

Sanitary Sewer Overflow Initiative Benefits

North Central Texas Council of Governments
Environment & Development Department

August 21, 2017

Please welcome our first speaker:

Mary Gugliuzza

Fort Worth Water Department

Fort Worth's SSOI Program

Mary Gugliuzza, Media Relations and Communications Coordinator

NCTCOG

August 21, 2017

Today's Presentation

- System Overview
- Regulatory History
- Fort Worth SSOI Program
 - System assessment and maintenance
 - CIP
 - Public Education



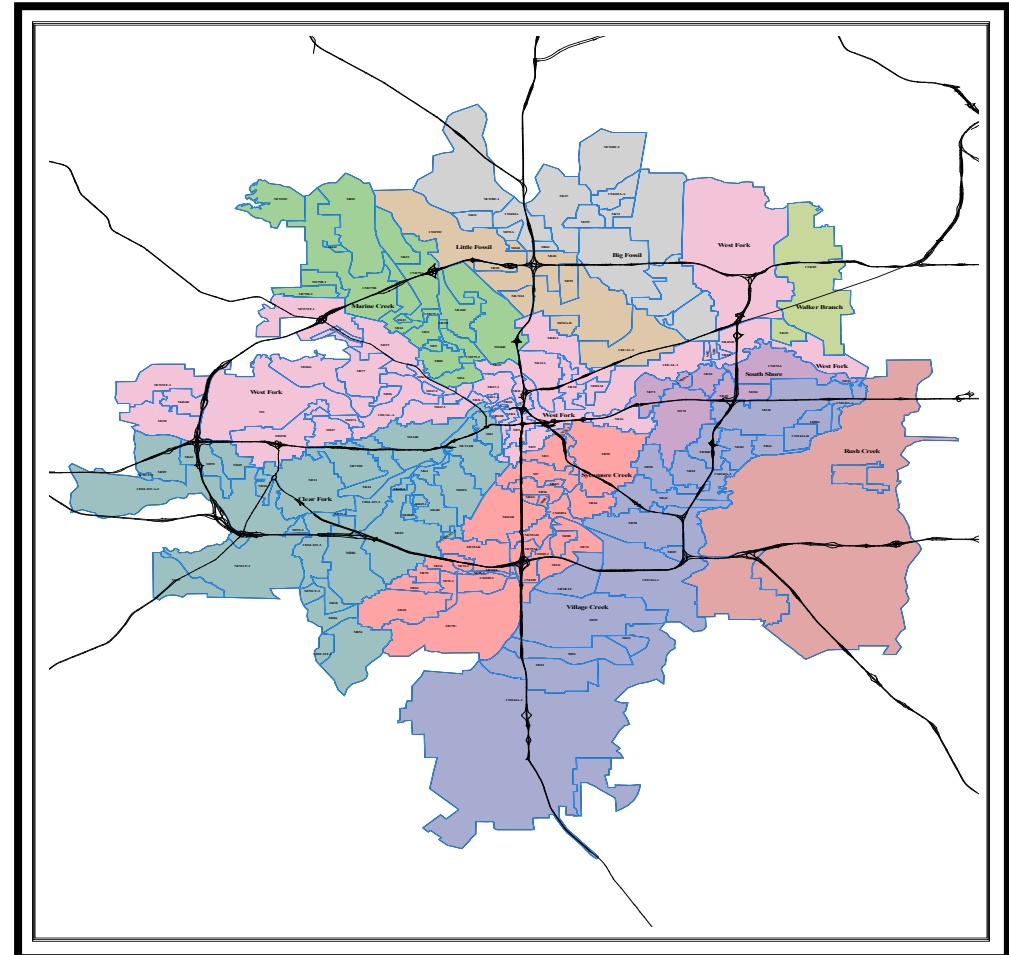
Fort Worth System

- 1 treatment plant - Village Creek Water Reclamation Facility
 - Permitted wastewater treatment capacity (MGD) = 166
 - 124.11 MG average daily wastewater treated in FY2016*
- 353.19 square miles in city limits
- ETJ – 302.4 square miles
- 23 wholesale customers
- Over 1.1 million population served *

* Includes Wholesale Customers

Wastewater Collection System

- 3,313 miles in the collection system
- 1 ¼" - 108" (Gravity/Force)
- 9 Major Basins
- 167 Sub-Basins
- 53,783 Manholes and junction chambers



Fort Worth's Regulatory History

- EPA Administrative Order (1993 – 2000)
 - Total Estimated Cost of Wet Weather Program: \$215.7M
- TCEQ Sanitary Sewer Overflow Initiative (2007-Current)
 - Annual Reporting – Ten Year Program (Voluntary)
 - Documentation of maintenance activities and SSOs
 - Renewal/Replacement and Capacity Improvements
 - Approx. \$170M in O&M and Capital Costs reported (FY 08-15)

EPA/DOJ Enforcement Actions

- Houston and Corpus Christi – In Negotiation with DOJ
- Fort Smith, Arkansas - 2015
 - ✓ \$300,000 Civil Penalty
 - ✓ \$400,000 spending required to repair and replace leaking private laterals for low-income residential homeowners.
 - ✓ Implement 12 year corrective action plan estimated to cost \$255 million
- Shreveport - 2013
 - ✓ \$650,000 civil penalty
 - ✓ Required implementation Capacity, Management, Operation and Maintenance Program (CMOM)
- San Antonio - 2013
 - ✓ \$2.6 million civil penalty
 - ✓ 10 year corrective action plan to reduce SSOs (\$1.1B – 2025 deadline)

EPA Region SSO Mitigation Project 2016 & 2017

- Compliance Determinations (maintenance, SSOs, capacity)
- Federal Enforcement Actions (if necessary)

Fort Worth Program

- Fort Worth focuses on maintenance, renewal, and replacement of deteriorating and capacity challenged infrastructure
- Fort Worth committed funds for infrastructure rather than penalties
- Team approach
 - Engineering
 - Field Operations
 - Pretreatment
 - Public Education
 - Regulatory
 - Laboratory
 - Village Creek WRF

Key Components

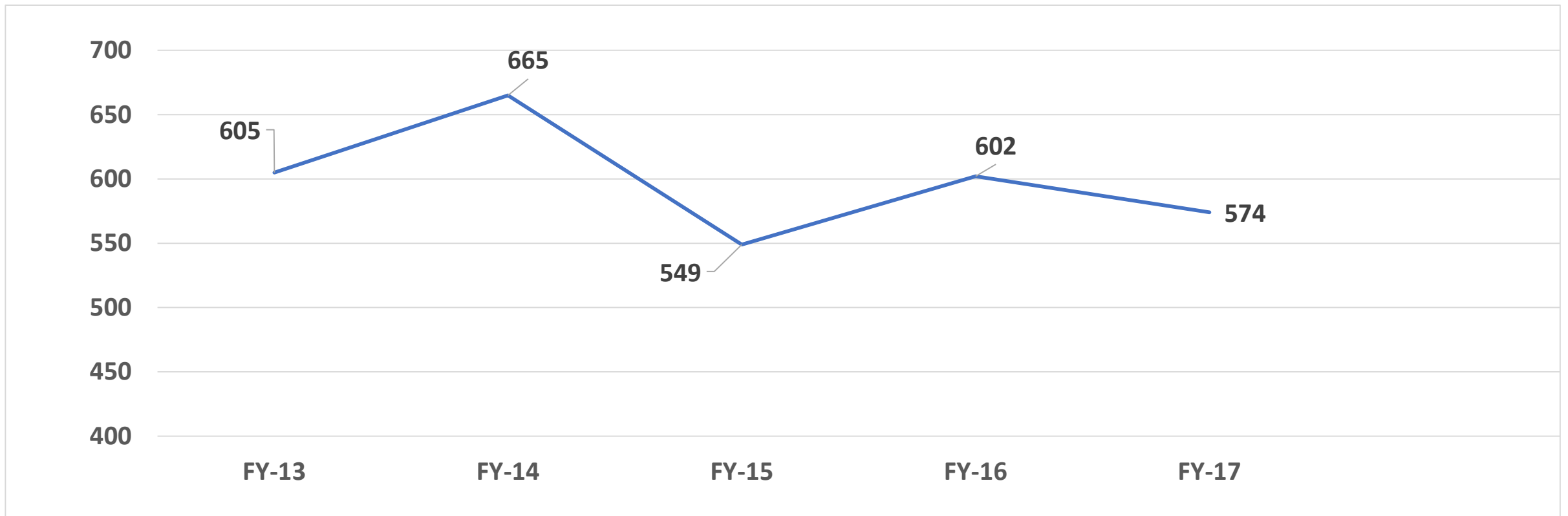
1. Wastewater Master Plan
2. Sewer Asset Management
3. First Responders
4. PM / ICAP (Data)
5. Root Eradication
6. Repairs and Renewals (CIP)
7. FOG

Preventative Maintenance Cleaning

- Clean sewer lines of entire collection system on a pre-defined cycle
(At present trying to clean entire system in 10-year cycle)



