

# Engaging Tulsa in Urban Conservation

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# Oklahoma Blue Thumb

- Collaboration between Oklahoma Extension Service and Tulsa County Conservation District to train citizen volunteers in water quality (1992)



Stream Protection Through Education



# What makes a healthy stream?

- Water
- Cooler temperatures
- Shady/Sunny
- Shallow/Deep
- Running water/ Pooled water
- Fish
- Crawdads
- Safe to wade or swim

# How do we know if it is healthy?



Physical Habitat  
+ Biological Community  
+ Water Chemistry

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Stream Health



# Physical habitat



# Physical Habitat





# Fish Collection

A group of five people are gathered in a shallow stream, likely for a field study or fish collection. On the left, a young man in a red cap and a grey 'OLD NAVY' t-shirt stands watching. Next to him, a man in a straw hat and glasses looks on. In the center, a person wearing a grey t-shirt and a light-colored cap is bent over, holding a black net filled with green aquatic plants and small fish. To their right, a woman with short brown hair is also focused on the net. On the far right, a woman in a blue t-shirt and a brown cap is holding a white jug with an orange band. The stream is surrounded by dense green foliage and trees, creating a natural, outdoor setting.

We keep at least one specimen of all species in a jug of formalin to quality check our field identification.

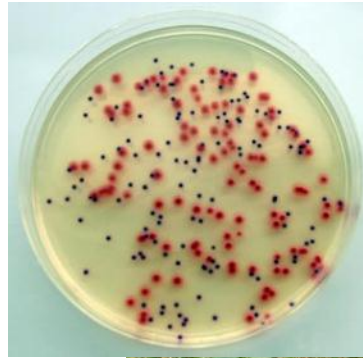


# Benthic Macroinvertebrate (Bug) Collections



# Water Chemistry

- One instant in time
- Expensive
- Complicated





# Storm Drain Marking





# Creek Clean-up





# Crow Creek





A scenic view of a creek with large, wet rocks in the foreground and water in the background. The text is overlaid on the image.

It's always a  
beautiful day at  
Crow Creek!



# What is the problem?

- 303(d) list of impaired waters of the State
  - Poor fish community
  - Poor benthic macroinvertebrate (bugs) community
  - Low levels of oxygen in the water
  - Bacteria

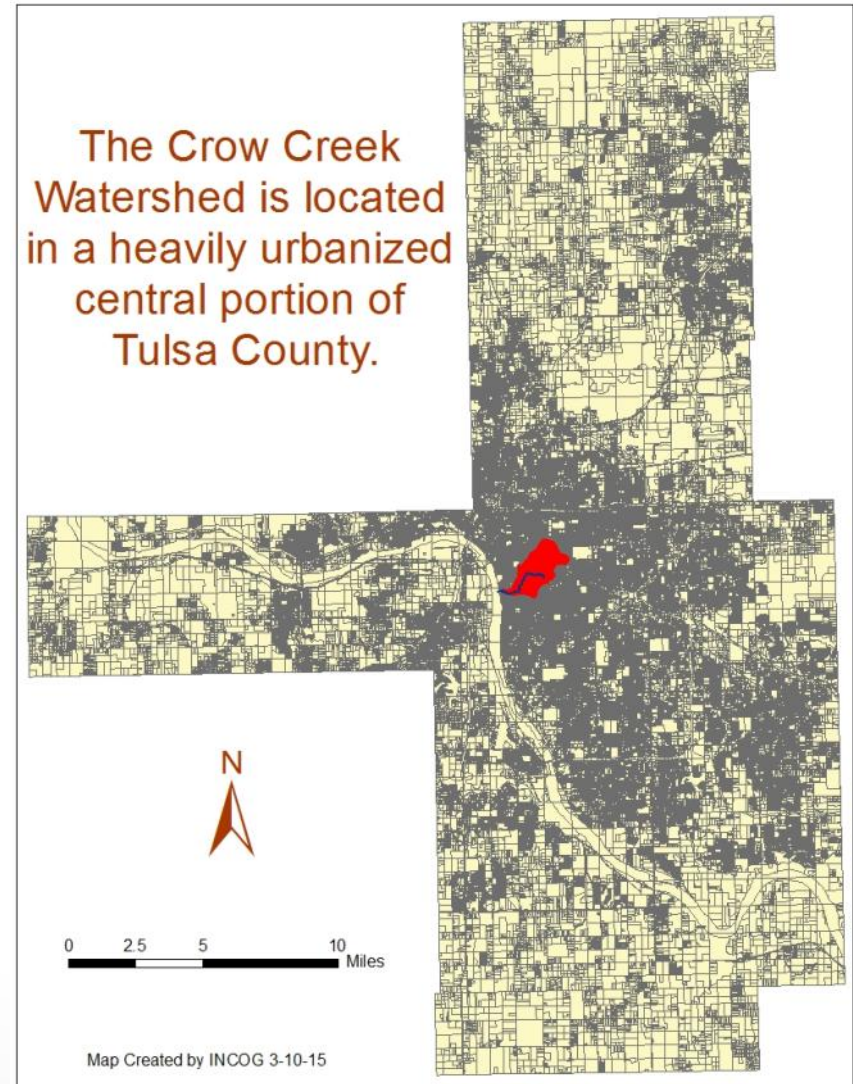
Crow Creek is not currently  
“fishable and swimmable”

