

# Stormwater Management Program & Stormwater Utility Review

2017 KC Urban  
Stormwater Conference

January 23, 2017





# Stormwater Management Program

- 💧 **Floodplain Regulation:**  
Maintain FEMA NFIP & CRS Rating Level 6
- 💧 **Water Quality and Pollution Control:**  
Maintain Regulatory Compliance With The City's  
Kansas Water Pollution Control MS4 Permit.
- 💧 **Flood Mitigation:** Identifying, Planning, Designing, and  
Constructing Drainage Improvement Projects
- 💧 **Storm Drainage System Maintenance:**  
Asset Management, Routine Maintenance, Pipe Repairs



# Stormwater Inventory

<b>Stormwater Pipe</b>	<b>(Miles)</b>
CMP/Steel (average age 31 Years)	101.5
RCP/RCB	71.3
Other	5.7
<b>Pipe Total</b>	<b>178.5</b>
<b>Open Channels</b>	<b>(Miles)</b>
Improved Channels and Ditches	112.9
Natural Streams, Lakes , Ponds	173.8
<b>Open Channels Total</b>	<b>286.7</b>
<b>Curb &amp; Area Inlets, Manholes</b>	<b>9,929</b>

## 2015 Structure and Pipe Video Inspections

6 Years of Video Inspections = 254,000' (48 mi.) (20 Yr. Insp Cycle)

7 Years of Structure Inspections = 9,600 (7 Year Insp Cycle)

### Rating Scale

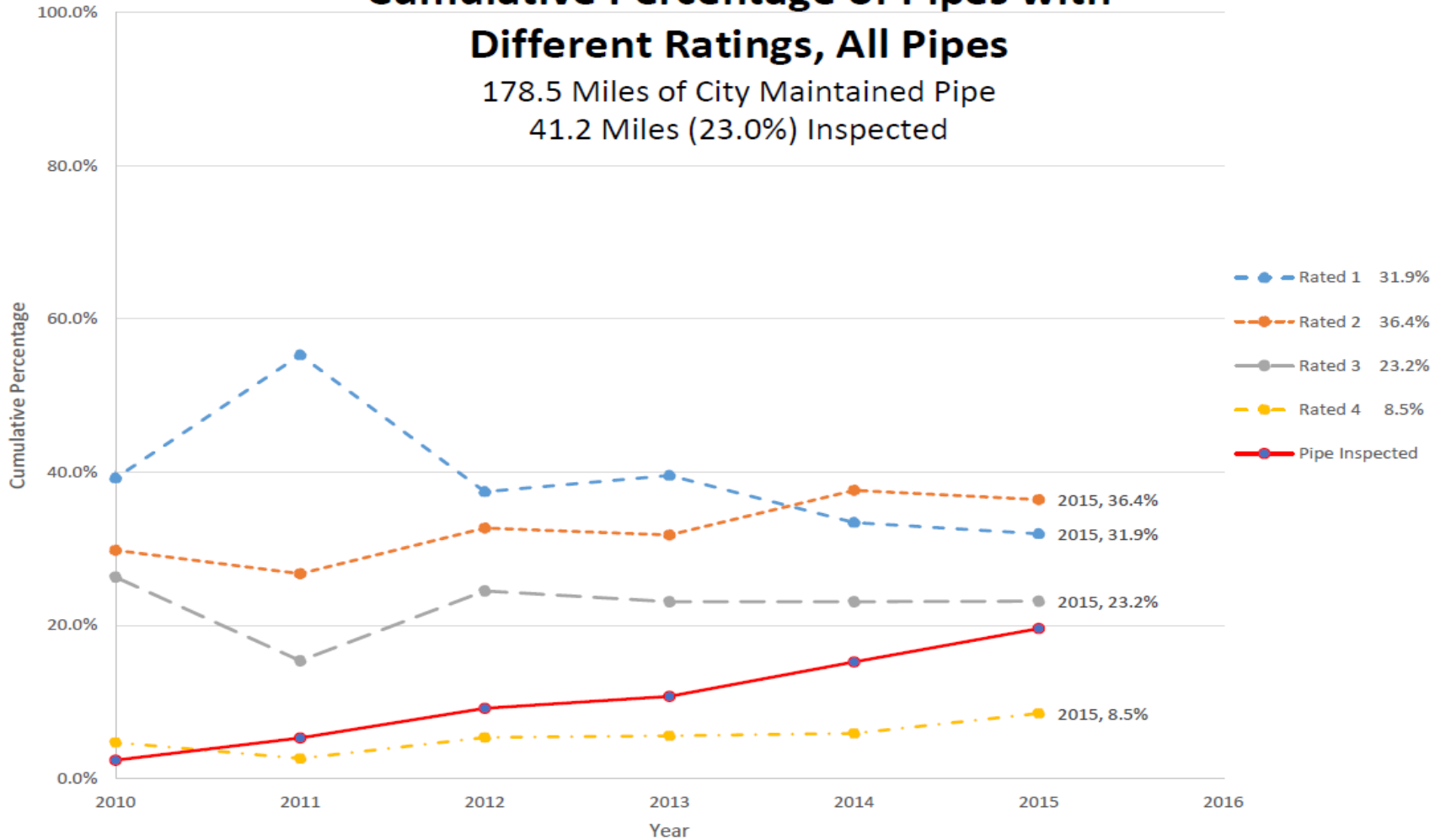
#### FUNCTIONAL CONDITION and PHYSICAL CONDITION