Material Removed In Cubic Yards In Last Five Years



Preventative Maintenance CCTV Inspection

- Televiser immediately after overflow or stop is controlled
- Determine cause

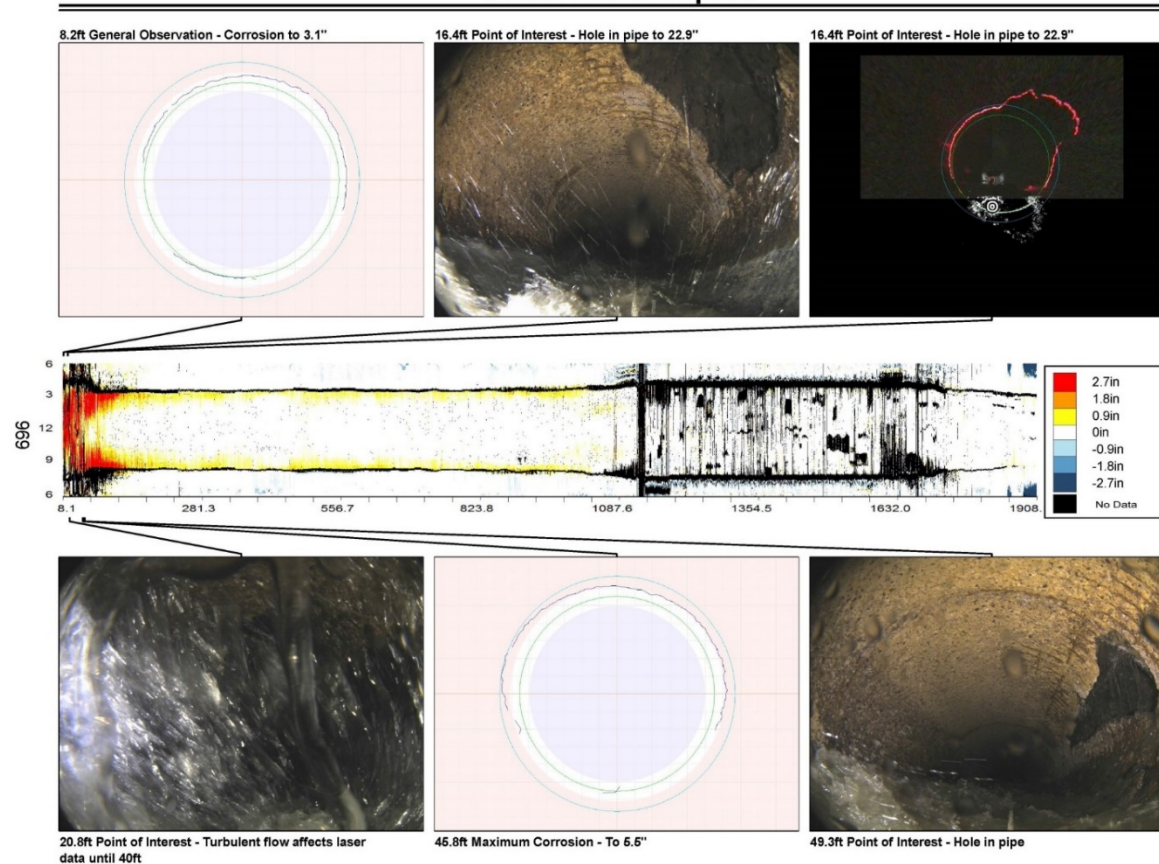


Structural rankings based on defects

Rating	Description
5	Structural failure has occurred and/or line has collapsed. Pipe has deteriorated beyond the ability to intermediate repairs. Replace/rehabilitate immediately.
4	Structure failure identified. Failure imminent and/or partial collapse. Spot repairs difficult due to condition/deterioration/age. Pipe could possibly be maintained for 12 to 24 months (+/-)
3	Pipe is in poor condition. Major structural defects observed. Estimated time before failure is 2 to 6 years. (+/-)
2	Pipe is in fair condition with minor to moderate structural defects documented. Estimated time before failure is 6 to 10 years. (+/-)
1	Pipe is in good/excellent condition. Estimated time before failure is greater than 10 years.

Interceptor Condition Assessment Program

Observation Report



Sewer Stops (First Responders)

- Respond to customer concerns and complaints
- Trace out service lateral and locate city side clean outs
- Routine degrease, root-cut and manhole inspections



SSO Response Procedures

- Introduction (Intent and Responsibilities)
- Reporting Responsibilities
- Normal SSO Reporting Procedures
- Reporting Schedules
- Internal Procedures and Notification
- Severe Rain Event Reporting

Appendix

- Notice of Spill from a Wastewater Facility
- Important Contact Information
- Water Quality Noncompliance Notification
- Flow Estimation Chart
- Public Education Coordinator Process
- TCEQ Chapter 319

Flow Estimation Chart

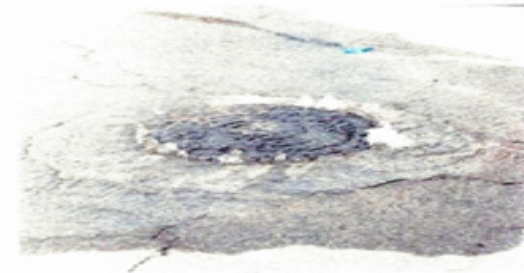
Flow Estimation Pictures



5 gpm



25 gpm



50 gpm



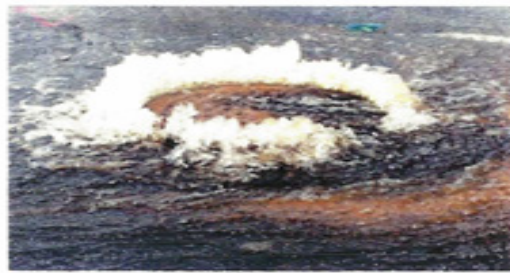
100 gpm



150 gpm



200 gpm



225 gpm



250 gpm



275 gpm

Monitoring Equipment

- [All Sensors](#) (12)
- [Alerts](#) (5)
- [Alarms](#) (0)
- [Archived](#) (16)

APPLICATIONS

- [Collection Level](#) (12)
- [Stock Location](#) (12)

[Show All Applications](#)

LOCATIONS

- 1420 Elva Warren ID 26929
- 1604 Rogers Rd ID 10592
- 2104 Stratford Park ID 32211
- 2201 Burleson Retta Rd ID 46392
- 2600 Cherry Ln ID 20120
- CRITICAL 5317 Mansfield Hwy ID
- CRITICAL 1600 Cooks Ln ID 5911
- CRITICAL 209 W 8th St ID 22442
- CRITICAL 4370 Sahara PI ID 446
- CRITICAL 6300 Randol Mill Rd ID
- CRITICAL 6400 Overton Ridge ID
- Lake Country Golf Course ID 177

The screenshot displays the SMARTCOVER MONITORING SYSTEM interface. The top navigation bar includes 'Map', 'Alarms and Alerts', 'System Operations', 'Multi Graphs', 'Contact', and 'Support'. The user is logged in as 'lundvall :: Administrator :: Logout'. The main content area shows a map of Fort Worth, TX, with several green and blue markers indicating sensor locations. A configuration window is open for unit '2201 Burleson Retta Rd ID 46392'. This window has tabs for 'Charts', 'Management', 'Status', 'Alarm Settings', 'Info', and 'Maintenance'. The 'Status' tab is active, showing a table of sensor statuses:

	Enabled	Disabled
Tilt 1	<input checked="" type="radio"/>	<input type="radio"/>
Tilt 2	<input type="radio"/>	<input type="radio"/>
Level Alarm	<input type="radio"/>	<input type="radio"/>
SmartCover®	<input type="radio"/>	<input type="radio"/>
TrafficTus®	<input type="radio"/>	<input type="radio"/>

Below the table is an 'Update' button. Further down, there is an 'Alarm Notification Holdoff' section with a 'Set Holdoff' dropdown menu (set to 'n/a'), an 'Off Until:' field, and an 'All Units:' checkbox. An 'Update' button is also present. A 'Test Alarms' button is located at the bottom right of the configuration window.

Getting to the root cause

- Every SSO, stoppage and backup is investigated
- Pretreatment staff are notified when problem is traced to a business
- Grease from apartments is big challenge

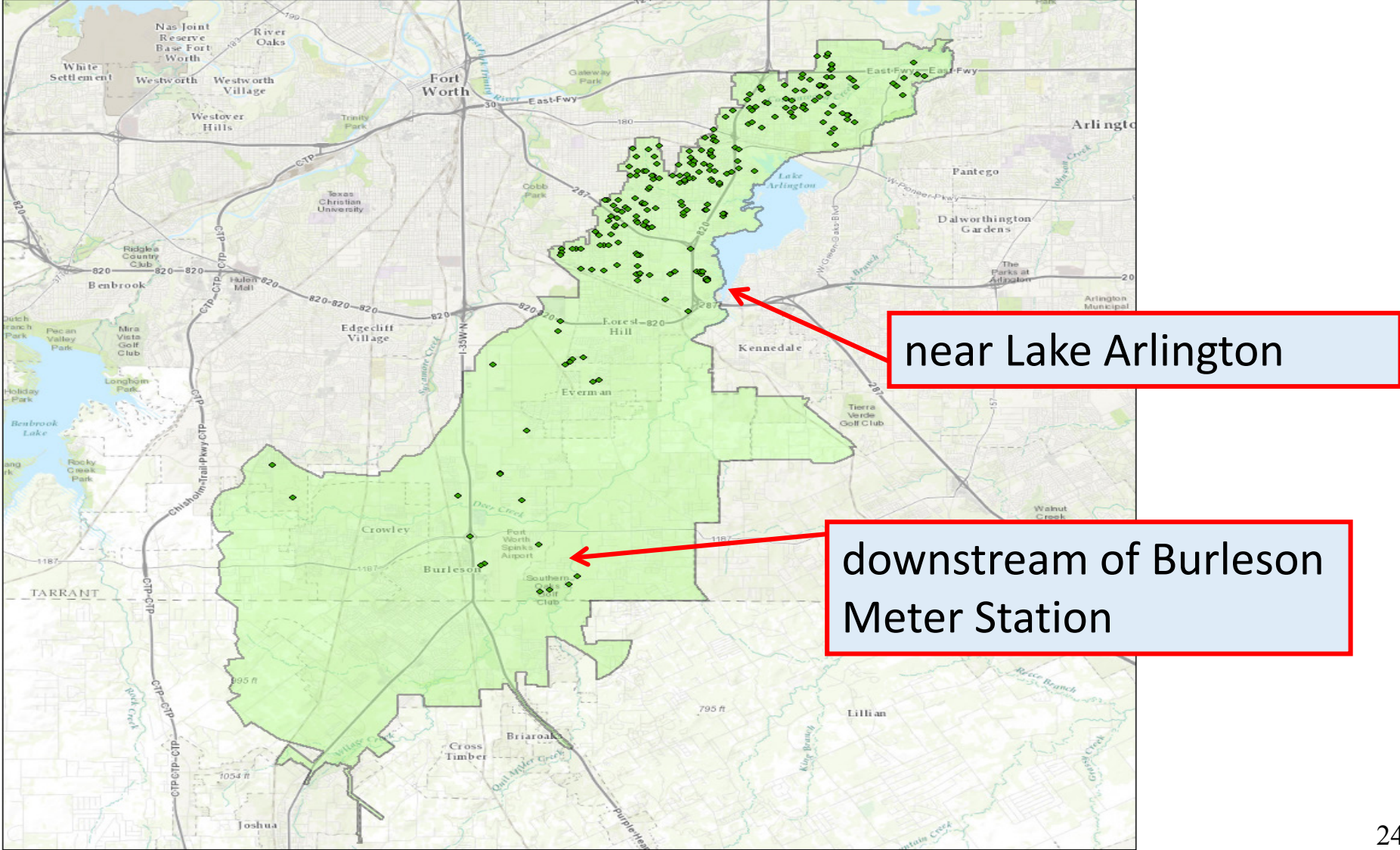
Capital Improvement Plan

- 2017 Capital Plan Includes \$169M in projects
 - About \$52 million devoted to construction of large diameter wastewater collector mains
 - Includes collector main projects in Big Fossil, Marine Creek, West Fork, and Sycamore Creek basins
 - Significant effort to increase capacity within the Village Creek basin and reduce wet weather overflows