# Why are we working on Crow Creek?

- Citizens have asked for help.
- Government entities are willing and able to help.
- The watershed is urban and will require local community involvement and an intensive education initiative.
- We all want to restore and protect Crow Creek!

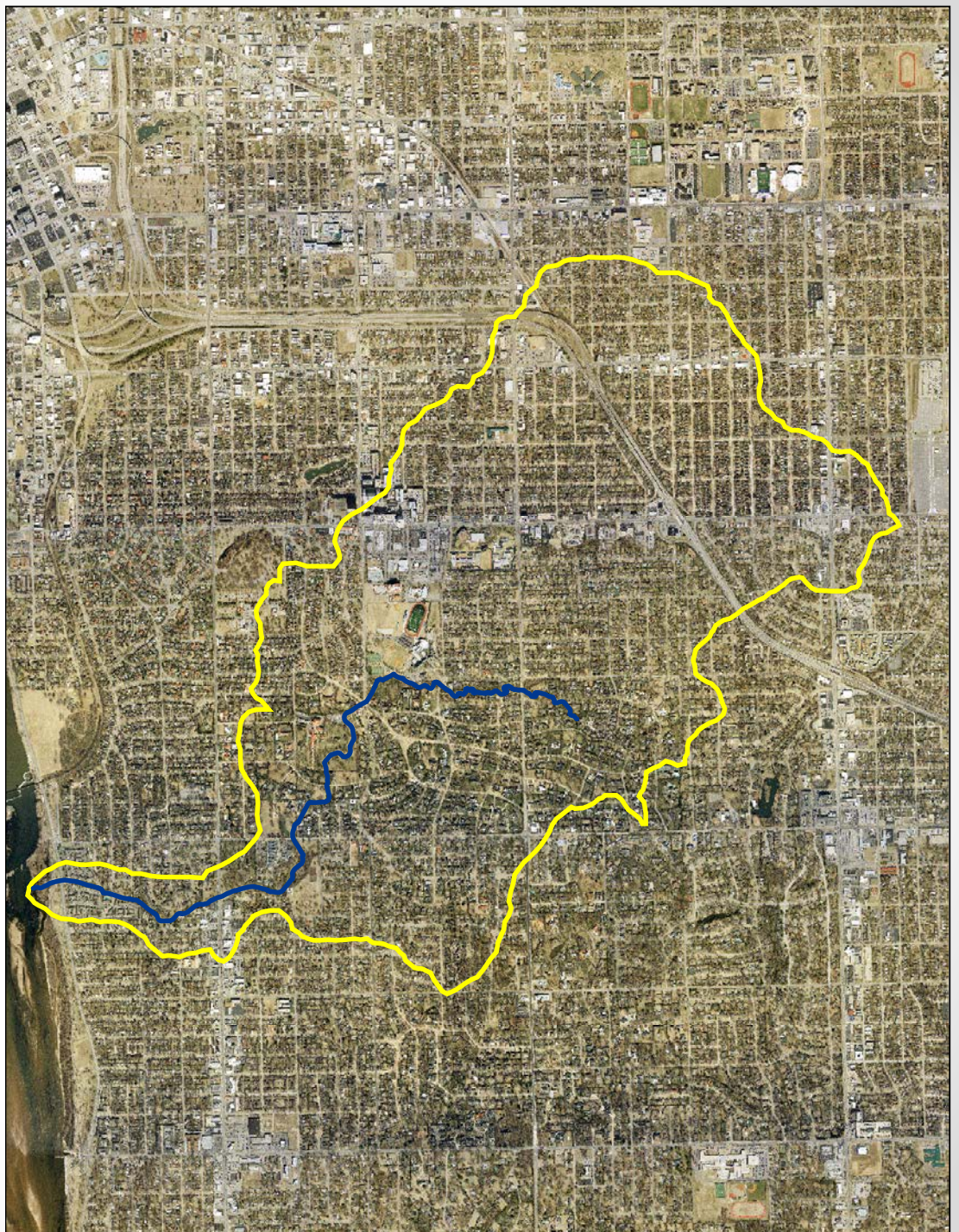
# Where is Crow Creek?

