

Boil Water Advisories – A City/County Collaboration

Michigan AWWA
Water Security Summit
June 7, 2011

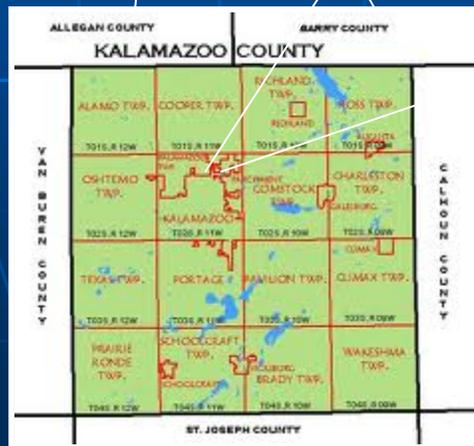


Overview

- Water System Description
- Occurrence of Water Main Breaks
- Impacts of Water Main Breaks
- Boil Water Advisory vs. Boil Water Order
- City/County Shared Response Activities



City of Kalamazoo Water System



City of Kalamazoo Kalamazoo County

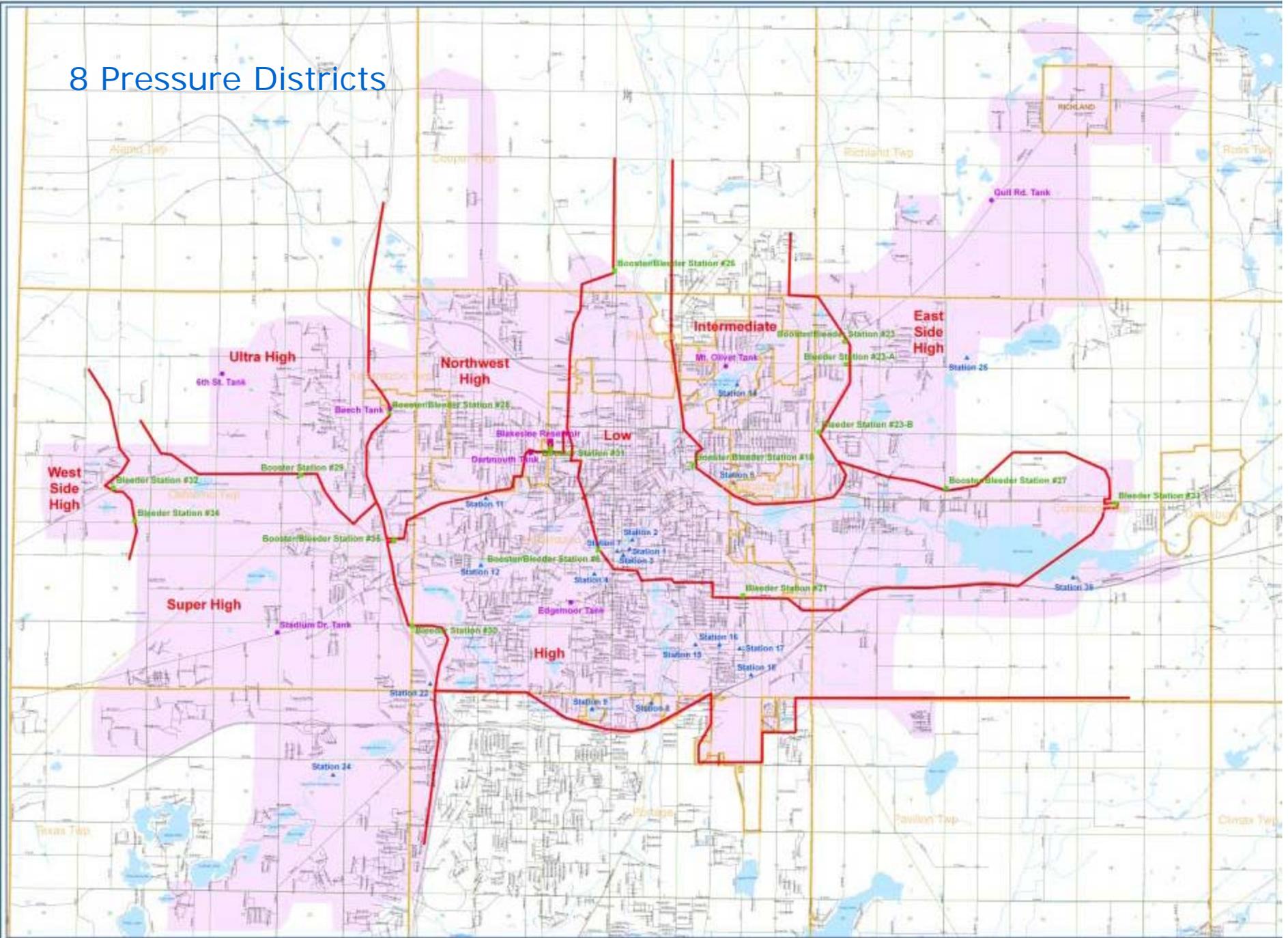


Kalamazoo Water System

- 120 Square Mile Service District