(The physical condition of the storm sewer and the severity of damage)

- 1 = **Excellent Condition** - no cracks, no defects, no corrosion
- 2 = **Fair** - minor defects/cracking, joint damage, deterioration
- 3 = **Poor** - Patching of Pipe - pipe patching needed soon, monitor
- 4 = **Poor** - Pipe Replacement - pipe deformation/ major cracks/ major corrosion

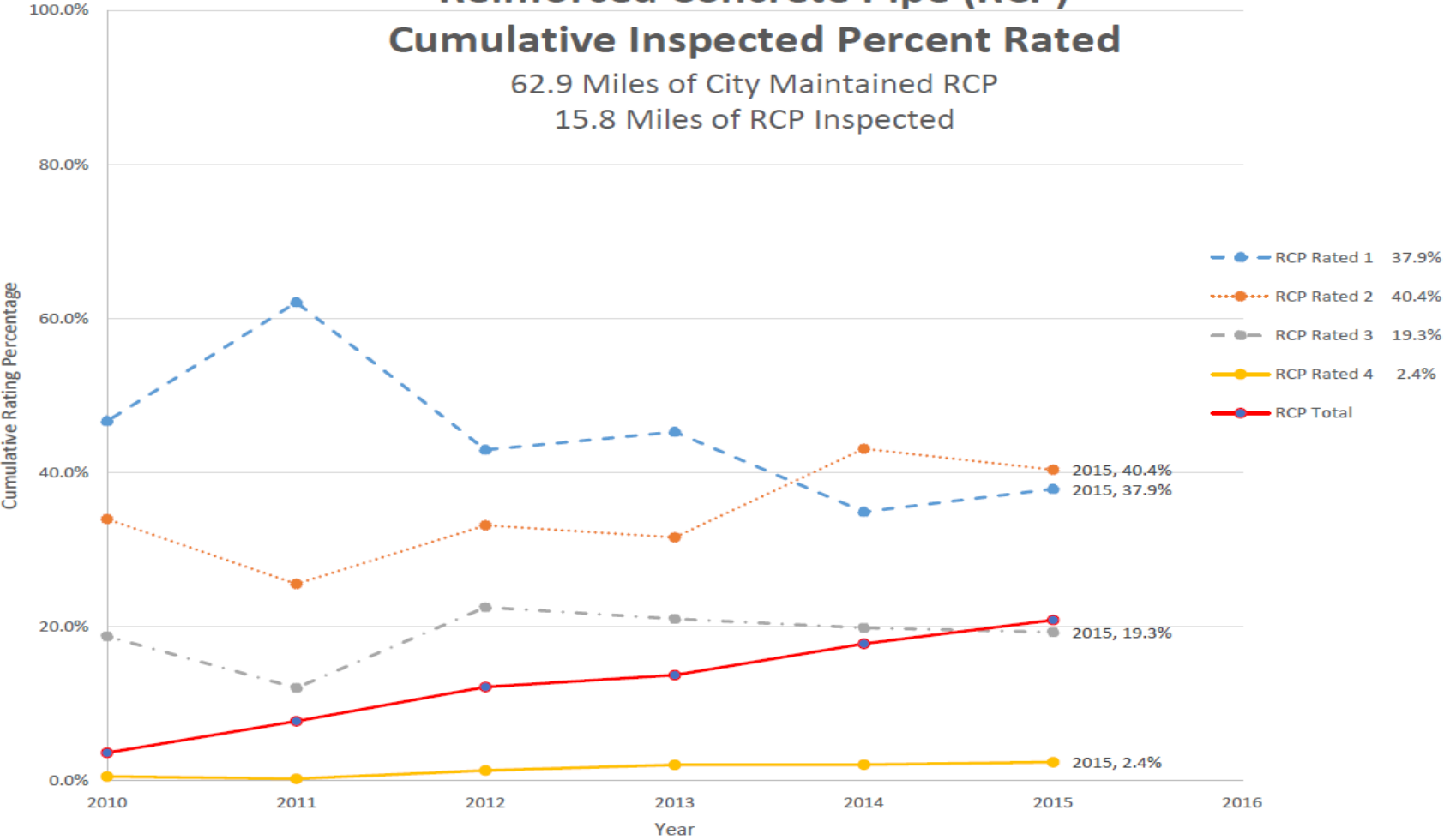
# Cumulative Percentage of Pipes with Different Ratings, All Pipes