The Crow Creek watershed covers approximately 1,789 acres or 2.8 square miles. It is the first “open” creek south of downtown Tulsa.





The Crow Creek watershed drains into the Arkansas River and receives flow from a heavily developed, mostly residential, area.

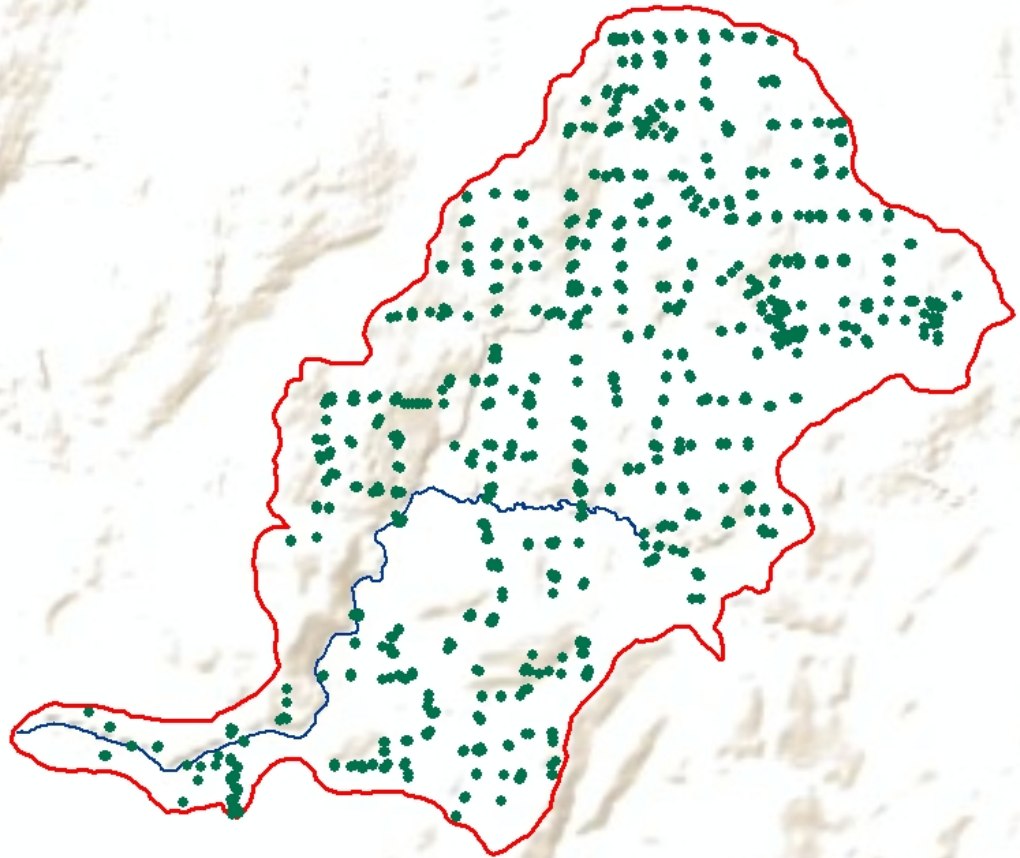




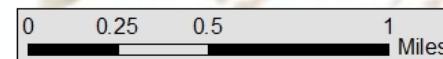
There are 851  
stormwater inlets  
in the Crow Creek  
Watershed.



