City of Colleyville
City Council
Agenda Briefing

City Hall
100 Main Street
Colleyville, Texas 76034
www.colleyville.com

Agenda Number PC-2 **Agenda Date** 02/17/2015
Type Pre Council
Department Public Works

Title
Update and discussion of the 2014 Water and Wastewater Master Plan and Water and Sewer Rate Study

Explanation
Garver, LLC, the engineering consultant who prepared the 2014 Water and Wastewater Master Plan Update, will be providing additional information on the need for a new elevated water storage tank and a revised presentation (attached) of the Water and Sewer Rate Study that was accomplished in conjunction with the 2014 Water and Wastewater Master Plan Update.

At the January 21, 2014 Pre Council meeting, staff made a presentation to City Council explaining the need for a comprehensive water and sewer master plan to determine the condition and adequacy of the City's existing water and wastewater systems. As part of the Master Plan Update, a rate study was done to determine what percentage of fixed costs of operating the utility were being recovered in the base rate, and to recommend potential adjustments to the current rate structure to ensure fixed operating costs were being recovered, and to provide some funding for the capital projects identified in the Master Plan update.

On December 16, 2014, the results of the Water and Sewer Master Plan and Rate Study were presented (briefing and presentation attached) to the City Council during the Pre Council meeting, and several issues were identified that required clarification or additional information. The attached presentation will address those questions.

The initial rate study proposed the following adjustments to the water and wastewater rate structure:

a. Removal of the initial 2,000 gallons included in the minimum bill over a two year period

b. Revision of the base rate structure based on meter size

c. Differentiation of the base charge for sewer for residential and non-residential accounts

Based on questions and direction from City Council, the following changes have been made to the Water and Sewer Rate Study:

a. The removal of the 2,000 gallons included in the minimum bill has been changed to occur over a four year period

b. All meters less than 1.5 inches in size, both residential and commercial, will be charged the same base rate

c. Except as noted above, non-residential customers will be charged a higher base rate for sewer than residential customers.

The Trinity River Authority (TRA) provides treated water and wastewater to the City, and the five year projected TRA rates upon which the water and sewer study is based, were those presented in August 2014 during TRA's FY 2015 budget meetings. Please note that after the rate study was completed, TRA presented to their customer cities during the week of February 9, 2015, an update to the five year projected rates presented in August 2014. These rates differed slightly from the August 2014 projected future rate increases; in some years, the newly projected rates were higher and in others lower, due to a revised schedule of proposed debt sales. The ultimate five year impact on the proposed rates included in the water and sewer rate study and presentation is very minimal, as compared to the rates TRA presented last week.

Attachments

1. Water and Sewer Master Plan and Rate Study Update Presentation
2. December 16, 2014 Water and Wastewater Master Plan Briefing and Presentation

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COLLEYVILLE WATER & WASTEWATER MASTER PLAN

Colleyville City Council
February 17, 2015

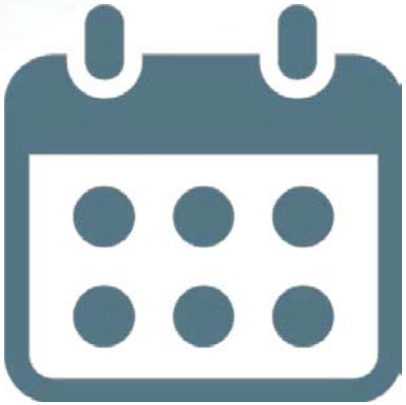
Outline of Presentation

Review of December 16, 2014 presentation at Pre Council Meeting

Additional discussion of the proposed new Elevated Storage Tank (EST)

Continuation of the Rate Study Discussion

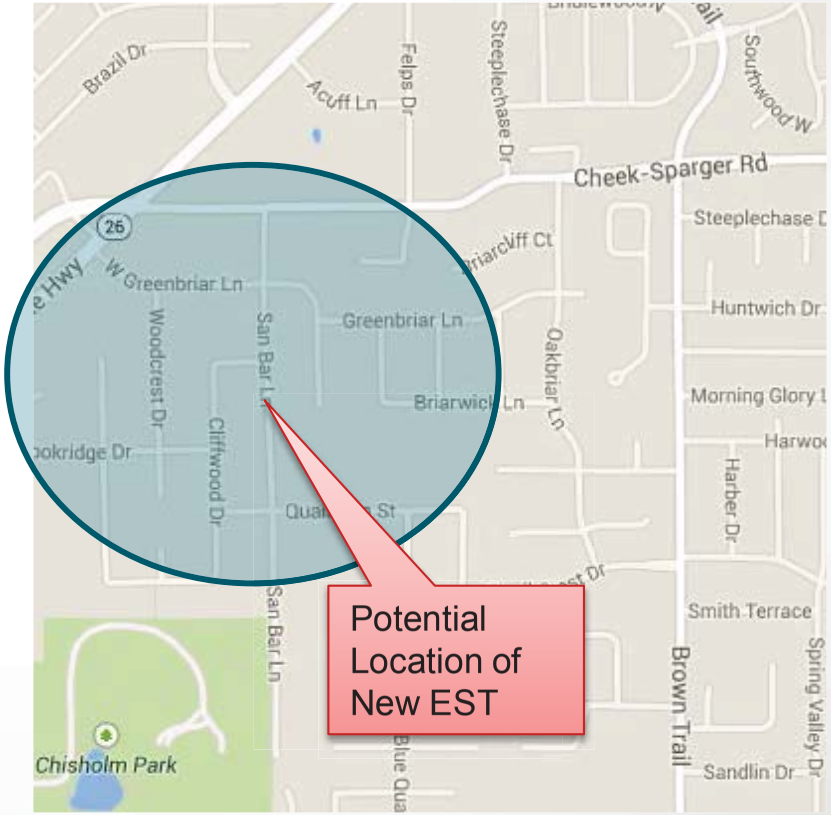
December 16 Meeting



- Master Plan Highlights
- CIP Projects that were identified
- Dollars needed to fund identified CIP Projects
- Rate Study Recommendations

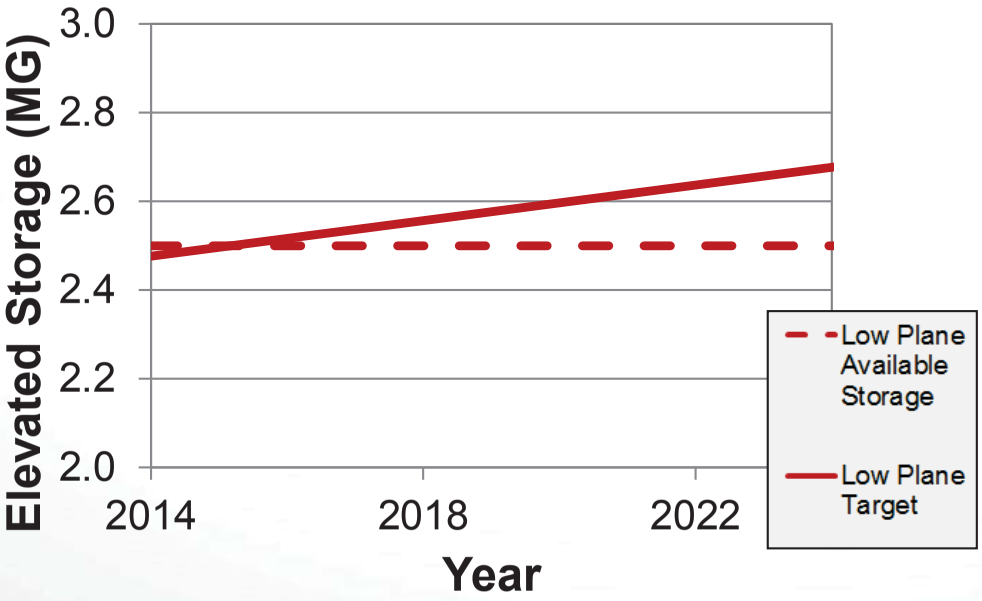
Elevated Storage Tank Justification

- Address storage and pressure for maximum day demands
- New Elevated Storage Tank and replacement of pipe
- South portion of City



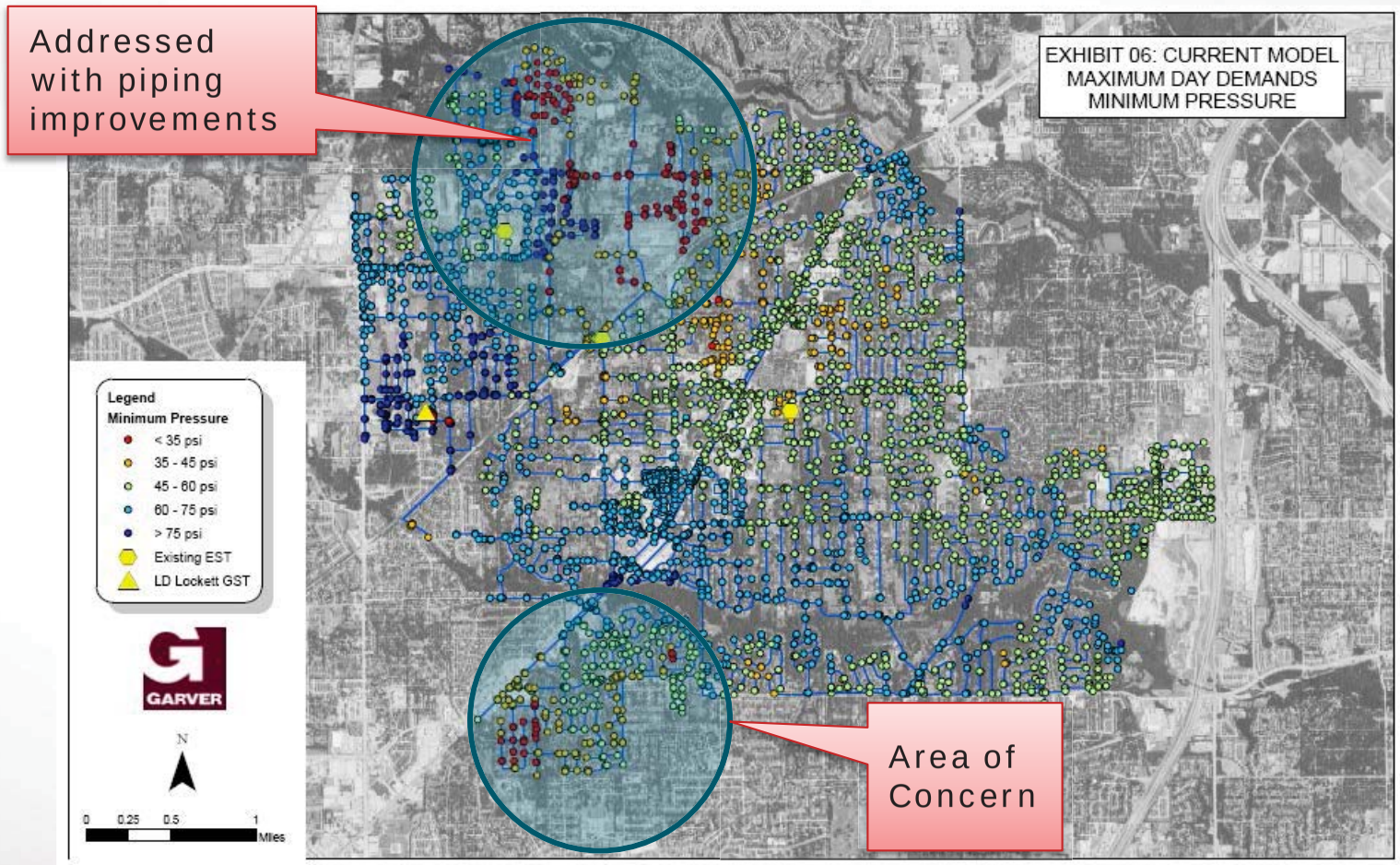
The Tank is Necessary to Meet Two Requirements

- Storage

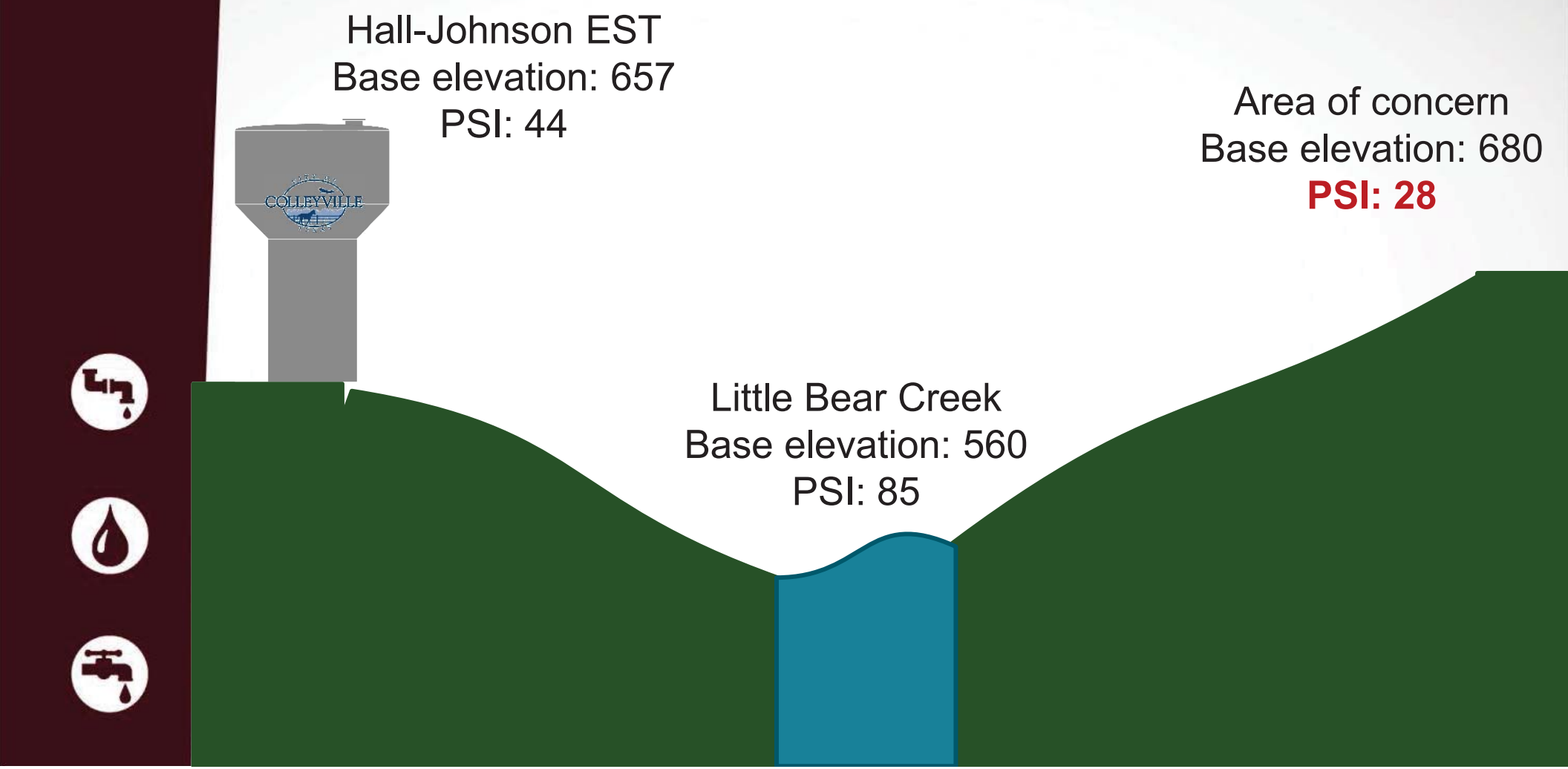


- Pressures
  - Current minimum pressure during maximum day falling below 35 PSI requirement

Low Pressure and Low Fire Flow are Problems in Two Areas of City



Maximum Day System Pressures



Our Evaluation Included Five Alternative Options

Large diameter conveyance pipelines

In-line booster station

Ground storage and booster station

Elevated Storage

Other water supply connections

Large Diameter Conveyance (Pipelines)

High impact construction
-Costly
-Traffic concerns
-Impact to residents

Relocates pressure and flow
-Additional projects needed
-Minimal pressure boost

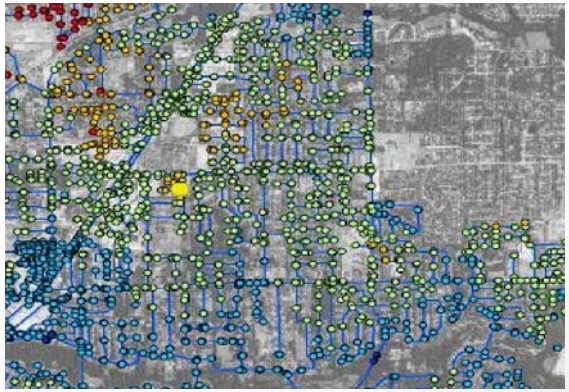
Elevated storage
criteria not met
-No emergency storage

In-line Booster Station

Mechanical
-Operations & maintenance

Relocates pressure and flow
-Additional projects needed
-Suction pressure issues

Elevated storage criteria not met
-No emergency storage
-Feed main bursts may decommission

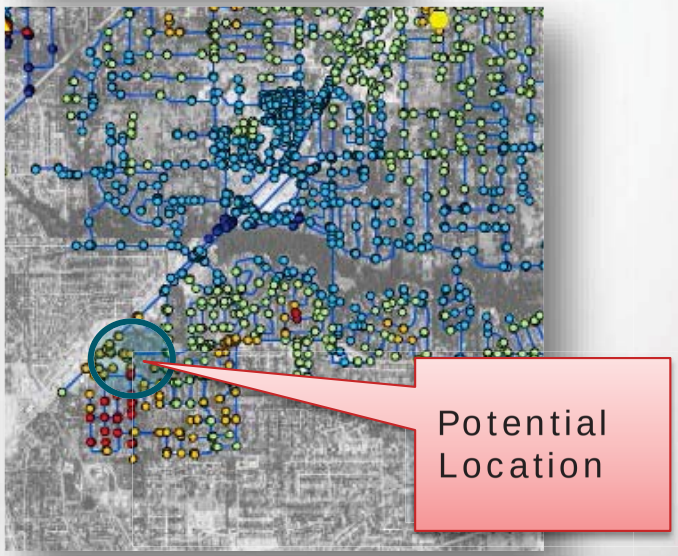


Ground Storage Tank and Booster Pumps

- Addresses pressure for maximum day demands
- Similar in cost to EST
- More mechanical equipment
- Elevated storage requirement not met

