

# Mapping the City of Eatonton Water System and Creating a GIS Database for the Waterlines and Hydrants

Jenna Forte and Megan Corley

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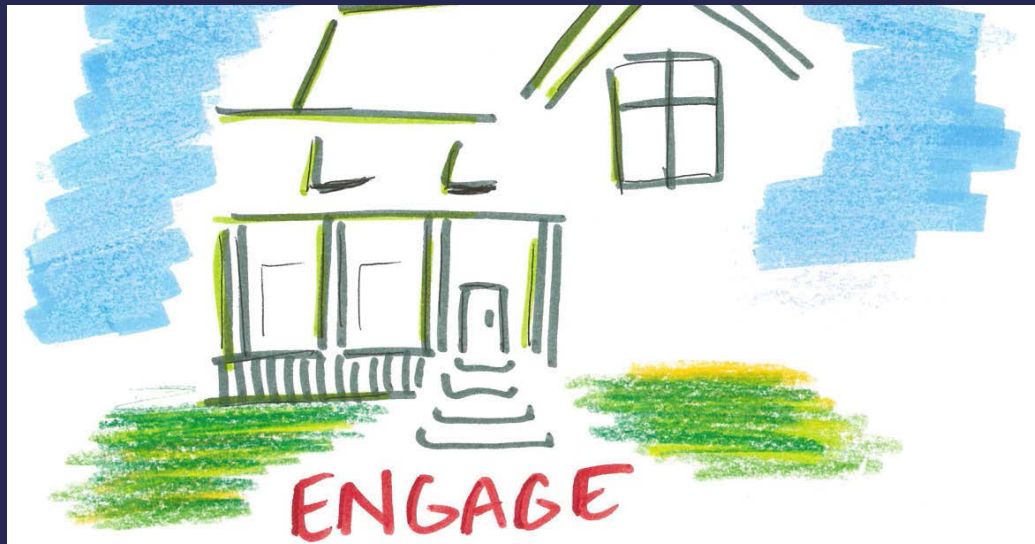
Mentored by Dr. Sam Mutiti

[Samuel.mutiti@gcsu.edu](mailto:Samuel.mutiti@gcsu.edu)

Georgia College and State University  
Milledgeville, GA


# Georgia College's ENGAGE Program

“ENGAGE supports the development of community based engaged learning (C-bEL) experiences for students in the classroom and beyond. Georgia college students address community issues and needs in partnership with community organizations”





# How we got involved

- Initial meeting
    - Georgia College's Biological and Environmental Sciences department
    - ENGAGE coordinator- Dr. Metzker
      - Put us in contact with the City of Eatonton officials and helped us obtain the necessary information and maps we needed to complete the project.
    - Faculty Mentor- Dr. Mutiti
      - Helped us design a plan for how we could help the City of Eatonton and helped us implement this plan by providing the necessary equipment and guidance throughout the project.
    - Eatonton officials
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# How we got involved

- Initial meeting
  - Georgia College's Biological and Environmental Science department
  - ENGAGE coordinators
  - Faculty advisor
  - Eatonton officials
- Main objective
  - Evaluate and locate areas where the city might be losing water through the distribution system