## Storm Sewer Inlets in the Crow Creek Watershed



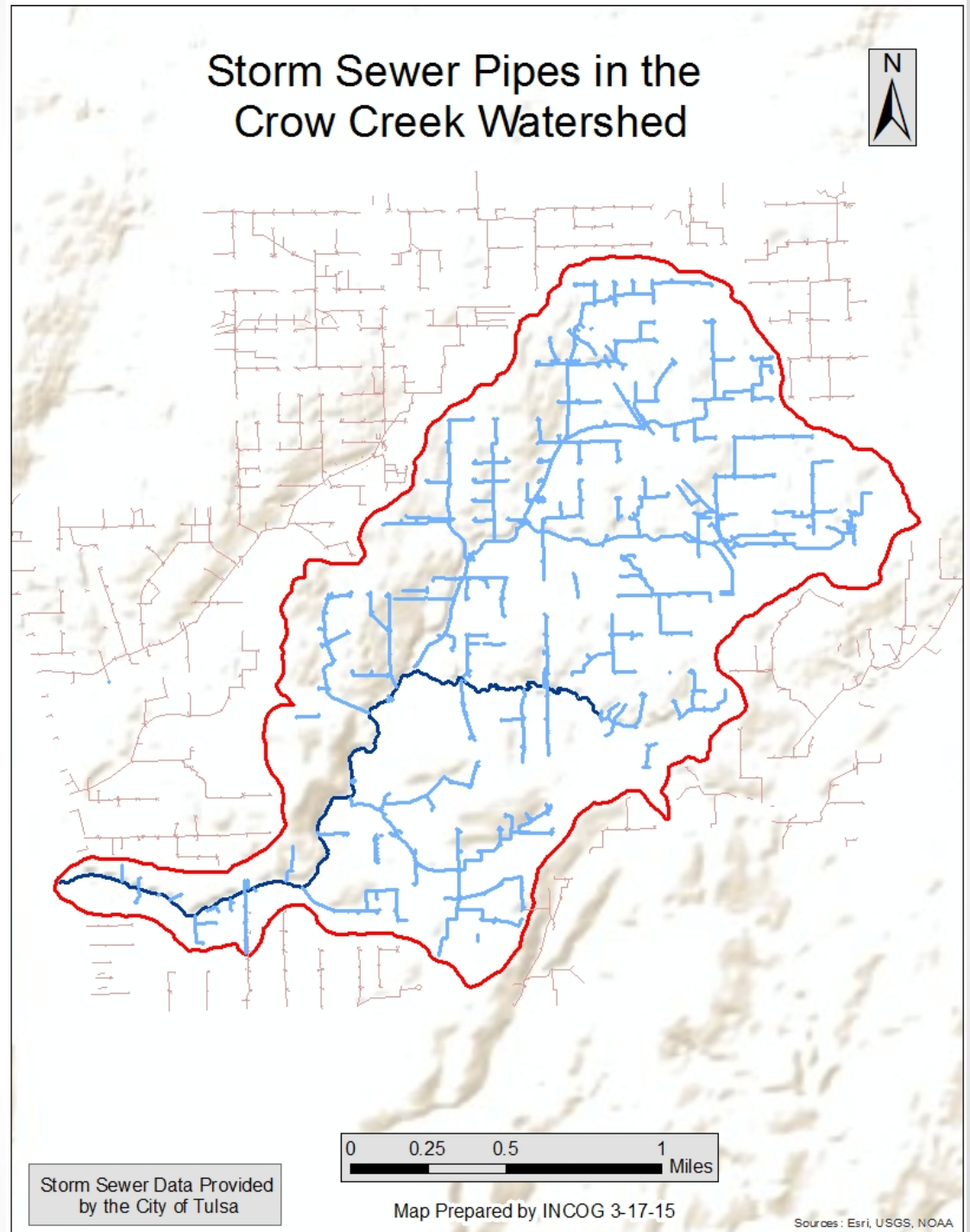
Storm Sewer Data Provided  
by the City of Tulsa