178.5 Miles of City Maintained Pipe  
41.2 Miles (23.0%) Inspected



# Reinforced Concrete Pipe (RCP) Cumulative Inspected Percent Rated

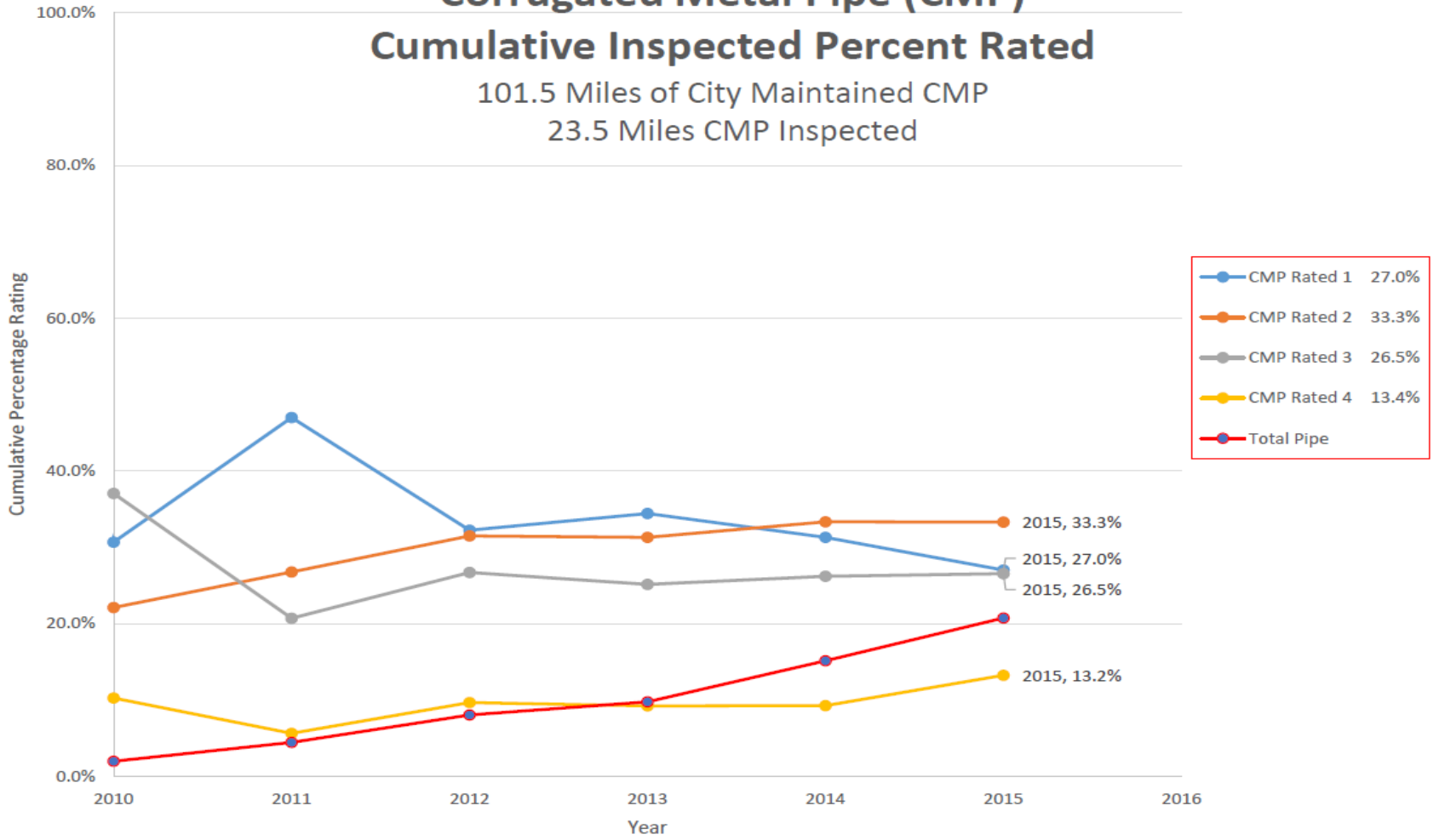
62.9 Miles of City Maintained RCP  
15.8 Miles of RCP Inspected