Elevated Storage Tank

- Addresses pressure for maximum day demands
- Addresses elevated storage requirement
- Accommodates emergency conditions
- Increases system flexibility



Consideration of Options

GST and BPS

- Less capital than EST with same lifecycle
- More mechanical

BPS

- Shifts pressure issues to other parts of City
- Additional projects likely

Pipelines

- Shifts pressure issues to other parts of City
- Additional projects likely

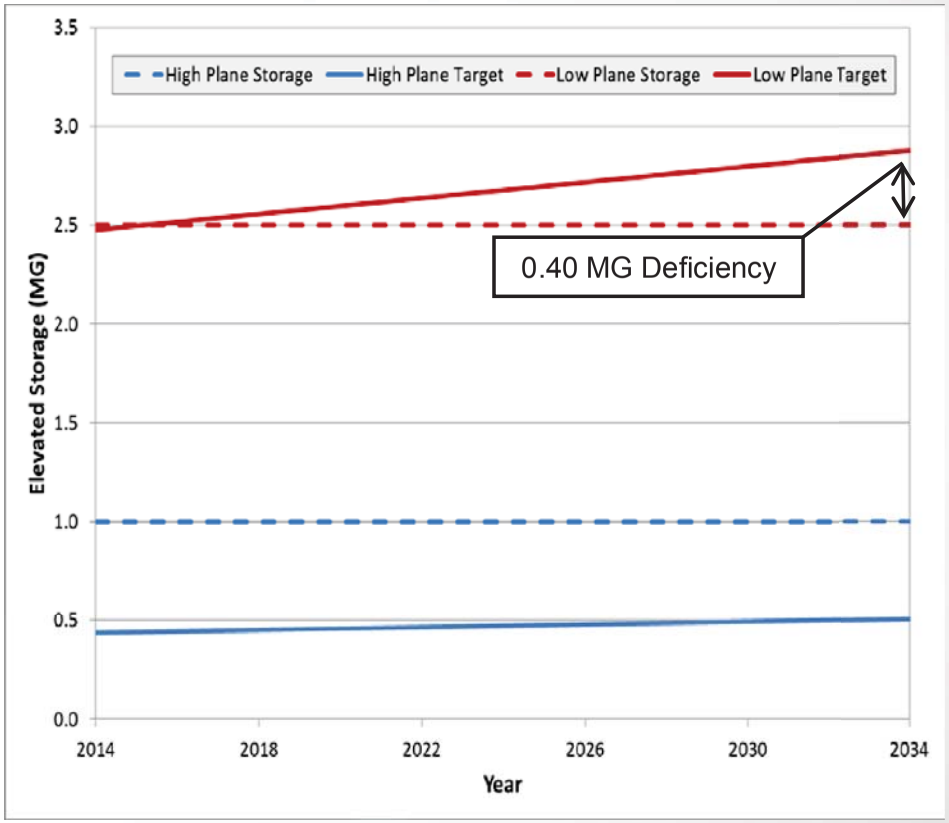
EST

- Meets all identified needs

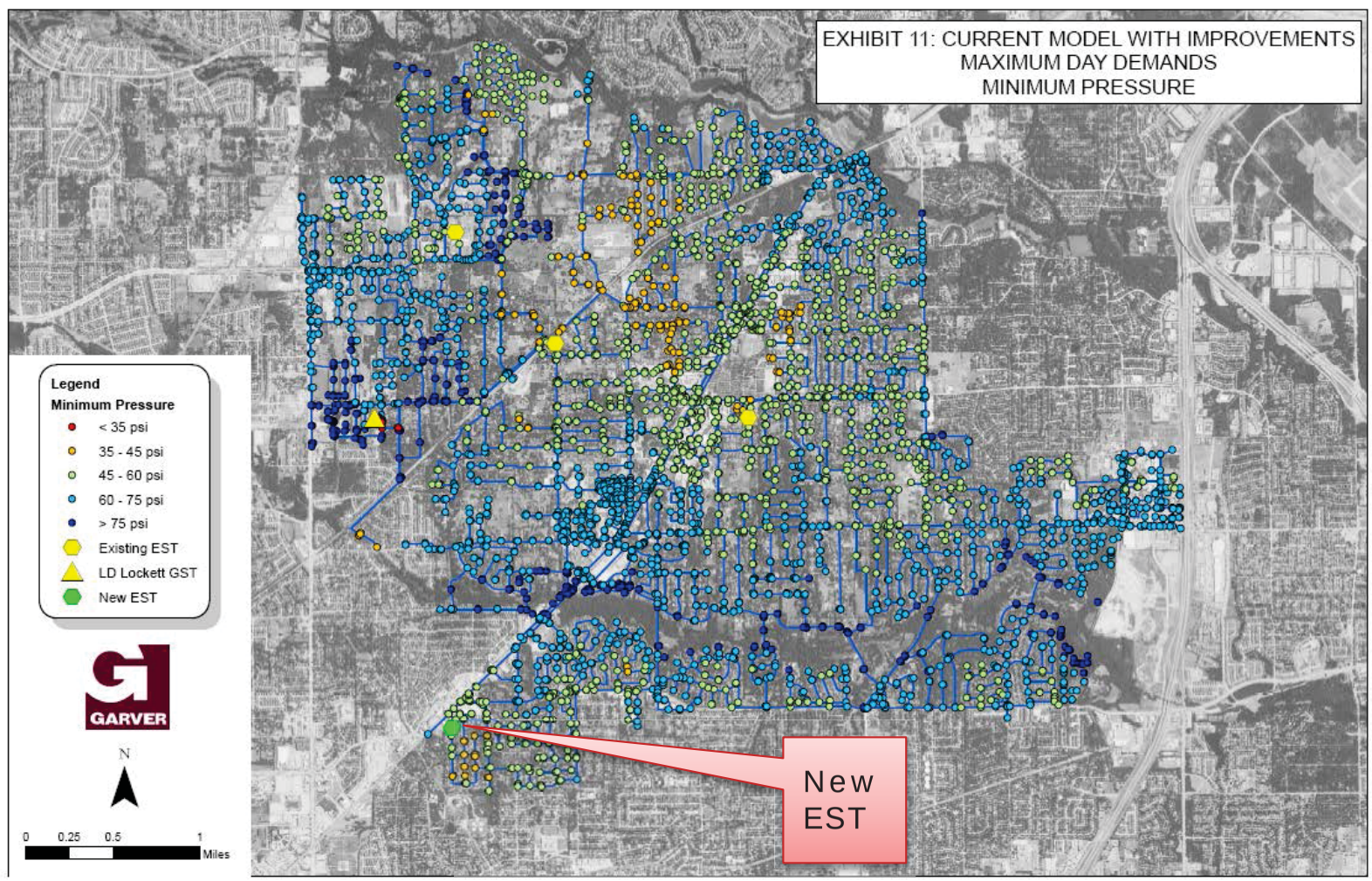
RECOMMENDED ALTERNATIVE

The Goal is to Provide 15% of the Maximum Daily Demand in Elevated Storage

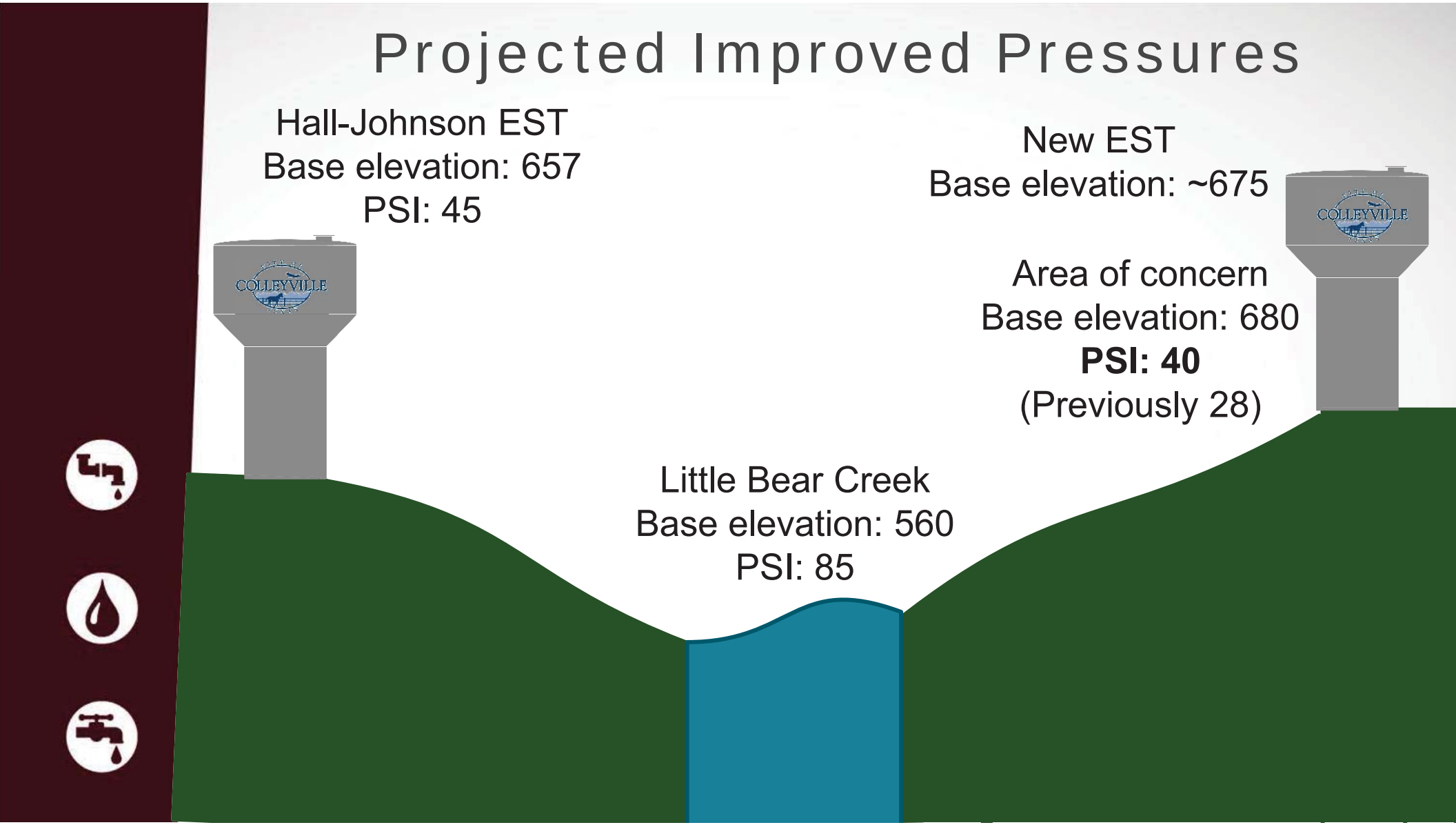
- Provides system flexibility and alleviates low fire flow condition
- Provides available water supply for loss-of-power situations
- Maintains minimum state required pressure



System Pressures With Proposed EST



Projected Improved Pressures



Recommended Course of Action

Consider Recommendation of EST

Design around the agreed-upon path forward

Finalize best-fit technology	Choose site for improvements	Evaluate impact of design criteria	Design Improvements

Construction and Implementation

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RATE STUDY

Benchmarking the Current Rate Structure

City	Volumetric rates charged for all metered consumption?	Do larger meters pay a higher minimum charge?	Residential and non-residential rates differentiated?
Colleyville	No	No	No
Grapevine	No	Yes	Yes
Euless	Yes	Yes	Yes
Bedford	Yes	Yes	Yes*
NRH	No	Yes	Yes
Southlake	No	Yes	Yes
Keller	Yes	Yes	Yes*
Hurst	No	Yes	Yes
TRA Customers			* For Wastewater Only

Rate Study

- Recommendations
  - Remove first 2,000 gallons from base rate for water and wastewater over four year period
  - Increase minimum base monthly charge for water meters in excess of 1 ½” over a four year period
  - Increase base monthly charge for non-residential wastewater by $6.00 to be implemented in two $3.00 increments in 2016 and 2018

Recommendation 1

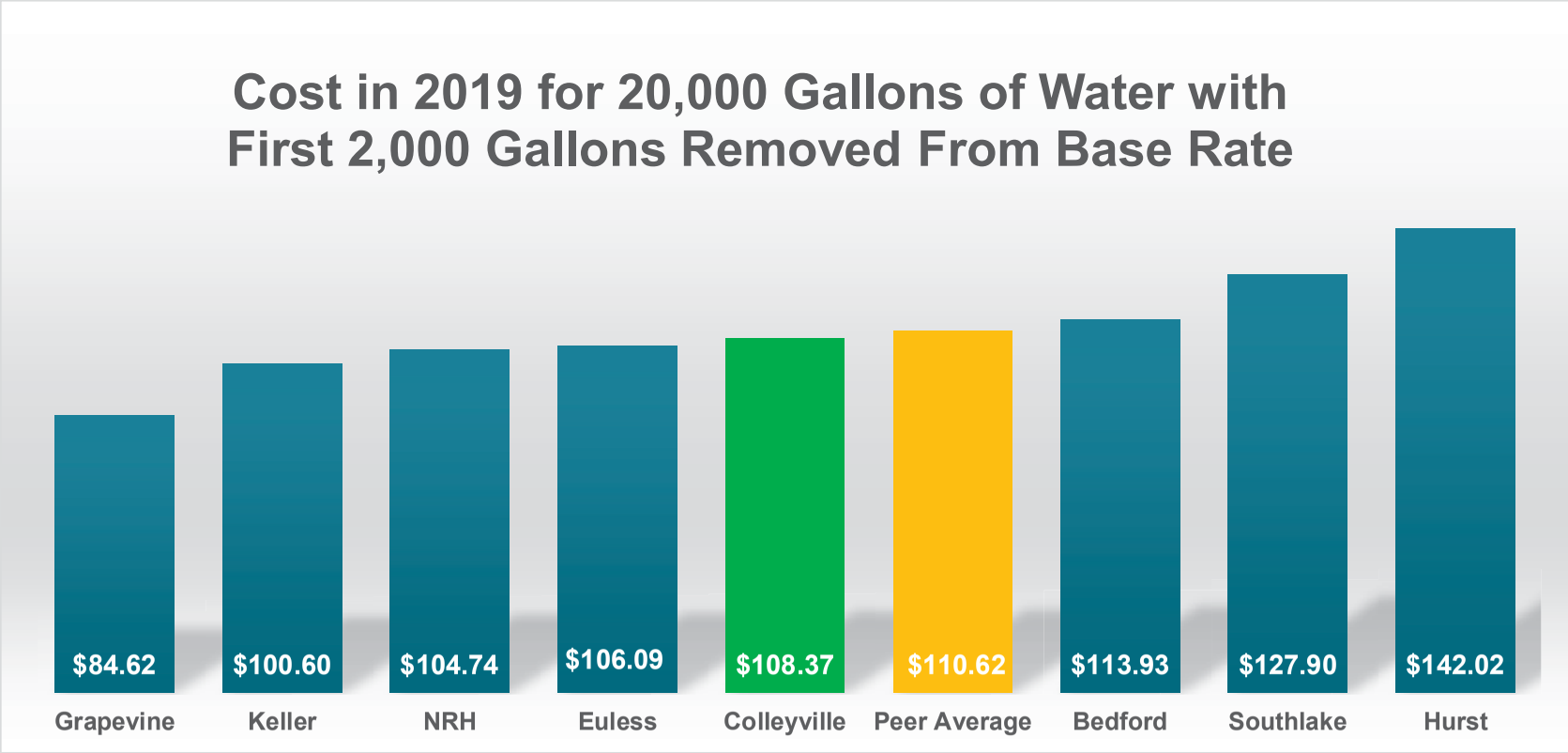
- Remove first 2,000 gallons from base rate for water and sewer over four year period
  - Impacts 100% (9,414) of water and wastewater customers
  - Assumes proposed TRA water rate increases of $0.88 per 1000 gallons over 5 years
  - Assumes proposed TRA wastewater rate increases of $0.79 per 1000 gallons over 5 years

Rate for 20,000 Gallons of Water for Meters Smaller than 1.5”

			Current		Proposed		
	TRA Projected Increase	Cost per 1000 gals	Base Rate	Cost per 20,000 Gallons with TRA Projected Rate Increase Only	Proposed New Base Rate	Cost per 20,000 gals with Removal of First 2,000 gals from Base Rate	Difference in Cost for 20,000 gals
2015		$ 4.12	$ 13.28	$ 87.44	$ 13.28	$ 87.44	$ 0.0
2016	$ 0.18	$ 4.30	$ 13.64	$ 91.04	$ 13.55	$ 93.10	$ 2.06
2017	$ 0.14	$ 4.44	$ 13.92	$ 93.84	$ 13.69	$ 98.05	$ 4.21
2018	$ 0.16	$ 4.60	$ 14.24	$ 97.04	$ 13.77	$ 103.47	$ 6.43
2019	$ 0.13	$ 4.73	$ 14.50	$ 99.64	$ 13.77	$ 108.37	$ 8.73