Map Prepared by INCOG 3-20-15

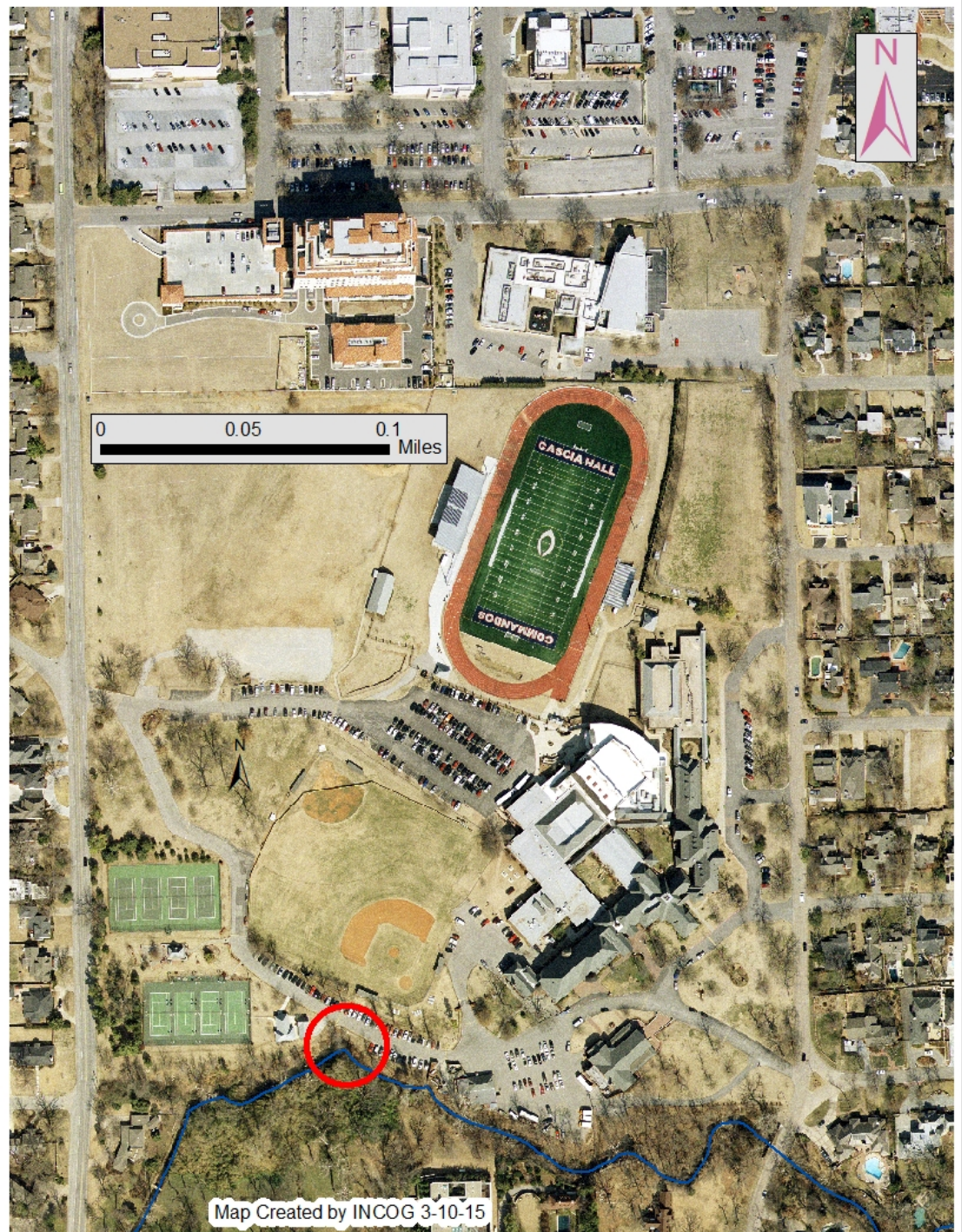
Sources: Esri, USGS, NOAA

The Crow Creek watershed has approximately 113,465 feet or 21.3 miles of storm sewer pipe.





The red circle shows where the original Crow Creek channel disappears underground.