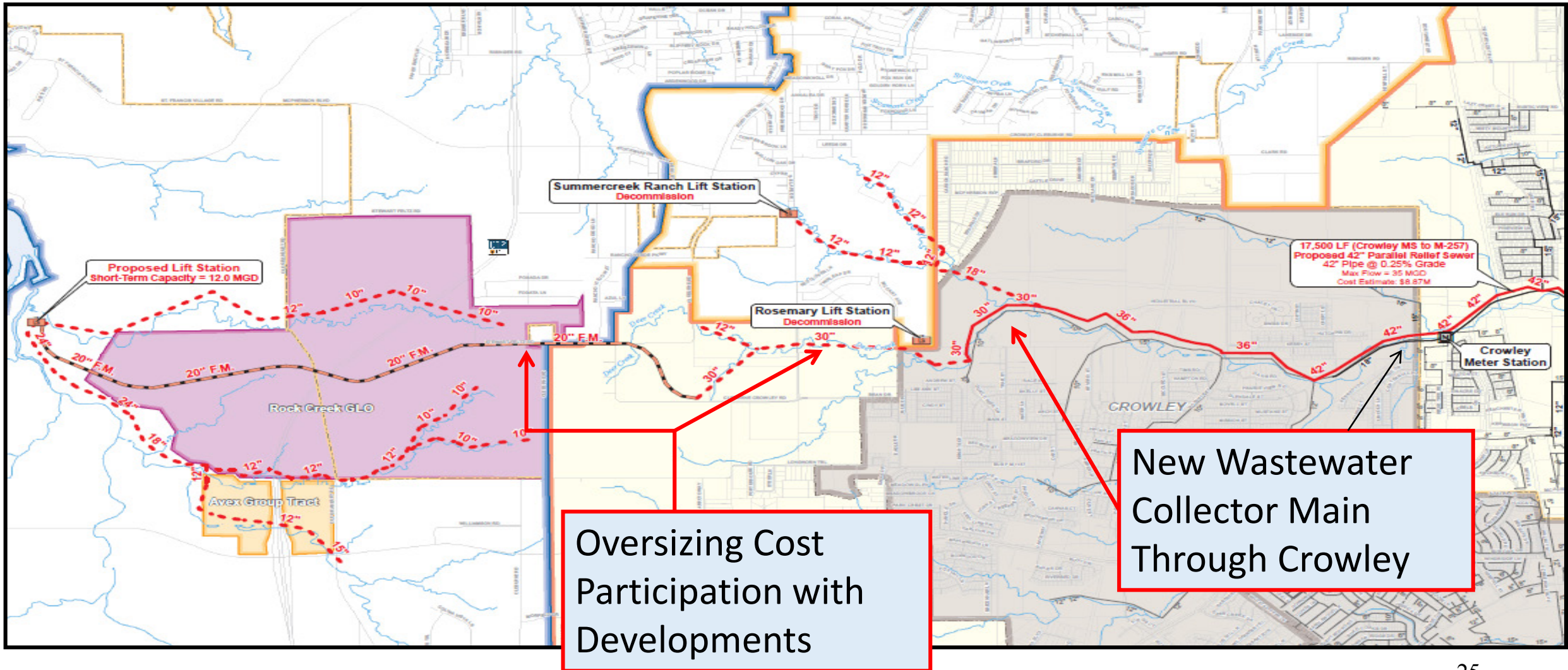
12 Month Look ahead – Large CIP Projects

CIP Project Description	Construction Estimate	Bidding Schedule
Upper Big Fossil Parallel Relief Wastewater Main	\$7M	Late Fall 2017
Eagle Mountain to Big Fossil Wastewater Diversion	\$7M	Winter 2017
Village Creek Sludge Storage Facility	\$11M	Winter 2017
West Fork 96” Diameter Sewer Line Rehabilitation	\$8M	Winter 2017

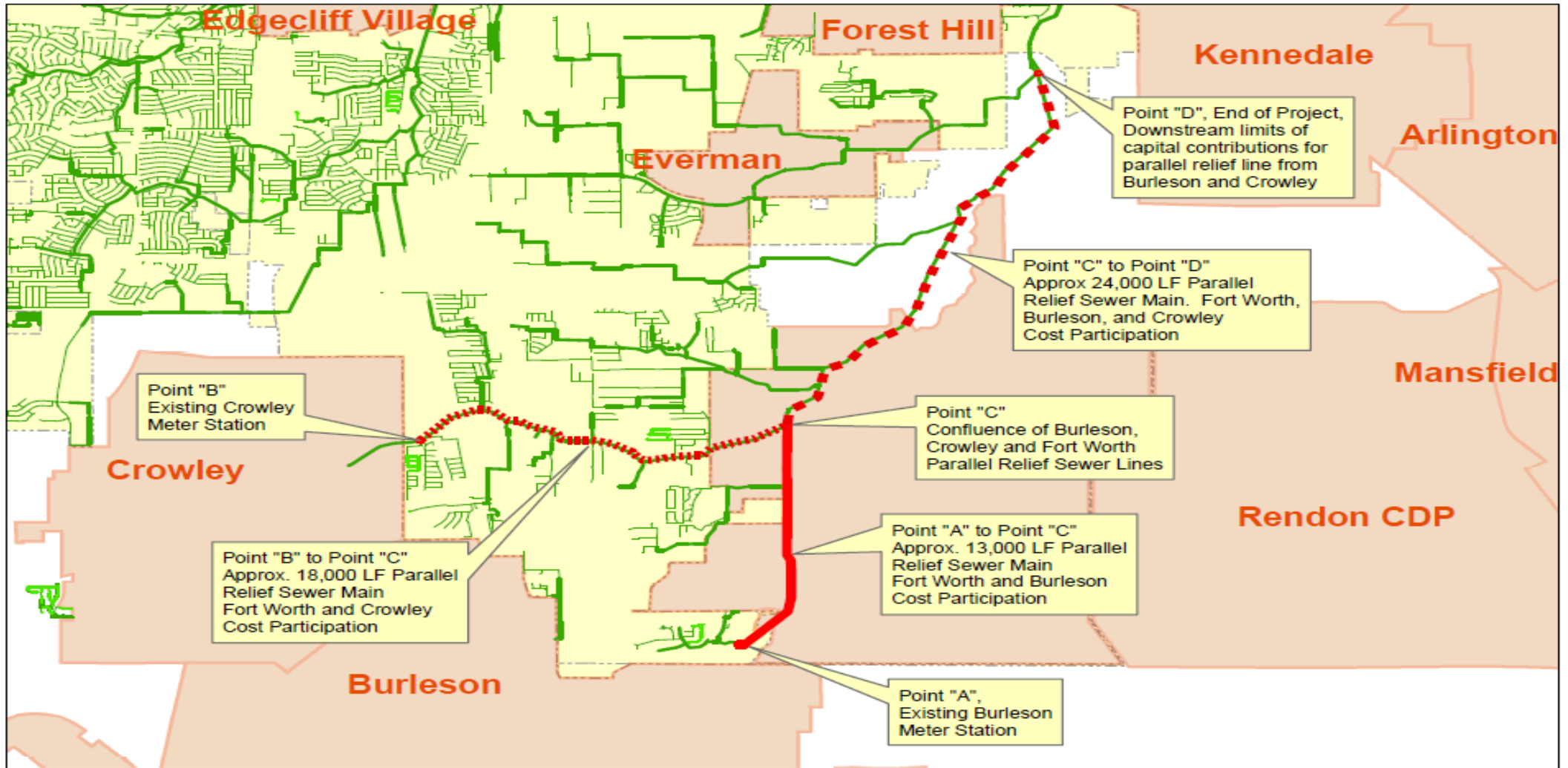
Village Creek Collection System SSOs 2011 - 2016



Rock GLO/Crowley Sewer Lines

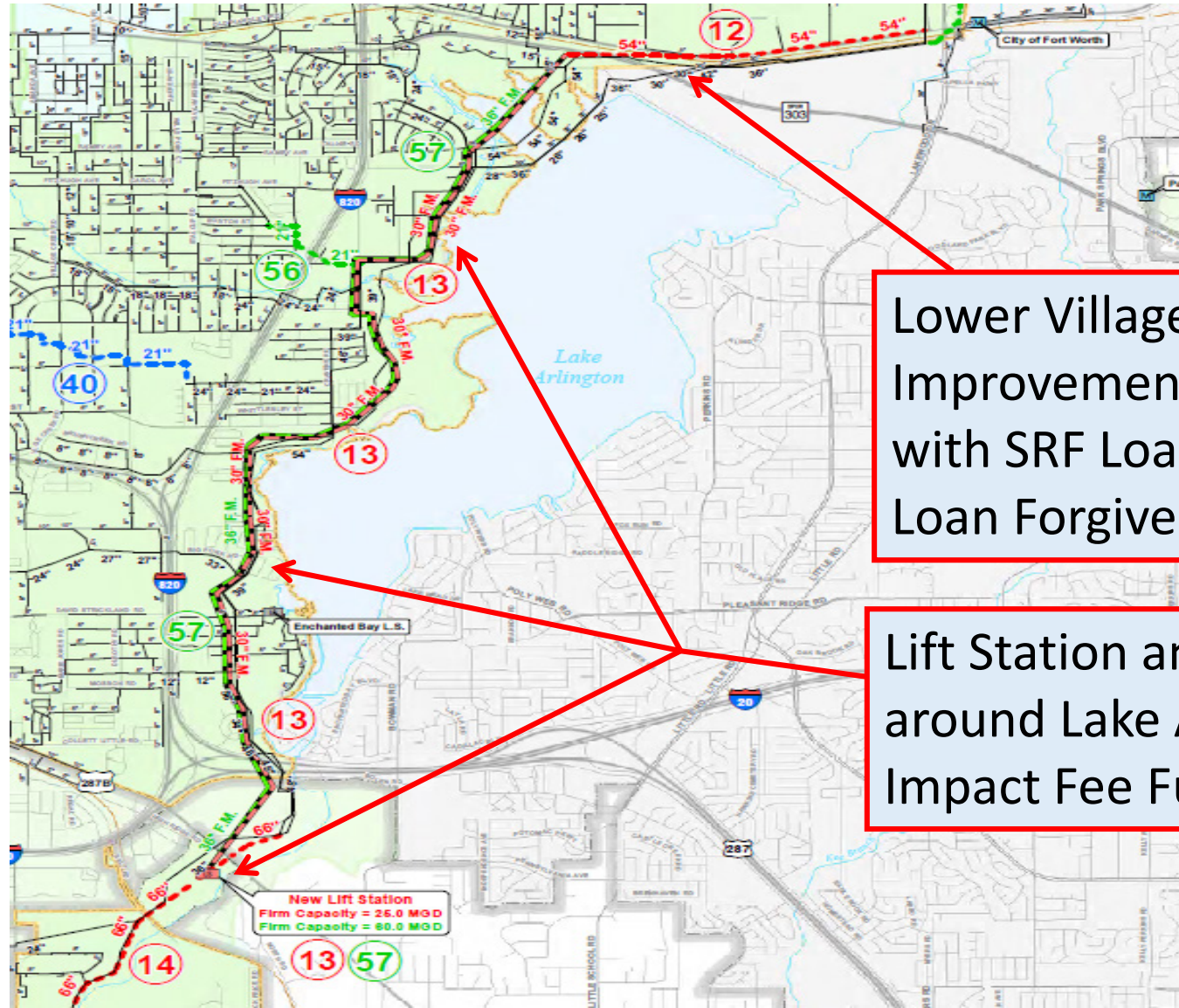


Upper Village Creek Sewer Lines



**EXHIBIT "A" - Village Creek
Parallel Relief Lines**

Middle Village Creek Sewer Lines



Lower Village Creek Improvements funded with SRF Loan with 15% Loan Forgiveness

Lift Station and Force Main around Lake Arlington Impact Fee Funding Eligible

VC Basin Construction Costs

CIP Project Description	Construction Estimate	Construction Schedule
Parallel Relief Sewer Through Crowley	\$12M	2017 – 2018
Parallel Relief Sewer Downstream of Crowley	\$10M	2017 – 2018
Parallel Relief Sewer Downstream of Burleson	\$7M	2017 – 2018
VC Parallel Relief Sewer to Everman Connection	\$23M	2017 – 2018
Middle Village Creek Sewer Line Improvements	\$7M	2017 – 2018
Lake Arlington LS and FM	\$23M	2019 – 2020
TOTAL	\$82M	

Peak Flow Basin Construction



*Village Creek WRF-Peak Flow Basin
Project #2096*

Print #161004505
Date: 10/04/16
Lat/Lon: 32.776485 -97.144046
Order No. 61343
Aerial Photography, Inc. 954-568-0484

Peak Flow Basin Construction



Outreach

- Bill inserts
- Bill messages
- Booths at events
- Partner with North Central Texas Council of Governments through FOG initiative





Just as fat, oil and grease can cause blockages in your arteries, they can do the same to sewer pipes.

