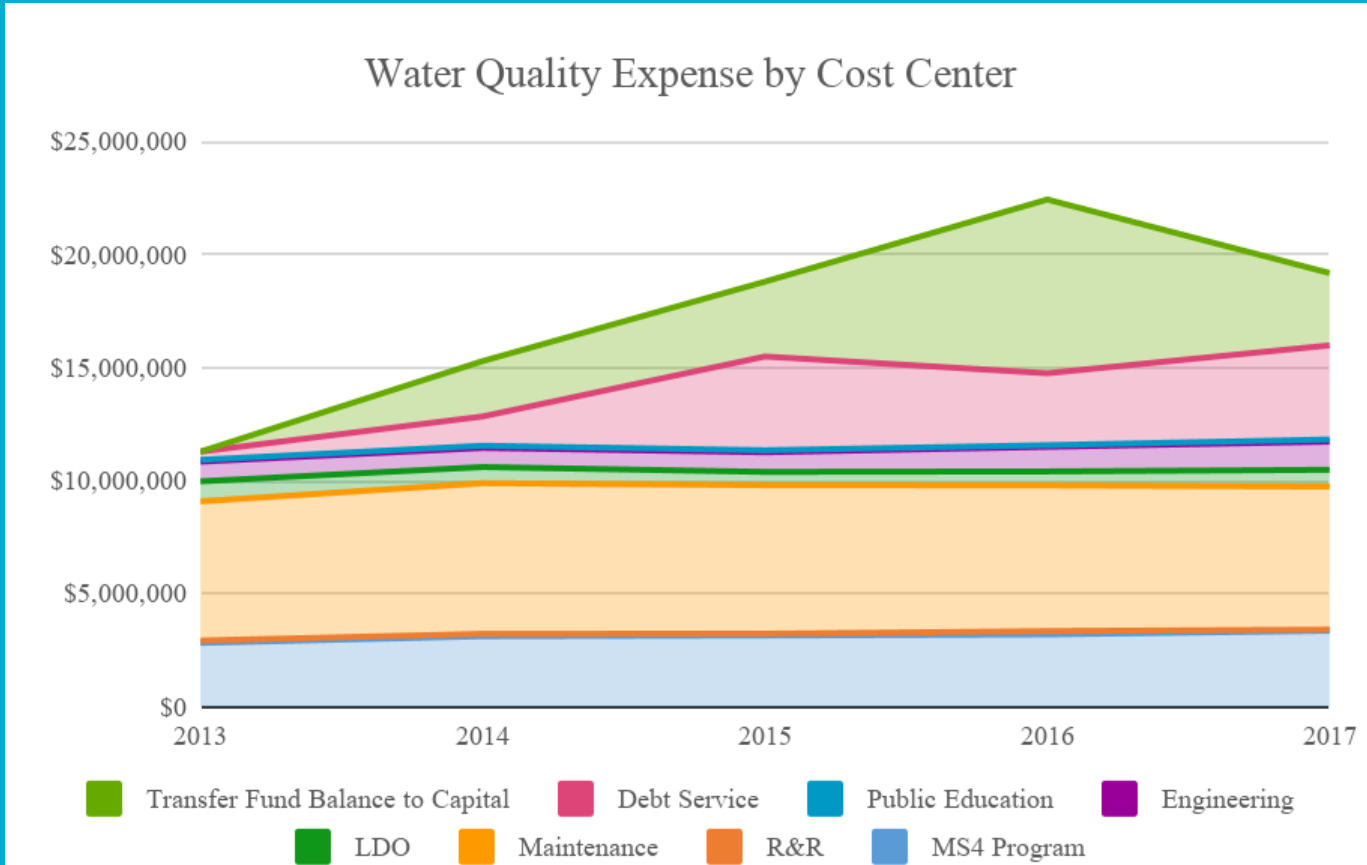
FEE REVENUE & TOTAL EXPENSES



EXPENSE BREAKDOWN BY TYPE



EXPENSE BREAKDOWN BY COST CENTER



Cost Center	Level of Service	# Staff	Level of Service Activities	2013	2014	2015	2016	2017
K70101	WQ Inspections	27	Inspect industrial facilities, post construction stormwater infrastructure including green infrastructure for continued compliance and recurring maintenance	\$2,827,868	\$3,123,019	\$3,157,757	\$3,202,176	\$3,482,568
	WQ Monitoring		Conduct monitoring, sampling, and illicit discharge investigation mandated by the City's National Pollutant Discharge Elimination System (NPDES) Permit No. TNS068063					
	WQ GIS		Related geographic information services					
K70104	WQ Construction	96	Stormwater conveyance & Inlet cleaning, maintenance, repair and new construction	\$6,160,784	\$6,664,056	\$6,571,785	\$6,443,366	\$6,686,968
K70105	Land Development	10	Plan review, construction inspections for WQ, Stormwater, EPSC new site compliance.	\$884,846	\$716,425	\$587,027	\$619,965	\$757,237
K70106	WQ Design	16	WQ 311 Inspection - Drainage investigations and design associated with Citizen Service Requests. In-house modeling, design, cost estimates, permitting for capital projects, capital/contract project management & survey services	\$872,074	\$845,619	\$868,132	\$1,088,410	\$1,159,454
K70107	WQ Public Outreach	1	NPDES mandated education, community outreach, training coordination	\$78,201	\$96,442	\$88,480	\$72,481	\$88,546
			Personnel & Operations Expenses	\$10,823,772	\$11,445,562	\$11,273,182	\$11,426,399	\$12,174,773

5-year WQ Capital Project History

Cost Center	Description	2013	2014	2015	2016	2017	Project to Date
K80101	Water Qual Cap - Drainage Projects	17,777	-	-	-	-	1,953,861
K80102	Water Qual Cap - Drainage System Inventory	473,495	253,494	290,565	-	4,549	4,484,558
K80107	Water Qual Cap - Aerial Photography	-	-	50,000	-	-	428,458
K80110	Water Qual Cap - Combined Sewer As-Found	60,644	-	-	-	-	1,072,470
K80111	Water Qual Cap - Floodplain Modeling	132,184	299,601	52,000	-	144,977	725,335
K80112	Water Qual Cap - 1000 Blk Dartmouth St.	-	17,802	26,141	-	-	43,942
K80113	Water Qual Cap - 3469 Brainerd Rd.	79	-	-	-	-	7,296
K80114	Water Qual Cap - 2888 Rossville Ave.	229,343	(199)	-	-	-	243,190
K80116	Water Qual Cap - 3500 Broad St.	222,360	4,400	193,248	518,219	9,348,608	15,603,302