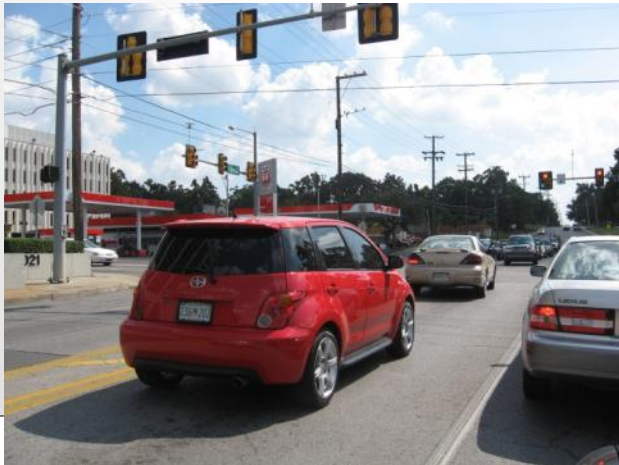






# Transportation Related Hazards

- A) Vehicle Fuel  
and Fluid Spills
- B) Cargo Spills
- C) Railroad  
Derailments

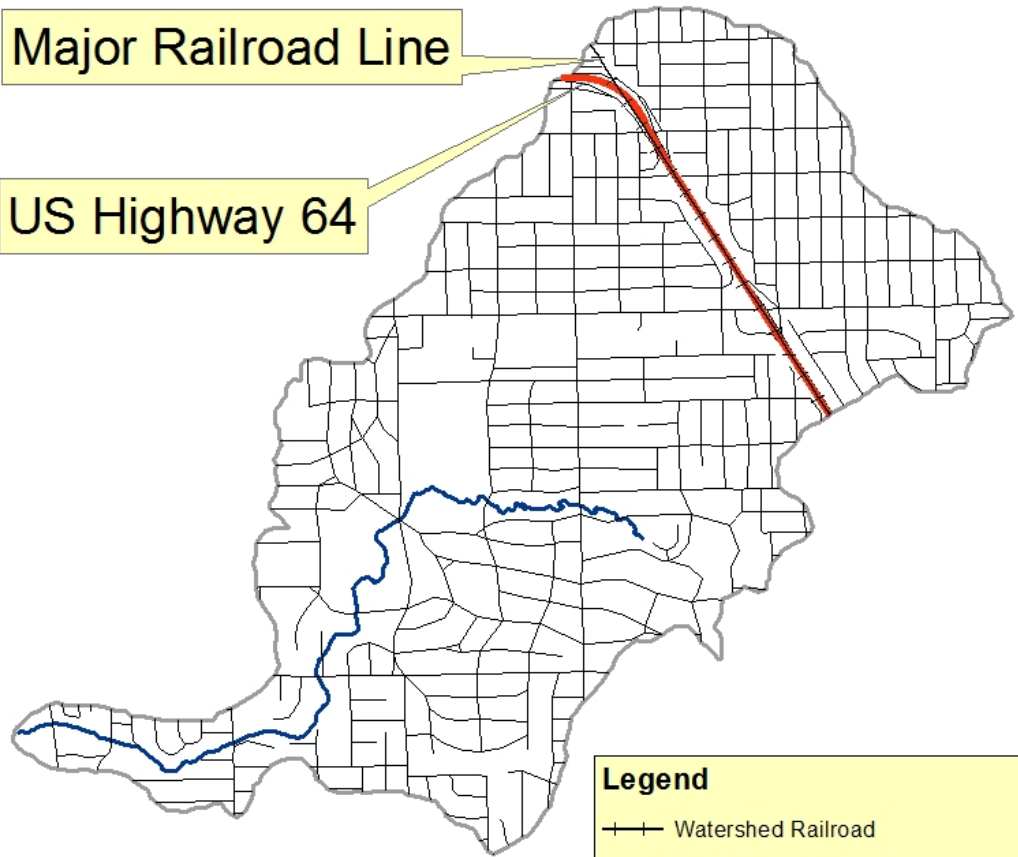


## Crow Creek Watershed Transportation Routes



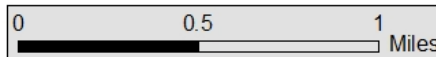
Major Railroad Line

US Highway 64



### Legend

- ++ Watershed Railroad
- Watershed Highway
- Watershed Roads
- Crow Creek
- Crow Creek Watershed VS 3-17-15





# Other Issues

- 515 manholes
- 15 industrial stormwater permittees
- 21 underground storage tanks
- 11 water wells
- 4 oil and gas wells
- 14 septic systems

# Flooding





# Trash / Yard Waste





# Fertilizer/Pesticide



WE DO MORE THAN MAKE YOUR GRASS GREEN.  
(we make your neighbors green with envy!)



**CAUTION**  
PRESTICIDE APPLICATION



CUSTOMER: PLEASE REMOVE AFTER 48 HOURS.