- 10 Governmental Units Served
- Serves a Population of Over 121,000
- Over 800 Miles of Water Main



8 Pressure Districts



Kalamazoo Water System

- Second largest groundwater-based drinking water system in Michigan
- 100 Production Wells

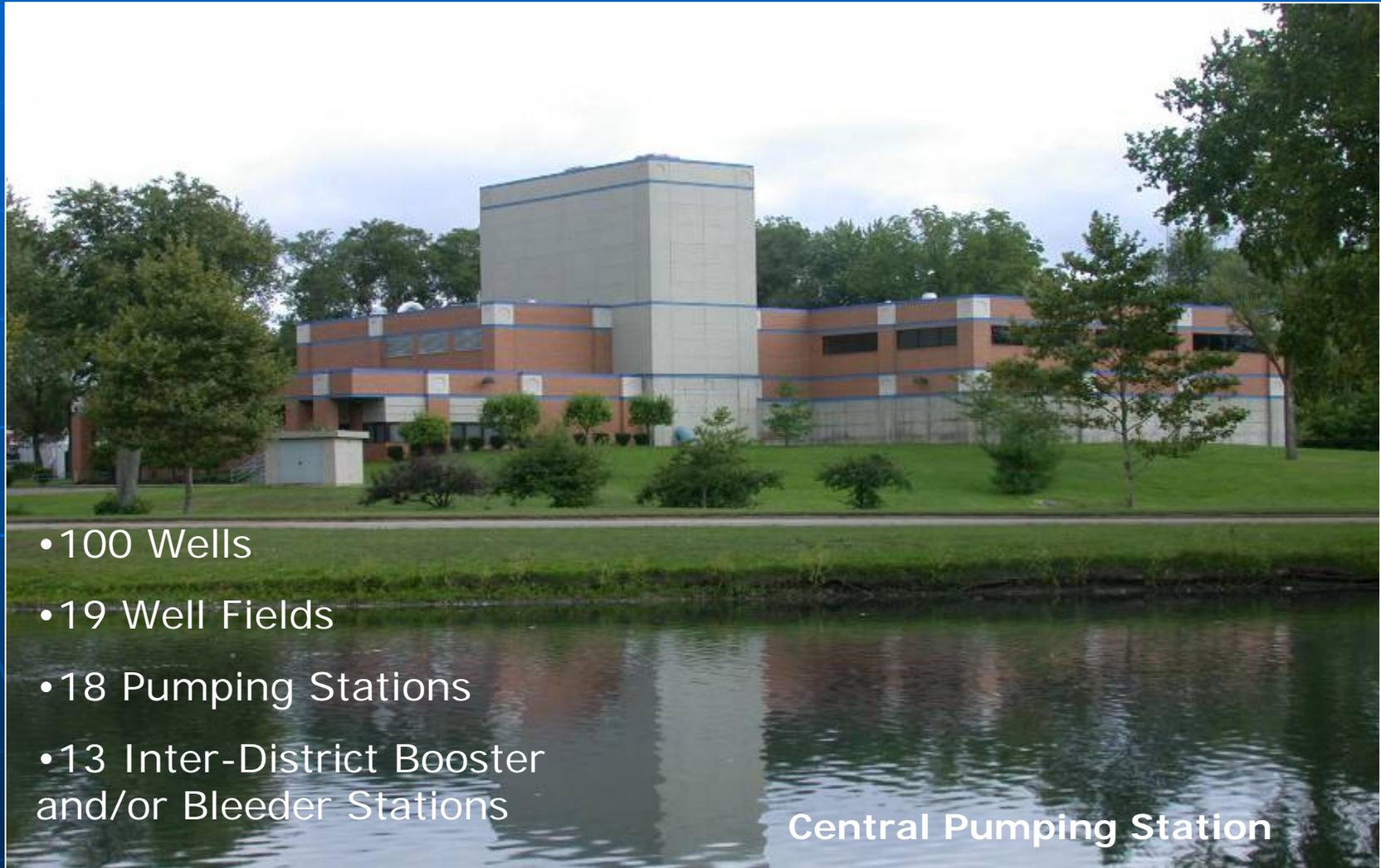


Kalamazoo Water System

- Categorized as Type I-D, Limited Treatment
 - Add Chlorine for Disinfection
 - Add Fluoride for Dental Health
 - Add Polyphosphate for Iron and Corrosion Control