K80119	Water Qual Cap - 3900 Sunbeam Ave.	-	-	433,610	-	-	433,610
K80121	Water Qual Cap - Valleybrook Subdivision	-	-	-	54,754	108,738	196,519
K80122	Water Qual Cap - Levee Certification and Repairs	49,605	7,936	310,669	81,628	2,850	905,125
K80123	Water Qual Cap - LIDAR Topography Updates	-	-	-	-	23,834	23,834
K80125	Water Qual Cap - Watershed Studies	27,571	-	-	-	-	39,127
K80126	Water Qual Cap - Stream, Conservation, Floodplain	313,458	202,126	13,684	-	-	738,503
K80128	Water Qual Cap - Main Terrain Art Park	-	-	380,000	-	-	380,120
K80129	Water Qual Cap - Heavy Equipment	-	-	-	-	321,188	912,653
K80130	Water Qual Cap - Carter Stree Outfall Pipe Rehab	-	15,153	24,847	697,315	14,228	751,543
K80131	Water Qual Cap - Central Avenue Ext Separation Proj.	-	-	14,268	58,166	93,756	371,960
K80132	Water Qual Cap - Drainage System Retrofit	-	-	9,058	346,306	294,433	653,949
K80133	Water Qual Cap - Mountain Creek Rd - Drainage Improv	-	-	6,700	5,197	-	54,187
K80134	Water Qual Cap - Concord & Golf Streets	-	-	744,684	74,966	1,043	820,693
K80135	Water Qual Cap - Automated Flood Warning System	-	-	-	-	315,114	315,114
K80136	Water Qual Cap - LID Retrofit (Anderson Ave Demo Project)	-	-	-	-	117,839	1,717,969
K80140	Water Qual Cap - Sunbeam Green Infrastructure Installation	-	-	-	5,198	-	5,198
K80143	Water Qual Cap - East Lake Water Quality Restoration	-	-	-	-	100,000	141,619
K80144	Water Qual Cap - Green Infrastructure SOV Bank	-	-	-	-	1,895	9,883
K80148	Water Qual Cap - Riverfront Parkway/MLK Blvd CSS Separation	-	-	-	-	198,207	280,784
K80202	Water Qual Cap - Drainage Projs City Wide	-	329,839	(329,839)	-	15,127	1,377,218
K80203	Water Qual Cap - Friar Branch Restoration FY09	-	108	-	-	-	157,355
K80204	Water Qual Cap - Data Mgmt System FY09	49,059	3,726	-	-	-	77,257
K80205	Water Qual Cap - Private San Serv Lateral Rep FY09	33,688	29,990	56,241	18,269	56,433	325,460
K80206	Water Qual Cap - LID Retrofit FY09	-	418,707	-	-	1,936	420,643
K80302	Water Qual Cap - 2013 Heavy Equipment	307,804	271,996	275,714	666,279	320,053	1,841,846
K80303	Water Qual Cap - 2013 WPA System	-	163,451	321,431	137,717	25,020	648,118
K80304	Water Qual Cap - 2013 Briarwood Circle	-	27,320	16,170	-	-	286,935
K80305	Water Qual Cap - 2013 McCutcheon Rd.	-	-	3,600	694,677	1,259,203	1,957,480
	Total Annual Capital Project Expenditures	1,917,066	2,045,450	2,892,789	3,358,688	12,769,029	44,235,706