Current Colleyville Rate

Peer Cities Comparison



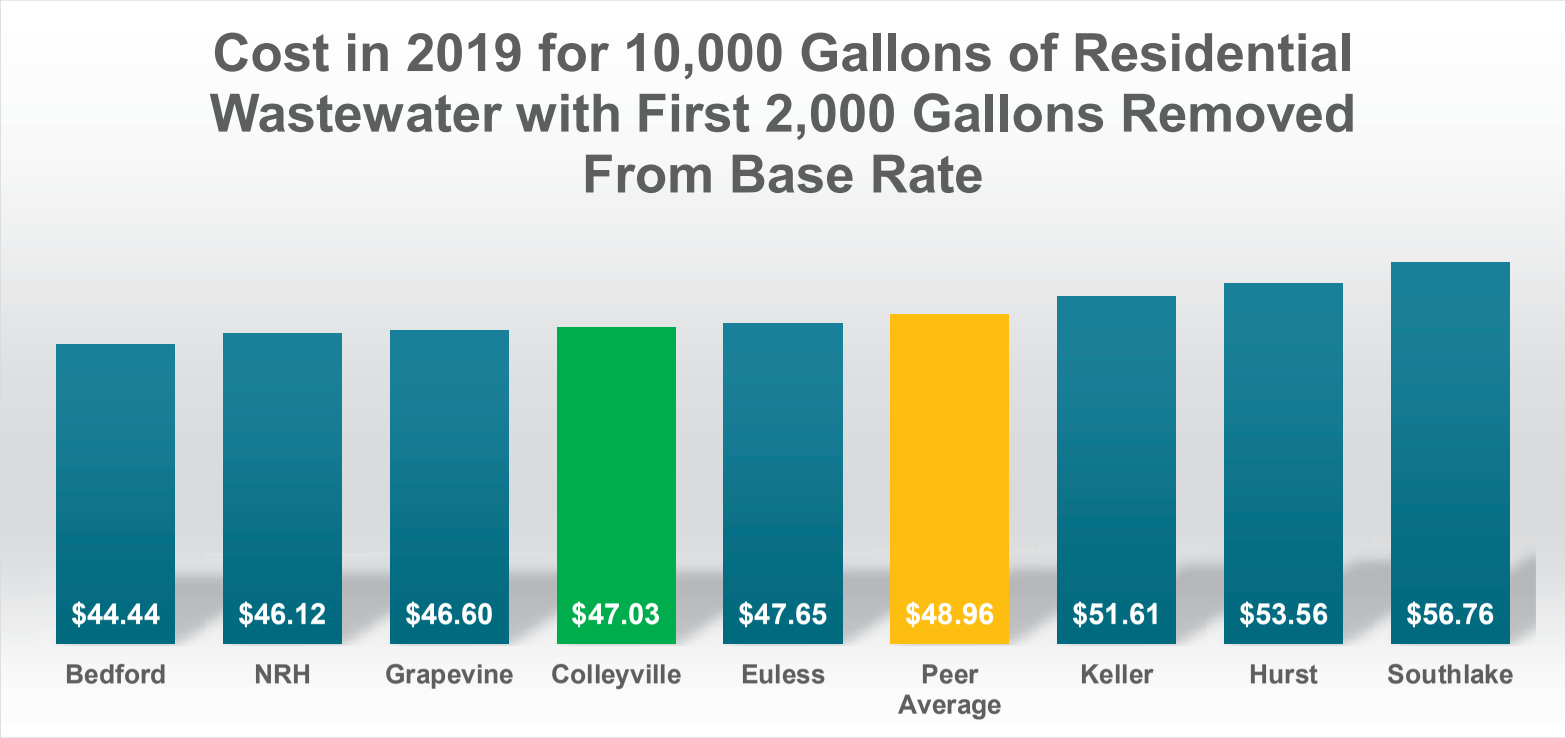
Assumes non-TRA cities increase rates proportionally to TRA increases
Currently Colleyville rate for 20,000 gals = $87.44

Residential Rate for 10,000 Gallons of Wastewater

	TRA Projected Increase	Cost per 1000 gals	Current		Proposed		
			Base Rate	Cost per 10,000 Gallons with TRA Projected Rate Increase Only	Proposed New Base Rate	Cost per 10,000 gals with Removal of First 2,000 gals from Base Rate	Difference in Cost for 10,000 gals
2015		$ 2.95	$ 10.16	$ 33.76	$ 10.16	$ 33.76	$ 0.0
2016	$ 0.19	$ 3.14	$ 10.54	$ 35.66	$ 10.45	$ 37.14	$ 1.48
2017	$ 0.20	$ 3.34	$ 10.94	$ 37.66	$ 10.65	$ 40.71	$ 3.04
2018	$ 0.16	$ 3.50	$ 11.26	$ 39.26	$ 10.73	$ 43.98	$ 4.72
2019	$ 0.13	$ 3.63	$ 11.52	$ 40.56	$ 10.73	$ 47.03	$ 6.47

Current Colleyville Rate

Peer Cities Comparison



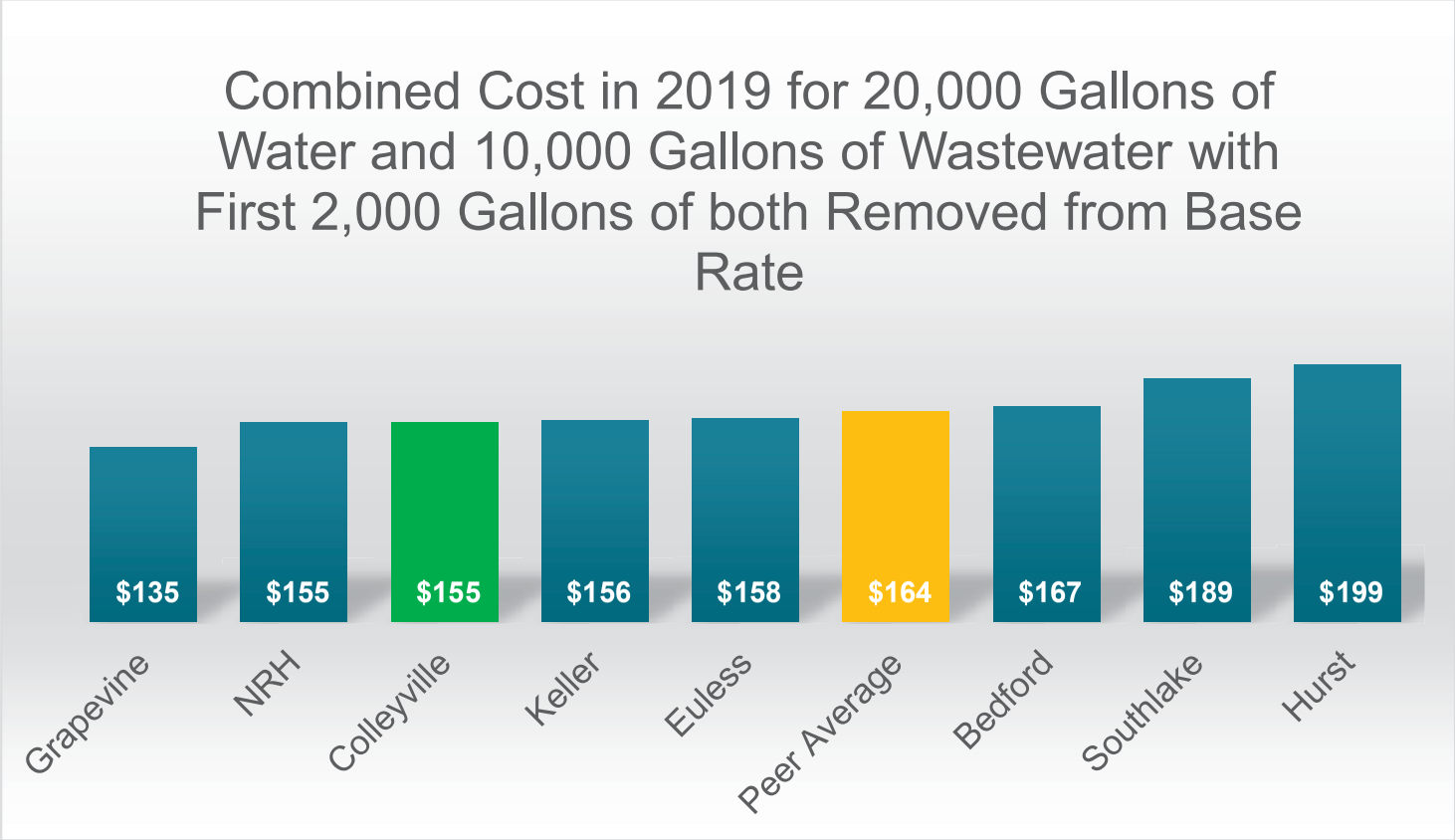
Assumes non-TRA cities increase rates proportionally to TRA increases
Currently Colleyville rate for 10,000 gals = $33.76

Residential Rate for 20,000 Gallons of Water and 10,000 Gallons of Wastewater

	Combined Rate With Projected TRA Increase Only	Combined Cost with Removal of First 2,000 gals from Base Rate	Difference in Combined Cost with Removal of First 2,000 Gallons from Base Rate
2015	$ 121.20	$ 121.20	$ 0.00
2016	$ 126.70	$ 130.24	$ 3.54
2017	$ 131.50	$ 138.76	$ 7.26
2018	$ 136.30	$ 147.45	$ 11.15
2019	$ 140.20	$ 155.40	$ 15.20

Current Colleyville Rate

Peer Cities Comparison



Assumes non-TRA cities increase rates proportionally to TRA increases
Currently Colleyville Combined Rate is $121.20

Recommendation 2

- Increase minimum base monthly charge for water meters in excess of 1 ½”
  - Impacts 3.7% (349) of customers
  - Implemented with equal annual adjustments over four year period

Proposed Base Rate for Meters Greater than 1.5”

Meter Size	Number of Meters	2015	2016	2017	2018	2019
<1.5” Meter	9065	$ 13.28	$ 13.55	$ 13.69	$ 13.77	$ 13.77
1.5” Meter	128	$ 13.28	$ 15.77	$ 18.26	$ 20.75	$ 23.24
2" Meter	207	$ 13.28	$ 20.29	$ 27.30	$ 34.30	$ 41.43
3" Meter	12	$ 13.28	$ 33.20	$ 53.11	$ 73.03	$ 92.95
4" Meter	2	$ 13.28	$ 51.27	$ 89.26	$ 127.25	$ 165.24

Currently all meter sizes pay the same base rate of $13.28 per month

Billing for Average Monthly Usage by Meter Size (Water Bill Only)

	Current Rate <1.5“ (20,000)*	Proposed Rate <1.5" (20,000)*	Current Rate 1.5“ (40,000)*	Proposed Rate 1.5" (40,000)*	Current Rate 2“ (50,000)*	Proposed Rate 2" (50,000)*	Current Rate 3“ (250,000)*	Proposed Rate 3" (250,000)*	Current Rate 4“ (500,000)*	Proposed Rate 4" (500,000)*
2015	$ 87.44	$ 87.44	$186.64	$186.64	$244.64	$ 244.64	$ 1,516.64	$ 1,516.64	$ 3,106.64	$ 3,106.64
2016	$ 91.04	$ 93.10	$193.84	$198.12	$253.64	$ 262.44	$ 1,561.64	$ 1,600.75	$ 3,196.64	$ 3,269.13
2017	$ 93.84	$ 98.05	$199.44	$208.22	$260.64	$ 278.46	$ 1,596.64	$ 1,682.00	$ 3,266.64	$ 3,426.64
2018	$ 97.84	$103.47	$205.84	$219.26	$268.64	$ 295.60	$ 1,636.64	$ 1,744.89	$ 3,346.64	$ 3,604.07
2019	$ 99.64	$108.37	$211.04	$229.24	$275.14	$ 311.53	$ 1,669.14	$ 1,854.55	$ 3,411.64	$ 3,756.60

- (xx,xxx)* Denotes average monthly usage in gallons

Recommendation 3

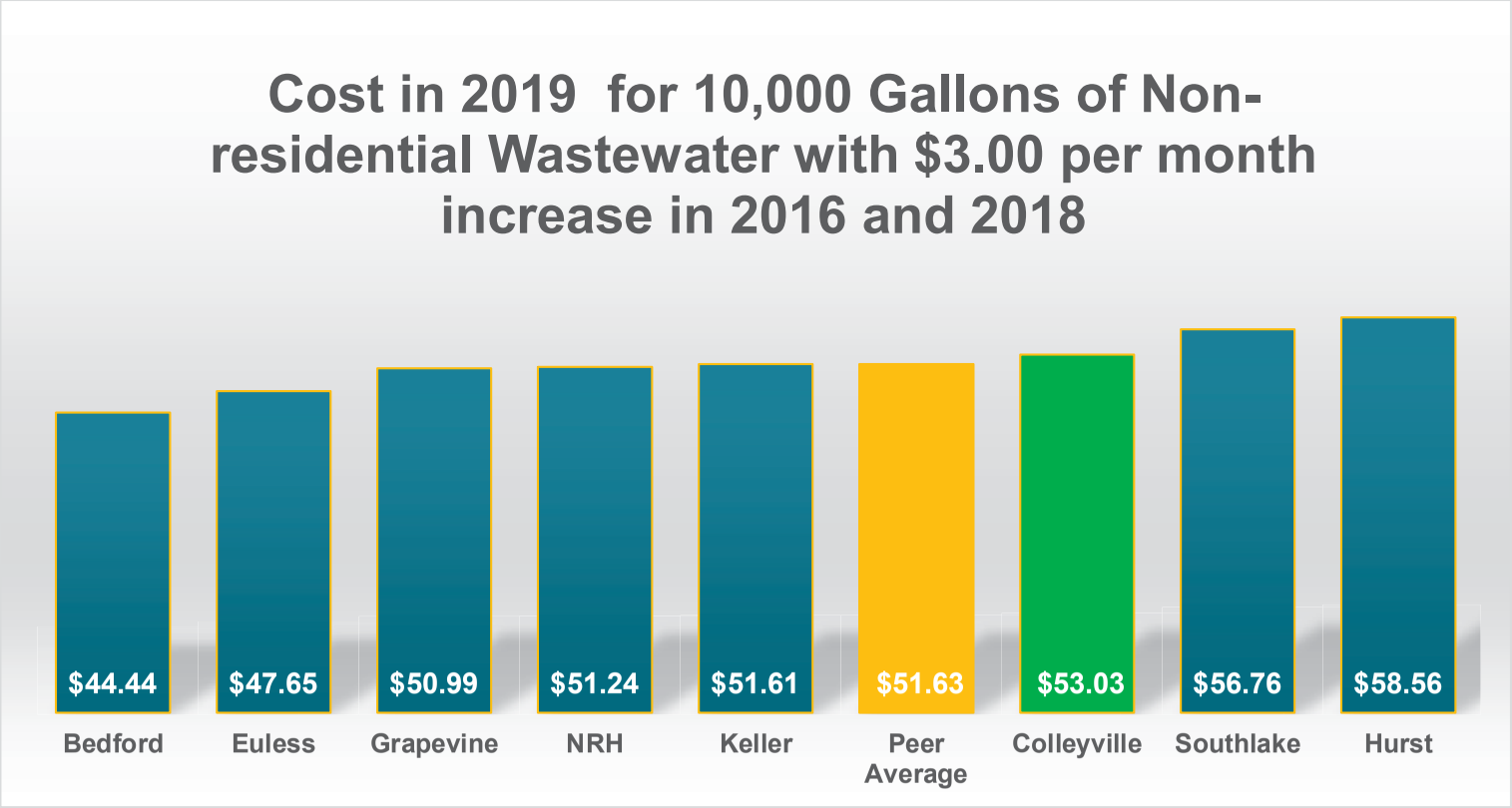
- Increase base monthly charge for non-residential wastewater by $6.00 to be implemented in two $3.00 increments in 2016 and 2018
  - Impacts 4.5% of customers (425)
  - Colleyville and all peer cities charge for wastewater based on year-round water usage for non-residential customers

Non-Residential Rate for 10,000 Gallons of Wastewater

	TRA Projected Increase	Cost per 1000 gals	Current		Proposed		
			Base Rate	Cost per 10,000 Gallons with TRA Projected Rate Increase Only	Proposed New Base Rate	Cost per 10,000 gals with Removal of First 2,000 gals from Base Rate	Difference in Cost for 10,000 gals
2015		$ 2.95	$ 10.16	$ 33.76	$ 10.16	$ 33.76	$ 0.0
2016	$ 0.19	$ 3.14	$ 10.54	$ 37.14	$ 13.45	$ 40.14	$ 3.00
2017	$ 0.20	$ 3.34	$ 10.94	$ 40.71	$ 13.65	$ 43.71	$ 3.00
2018	$ 0.16	$ 3.50	$ 11.26	$ 43.98	$ 16.73	$ 49.98	$ 6.00
2019	$ 0.13	$ 3.63	$ 11.52	$ 47.03	$ 16.73	$ 53.03	$ 6.00

Current Colleyville Rate

Peer Cities Comparison



Assumes non-TRA cities increase rates proportionally to TRA increases
Currently Colleyville rate for 10,000 gals = $33.76

Impacts of Implementing Recommendations

- Reduces dependency on water sales to adequately fund fixed costs
- More accurately reflects the true cost of service
- Provides revenue for identified CIP projects

Analysis of Fixed and Variable Components (2015)

	Water			Wastewater		
	Fixed	Variable	Total	Personnel	Variable	Total
Personnel	$ 1,511,113		$ 1,511,113	$ 188,411		$ 188,411
Operating	$ 710,828	$ 7,851,514	$ 8,562,342	$ 97,156	$ 1,741,331	$ 1,838,487
Capital	$ 200,000		$ 200,000	$ 50,000		$ 50,000
Debt Service	$ 490,100		$ 490,100			
Total Expenses	$ 2,912,041	$ 7,851,514	$ 10,763,555	$ 335,567	$ 1,741,331	$ 2,076,898
Current Fixed Cost Recovery (Water and Wastewater Combined)						41%
Combined Fixed Cost Recovery if recommendations are adopted (2019)						89%

Cash Flow Projection

(assumes proposed structure is implemented)

	2015	2016	2017	2018	2019
Gross Revenues from Water and Wastewater Sales	$ 14,184,706	$ 15,310,654	$ 16,347,649	$ 17,427,644	$ 17,427,644
O&M Expenses less Debt Service	$ 12,350,354	$ 13,017,620	$ 13,772,453	$ 14,467,465	$ 15,069,560
Debt Service	$ 490,100	$ 438,390	$ 431,880	$ 188,790	$ 0
1.2 X Debt Coverage Ratio	$ 588,120	$ 526,068	$ 518,256	$ 226,548	$ 0
Potentially Available for CIP Projects*	$ 1,246,232	$ 1,766,966	$ 2,056,940	$ 2,733,630	$ 3,363,784

* Only includes revenue from water and wastewater sales

Potential Revenue Available for Capital Projects from All Sources

	2015	2016	2017	2018	2019
Water and Wastewater Sales	$ 1,246,232	$ 1,766,966	$ 2,056,940	$ 2,733,630	$ 3,363,784
Escrow Fees	$ 979,125	$ 979,126	$ 979,125	$ 979,125	$ 979,125
Yearly Total	$ 2,225,357	$ 2,746,095	$ 3,036,065	$ 3,712,755	$ 4,342,909
Five Year Total	$16,063,181*				

*Equates to 29% of funding needed for 20 year CIP ($55 million)

Next Steps

- If approved, prepare new ordinance to adopt the new rate structure
- Develop and execute a public information program to inform customers of the new rate structure and why it is necessary
- Implement new rate structure on December 1, 2015
- Review and update rate structure in five years (2019)

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QUESTIONS?