Kalamazoo Water System



- 100 Wells
- 19 Well Fields
- 18 Pumping Stations
- 13 Inter-District Booster and/or Bleeder Stations

Central Pumping Station

Kalamazoo Water System

- 7 elevated storage tanks
- 1 ground storage tank
- 17.8 million gallons total storage



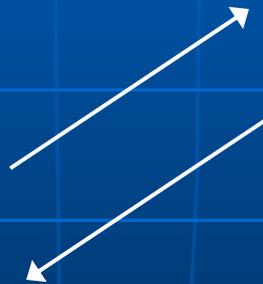
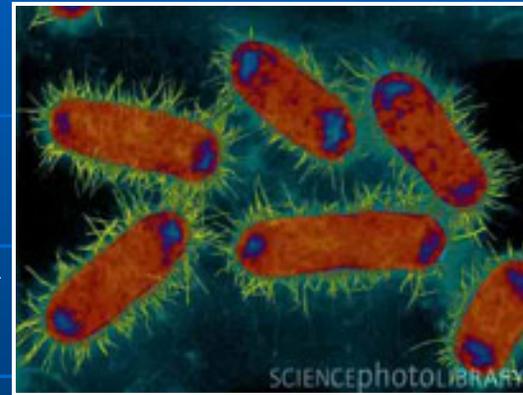
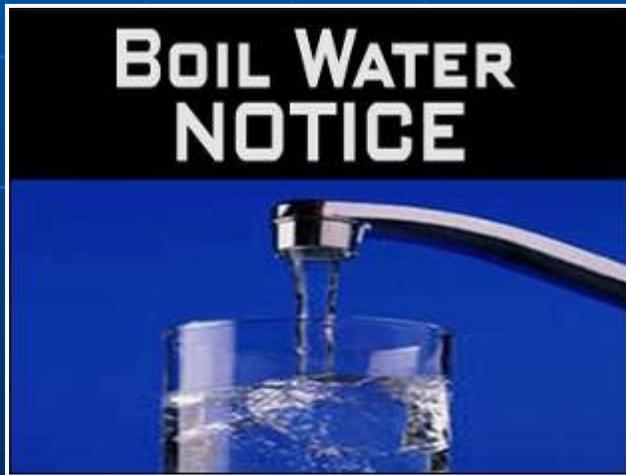
Occurrence of Water Main Breaks

- External Pipe Corrosion
- Soil Type
- Differential Settlement (extreme weather changes) of Subsurface
- Failure of Mechanical Joint Systems



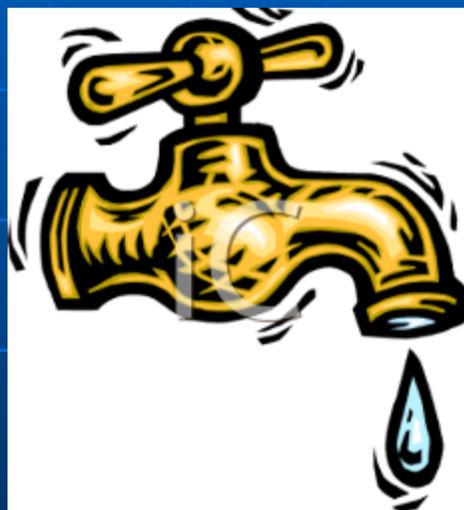
Impacts of Water Main Breaks

Public Health Impacts



Impacts of Water Main Breaks

Water Service Interruption



Impacts of Water Main Breaks



Interruption
of Traffic
Flow



Impacts of Water Main Breaks

Damage to
Infrastructure



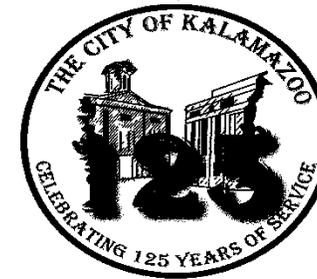
City of Kalamazoo Repair Practices

- Isolation of the break, e.g., ability to maintain chlorine residual on either side of break
- Depressurize main only if necessary
- Heavily chlorinate pipe sections and repair area
- Monitor Chlorine Residuals
- Flush Thoroughly Prior to placing back in service
- Water Quality Testing