Garbage disposals and detergents that dissolve grease may just pass the problem down the pipe.



Grease comes from meat, salad dressing, butter, margarine, shortening, cooking oils, lard, dairy products, baked goods, food scraps and many other common delights.

September 2017

240,000

Call us first

If you do experience a sewer back up in your home, call the Fort Worth Water Department before calling a plumber.

817-392-4477

A crew will make sure the blockage is not in the city-owned sewer main. You will be notified of what is found and whether you need to call a plumber.

Ways you can help

- ✓ Always use a paper towel or spatula to thoroughly scrape food scraps and residue from plates and pans into the garbage before washing.
- ✓ Let melted oils used for cooking solidify in a container on the counter or in the refrigerator.
- ✓ Take all used solid and liquid cooking oil to the free Environmental Collection Center. Used grease can be recycled into other products. For information, call 817-392-1234.
- ✗ Never pour oil and grease down the sink or any household drain.
- ✗ Never pour oil and grease down a storm drain.

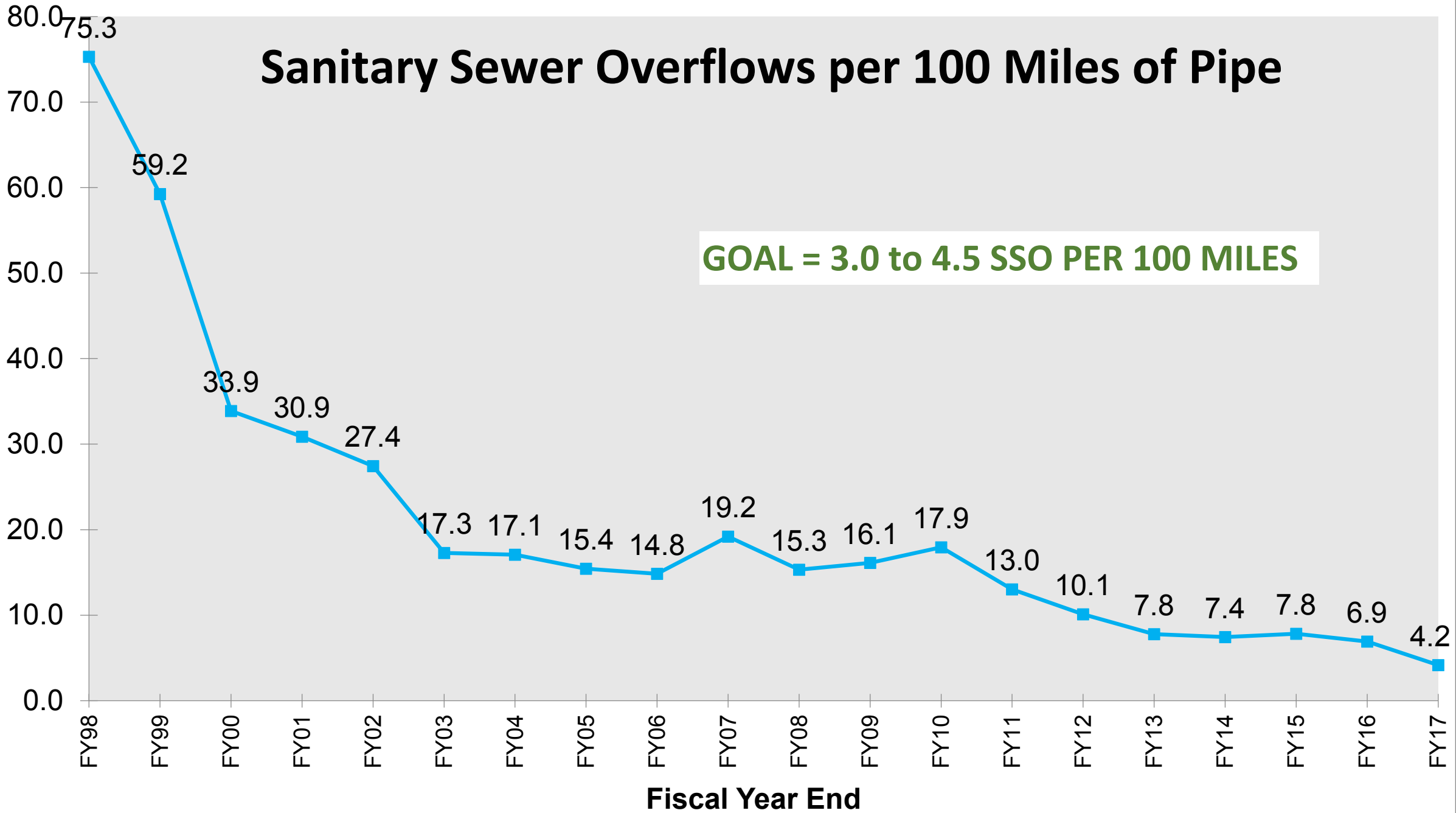
Public Notification

- TAC Chapter 319 - General Regulations Incorporated Into Permits
- **Subchapter C: Public Notice Of Spills Or Accidental Discharges From Wastewater Facilities Owned Or Operated By Local Governments**
- 319.301 - 319.303
- **Originally Effective - Dec. 30, 1999**
- **Revisions Effective - March 31, 2011**

Sanitary Sewer Overflows per 100 Miles of Pipe

GOAL = 3.0 to 4.5 SSO PER 100 MILES

SSO per 100 miles of pipe



Thank you

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Media Relations and Communications Coordinator

City of Fort Worth Water Department

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817-392-8253



Please welcome our second speaker:

Scott Hoelzle

North Texas Municipal Water District



NORTH
TEXAS
MUNICIPAL
WATER
DISTRICT

Regional Service Through Unity... Meeting our Region's Needs Today and Tomorrow

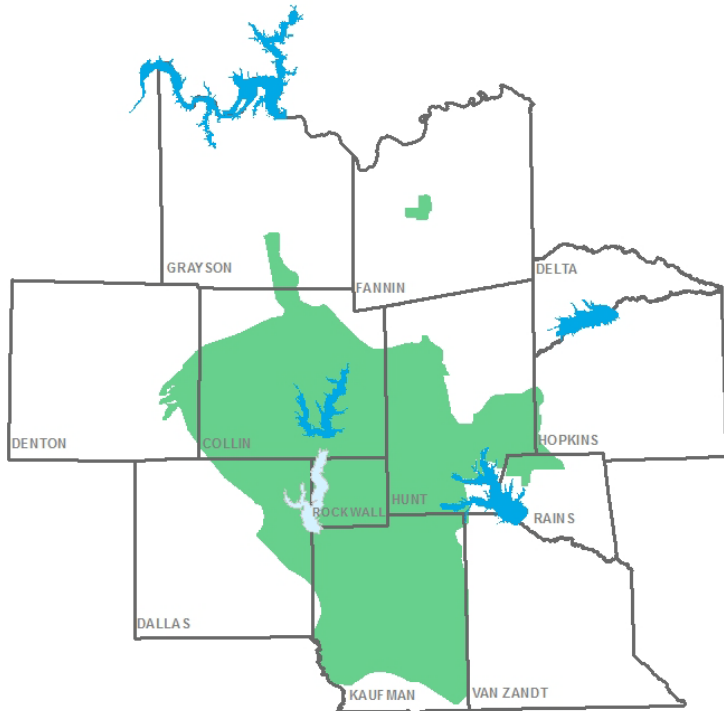


Better Together: Regional Collaboration and CMOM in North Texas


**North Central Texas Council of Governments
August 21, 2017**

REGIONAL PROVIDER

Water – Wastewater – Solid Waste




*“Regional Service Through Unity ...
Meeting our Region’s Needs
Today and Tomorrow”*



NORTH
TEXAS
MUNICIPAL
WATER
DISTRICT

BY THE NUMBERS




DID YOU KNOW?

SERVE
90

COMMUNITIES


Service area of 2,200 square miles in 10 counties

Serving 1.6 million people in one of the fastest-growing regions in the country




14

WATER PUMP STATIONS




6

WATER TREATMENT PLANTS
806+ MGD (million gallons/day) capacity




566

MILES
WATER TRANSMISSION PIPELINES




250+

MILES
LARGE-DIAMETER WASTEWATER PIPELINES




14

WASTEWATER TREATMENT PLANTS



151+

MGD
WASTEWATER TREATMENT CAPACITY
MGD (million gallons/day)




3

TRANSFER STATIONS
up to 3,295 tons of solid waste/day

800,000+

tons/year accepted at landfill





WASTEWATER SYSTEM

Regional WWTP/Capacity

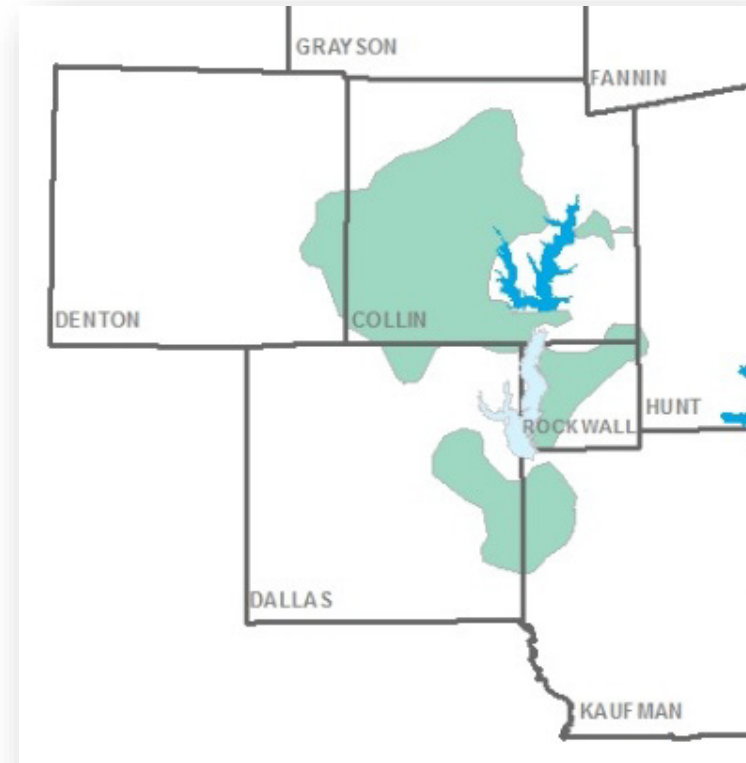
• Wilson Creek WWTP	56.00 MGD
• Rowlett Creek WWTP	24.00 MGD
• South Mesquite WWTP	33.00 MGD
• Floyd Branch WWTP	<u>4.75 MGD</u>
TOTAL	118 MGD

Sewer System WWTPs

- Total Number of Plants in Operation: 10
- Total Sewer System Treatment Capacity: 34 MGD