City of Colleyville
City Council
Agenda Briefing

City Hall
100 Main Street
Colleyville, Texas 76034
www.colleyville.com

Agenda Number PC-1 **Agenda Date** 12/16/2014
Type Pre Council
Department Public Works

Title
Presentation and discussion of the 2014 Water and Wastewater Master Plan

Explanation
City staff and Garver, LLC, the engineering consultant, will be providing a summary presentation of the Water and Wastewater Master Plan.

At the January 21, 2014 Pre Council meeting, staff made a presentation to City Council explaining the need for a comprehensive water and wastewater master plan to determine the condition and adequacy of the city's existing water and wastewater systems. Staff explained the existing water master plan was incomplete, in need of an update, and that no master plan existed for the wastewater system; and without accurate and up-to-date information, it was not possible to prioritize system renewal and replacement projects for the Capital Improvement Plan. The January 21, 2014 presentation is attached for reference. At the conclusion of the presentation and discussion, there was consensus among the City Council to bring an engineering services agreement back to City Council for approval.

On February 18, 2014, City Council approved the engineering services agreement with Garver by Resolution R-14-3723, attached to this agenda briefing. Since the execution of the agreement, Garver has been working diligently to complete this comprehensive Water and Wastewater Master Plan.

Some of the highlights of the master plan to be discussed during the presentation given by Garver include:

- **Facility Assessments**
  - Recommendation for the decommissioning of the Overland Trail Ground Storage Tank and Pump Station
  - Recommendation of various site improvements
  - Recommendation of changes to watering zones and policies
  - Manhole assessment - 1,134 manholes assessed, representing 37 percent of the network

- **GIS Updates**

- **Water Model**
  - Identification of needed improvements
  - Simulation of changes to the network

- **Wastewater Model**
  - Identification of needed improvements
  - Simulation of changes to the network

- **Wet Weather Modeling**

- **CIP Recommendations (20 year planning period)**
  - 27 water projects
  - 17 wastewater projects

- **Rate Study - Proposed changes include:**
  - Removal of the initial 2,000 gallons included in the minimum bill over a two year period
  - Revised base rate structure based on meter size
  - Differentiation of the base charge for wastewater for residential and non-residential accounts

An executive summary is attached, which illustrates the main points of the new master plan.

The recommended CIP projects and changes to the billing rate structure, will have an effect on how the City moves forward with the operation of the systems.

The 2014 Water and Wastewater Master Plan identified a total of 44 projects that should be considered over the next 20 years. These projects were developed based on various triggers, which include: Regulatory, Capacity, Fire Flow, Condition, City Identified, and Operational. The projects were then prioritized and now provide a listing of needed capital improvement projects that will be considered in the development of future five year capital improvement plans. Examples of the various triggers and the resulting projects are shown in the following chart:

Project Names	Primary Trigger	Secondary Trigger	Project Description
Water Group A - Capital Improvements	Regulatory	Capacity	New elevated storage tank in the southern part of the City. A new elevated storage tank in this area addresses elevated storage concerns plane-wide across the low pressure plane. The tank also addresses local pressure and fire flow concerns in the southern portion of the system. The 16" and 12" upgraded piping provides additional fire flow throughout this area. Furthermore, the additional elevated storage provides extra security to the system in the event of a power outage or supply issue.
Water Group U - Overland Trail Decommissioning and Demolition	Condition	Operational	This project includes decommission of the existing pump building, chlorine building, ammonia building, and salvage of major mechanical equipment, such as pumps, and valves for future use by the City. The project also includes demolition of the ground storage tank and yard piping that connect directly to the City's distribution system.
Sewer Group O – Manhole Improvements	Condition	None	This project involves the rehabilitation of Priority 1 manholes throughout the City, which were identified in the manhole assessment. Methods for repair will vary depending on the type and severity of the defect.
Sewer Group C – Line Improvements	Capacity	None	This project includes replacement of four, 10" pipelines, with 10" PVC at an improved slope design, in order to provide adequate capacity at existing and future flows.

Project Names	Primary Trigger	Secondary Trigger	Project Description
Water Group B – Capital Improvements	Capacity	Operational	This project includes the addition of two pressure release and flow control valves to regulate flow from the northeast section of the high pressure plane into the northwest portion of the low pressure plane. This project also includes associated vaults and connecting 8" and 12" piping. During normal and low flow demands, no flow is expected to pass through the valves. However, during high demand or an emergency situation, flow will be allowed through the valves to maintain acceptable pressures.
Water Group E – Capital Improvements	Fire Flow	City Identified	This project includes the addition of an 8" PVC line to connect Apple Valley Drive to Bills Lane, and replacement of a 2" water line along Black Drive with an 8" water line. This project addresses looping issues of the water line, and bottleneck concerns of the existing 2" water line.
Water Group Q – Capital Improvements	City Identified	Operational	This project will implement 8" and 10" lines in the low plane to provide looping as required by City of Colleyville design criteria.

A complete listing of all of the identified projects and the entire proposed 2014 Water and Wastewater Master Plan can be viewed at the City Hall Public Works Offices. The total of all of the identified water and wastewater projects over the next 20 years, totals nearly $55M in today's dollars.

The proposed 2014 Water and Wastewater Master Plan will be the guiding document for both the water and the wastewater systems. This master plan will play a key role in long term operation, maintenance, replacement, and improvement of the City's water and wastewater systems. This plan will aid in the development of future capital improvement plans and has provided a prioritized and ranked list of potential projects. Finally, the plan recommends a rate structure, which produces revenue that is more consistent with fixed and variable expenses, and will generate funding for necessary system capital improvements.

Attachments

1. Water and Wastewater Master Plan summary presentation
2. January 21, 2014 Presentation
3. Resolution R-14-3723
4. Executive Summary

GARVER

COLLEYVILLE WATER & WASTEWATER MASTER PLAN

City Council
December 16, 2014

The following items mirror today's agenda and the scope of services

- Master Plan Purpose
- W / WW Facility Field Evaluations
- City GIS Updates
- W / WW Model Development
- CIP Development and Results
- Rate Study

The Master Plan was commissioned to properly plan for the future

Purpose

[redacted]

No in-depth assessment to date

Unknown level of service

Infrastructure growth plan

[redacted]

Master Plan Goals

Assess current systems

Project water usage and sewer flow

Update water model

Create a wastewater model

Future development planning

Recommend projects for a 20-year plan

December 16, 2014 Water and Wastewater Master Plan Briefing and Presentation

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WATER & WW FACILITY FIELD EVALUATIONS

Water facility field evaluations were completed at two PS and three ESTs

FINDINGS

Overall good condition of active facilities

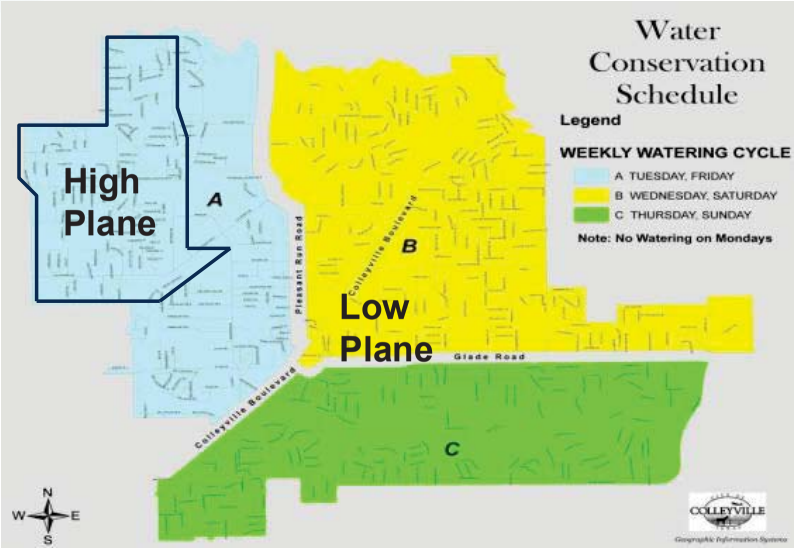
Minor site improvements needed

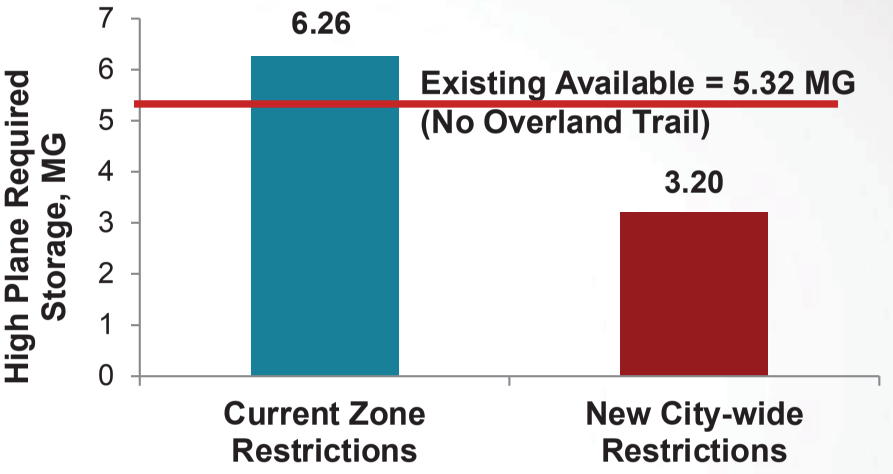
Fencing, drainage, painting

Overland Trail is in poor condition

Decommissioning recommended

Modifications to the watering zones were recommended





Current Watering Zones:

Cause large regionalized demands

Modification of restrictions will save the City at least $5M in additional infrastructure

Wastewater facility field investigations were completed at two lift stations

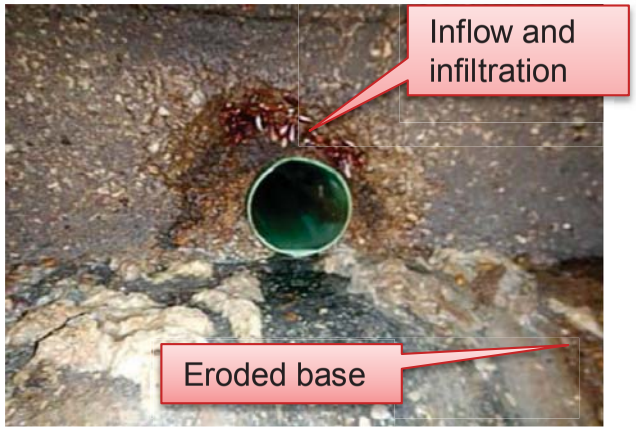
RESULTS

Overall good condition of facilities

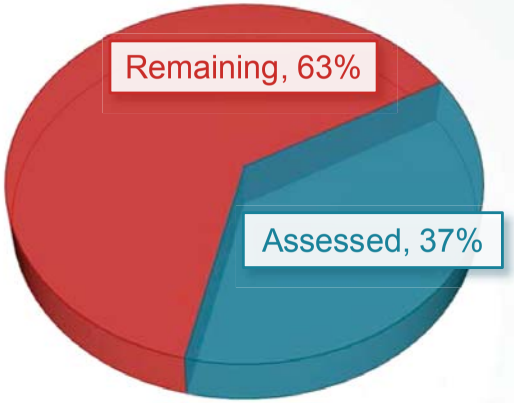
Minor site improvements needed

Fencing

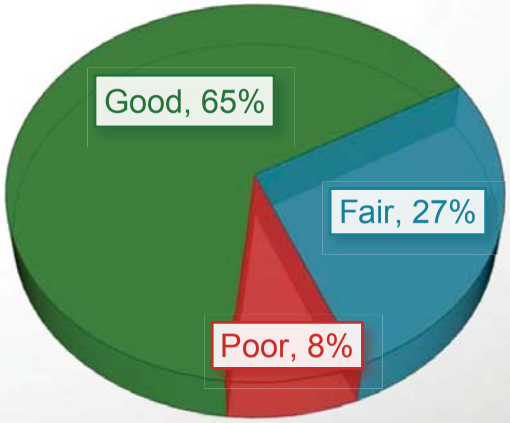
Wastewater manhole assessments were conducted on 1,134 manholes



Manhole Assessment Coverage



Manhole Condition Ratings



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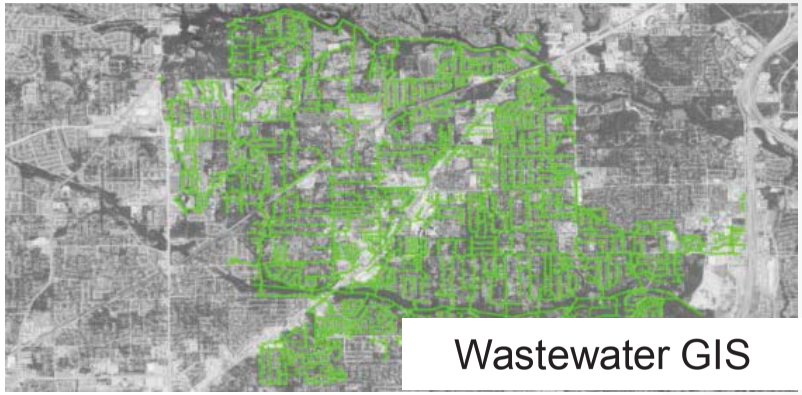
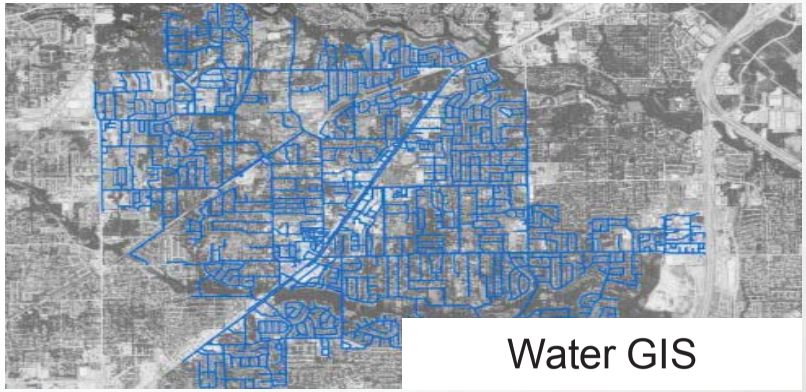
CITY GIS UPDATES

The existing City GIS system was updated

Garver used updated GIS for model development

Updated current GIS model with existing and proposed improvements





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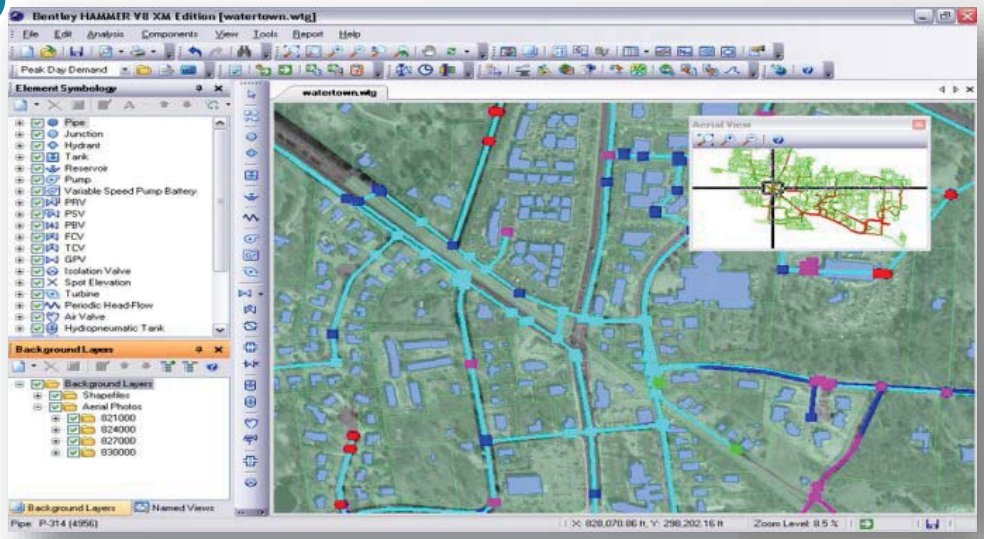
WATER MODEL DEVELOPMENT

Bentley WaterGEMS was used to model the system

Computer program allows the user to input

- Elevations
- Pipe types
- Tower sizes
- Pump sizes
- Level of Service
  - Demands
  - State Regulations
  - Insurance Requirements
  - O&M Considerations



Output helps determine what improvements are needed to provide the identified level of service

The Water Model allows us to identify issues within the system

Purpose:
Identify Issues

Low pressures, capacity, fire flow, excessive velocities, etc.