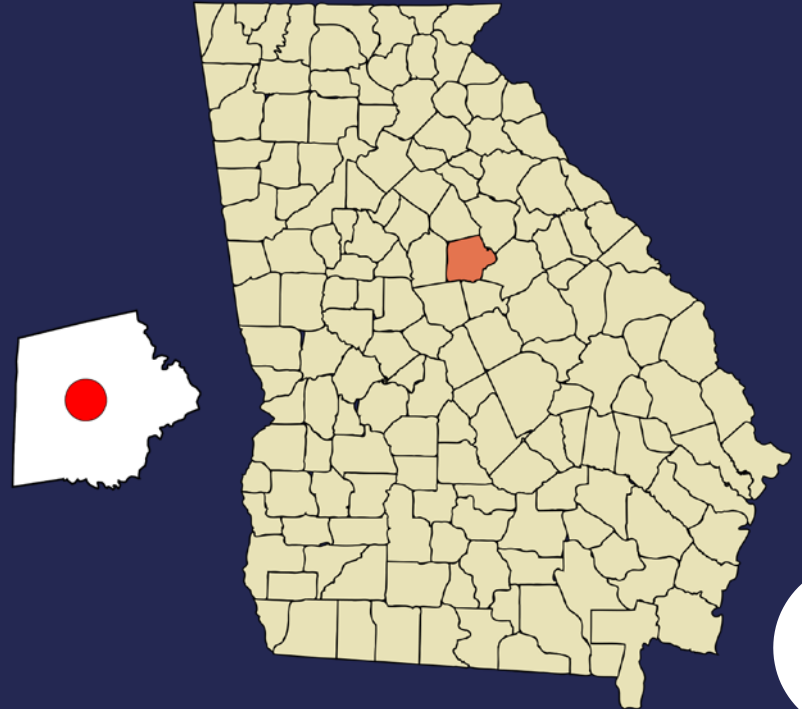
# How we got involved

- Initial meeting
  - Georgia College's Biological and Environmental Science department
  - ENGAGE coordinators
  - Faculty advisor
  - Eatonton officials
- Main objective
  - Conduct leak detection around the city to locate areas that could potentially be losing water
- First step
  - Create a complete map of the city's water system including water lines, valves, and fire hydrants



# The City of Eatonton

- The City of Eatonton is located in Putnam County, Georgia
- The current Mayor is Walter Rucker