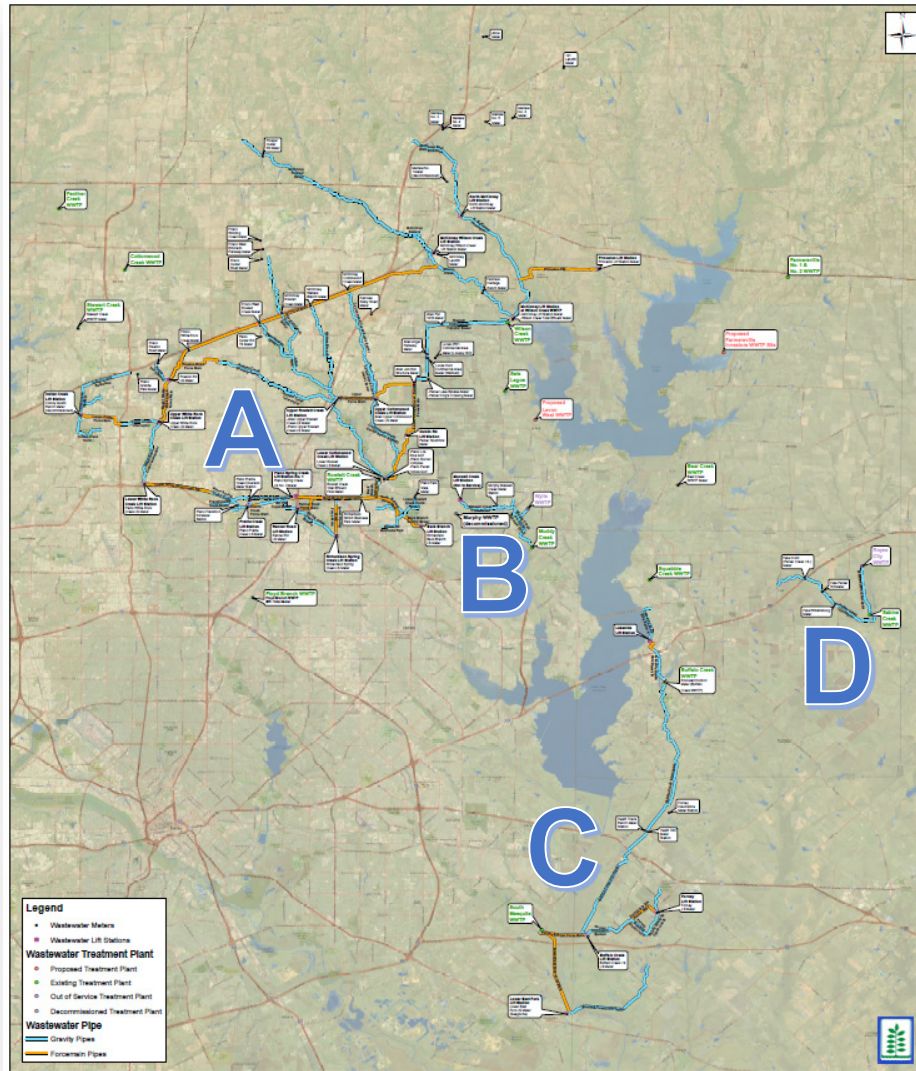
Total Wastewater Treatment Capacity: 152 MGD

NTMWD Wastewater Service Area





WASTEWATER CONVEYANCE SYSTEM



- A. Upper East Fork Interceptor System**
- B. Muddy Creek WWTP Conveyance System**
- C. South Mesquite Regional WWTP Conveyance System**
- D. Sabine Creek WWTP Conveyance System**



RELIABILITY OF OUR REGION'S WASTEWATER SYSTEMS IS CRITICAL TO:

- Safeguard public health
- Protect the environment
- Enable economic development



Many parts of the country, including our region, experience sanitary sewer overflows



- **Common Causes**
 - Aging pipes
 - Grease clogs
 - Inadequate capacity
 - Poor construction



SSOI AND CMOM ARE USED TO ADDRESS THESE CAUSES

SSOI

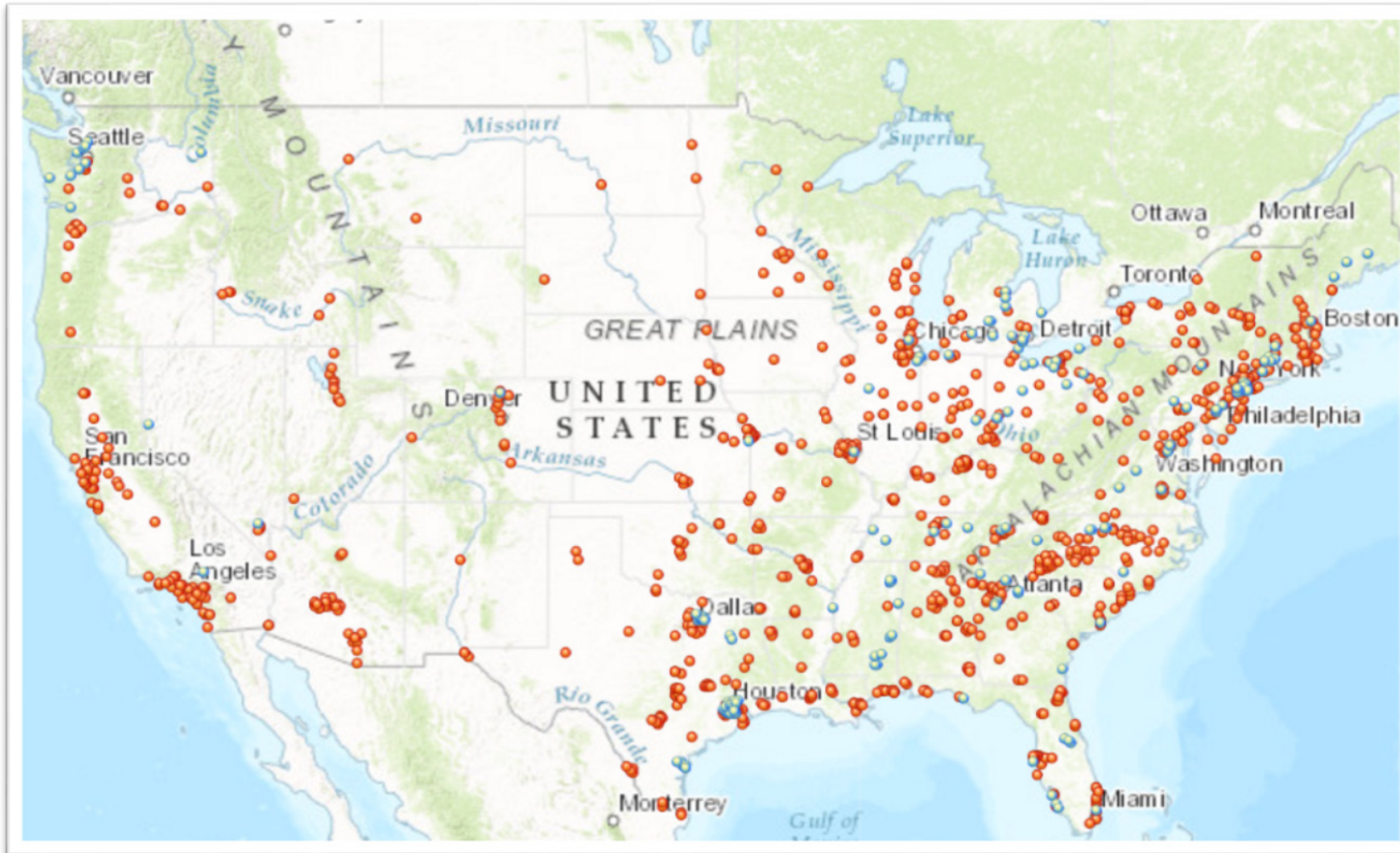
- SSO Reporting
 - Corrective Actions
 - Overflow Emergency Response
- O&M Activities
 - Inspections / Cleanings
- System Evaluation
 - Flow Monitoring
 - Condition assessment
- New and Rehab Projects
- Education and Outreach
- Fats, Oils, & Grease Plan
- Milestone Tracking

CMOM

- Capacity
 - Flow Monitoring
 - Hydraulic Modeling
- Management
 - Staff Training
 - Fats, Oils, & Grease Plan
- Operations
 - Flow metering
 - Overflow Emergency Response
- Maintenance
 - Maintenance management system
 - Condition assessment
 - Sewer cleaning