Results:

Water Capital Improvements Plan

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WASTEWATER MODEL DEVELOPMENT

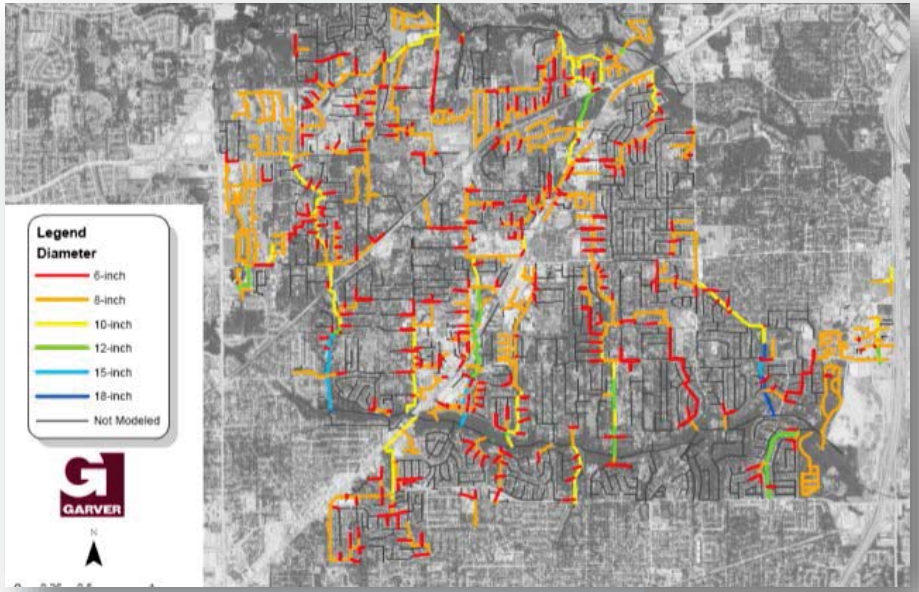
Bently SewerGEMS was used to identify capacity concerns in the sewer

Purpose:

Identify Issues with System

Results:

Wastewater Capital Improvements Plan



Flow monitoring was conducted

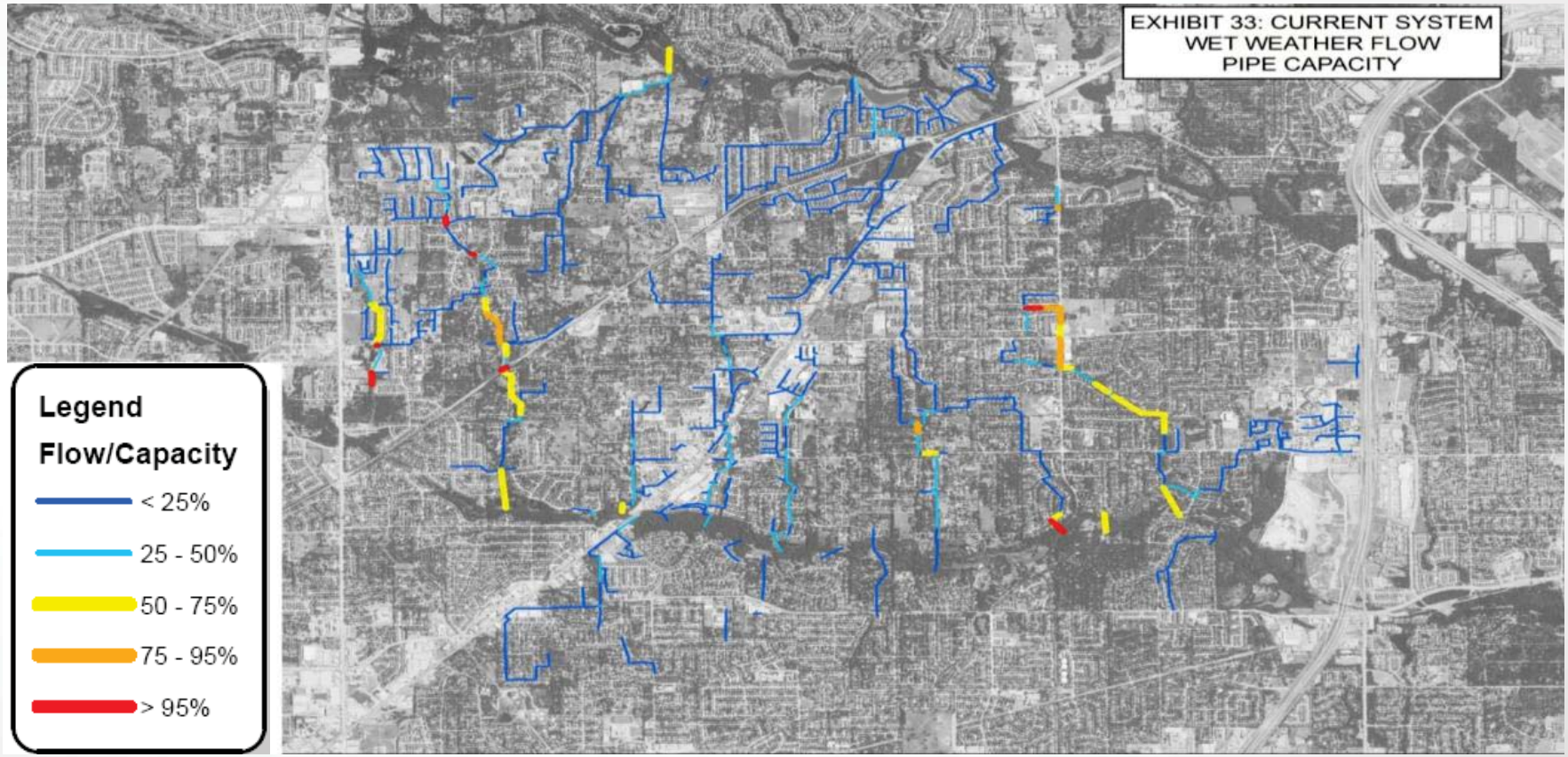
Purpose:

Establish current dry and wet weather flows

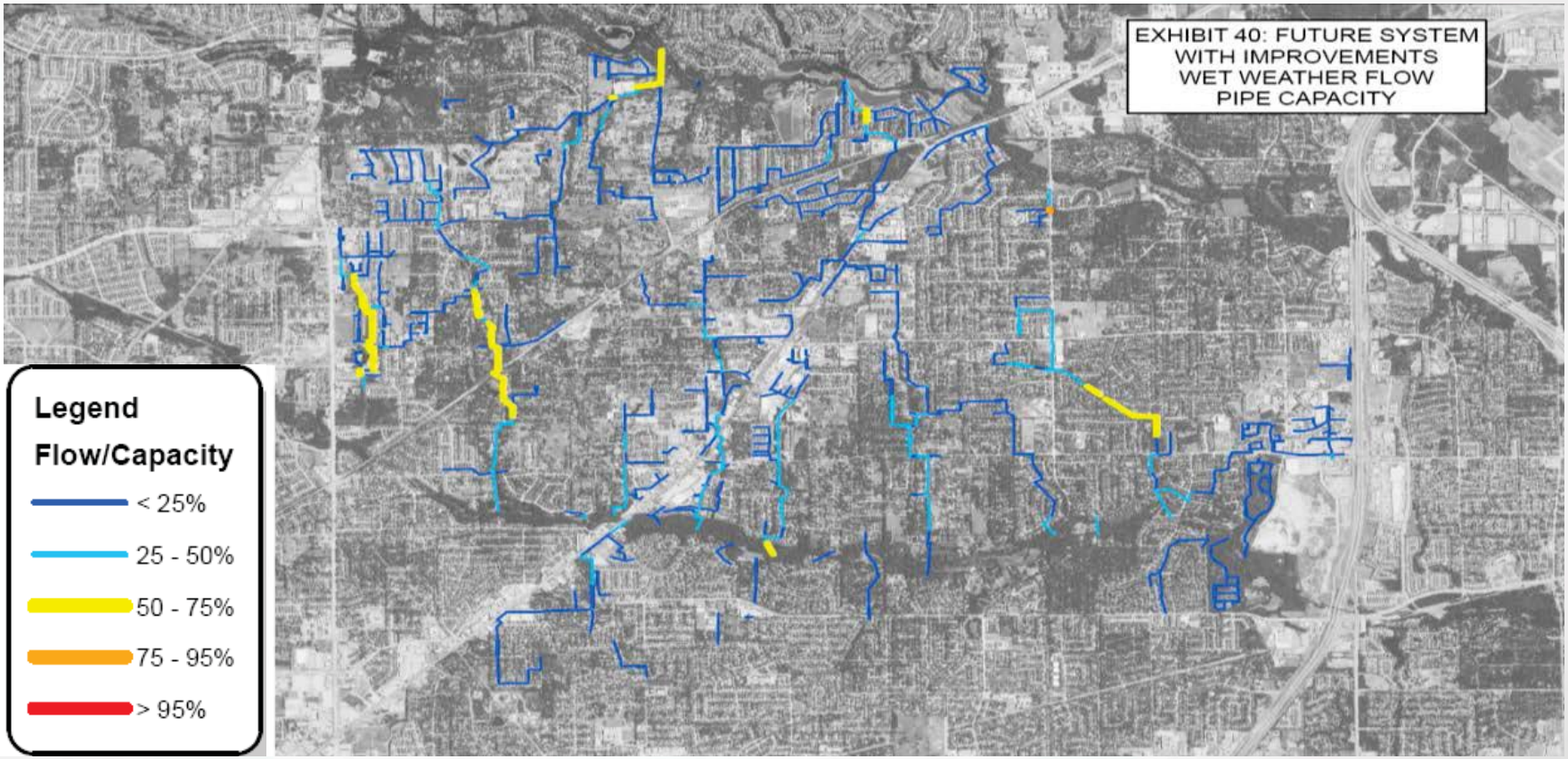
Results:

Overall system is in good shape	Majority of basins exhibit only a small reaction to rain events	~7.75 MG of 624.2MG (1.2%) annual sewer flow due to I/I

An example of a sewer capacity model iteration



An example of a sewer capacity model iteration



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CIP DEVELOPMENT

Capital Improvement triggers were defined and analyzed

WATER	WASTEWATER
• Regulatory • Capacity • Fire Flow • Condition • City-Identified • Operational	• Capacity • Condition • City-Identified • Operational

A method for prioritization of projects was developed

Regulatory and Capacity triggers take first precedence

Flexibility impacts precedence

For water, fire flow improvements are less flexible	For sewers, more limited capacity decreases flexibility

Similar triggers are grouped geographically when possible

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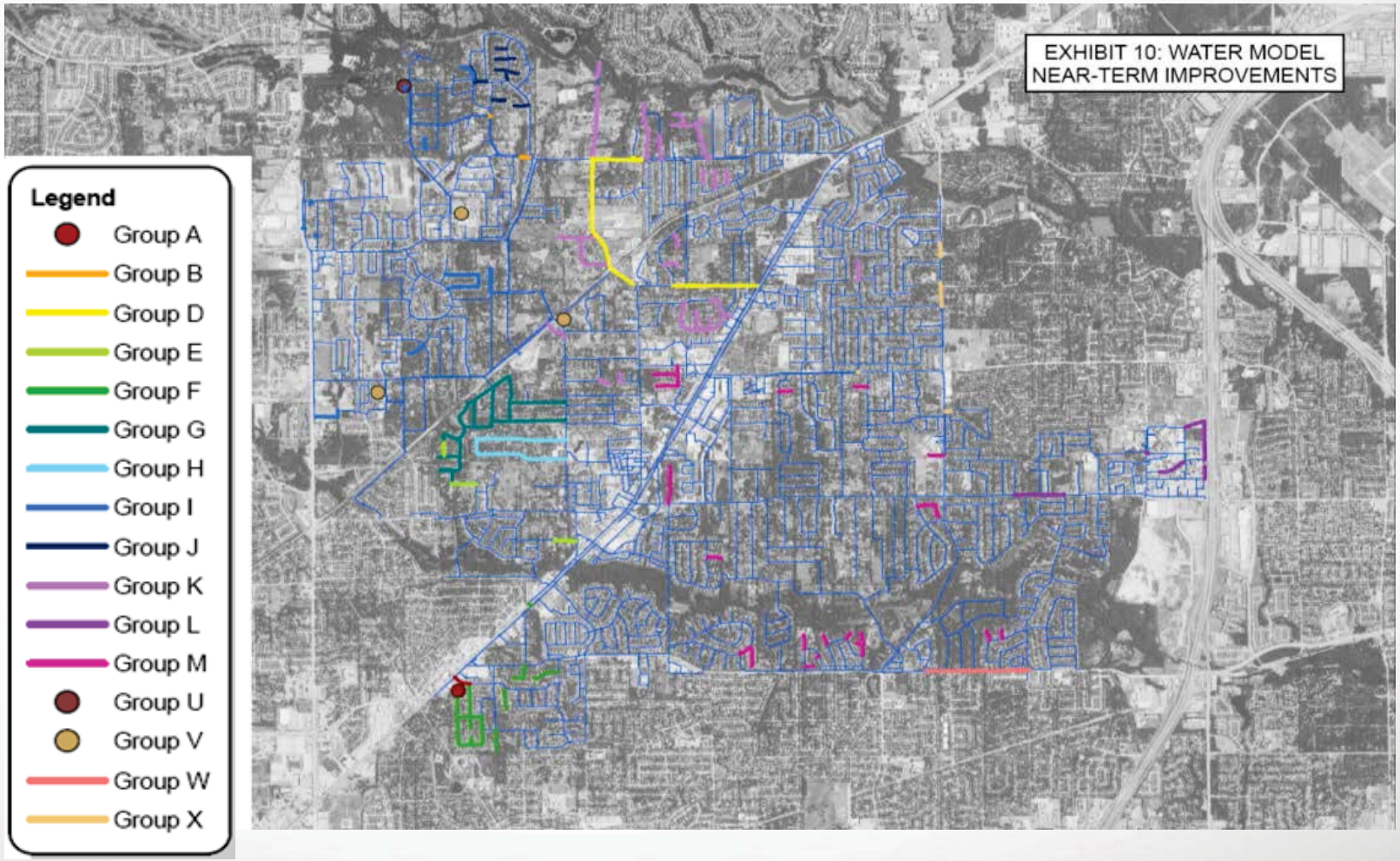
CIP RESULTS

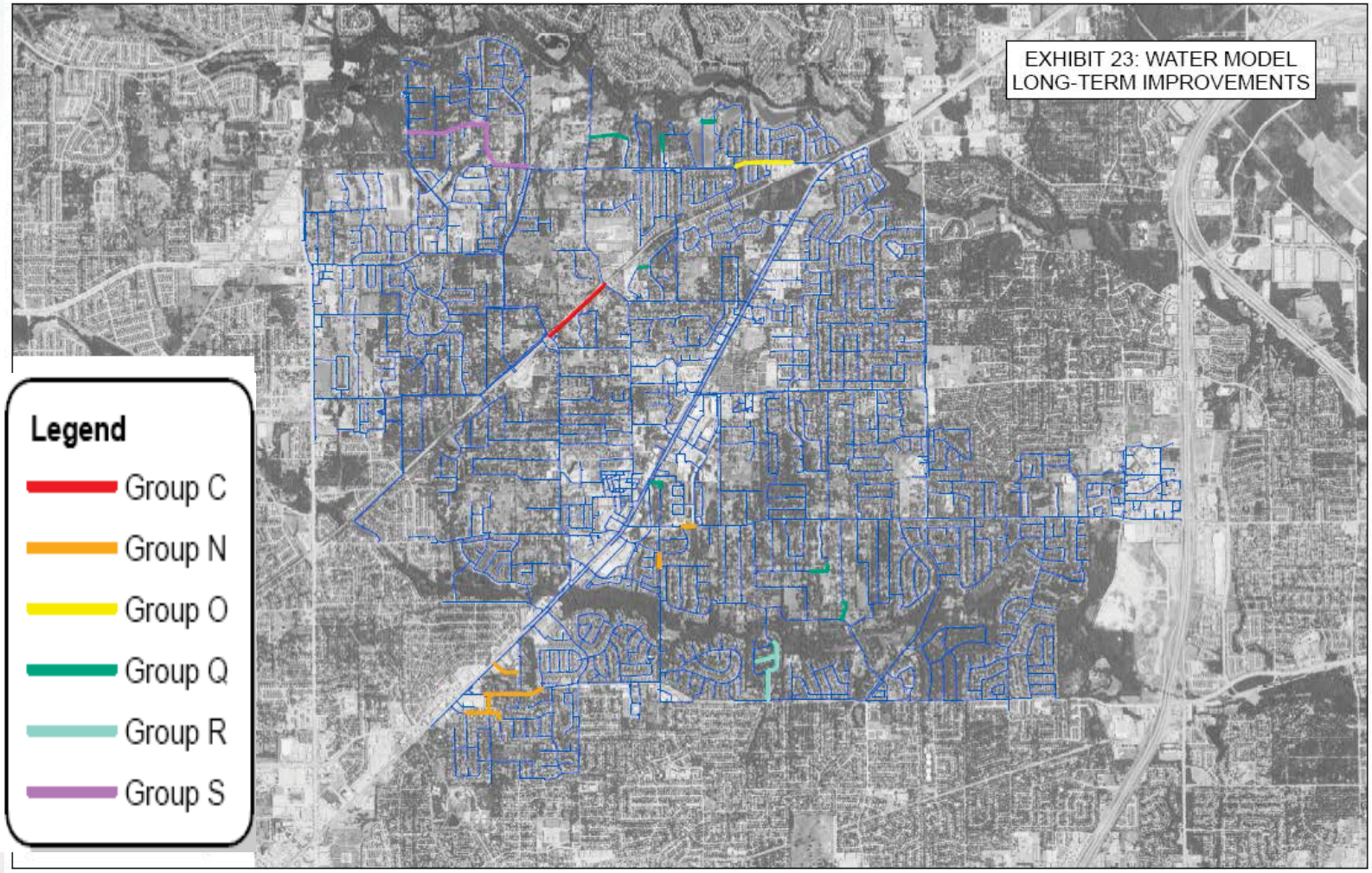
The Capital Improvements Plan identified 44 separate projects