Where will the
money go?

Where will the Money Go?

Where will the Money Go?			Scenario 5	2018
Cost Center	Level of Service	Level of Service Activities	Proposed Expenditures	Budgeted Expenditures
K70101	WQ Inspections	Inspect industrial facilities, post-construction stormwater infrastructure, including green infrastructure, for compliance and maintenance	\$4,400,944.64	\$4,279,327.00
K70101	WQ Monitoring	Conduct monitoring, sampling, and illicit discharge investigation mandated by the City's MS4 Permit		
K70101	WQ GIS	Related geographic information services		
K70104	WQ Construction	Stormwater conveyance & Inlet cleaning, maintenance, repair and new construction	7,709,428.71	\$7,447,975.00
K70105	Land Development	Plan review, construction inspections for WQ, Stormwater, EPSC new site compliance.	\$868,753.25	\$836,303.00
K70106	WQ Design	WQ 311 Inspection - Drainage investigations, design, modeling, design, estimating, permitting, project management & survey	\$1,487,615.50	\$1,432,307.00
K70107	WQ Public Outreach	NPDES mandated education, community outreach, training coordination	\$91,276.79	\$88,079.00
% Change from previous year		3%	\$14,558,018.88	\$14,083,991.00

Non-TMDL Capital Projects

	Non-TMDL Capital Projects	Total 5 Year Request
1	Culvert Upgrades - Citico Creek	\$1,120,000
2	Granada Dr. System Relocation (Collapsed upstream WPA connection)	\$350,000
3	USACE/FEMA Floodplain Culvert Replacements Projects	\$450,000
4	Green Infrastructure of the Avondale YFD Center	\$800,000
5	Automated flood warning system	\$450,000
6	Combined sewer separation/attenuation Projects	\$12,269,000
7	Storm sewer collection system improvements	\$2,090,000
8	Water quality improvements, Stay On Volume Coupon Bank	\$750,000
9	Landscape Design	\$300,000
10	Home buyout program	\$1,050,000
11	Conveyance and water quality wetland improvements	\$250,000
12	Conveyance, detention and water quality improvements	\$2,850,000
13	Heavy Equipment Purchases	\$1,370,000
14	On-Call Floodplain Modeling	\$600,000
15	WQ Operations Building at City Wide Services Yard	\$450,000
16	Pump Station Repairs	\$2,500,000
17	WQ Lab/Storage	\$150,000
18	Total	\$27,799,000

TMDL Capital Projects

	TMDL Capital Projects	Total 5 Year Request
1	Prioritizing GI Projects to address TMDLs	\$100,000
2	Various stream restoration projects	\$750,000
3	Stream Restoration - Citico Creek	\$2,290,000
4	Stream Restoration - Lynnbrook WPA Ditch	\$200,000
5	East Lake Water Quality Restoration	\$400,000
6	Various areas of stream buffer purchased into conservation to protect streams.	\$450,000
7	Green Infrastructure of City Alleyways	\$750,000
8	Total	\$4,940,000

How do we compare?

Quality of Life

- Factors
 - Environment
 - Drainage
 - Flood Control
- Funding
 - Property Tax
 - Water Quality Fee

Increase
\$11/ERU

NPDES Permit Compliance

Drainage

Flood Control

thank
you