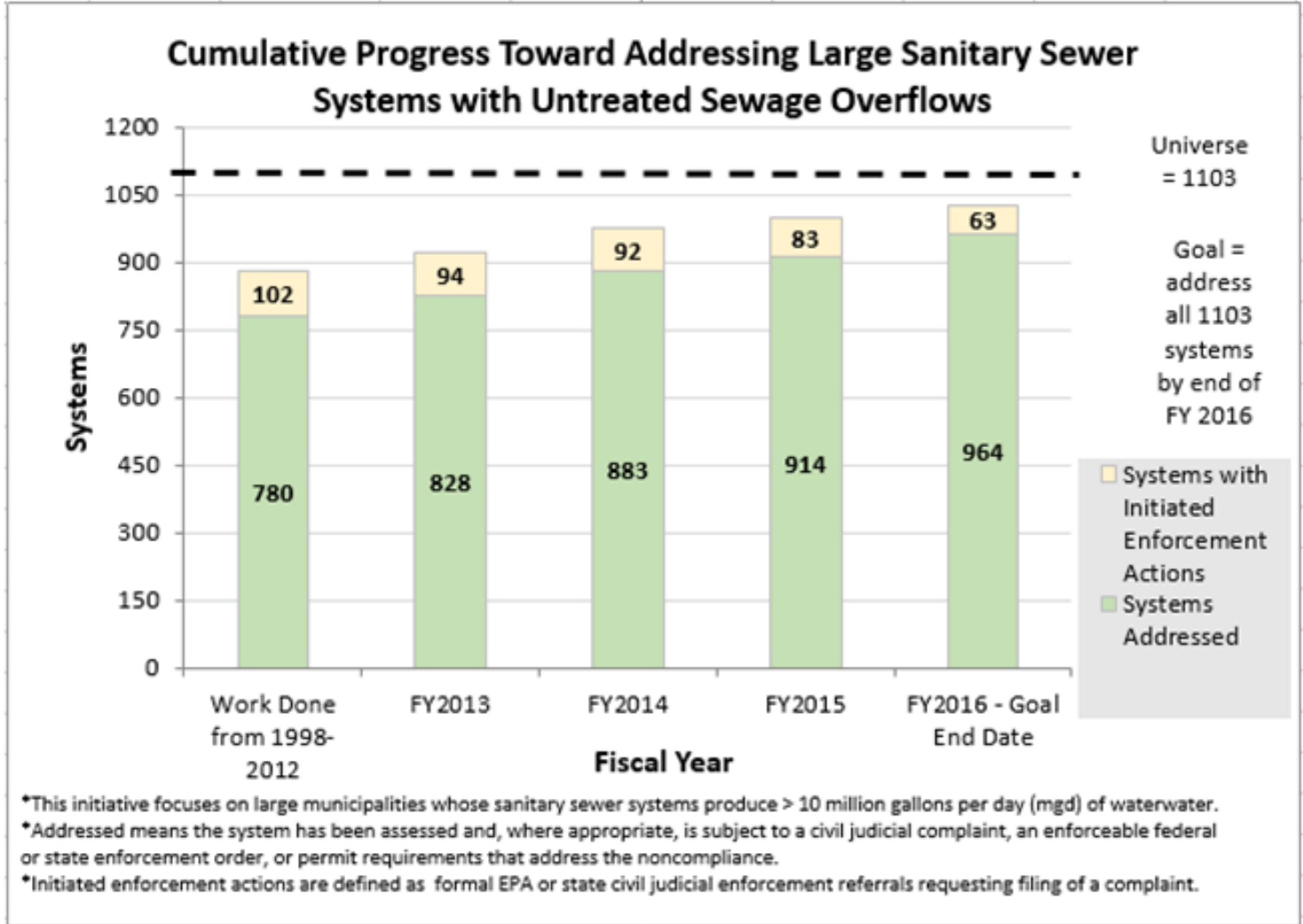


EPA NATIONAL ENFORCEMENT INITIATIVE: WASTEWATER SYSTEM OVERFLOWS





EPA NATIONAL ENFORCEMENT INITIATIVE: WASTEWATER SYSTEM OVERFLOWS





EPA INSPECTED NTMWD'S AND MEMBER CITIES' WASTEWATER SYSTEMS IN 2014/2015

NTMWD Regional WW Members	NTMWD Regional WW Customers	NTMWD Sewer System Participants
Allen	Anna	Farmersville
Forney	Fairview	Fate
Frisco	Lucas	Frisco
Heath	Melissa	Lavon
McKinney	Parker	Murphy
Mesquite		Rockwall
Plano		Royse City
Princeton		Seis Lagos UD
Prosper		Wylie
Richardson		
Rockwall		
Seagoville		

EPA FOCUS



POTENTIAL EPA COMPLIANCE APPROACHES

Letter

- Self guided implementation of corrective measures
- Continued participation in regional approach
- Comprehensive CMOM implementation expected

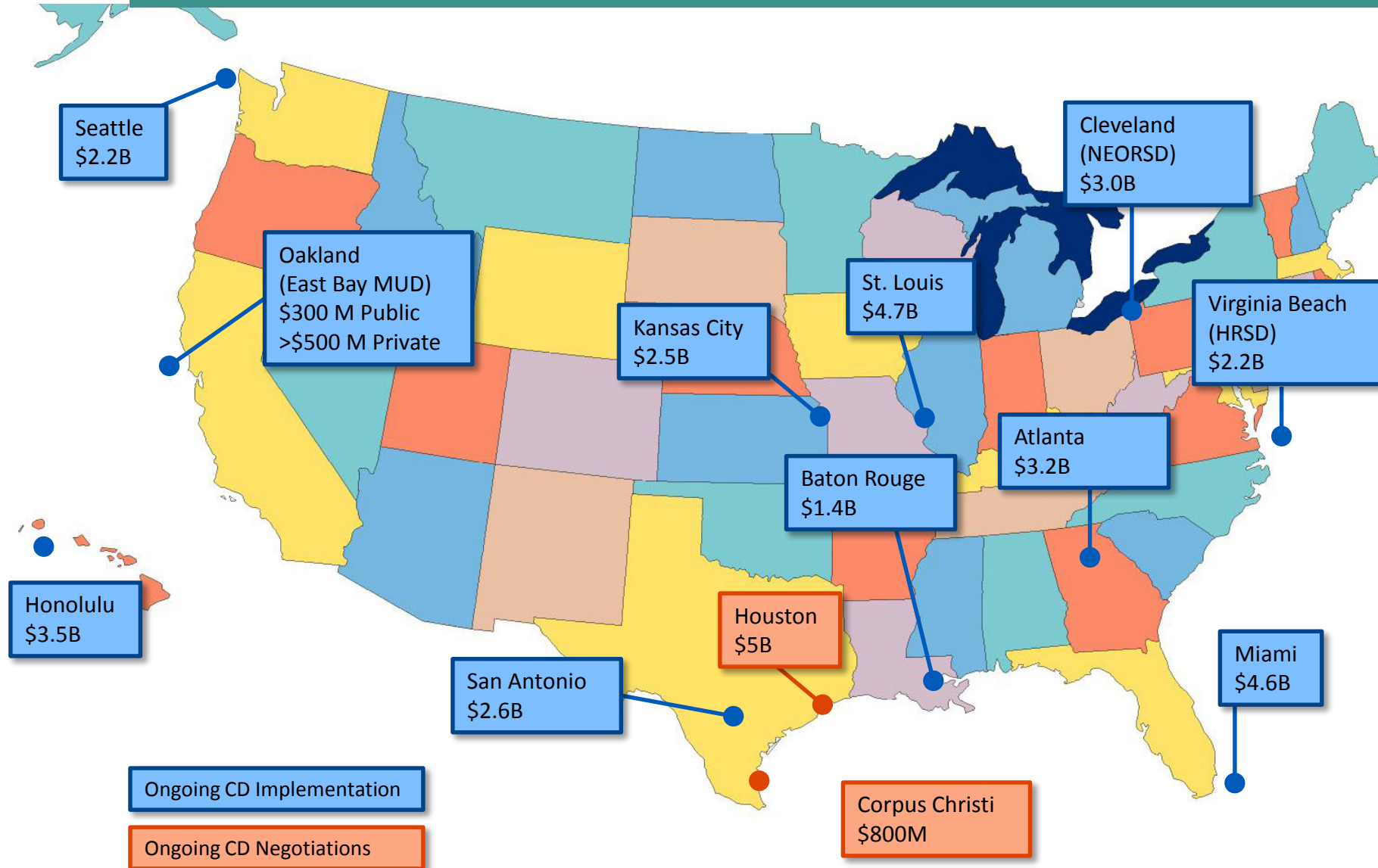
Administrative Order

- Enforcement administered by EPA Region 6
- Short document, tailored to specific situation
- Individual agreements
- CMOM program req, in collaboration with Region

Consent Decree

- Enforcement negotiated with EPA and DOJ in DC
- Long, detailed, starts with DOJ requirements list
- Typically **more expensive** to implement (**2 – 20x**), little flexibility

WE DESIRED A REGIONAL DEVELOPED SOLUTION RATHER THAN A CONSENT DECREE SOLUTION

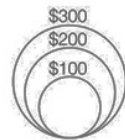
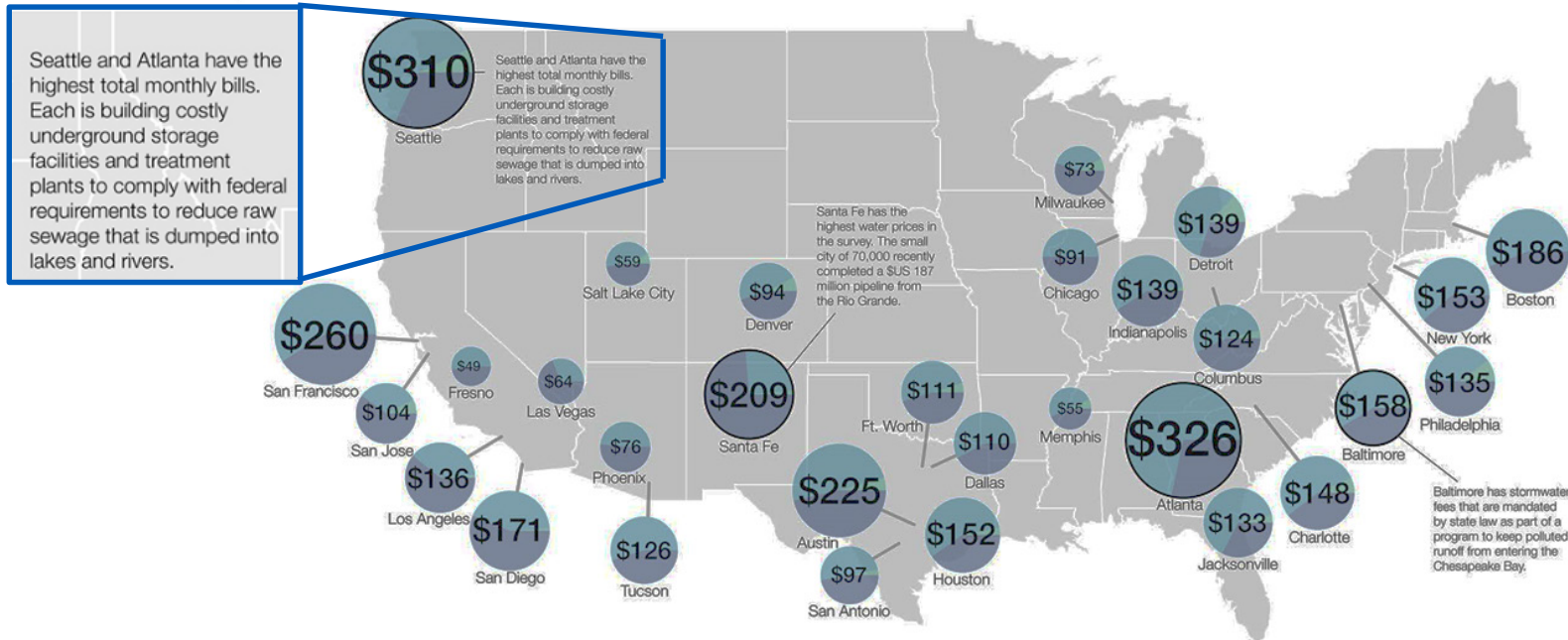




AVERAGE MONTHLY COSTS WATER, WASTEWATER

THE PRICE OF WATER: 2015

Combined water, sewer and stormwater prices for households in 30 major U.S. cities.



Water prices pay for treating, pumping, and delivering water, while sewer prices cover the cost of cleansing the water that goes down the drain.



Sewer prices are often higher than water prices because more energy and chemicals are required for treatment. Following the Clean Water Act, the federal government gave grants for new treatment plants during the 1970s and 1980s. Over the past three decades, however, new spending has been cut for local sewer infrastructure.



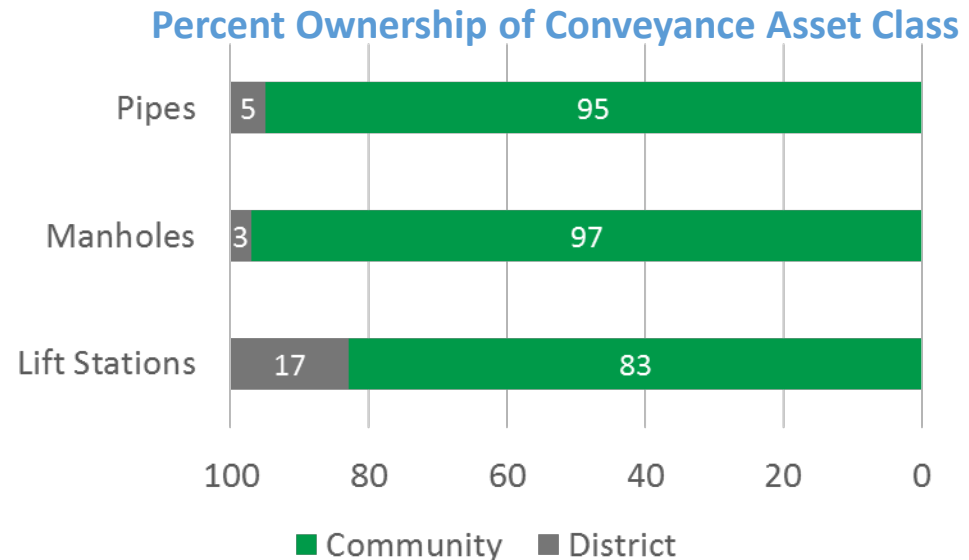
Stormwater fees are not included in every city's monthly bill. Some cities use general tax revenues to pay for projects to reduce polluted runoff from streets and parking lots. However, these projects must then compete for funds with other departments like police and schools.