Projects Developed:	
27 Water Projects **12% of system**	17 Wastewater Projects **4% of system**

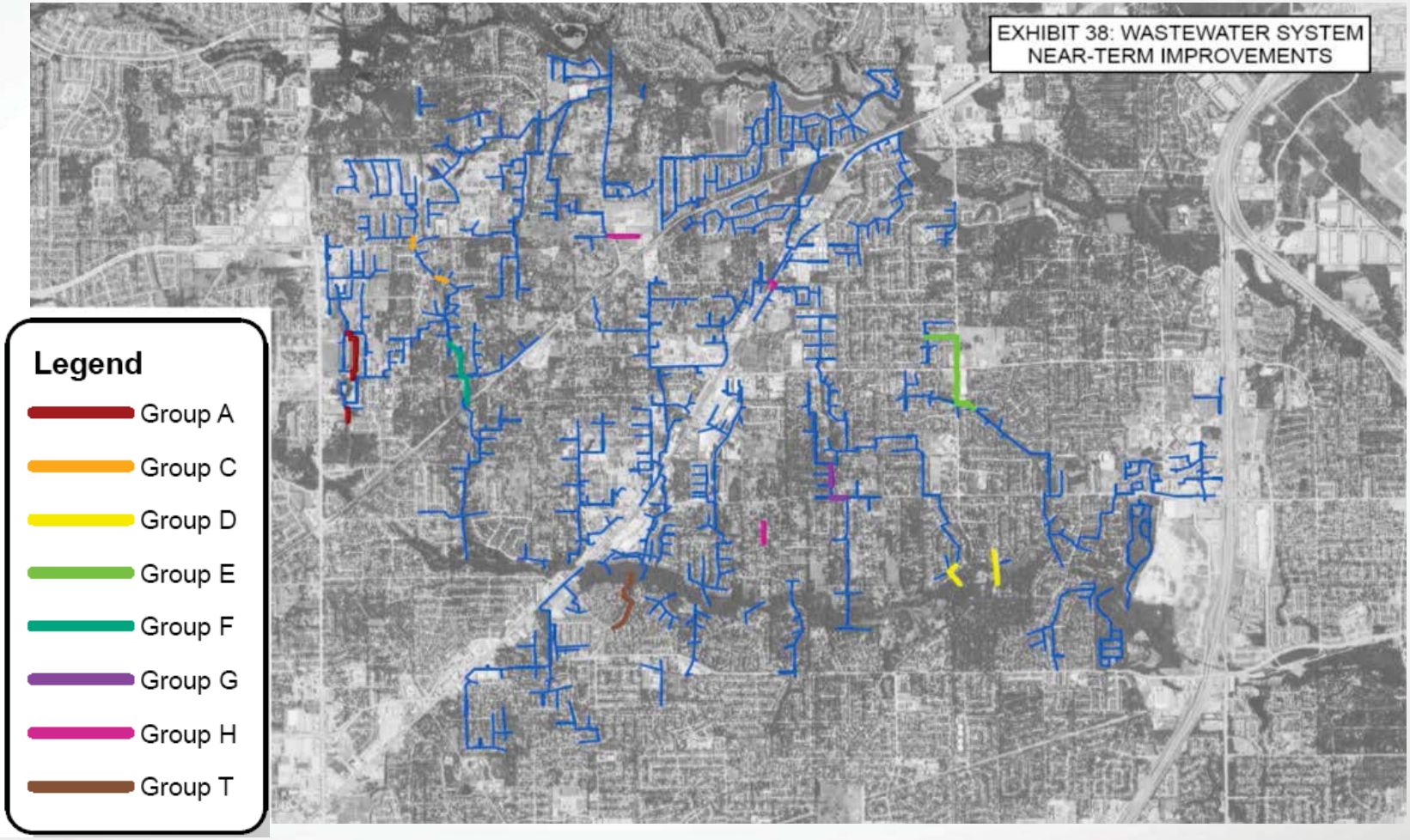
Near-term water improvements



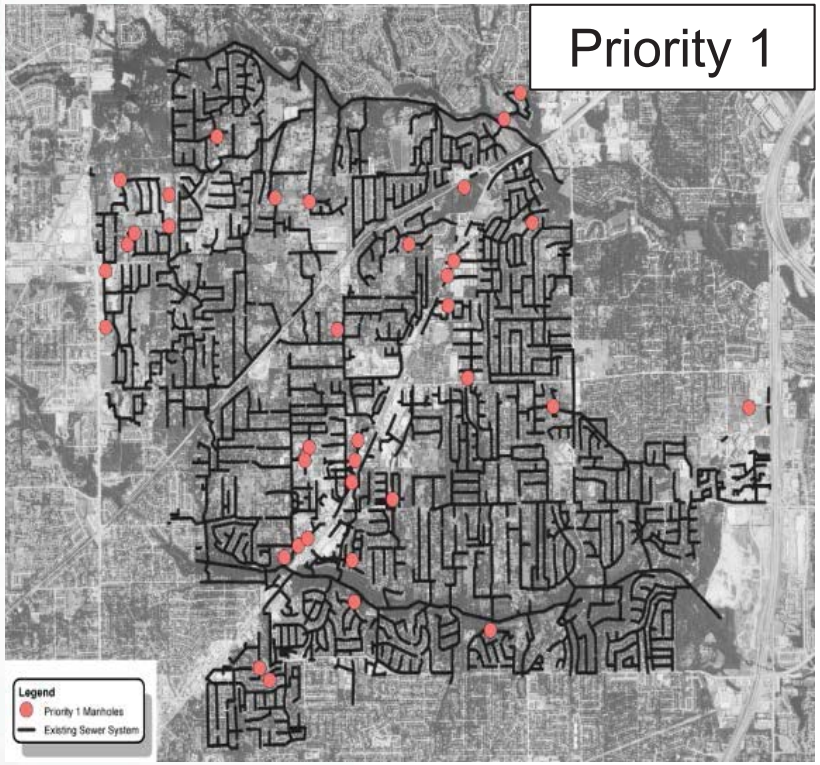
Long-term water improvements

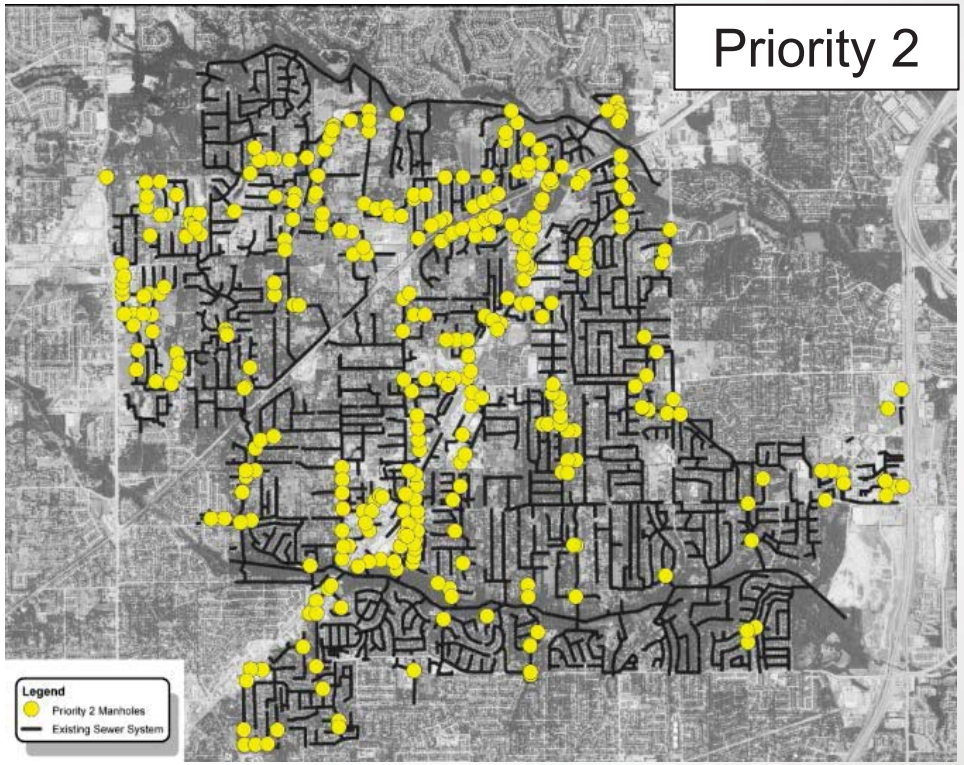


Near-term sewer improvements



Near-term sewer improvements – identified manholes





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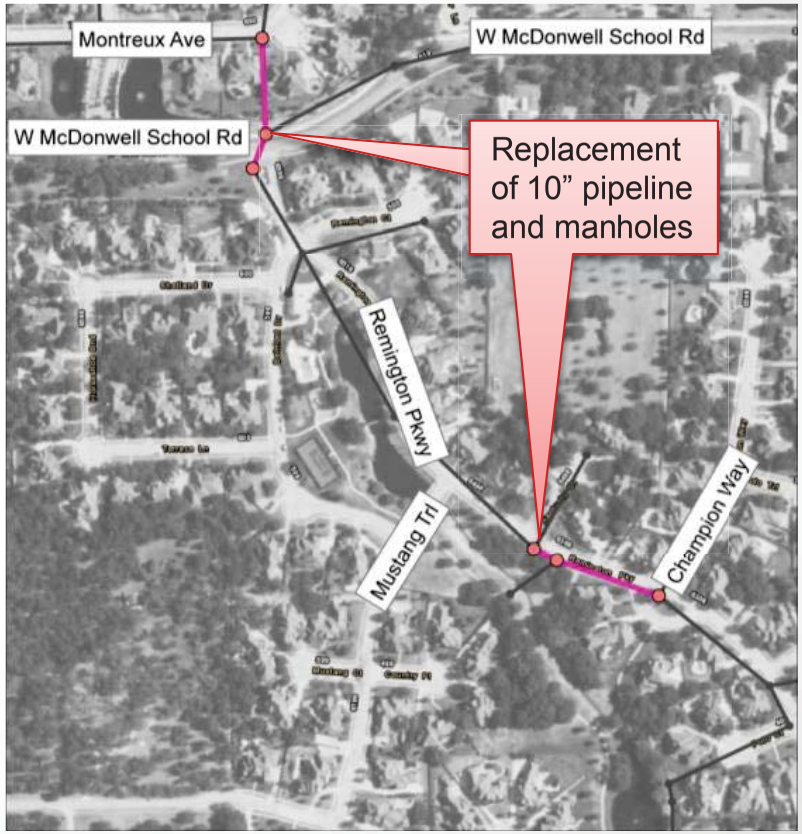
Sample Sewer Projects

Wastewater project example – capacity

SEWER GROUP C

- North of L.D. Lockett Road
- Upsizing of existing pipe
- Addresses capacity during wet weather flows
- Trenchless technology likely preferred

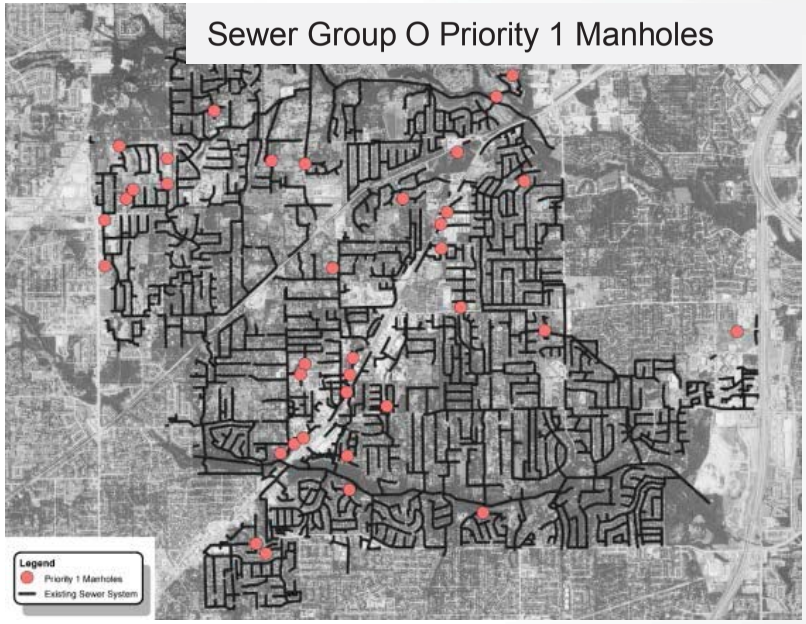


Wastewater project example – condition

SEWER GROUP O

Repair of assessed manholes

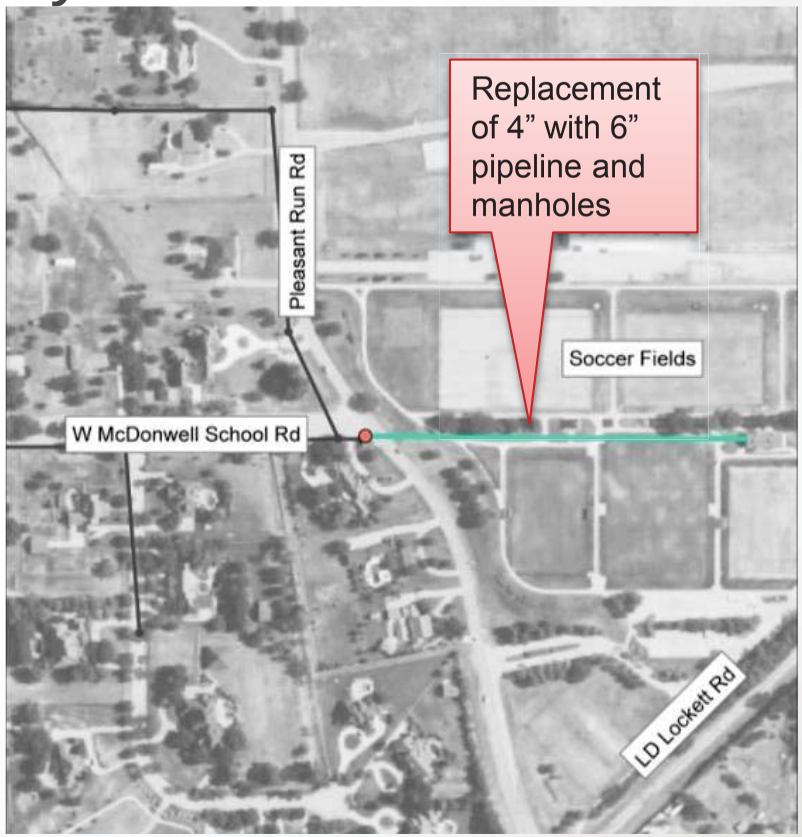
Upsizing of existing pipe



Wastewater project example – city identified

SEWER GROUP H

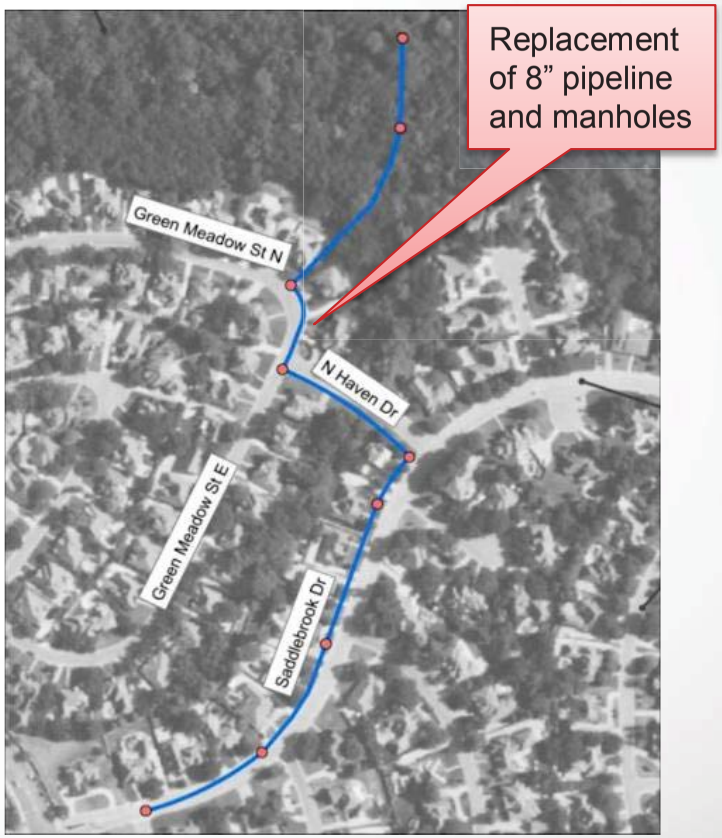
- Near City soccer field
- Replacement of existing pipe with new slopes
- Replaces bottlenecks



Wastewater project example – operational and city identified

SEWER GROUP T

- Near Little Bear Creek
- Replacement of pipe with slope issues
- Addresses maintenance concerns