- Mayor at the time of the project was John Reid



# Procedures

Information acquired from:

- Eatonton City Administrator
  - Water distribution system (1997)
- Putnam Water and Sewer Authority
  - Water system improvements (2014)
- Eatonton Fire Department
  - List of fire hydrant locations (2015)

Also used:

- Google Maps and ArcMap
  - Garmin Montana GPS unit
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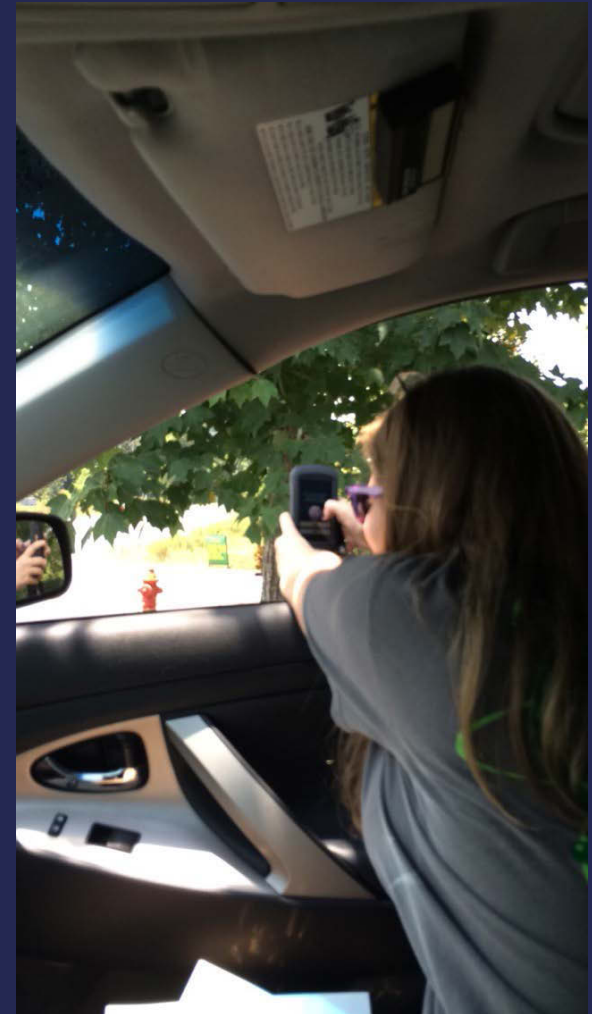
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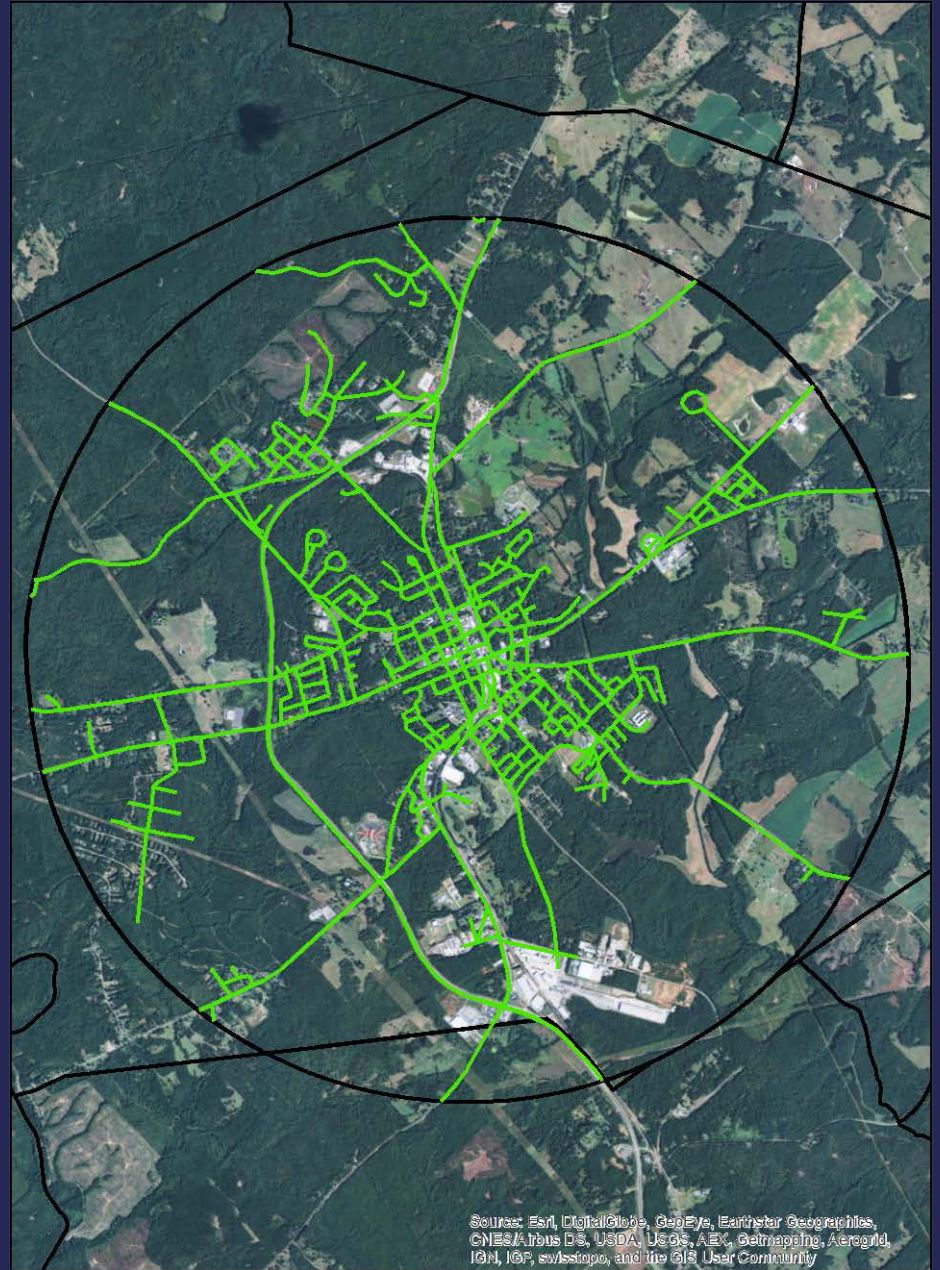