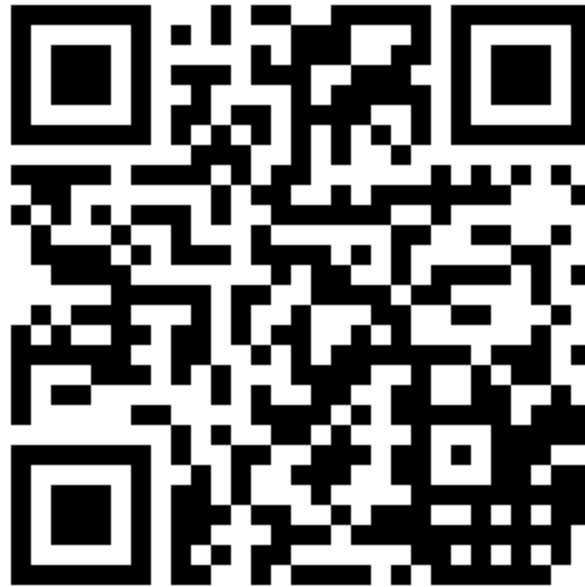




# Crow Creek Community



# Facebook Page



[www.facebook.com/CrowCreekCommunity](http://www.facebook.com/CrowCreekCommunity)



# Logo Contest



# Work Groups

- Stream Restoration Work Group (instream & banks)
  - Public, private, retired technical experts with residential advisors
- Landscaping Work Group (adjacent to creek)
  - Neighbors, neighborhood associations, public officials
- Business Support Group (entire watershed)
  - Business Associations, Individual businesses
  - St. John Hospital, Philbrook Art Museum, Brookside already supportive
- Community Education/Outreach Work Group (entire watershed)
  - Public, private, & grass roots supporters



# Impairment Targets/Solutions

- Dissolved Oxygen
  - Instream Structures & Nutrient Reduction (especially P)
- Bacteria (E. coli)
  - Septic System checks, Pet Waste Management, Riparian Buffer
- Macroinvertebrate (“bugs” variety & number)
  - Insecticide Management, Habitat Improvement
- Fish (number & variety)
  - Migration Path, Habitat, all other efforts
- **Community Support & Involvement**

- 3 Vacant Lots
- Flood Buyout
- City Maintained
- Bank Unstable
- Low Spot
- Steep Slope





# Landscaping Work Group

- Already Underway – 3 Public Meetings
  - Concentrating on vacant lots on 33<sup>rd</sup> Place west of Peoria
  - Pilot w/potential for expansion to other properties
  - Need more neighbors involved



# Landscaping Work Group

Conservation Plan to keep water on these lots and  
recharge groundwater

USDA Natural Resources Conservation Service  
Booker T. Washington Key Club  
Tulsa County Conservation District  
City of Tulsa Stormwater  
City of Tulsa Save our Streams