Water Quality Testing

- Procedures for routine and confirmatory bacteriological sampling
- 20 Distribution System Sampling Points
- 120 Total Samples per Month
- 16 Active Well Raw Water Tap samples per Month



City of Kalamazoo
Bacteriological Sampling Plan

Revised: November 20, 2009



Backflow Prevention Program

- Program Approval: 1974
- 2100 locations routinely inspected
- 252 High Hazard locations
- Testing Requirements
- Record Keeping Requirements

Regulatory Impacts

- WB-014 (MDEQ Water Bureau Policy and Procedures)
- October 12, 2007
- Guidelines for Issuing Boil Water Advisories to Address Potential Microbial Contamination of Community Water Supplies



MICHIGAN SAFE DRINKING WATER ACT
1976 PA 399, as Amended,
MCL §§325.1001 to 325.1023
and the
Administrative Rules,
Supplying Water to the Public
R 325.10101 to R 325.12820

Michigan Department of Environmental Quality
Water Bureau
525 West Allegan Street
P.O. Box 30273
Lansing, Michigan 48909-7773

Governor Jennifer M. Granholm
Director Steven E. Chastler

<http://www.michigan.gov/230>



When to use a Boil Water Advisory?

When to use a Boil Water
Order?



Boil Water Advisory

- Unconfirmed Loss of Water Quality in the Water System Due to Significant Loss in Pressure or Water Main Break
- Customers are advised to boil water or use bottled water
- Warns users that water may be contaminated



Boil Water Order

- Contamination has been confirmed through water quality testing
- Customers are now ordered to boil water or use alternative water supply, e.g., bottled water
- Add “**Do Not Use**” language if chemical spill to system or backflow due to cross connection