# Procedure

- ArcMap 10.2.2
  - 1997 water lines
  - 2014 corrections to the water lines
  - All valves
  - All located fire hydrants
  - Roads
- ArcMap files were converted to .KMZ so they could easily be opened using Google Earth



Satellite image and roads (green)



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroX, Getmapping, Aergrid, IGN, IGP, swisstopo, and the GIS User Community

Roads (green)

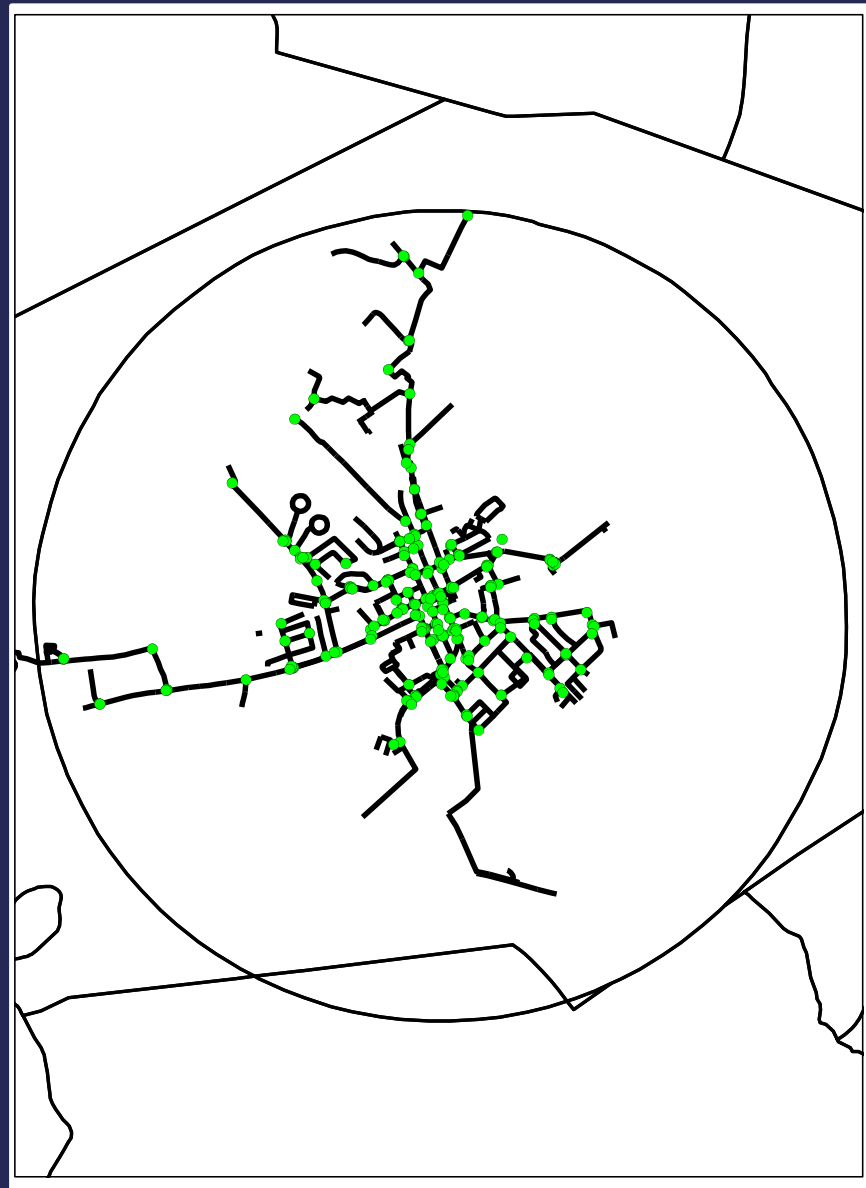


Roads (green)

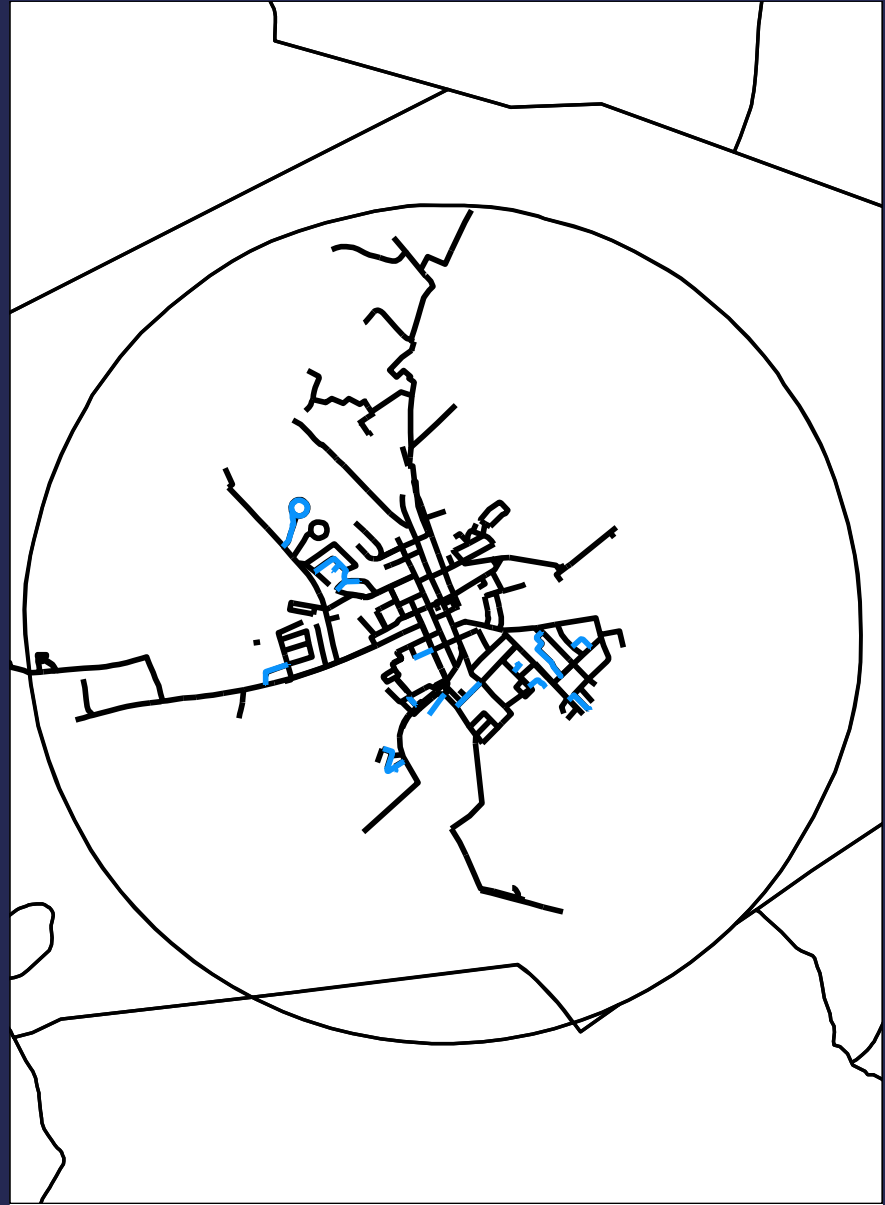
1997 water lines (black)