# Landscape Plan

BMP Demonstration Area

Paths

Benches

Signage

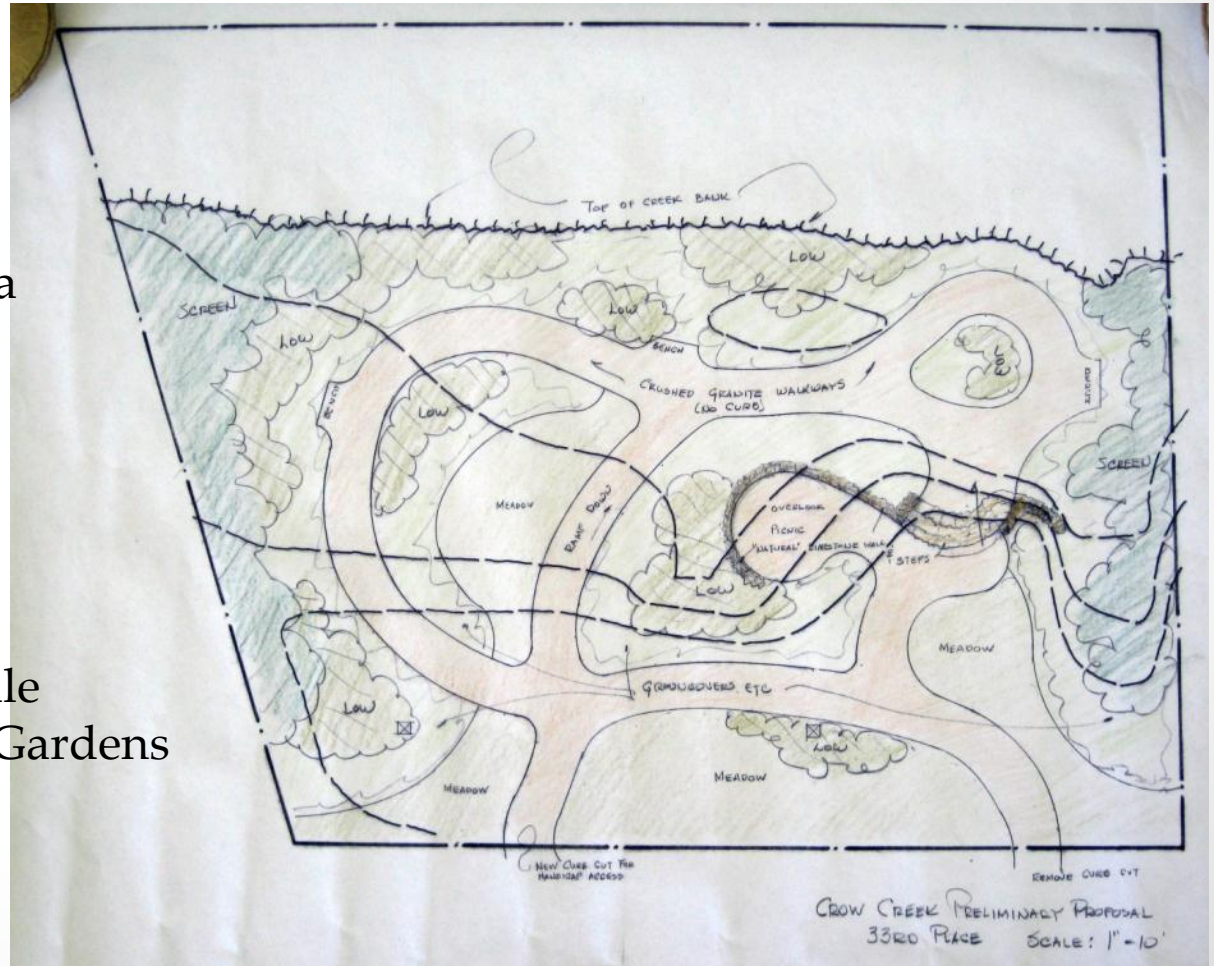
Riparian Area

Sunny Meadow

Shady Meadow

Rain Garden/Bioswale

Pollinator/Butterfly Gardens

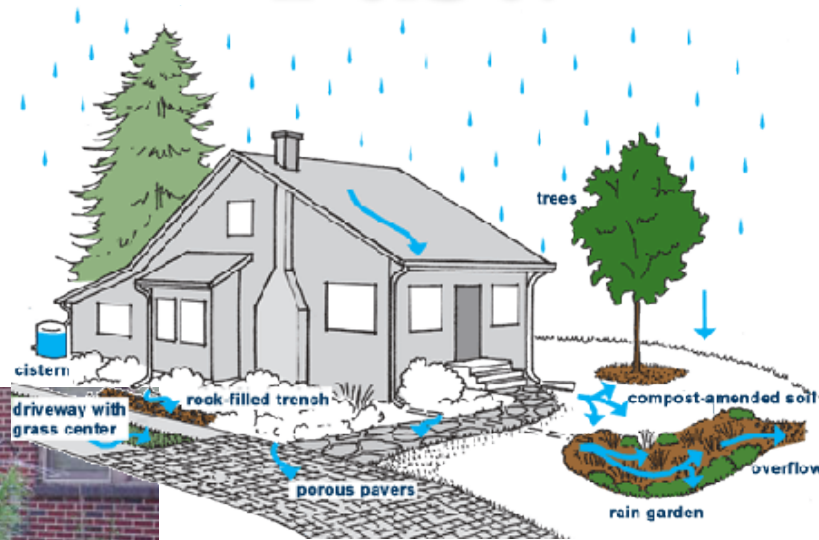


# Education/Outreach





# Too Much Water – Too Fast!







# It's always a beautiful day at Crow Creek!

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