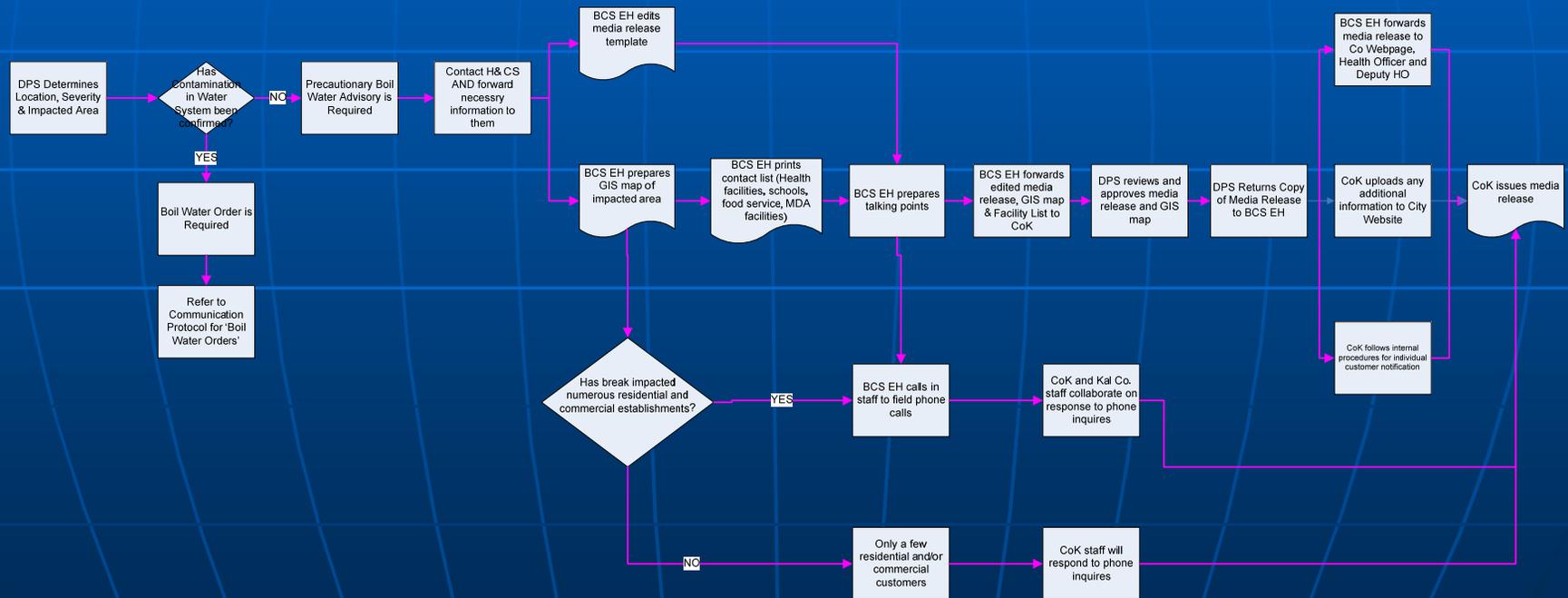
City/County Collaboration Process

- A Hypothetical Water Main Break

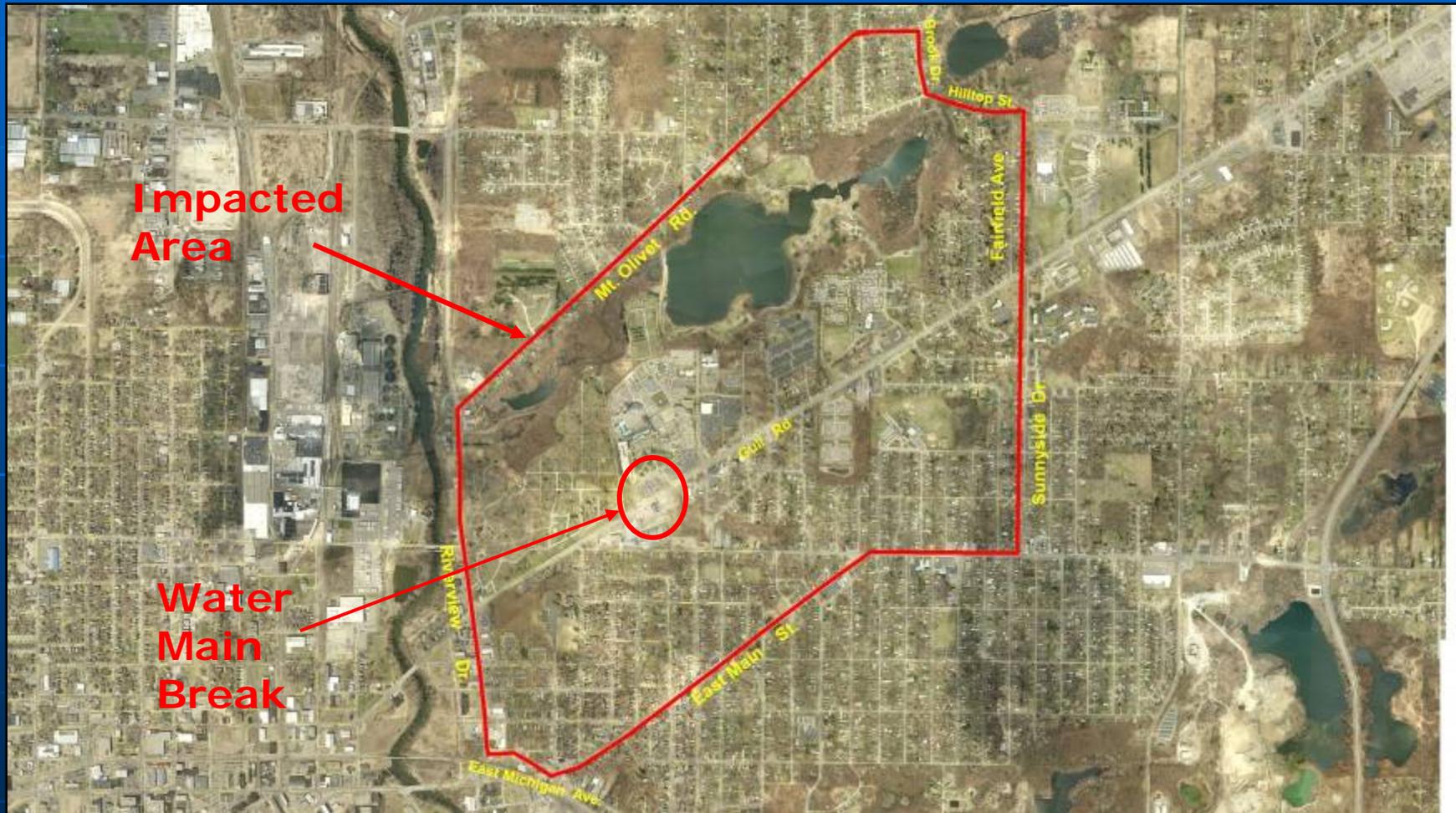


Communication Protocol

Developed by Collaborating with County Staff



Hypothetical Water Main Break



Communication Protocol

- The City Determines. . .