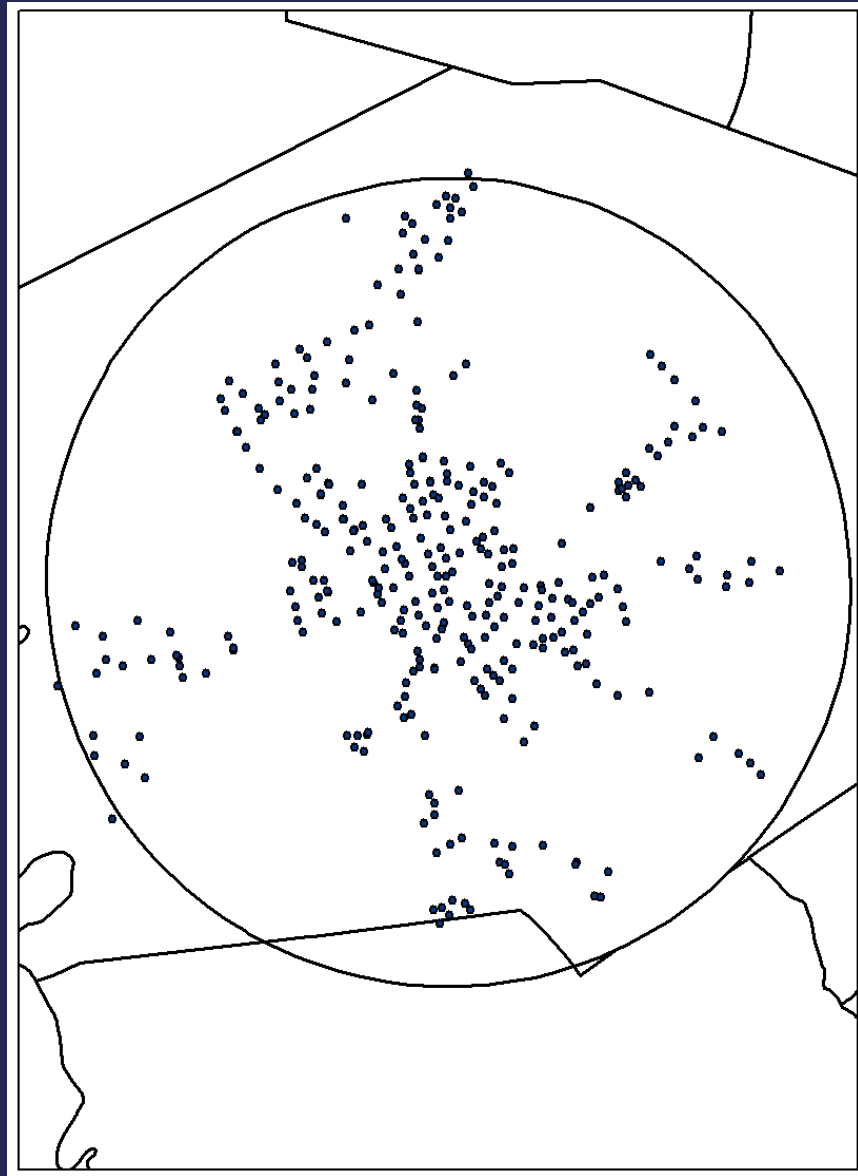
1997 water lines (black)  
Associated valves (green dots)



1997 water lines (black)  
2014 corrections (blue)