Rates current as of April 1, 2015.
Monthly bill calculated for a family of four using 100 gallons per person per day.
Source: Circle of Blue research, based on utility water rates.



DEVELOPED UNDERSTANDING OF EPA CONCERNS

- Regional coordination
- Joint capacity management for regional system
- Comprehensive CMOM implementation tailored to prevent SSO's by District and Communities
- Ongoing system maintenance – condition inspection, cleaning, rehabilitation





ESTABLISHED REGIONAL COLLABORATION TO RESPOND TO EPA CONCERNS



Establish
regional
collaboration
mechanism

Develop
corrective
action plans
for each of
our systems

Regular
update
meetings
with EPA

Formalizing
commitment
to regional
solution



REGIONAL COLLABORATION AVOIDED CONSENT DECREES

- MOU executed by all demonstrated commitment of parties (cities & NTMWD) to each other and EPA
- Work together to develop a model Regional CMOM program
- Focuses on regional wastewater system members
- Provides a forum to work regionally to establish desired outcomes of enforcement action
- Model program establishes consistency with understanding all parties' unique implementation





REGIONAL COLLABORATION AVOIDED CONSENT DECREES, BUT REQUIRED CMOM

Letter

6 of 13

- Continued participation in regional approach
- CMOM plan development and implementation expected to align with EPA expectations.

Administrative
Order

7 of 13

- Enforcement administered by EPA Region 6
- Continued participation in regional approach expected
- CMOM plan developed required for individual cities in 12-month period (completed Dec '16). Implementation expected to align with EPA expectations.

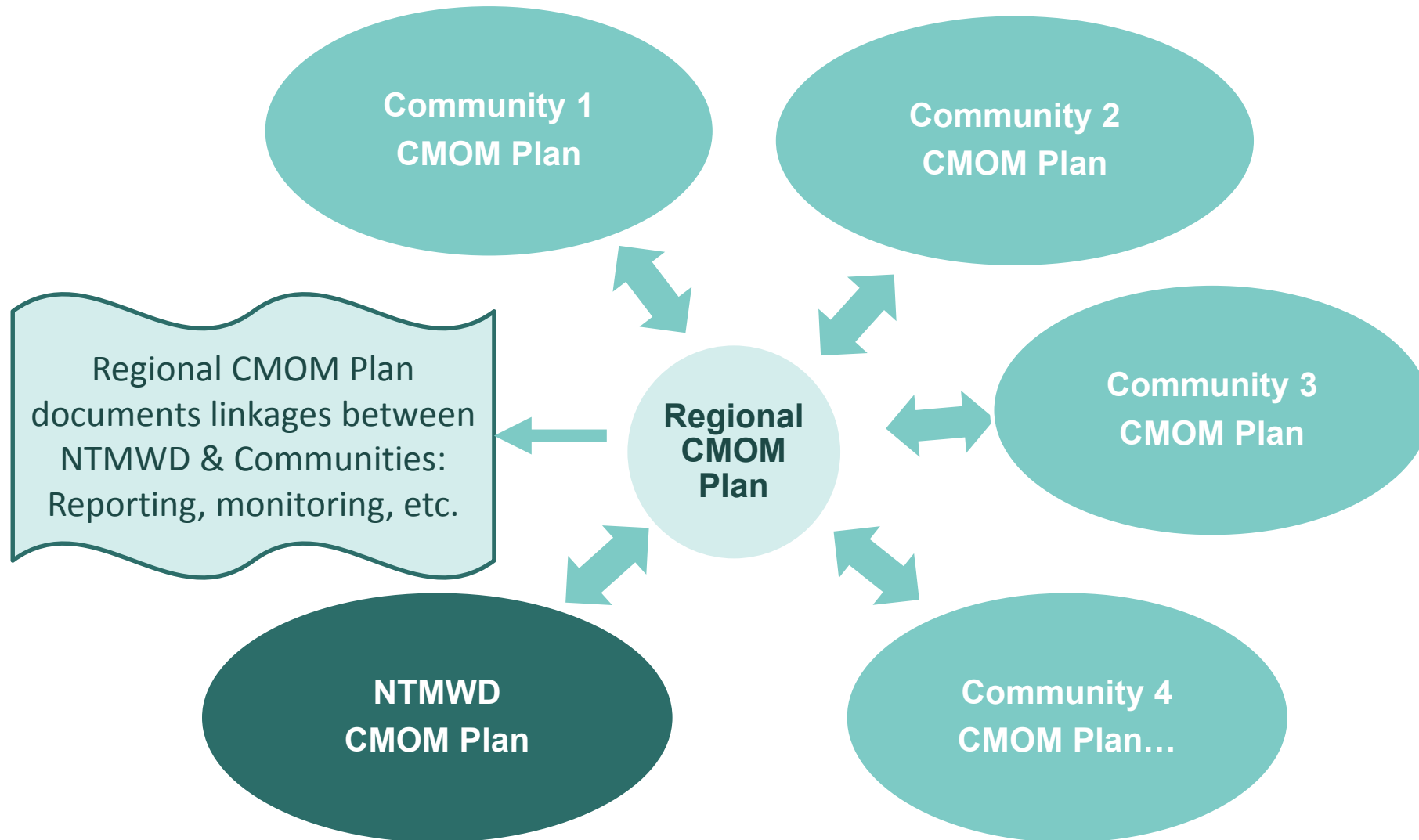
Consent
Decree

0 of 13

- Consent Decree Avoided

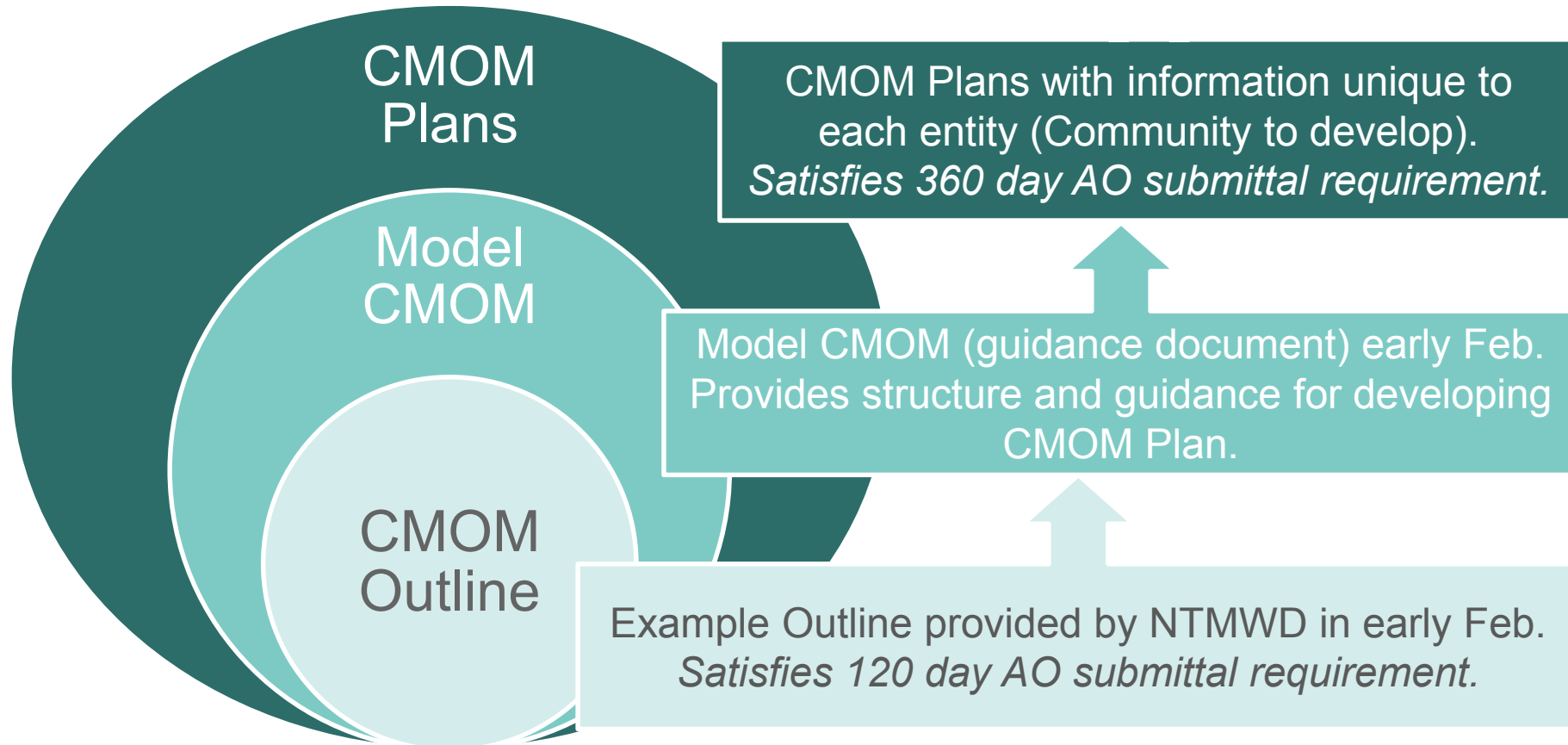


HOW THE CMOM PLANS ARE RELATED





REGIONAL APPROACH TO DEVELOP CMOM PLAN





CMOM OBJECTIVES

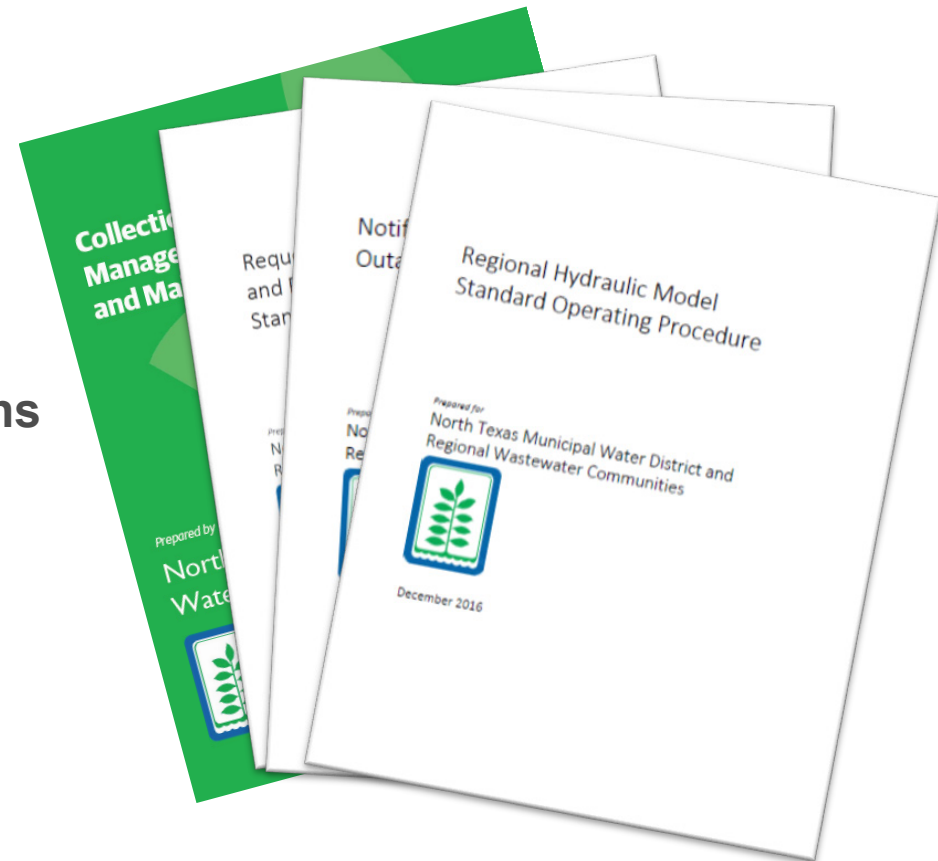
Developed in collaboration with communities