- Location
- Severity
- Impacted Area
- Water Sampling Protocol

. Then forwards information
to County



Communication Protocol

- The County
 - Edits a jointly prepared media release template
 - Prepares a GIS map of impacted area
 - Prints contact list, health facilities, schools, food service, MDA facilities
 - Forwards edited media release, GIS map and facility list to City



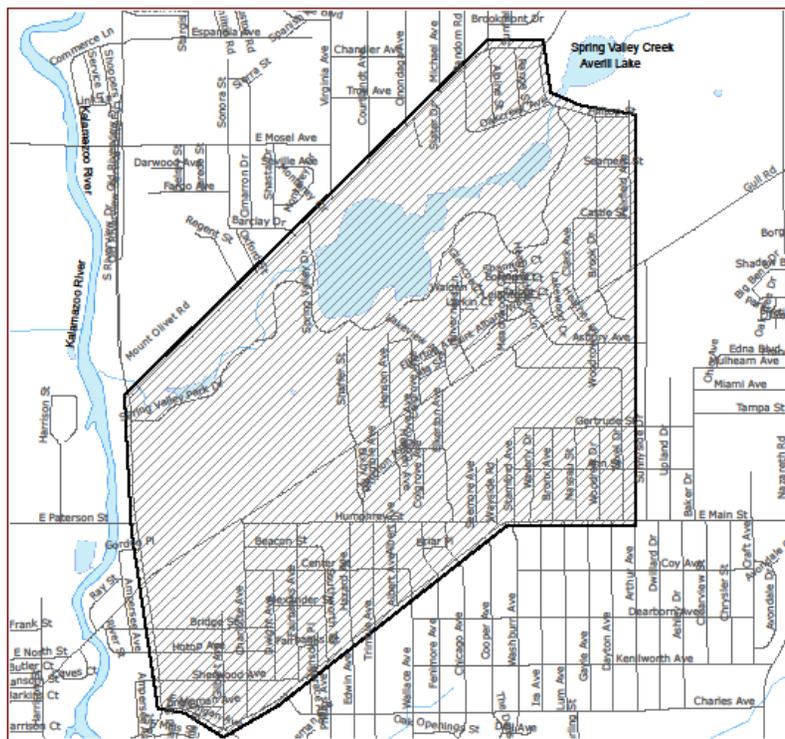
Impacted Area Map



Kalamazoo County

Health & Community Services

Environmental Health



0 0.3 0.6 Miles

Legend

 Boil Water Advisory Area

Wednesday, June 1, 2011 8:38:40 AM
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Data Source:
Michigan Center for Geographic Information:
www.michigan.gov/mcgis
Michigan Department of Environmental Quality:
www.michigan.gov/deq
Kalamazoo County Health & Community Services:
www.kalamazoo.com/eh

Kalamazoo County Health & Community Services Department
assumes no legal responsibility for the information contained
in these maps.



Contact List

- Hospitals
- Schools
- Restaurants
- Adult Foster Care Facilities
- MDA Retail
- Day Care
- Head Start Facilities



City/County Collaboration Process

- A Hypothetical Water Main Break

Restaurants		
Name	Address	Phone
BIG JOE'S PIZZA		
BIG MOE'S STFU #2		
BORGESS MEDICAL CENTER		
CARMIE BROWN STFU		
CORNERVIEW CAFE		
DAIRY QUEEN		
EASTWOOD COMMUNITY		
FISH DOCK		
FISH EXPRESS		349-5000
HERITAGE HALL		
JIMMY D'S SMOKEHOUSE		
K & S VENDING		668-3301
K & S VENDING		668-3301
KALAMAZOO COUNTY		385-8550
JUVENILE HOME		
KPS NORTHEASTERN		337-0694
ELEMENTARY		
LEE'S FAMOUS RECIPE		381-2898
MCDONALDS		
OLIVE TREE 1		345-4321
OMEOPES		
OUR PLACE		343-6343
SOUTH CHINA		382-2323
SPRING VALLEY CROSSING		
ST MARYS CHURCH		