All fire hydrants

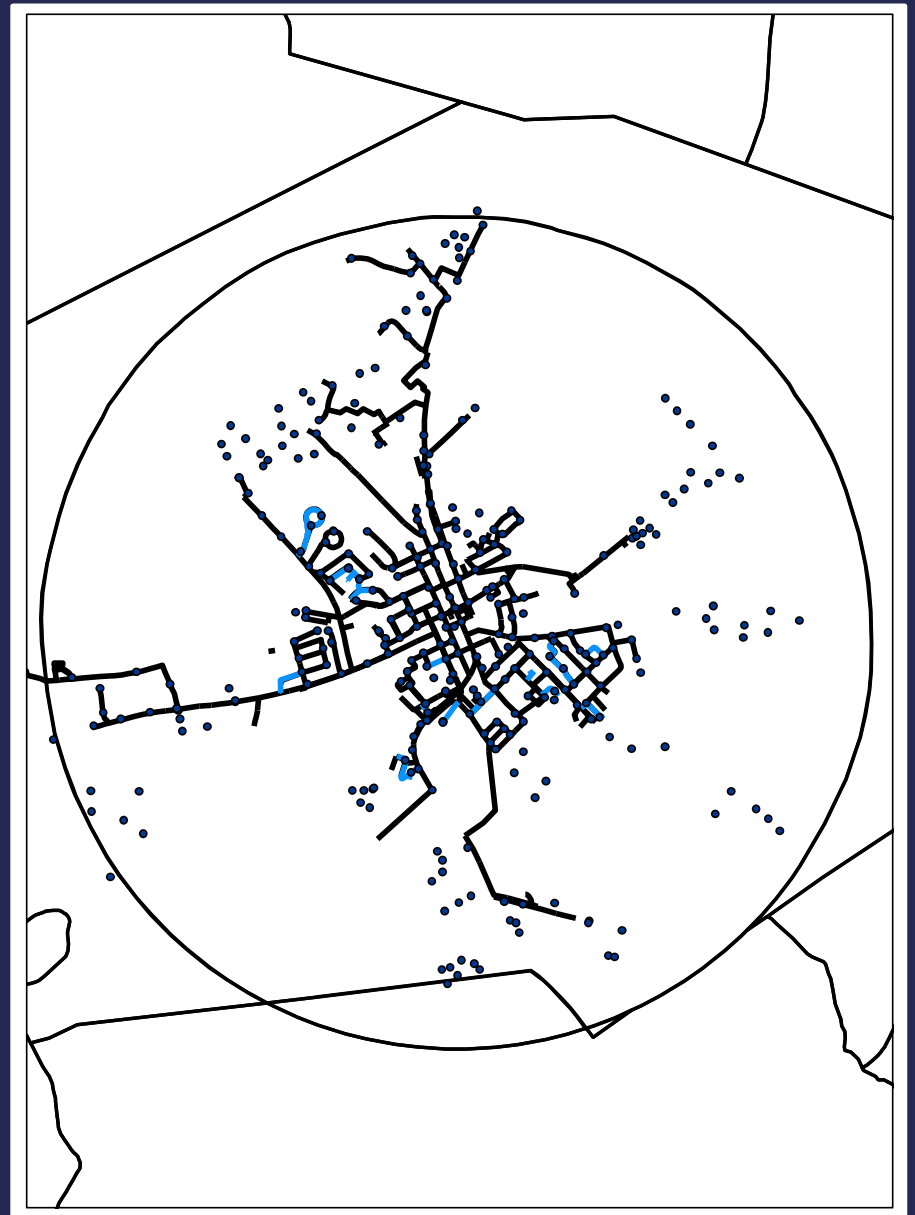




1997 water lines (black)

2014 corrections (blue)

Fire hydrants (blue dots)