- Identify, evaluate, and address areas of excessive I/I in the wastewater collection system
- Develop and maintain adequate capacity in the wastewater collection system
- Inspect, assess, and maintain wastewater collection system assets to increase reliability and extend asset service life at the least cost to customers
- Develop and implement SOPs and train staff on an ongoing basis to support succession planning and effectively manage O&M
- Maintain records of work performed on the wastewater collection system to measure CMOM performance
- Fund wastewater collection system operations, maintenance, and capacity development
- Communicate with and educate the public about how their activities can impact the wastewater collection system



REGIONAL CMOM COORDINATION PLAN EXAMPLES

- **Documents linkages between NTMWD and communities**
 - Background and historical info
 - Budget coordination
 - Communication and reporting
- **Critical standard operating procedure (SOP) attachments**
 - Request for Wastewater Connections and Point of Entry Protocol
 - Regional Hydraulic Model SOP
 - Notification of Flow Diversion and Outage Protocol





MAJOR FY 17 NTMWD CMOM IMPLEMENTATION INITIATIVES

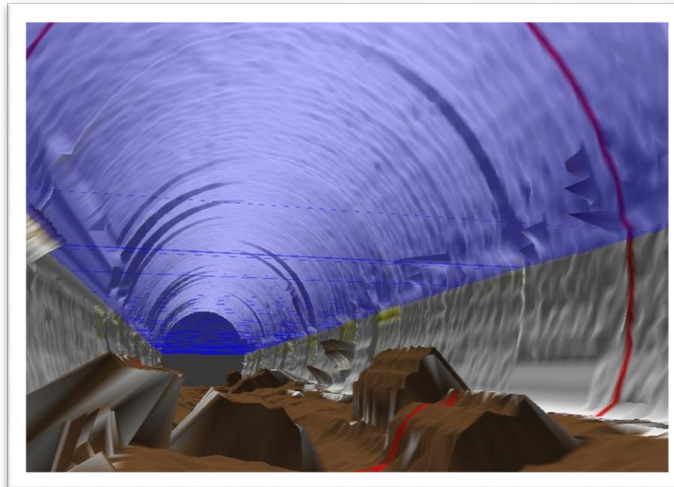
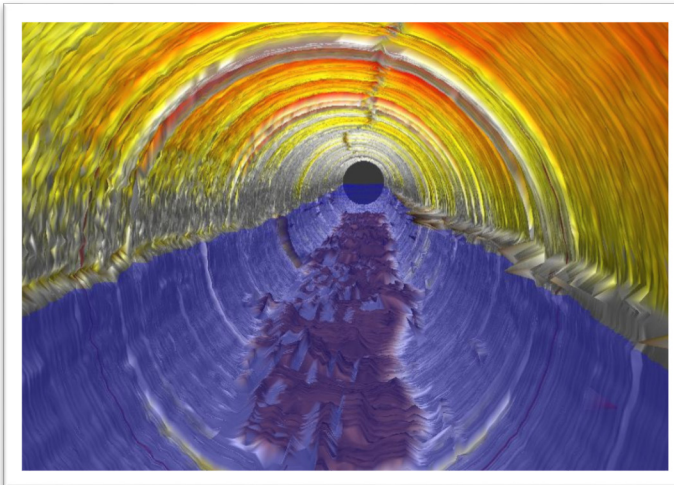
- **Written CMOM Plan Complete**
- **Lift Station Condition Assessments**
 - **Establish baseline condition**
 - **Establish PM schedules**
 - **Identify urgent needs**
 - **Develop LS specific O&M manuals**





MAJOR FY 17 NTMWD CMOM IMPLEMENTATION INITIATIVES

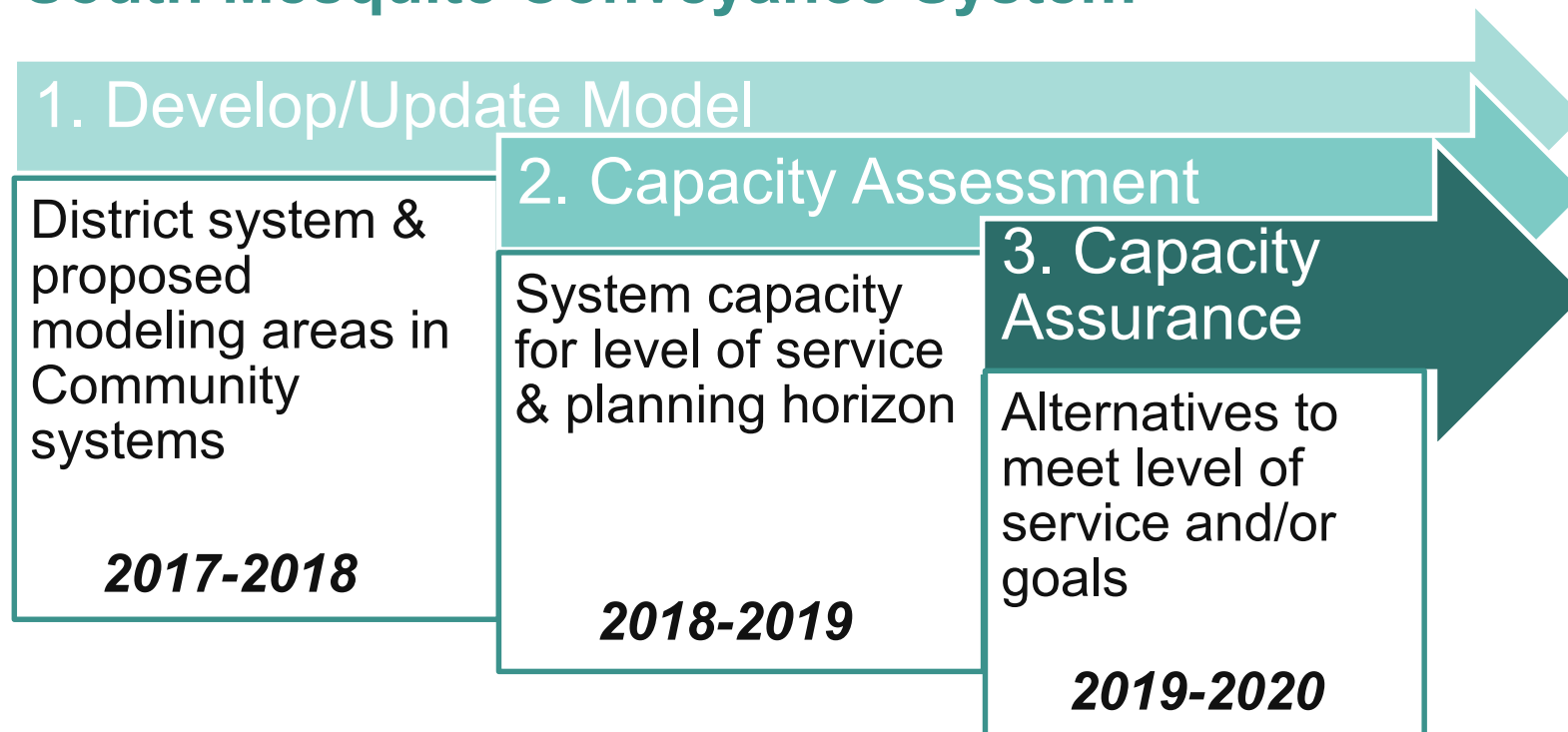
- **Pipeline Condition Assessments**
 - Establish baseline condition
 - Identify rehabilitation needs
 - Identify cleaning needs
- **Asset Management**
 - Maximo Spatial Implementation
 - Maximo OERP (overflow response) Automation





MAJOR FY 17 NTMWD CMOM IMPLEMENTATION INITIATIVES

- **Initiate expanded capacity assessment for UEFIS and South Mesquite Conveyance System**



Thereafter, proposed master planning cycle: every 5 years



COLLABORATIVE REGIONAL APPROACH HAS YIELDED POSITIVE RESULTS



*“Regional Service Through Unity ...
Meeting our Region’s Needs Today and Tomorrow”*

- Allows local utilities to determine necessary investments to provide safe, affordable, and reliable services
- Framework to avoid future enforcement by implementing sustainable practices
- EPA Feedback
 - “Very impressed with the coordination, communication, and commitment that has been demonstrated by the District and cities”
 - Concerned each community will get the funding needed. Will be conducting follow up inspections. Will write Administrative Orders where needed
 - “Very close to being sustainable”



ACKNOWLEDGEMENTS

"Coming together is a beginning. Keeping together is progress. Working together is success." --Henry Ford





Better Together: Regional Collaboration and CMOM in North Texas

North Central Texas Council of Governments
August 21, 2017



Scott Hoelzle
NTMWD
Wastewater Conveyance Manager

Jenna Covington
NTMWD
Assistant Deputy Director – Wastewater



Ken Hall
CH2M
Vice President



FREQUENTLY ASKED QUESTION

Does the TCEQ SSO Initiative protect us?



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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You are here: Home / Field Operations / Sanitary Sewer Overflow Initiative

[Questions or Comments: oce@tceq.texas.gov](mailto:oce@tceq.texas.gov)

Sanitary Sewer Overflow Initiative

Addresses an increase in the number of overflows. Encourages corrective action before there is harm to human health and safety or the environment.

What is the Sanitary Sewer Overflow Initiative?

The Sanitary Sewer Overflow (SSO) Initiative is a voluntary program initiated in 2004 in an effort to address an increase in SSOs due to aging collection systems throughout the state and encourage corrective action before there is harm to human health and safety or the environment.

What are the Benefits of Participating?

- A participating system will not be subject to formal enforcement by TCEQ for most continuing SSO violations, as long as the overflows are addressed by the SSO plan. *Note:* Participation in the TCEQ's SSO Initiative does not preclude federal enforcement action by the Environmental Protection Agency.
- Participation allows the municipality to direct resources towards corrective actions rather than having to pay penalties associated with an enforcement order in addition to the corrective actions.
- Participation ensures that SSOs addressed by the SSO plan will not affect the system's compliance-history rating.

Contact

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