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Schools	
SCHOOLNAME	ADDRESS
Northeastern Elementary	2433 Gertrude Ave
Youth Center School	1424 Gull Road
CDC Borgess	1521 Gull Rd
Comstock Co-Op Nursery	929 Charlotte Avenue
Head Start Eastside	1301 E Main
Head Start Northeastern	2433 Gertrude St
Learning Village	1822 E Main

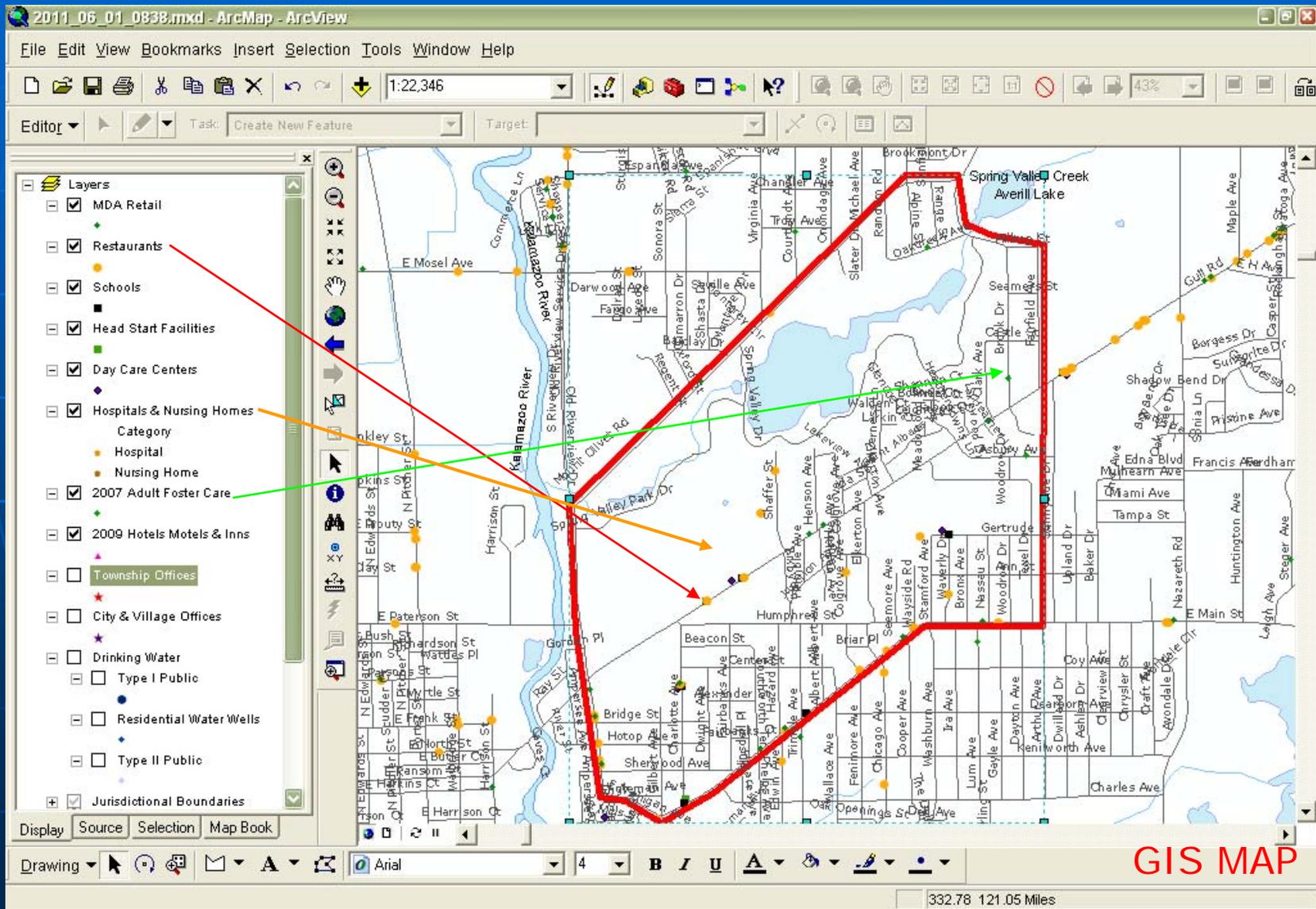
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City/County Collaboration Process