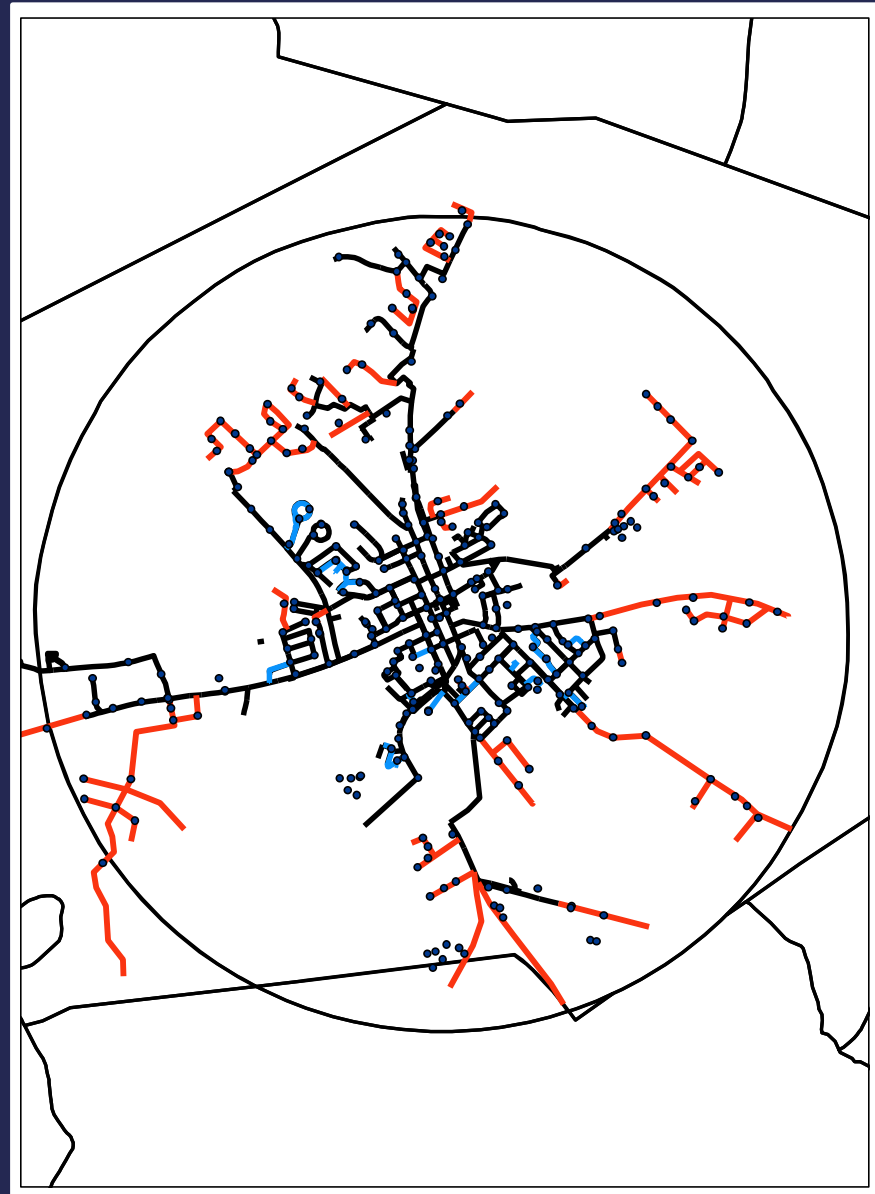


1997 water lines (black)

2014 corrections (blue)

Fire hydrants (blue dots)

Water line suggestions (red)



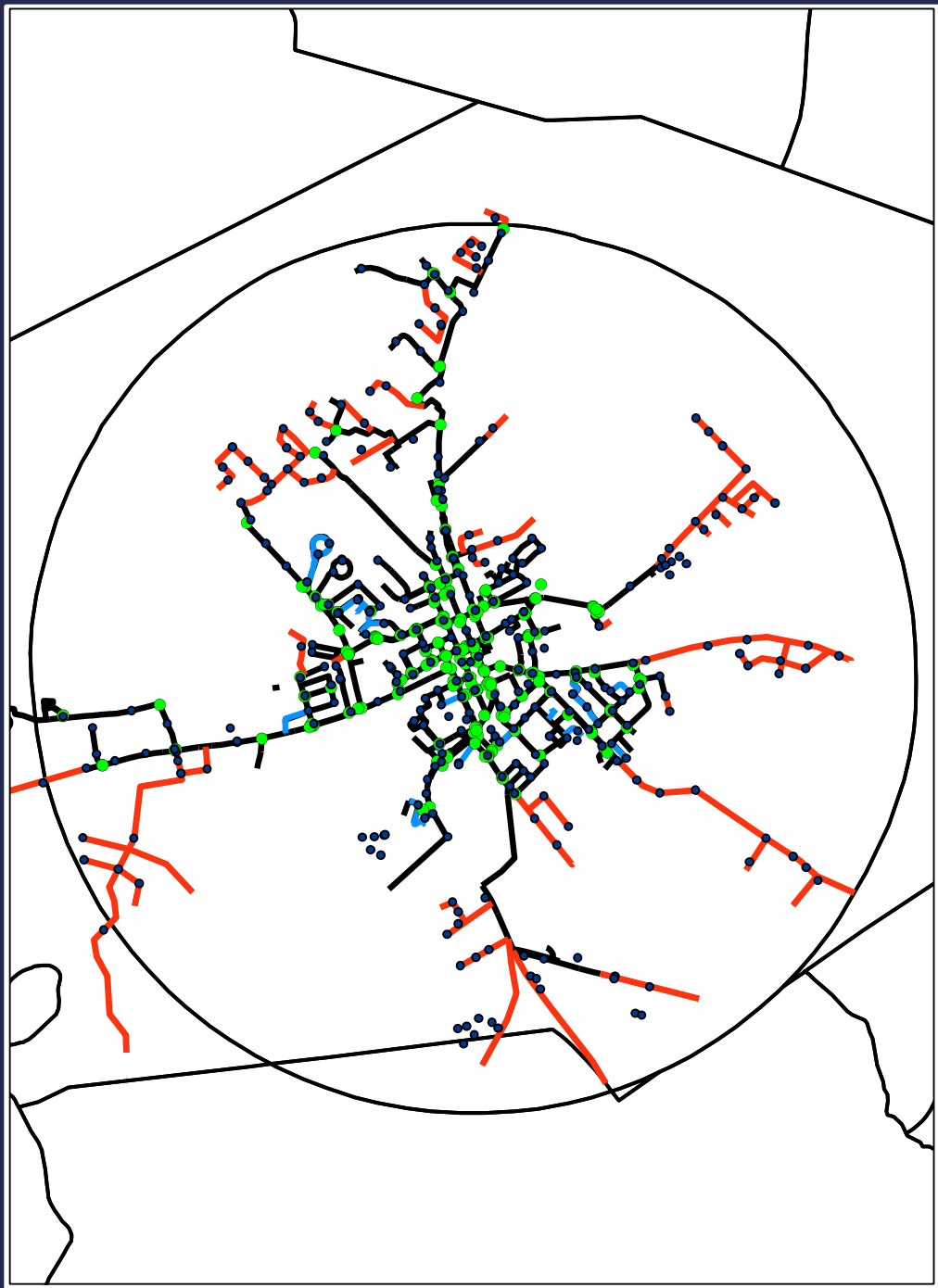
1997 water lines (black)