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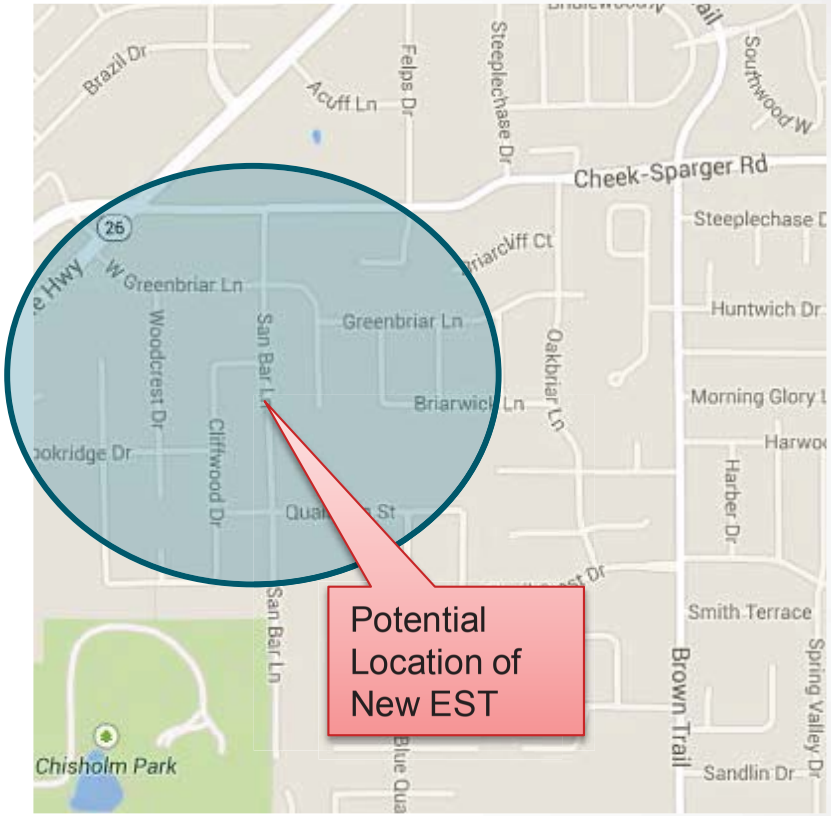
Sample Water Projects

Water project examples – regulatory and capacity

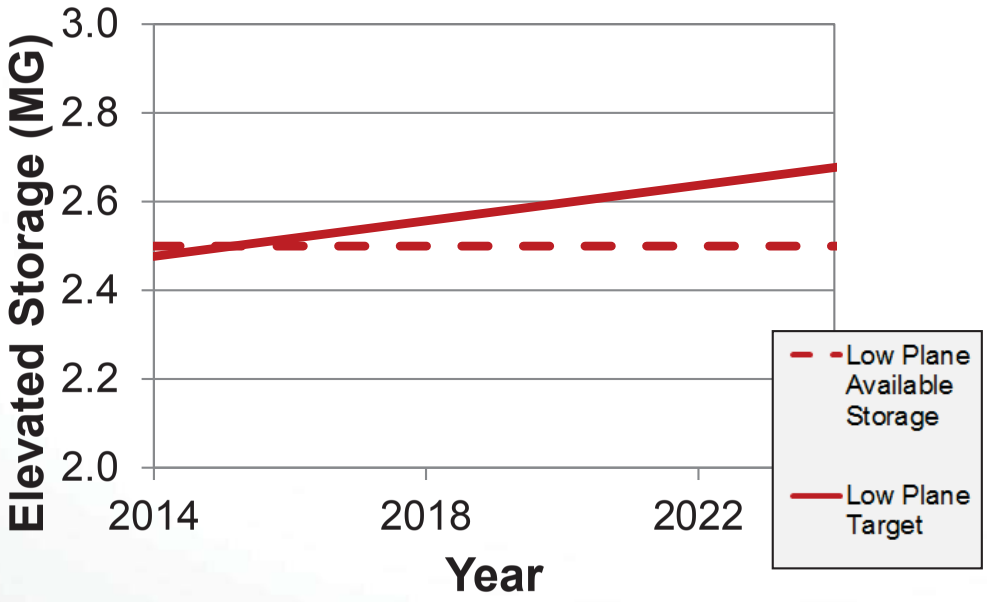
WATER GROUP A

- South portion of town
- Address storage for max day demands
- EST and replacement of pipe



The tank is necessary to meet two requirements

- Storage



- Pressures
  - Current minimum pressure during maximum day falling below 35 PSI requirement

Our evaluation included three additional alternatives

Large Diameter Conveyance Pipelines

- Negatively impacts pressures and flows throughout low plane

In-line booster station

- Causes regionalized low pressures

Ground storage and booster station

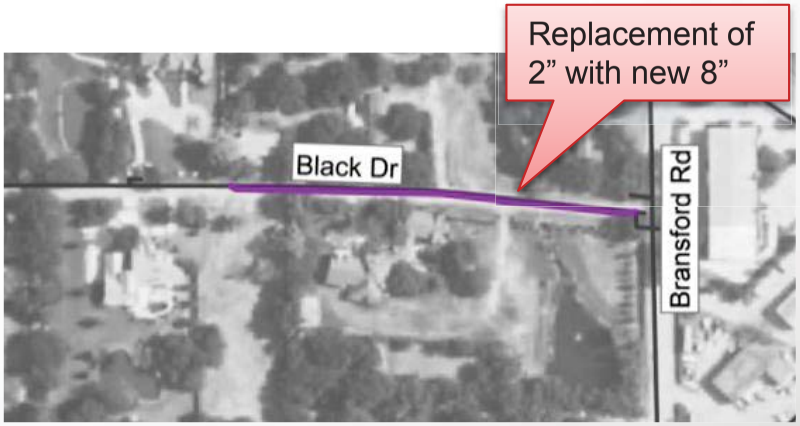
- Additional mechanical infrastructure

None of these alternatives provided the required elevated storage

Water project example - fire flow and city identified

WATER GROUP E

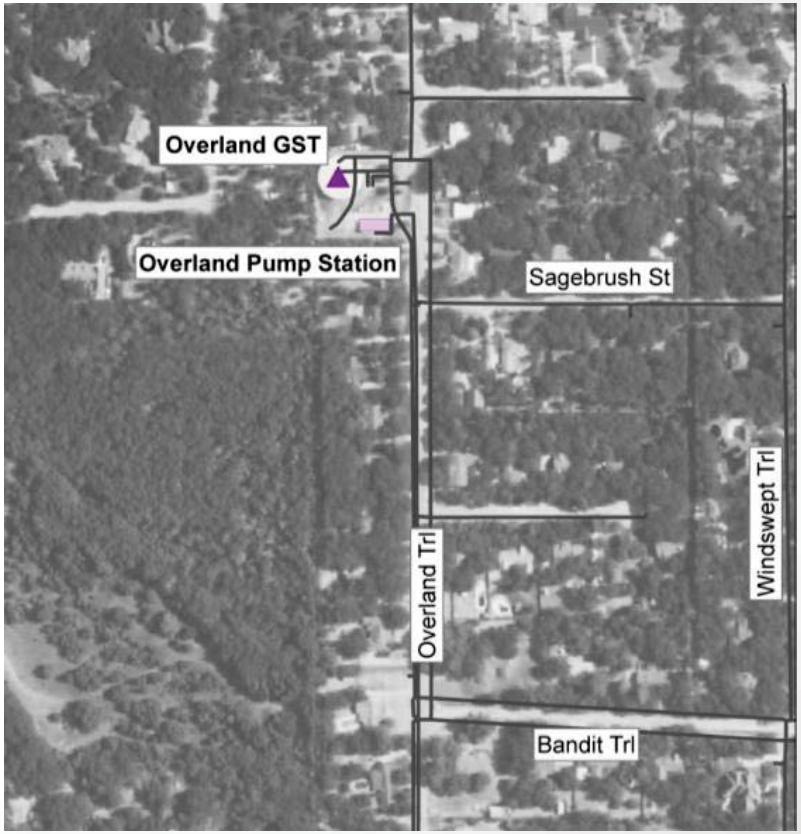
- Between Glade Road and Colleyville Blvd
- Installation of connecting pipelines
- Improves fire flow, looping



Water project example - condition and operational

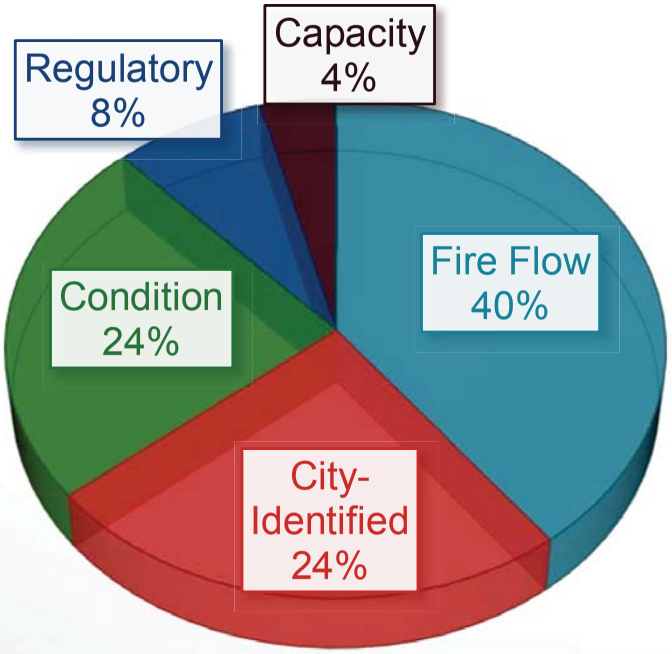
WATER GROUP U

- Decommissioning of Overland Trail
- Addresses conditional concern and reduces maintenance

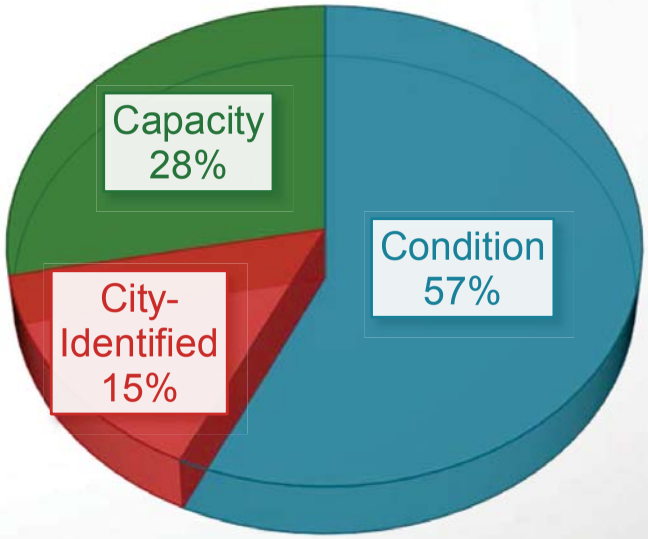


Capital Improvements Program based on triggers

DISTRIBUTION OF WATER BY PRIMARY TRIGGER



DISTRIBUTION OF WASTEWATER PROJECTS BY PRIMARY TRIGGER



Previous studies identified capital projects

Previously Identified Capital Projects (in 2015 dollars):		
	Water	Wastewater
2002 Water Improvements Study	$18,362,000	$-
2012 Impact Fee (Without TRA projects)	$1,915,000	$664,000
Total	**$20,277,000**	**$664,000**
Completed Projects	*$9,017,000*	*$-*
Identified Projects Not Constructed	**$11,260,000**	**$664,000**

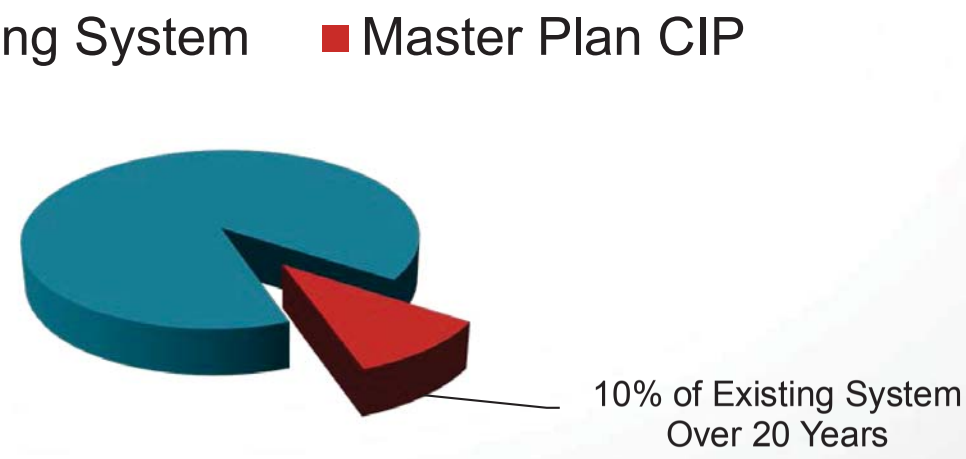
Capital Improvement Plan

Master Plan CIP (in 2015 dollars):		
	Water CIP	Wastewater CIP
City's Current 5 Year CIP	$4,408,000	$1,556,000
Master Plan Identified	$35,455,000	$13,488,000
Total	**$39,863,000**	**$15,044,000**

Short Term Needs	**$33,108,000**	**$4,624,000**

How do these numbers relate to the overall system?

	Water	Wastewater	Total
Existing System (estimated replacement value)	$302M	$237M	**$539M**
Master Plan CIP	$40M	$15M	**$55M**



December 16, 2014 Water and Wastewater Master Plan Briefing and Presentation

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RATE STUDY

Rate study objectives

Evaluate current rate structure

- Are fixed/variable revenues in-line with fixed/variable expenses?

Evaluate rate structures of surrounding cities with same wholesale rates

- Do volumetric rates apply to all consumption?
- How are larger meters billed?
- Are commercial rates differentiated from residential rates?

Provide a rate structure that will allow the City to cover fixed expenses by incorporating

- Volumetric rate for first two thousand gallons
- Meter size based minimum charges
- Different minimum charge for non-residential services

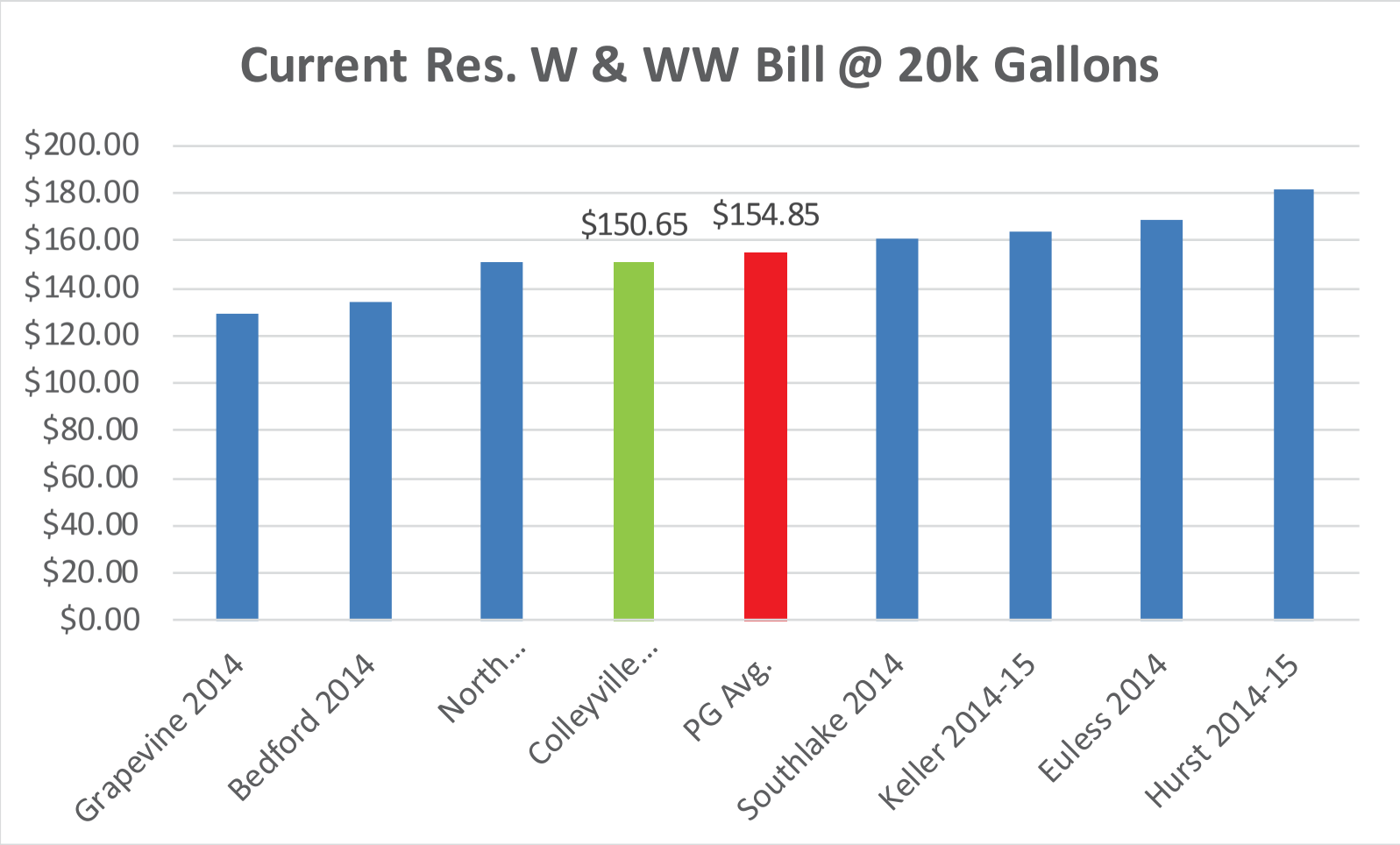
Evaluation of fixed and variable components

	Water			Wastewater		
	Fixed	Variable	Total	Fixed	Variable	Total
Personnel	$1,522,882		$1,522,882	$251,189		$251,189
Operating	$1,660,087	$6,949,456	$8,609,543	$115,778	$2,635,049	$2,750,826
Capital Outlays	$200,000		$200,000	$50,000		$50,000
Debt Service	$490,100		$490,100	$0		$0
Total Expenses	$3,873,069	$6,949,456	$10,822,525	$416,966	$2,635,049	$3,052,015
Total, %	**36%**	**64%**	**100%**	**14%**	**86%**	**100%**
Average Residential Bill	**15%**	**85%**	**100%**	**16%**	**84%**	**100%**