- A Hypothetical Water Main Break



Communication Protocol

- County will directly contact those facilities for which they have regulatory responsibility
- City calls 'critical' customers, e.g.,
 - Hospitals
 - High water using industries

Communication Protocol

- The City then Reviews and Approves,
 - Media Release
 - GIS Map

. . . . A copy of the media release
is sent back to the
County



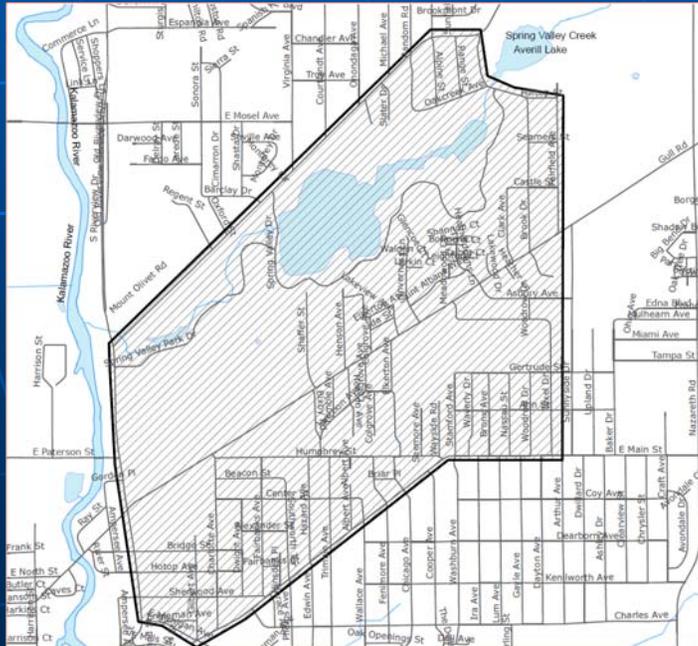
Communication Protocol

- The County
 - Returns final copy of Media Release back to City
 - Collaborates with City for phone call responses
 - County: Public Health Issues
 - City: Water System and Repair Status
 - Prepares talking points for those answering phones (use FAQs + specific information)
 - County may assign other staff to answer phones



Communication Protocol

- City Manager's Office Issues Media Release w/Map



EXAMPLE

Media Release

FOR IMMEDIATE RELEASE

Contact: Bruce E. Merchant
269-337-8660

BOIL WATER ADVISORY

Kalamazoo, Michigan, June 2, 2011 – A portion of the City of Kalamazoo's water system temporarily lost pressure due to a water main break along Gull Road between Riverview Drive and Shaffer Street. The City of Kalamazoo Department of Public Services in cooperation with the Kalamazoo County Health and Community Services Department is issuing a precautionary boil water advisory for all water intended for drinking or ingestion or any consumption uses within the impacted area. The advisory is **precautionary** only; there have not been confirmed tests showing coliform bacteria present in the water supply system.

The impacted area as shown on the attached map is bound by the following streets:

- ▲ Mt. Olivet Road (north)
- ▲▲ Fairfield Avenue and Sunnyside Drive (east)
- ▲▲ East Main Street (south)
- ▲ Riverview Drive (west)

Borgess Hospital, Northeastern Elementary School as well as numerous residential and commercial establishments have been impacted.

Municipal water customers in the affected area should use bottled water for consumptive purposes or boil their tap water for 1 minute prior to use for drinking or other ingestion.

Please call 269-373-5337 with any questions related to boiling tap water. Please call 269-337-8758 with any questions regarding water system operation, status of repairs or traffic issues or visit the City of Kalamazoo website at www.kalamazooocity.org or the Kalamazoo County website at www.kalamazooocounty.com/hcs.

Public Services staff are monitoring the system for pressure and water quality as well as "insert additional information as it applies".

The precautionary boil water notice will remain in effect until further notice (or stated timeframe).

CLOSURE INFORMATION

Gull Road traffic is one lane in each direction from Riverview to Shaffer Street.

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Communication Protocol

- City and County upload information to each of their websites,
 - FAQs
 - Media Release
 - Map
 - Overlay of critical customers



Ongoing Collaboration

- Test Drills (announced & unannounced)
- Assures impacted customers provided with timely, accurate and comprehensive information
- Minimizes potential of public health impact
- Working on similar collaboration for sanitary sewer overflows



