Flint, Michigan

- Population of 100,000 (down from 200,000 in 1970)
- 55% Black, 35% White, 10% Other
- 14.6% unemployment (2014)
- Median Household Income of $24K; Michigan is $48K
- 42% living below poverty level (2nd highest in nation)
- Median Home Value of $29,000
- 10% with college degree
Flint Water Crisis

- Failure of water utility
- Failure of local government
- Failure of state government
- Failure of environmental regulator
- Major breach of public's trust in tap water
Flint Water Crisis

- City in receivership, under Emergency Management of State of Michigan
- Detroit supplied water to Flint since 1967
- Decided in 2013 to switch water supply from Detroit to the Karegnondi Water Authority (KWA) in order to avoid Detroit rate increases.
- Requires a pipeline to KWA to be complete in 2016
- In the interim, Flint reactivated their 1967 water treatment plant until pipeline is completed Lake Huron reactivate a 1972 water treatment plant to save money
- Discontinued Detroit Water Supply in April 2014
- This plan was approved by the State's Emergency Manager
Flint Water Crisis

- In April 2014, water is treated by the Flint Water Plant with source from the Flint River
- Flint River is high in chlorides (corrosive)
- Flint did not treat for corrosion; Detroit used Ortho-phosphates for corrosion control
- Discolored tap water in Flint shows up, water was declared safe to drink by Michigan Regulators
- Flint cited for not meeting Disinfection By Products Rule (high THMs) in 2014
Flint Water Crisis

- High blood lead levels discovered in 2015, after research study by Hurley Medical Center in Flint
- Source determined to be Flint Tap Water
- Estimated 6,000 to 12,000 children affected
- Lead levels in tap water exceeded 13,000 ppb, 800 times EPA action level of 15 ppb
- Flint returned to Detroit Water in October 2015
- March 2016, samples in Flint still exceed 100 ppb (15 ppb is action level)
Water Comparison

Detroit Water:
- Source is Lake Huron, a stable, clean source
- Water exceeded EPA regulations
- Practiced corrosion control with ortho-phosphate treatment to coat metallic pipes
- Wholesaled water to Flint and other Michigan cities

Flint Water:
- Source is Flint River
- "Flashy" source water (high turbidity, industrial waste)
- Lower pH, more acidic than Detroit water
- No corrosion treatment to buffer water
- Dissolved the protective coating inside of lead pipes and plumbing fixtures
- Lead levels exceed 13,000 parts per billion (EPA action level at 15 ppb)
Louisville's Tap Water

- Louisville Pure Tap exceeds all EPA Drinking Water Regulations
- Treats Ohio River Water (flashy river source like Flint)
- Adjust pH to 8.0 (slightly basic), using lime with a moderate calcium carbonate hardness (150-160 mg/l) to provide protective layer and corrosion control.
- Louisville has always complied with the 1991 EPA Lead and Copper Rule (< 15 ppb)
Louisville's Lead Program

- In 1935, Louisville had approximately 75,000 lead service lines.

- Louisville phased out lead service lines beginning in 1937, replaced with copper tubing from water main to meter set to tail piece.

- A proactive lead service line replacement program began in 1985, with a goal to replace 1,000 to 1,500 lead service lines each year.

- A lead service line inventory was conducted in 1987 to identify lead pipes from construction records, home age, field surveys and excavations.
Louisville's Lead Program

- In 1985 a policy was adopted to replace any lead service line whenever discovered (leak, main replacement, excavation), or when customer requested replacement.
- Approximately 7,500 lead service lines remain, goal to eliminate by 2025, estimated cost at $18 to $20 million.
- Less than 10% lead service lines on public side have lead on private side of meter.
- LWC has an on-line database for customers to ID lead pipes at www.louisvillewater.com.
Louisville's Lead Program

- An active public and consumer education program was developed by LWC, including web site information, fliers, postcards, letters.

- Following the Lead Containment Control Act of 1988, Louisville Water began a partnership with public and private schools for:
  - Lead sampling
  - Water coolers/fountains that contained lead line tanks or fittings

- Partnership with schools continues today
  - Lead
  - Cross connection
  - Boil water
Kentucky Lead Workgroup

- Kentucky established a Lead Workgroup in March, 2016
- Diverse representation:
  - Small, medium and large utilities
  - Regulators
  - Academic
  - Engineering
  - Public Health
  - KY-TN AWWA, KY Rural Water, KMUA
Kentucky Lead Workgroup

- First meeting held April 20, 2016
- Workgroup meets monthly
- Sub-teams established in the following areas:
  - Public health impacts of lead
  - Kentucky compliance record with Lead and Copper Rule
  - Treatment/corrosion control
  - Distribution infrastructure
  - Financing lead replacement
  - Future lead regulations and legislation
  - Communications/Education
Kentucky Lead Workgroup

- Expect work to be completed by December, 2016

- Deliverables:
  - Power point presentations on each topic area
  - Briefing report by each sub-team/topic area

- Workgroup report will provide the following:
  - a summary of Kentucky’s compliance with EPA’s Lead and Copper Rule
  - Best practices for treatment of lead in drinking water
  - Best practices for removal of lead pipes, fixtures, etc.
  - Preparation for future regulatory changes (lower action levels)
  - Best practices for sharing lead information and educating consumers
  - Financing practices to fund replacement programs
Best Practices Emerging

- On-line lead database
- Free water sampling for lead
- Lead education materials
- Proactive lead replacement programs
- Lead replacement subsidy or finance program for homeowner’s portion of lead piping
- Optimized water treatment for corrosion
- School partnerships for lead testing and lead plumbing replacement
Regulatory Possibilities:

- Reduction in Action level below 15 ppb
- Possibly a MCL for lead
- Change in sampling (cycles, size, frequency, locations)
- Strict water sampling protocol for lead
- Mandatory replacement programs (xx% per year)
- Mandatory lead education materials provided to for consumers
- Private lead line replacement requirements for homeowners
- Specific lead action steps for schools, daycares and public facilities
Questions ???

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Sources for Presentation:

- Wikipedia
- Louisville Water Company
- Kentucky Lead Workgroup
- Courier Journal and on-line media reports