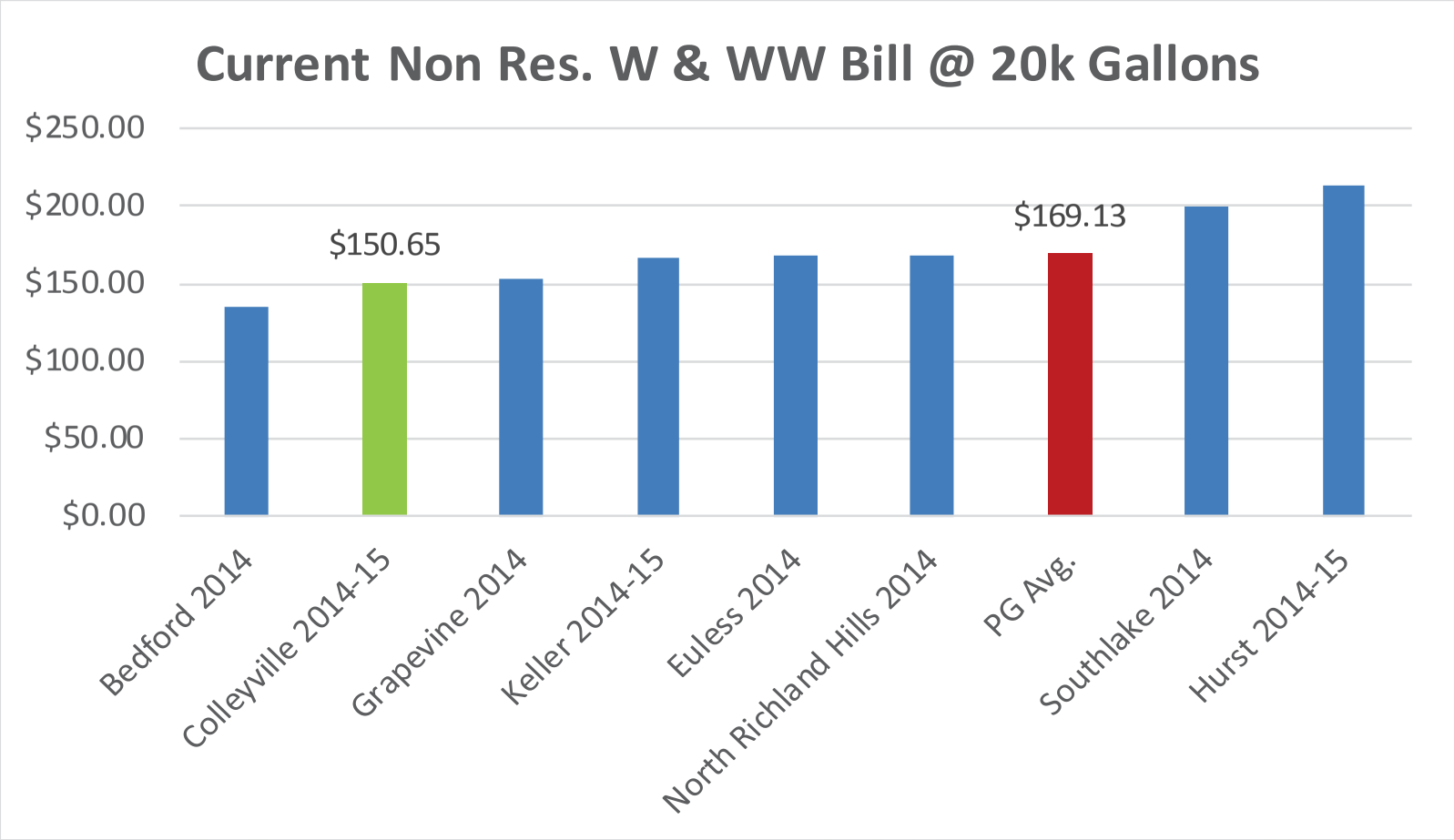
Benchmarking the current rate structure

City	Volumetric rates charged for all metered consumption?	Do larger meters pay a higher min. charge?	Residential and non-residential rates differentiated?
Colleyville 2014-15	No	No	No
Grapevine 2014	No	Yes	Yes
Euless 2014	Yes	Yes	Yes
Bedford 2014	Yes	Yes	No
NRH 2014	Yes	Yes	No
Southlake 2014	No	Yes	Yes
Keller 2014-15	Yes	Yes	Yes
Hurst 2014-15	Yes	Yes	Yes
	= TRA Water Customers		

Benchmarking the current rates



Benchmarking the current rates



Summary of findings

Fixed to variable water rate structure ratio does not reflect expense ratios

Rate structure is independent of meter size

Residential and non-residential services are provided at the same rate structure

Summary of findings

Fixed to variable water rate structure ratio does not reflect expense ratios

INCURRED FIXED COSTS NOT RECOVERED

Residential and non-residential services are provided at the same rate structure

Proposed rate structure change

FY 2015

2-YEAR

- Standard monthly volumetric rates
  - First 2,000 gallons
- Minimum for non-residential wastewater services

4-YEAR

- Meter size-based minimum billing for water services

Impact of 2-year transition

VOLUMETRIC CHARGE FOR FIRST 2,000 GALLONS

Average monthly bill change $7.27/year (4.6%)

Reflective of variable treated water expense

Rate structures consistent with 3 of 4 peer group water customers

Impact of 2-year transition

DIFFERENTIATED MINIMUM RATE FOR NON-RESIDENTIAL WASTEWATER SERVICE

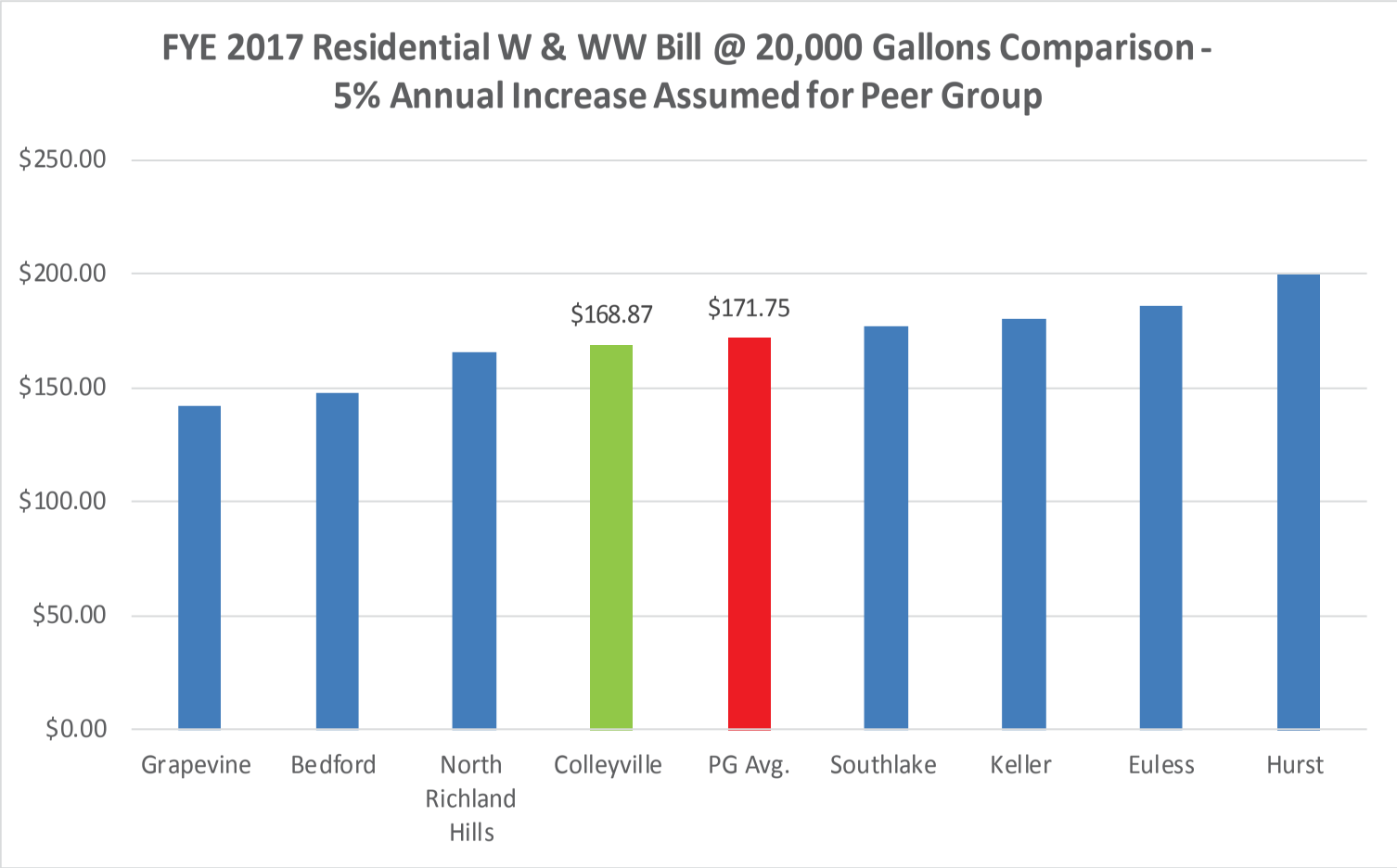
Average monthly bill change $3.00/year (0.1%) for non-residential

Rate structures consistent with 5 of 7 peer group wastewater customers

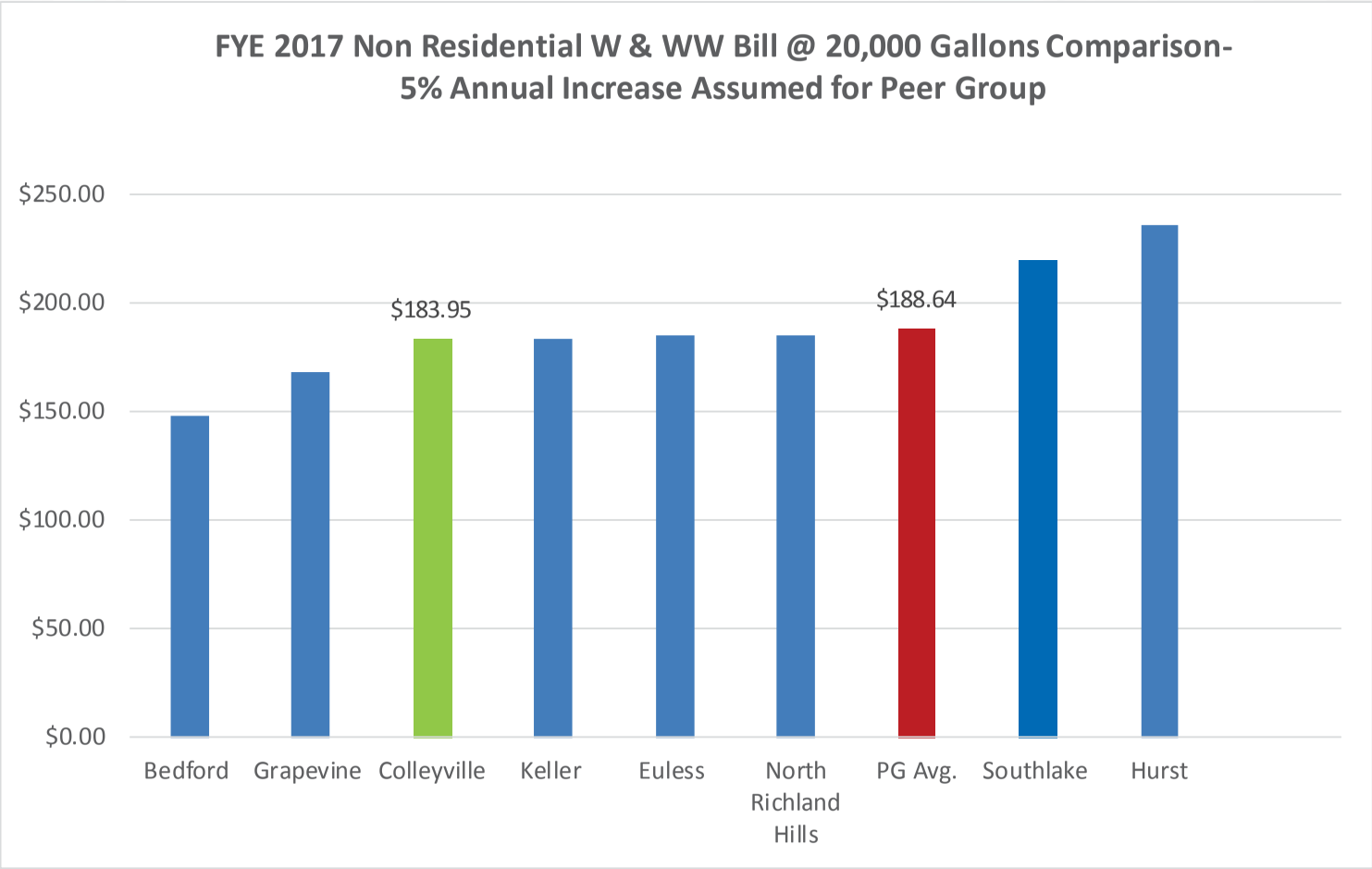
Impact of 4 year transition to meter size - based minimum charges

Meter Size (in.)	# in City	Average usage (Gal/Mo)	Existing Minimum Bill (/Mo)	Proposed Minimum Bill (/Mo)
<1.5 Res.	4,227	20,000	$13.28	$20.40
<1.5 Non-Res.	406	30,000	$13.28	$31.63
1.5	128	40,000	$13.28	$40.73
2	207	50,000	$13.28	$84.24
3	12	250,000	$13.28	$150.81
4	2	500,000	$13.28	$154.50

Comparison of member cities – proposed rate structure



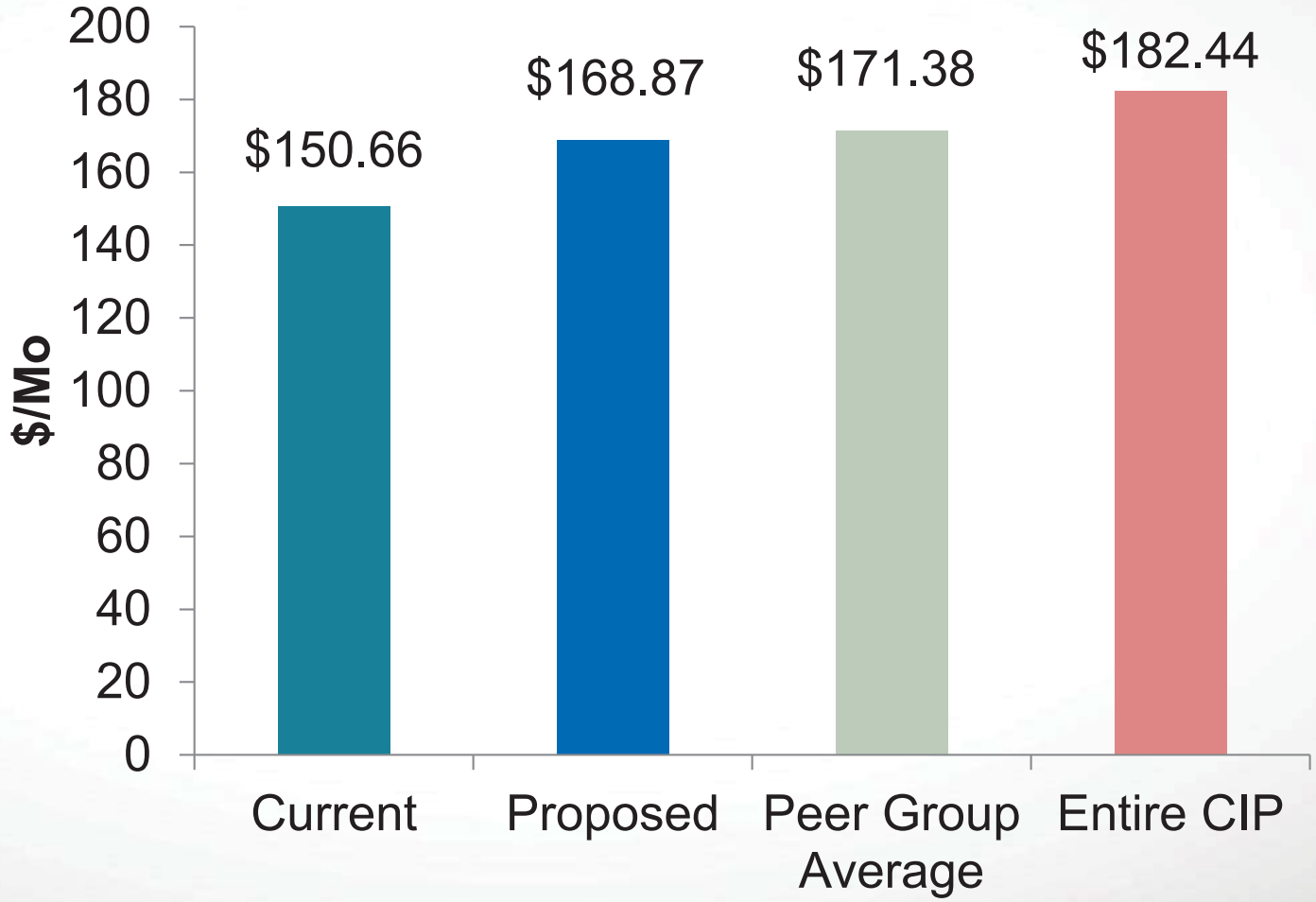
Comparison of member cities – proposed rate structure



Cash flow projection
(assumes proposed structure is implemented)

	2016	2017	2018	2019
Total Revenues	$16,722,262	$17,792,328	$18,122,224	$18,389,502
O&M, Net of Dept.	$13,929,163	$14,779,132	$15,688,411	$16,661,372
CIP Funding	$2,354,710	$2,581,316	$2,245,023	$1,628,130
Total Expenses	$16,283,872	$17,360,448	$17,993,434	$18,289,502
Net Rev. Avail. For Debt Svc.	$438,390	$431,880	$188,790	$100,000
Total All Debt Services	$365,325	$359,900	$157,325	$0
FY End Balance	$73,065	$71,980	$31,465	$100,000

Rates to fund the entire CIP – example of residential 20,000 gallon bill



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QUESTIONS?