# Corrugated Metal Pipe (CMP)

## Cumulative Inspected Percent Rated

101.5 Miles of City Maintained CMP  
23.5 Miles CMP Inspected





# Program Review

<b>3-4 Rated Pipe</b>	<b>%</b>	<b>Miles</b>	<b>(Miles)</b>
CMP/Steel	39.9%	101.5	40.5
RCP/RCB	21.7%	71.3	15.5
Other		5.7	0.6
<b>Pipe Total</b>	<b>31.7%</b>	<b>178.5</b>	<b>56.6 Miles Projected Needing Repair</b>

- After 6 Yr. Of Making Repairs Wih In-house Crews And Contractors We Estimated **\$114,000,000 Remained** To Repair/Replace Existing Pipe Needing Repair.
- Proposed Several Funding Options Requiring An Increase Of Our \$36/Yr. Stormwater Utility Fee or Mill Levy Increase to Pay Bond Debt.





# Program Review

## CURRENT 2016 FUNDING

- Current Stormwater Utility (SWU) User Fee = \$36/Yr.
- \$1,720,000 (SWU Fee) + 750,000 (GF transfer) = \$2,470,000
- 2016 Budgeted Pipe Repair Funds = \$600,000 / Year
- Pipe replacement for approximately 0.25 miles per year, which would take 50-60 years to replace the current 4-rated pipe (~ 14 Miles)



# Program Review

## Stormwater Utility User Fee

- Requested a Fee Increase Scenario Large Enough to Address the 3-4 Rated Pipes Over the Next 20 Years = \$165/Year = \$7,900,000

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- Received an increase to \$72/Year = \$3,440,000  
\$3,440,000 (SWU Fee) + 750,000 (GF transfer) = \$4,190,000
- 2017 Budgeted Pipe Repair Funds = \$1,130,000 / Year
- 2018 Budgeted Pipe Repair Funds Increased to \$2,000,000 /Year



# Pipe Repair and Replacement

- **Goal To Reserve \$1 Million For Emergency Repairs.**
  - 2017 - Johnson Drive And Mund (Est. Cost \$1,050,000)
  - 2018 – 64<sup>th</sup> and Halsey Pipe Failure (Est. Cost \$758,000)
  
- **Assumed \$8 Million Debt Funded Projects** That Would Become Available in 2019 Per Forecasted Debt Service Fund :
  - 5-6 Major Backlogged Projects
  - 5-10,000 Feet Of 4-rated CMP Pipe Replacement



# Video Inspection and Analysis

## **Increase The Amount Of Pipe Inspection Completed Annually**

- A. Goal to complete all remaining pipe inspections within 7 years.
  - Double the Amount of Video Inspections Per Year (~100,000')
  
- B. Accelerated inspection process will:
  - Increase Amount of Data to Improve Planning
  - Better prioritize projects
  - Identify problem areas more quickly
  - Help to Avoid Emergency repairs



# Stormwater Utility Information

**Western Kentucky University Stormwater Utility Survey 2016**

[www.wku.edu/engineering/civil/fpm/swusurvey/swus2016](http://www.wku.edu/engineering/civil/fpm/swusurvey/swus2016)

**2016 Stormwater Utility Survey by Black and Veatch**

[https://pages.bv.com/Whitepaper-ManagementConsulting-2016StormwaterUtilitySurvey\\_01-RegistrationPage.html](https://pages.bv.com/Whitepaper-ManagementConsulting-2016StormwaterUtilitySurvey_01-RegistrationPage.html)

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# Questions?