2014 corrections (blue)

Valves (green dots)

Fire hydrants (blue dots)

Suggested water lines (red)



# Missing Hydrants

## Hydrants not Found

Sherwood and 441

441 Bypass before Eagle One

Putnam Dr. at Custom Metals

Putnam Admin Building behind Load D

119 Glenwood Circle

Willie Bailey at dead end

121 Westminster Dr.

Office behind PGH

Highway 16 behind City Senior Center

125 Rainey Dr.

Flower Garden back of 325 Oak St

301 Carriage Way

Rosewood and Wagner at Trailer Park

Oak Street at Recreation Rd


## Hydrants that were Inaccessible

Gro-Tech at back of building


441 at Lumber Transport




# Final Product

- Presented to Mayor Reid, Georgia College Faculty, Denise Freeman (EPA), and community members at Georgia College
  - Presented at the Putnam Water and Sewer Authority Board Meeting in Eatonton
  - Provided Mayor Reid with a flash drive of the GIS database containing all files used to create the maps as well as the .KMZ files of each layer viewable on any device with Google Earth
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# Future Work

- We are currently in the process of being trained for leak detection so we will hopefully be able to look at specific portions of the pipes we mapped.
  - The city believes it is losing water and this could potentially give them a general area of where this could be occurring.
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# *Acknowledgements*

- Mayor Reid
  - Dr. Metzker
  - Dr. Sam Mutiti
  - Mr. Gary Sanders
  - Ms. Donna Van Haute
  - Eatonton Fire Department
  - Georgia College and State University
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# Questions?

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The Eatonton Messenger

Thursday, November 19, 2015

## Grad students mapped water lines over summer

By Jeff Warren  
Staff

In the struggle to make sense of Eatonton's freshwater system and supply firefighting water to all hydrants in the city, one major hurdle was overcome last summer. Two graduate students, Megan Corley and Jenna Forte, both pursuing a Masters degree in biology at Georgia College & State University, mapped Eatonton's water mains. Their work is momentous because, prior to the map they compiled, the only system maps available to the Eatonton-Putnam Water & Sewer Authority left out many mains.

"The pipes and everything were there, but no maps," explained Dr. Samuel Mutiti, Corley and Forte's professor and their supervisor on the mapping project. The project start-



JEFF WARREN / Staff

Georgia College & State University graduate students Megan Corley, center, and Jenna Forte show off the computerized map of Eatonton water mains they compiled over the summer. Their professor, Dr. Samuel Mutiti, far left, supervised the mapping project. His wife, Dr. Christine Mutiti, and Dr. Doug Oetter trained Corley and Forte on the high-tech ArcGIS software they used to draw the map.