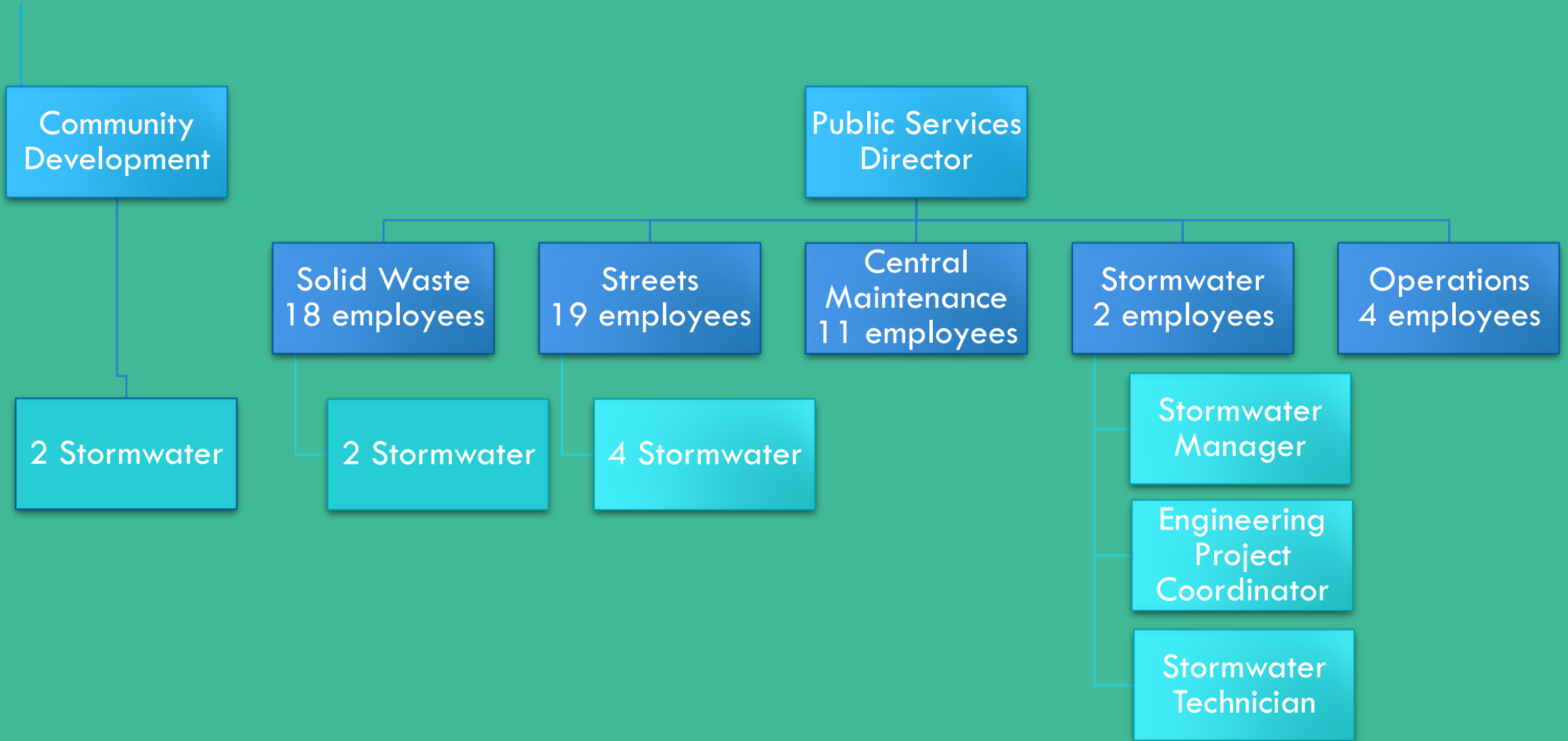


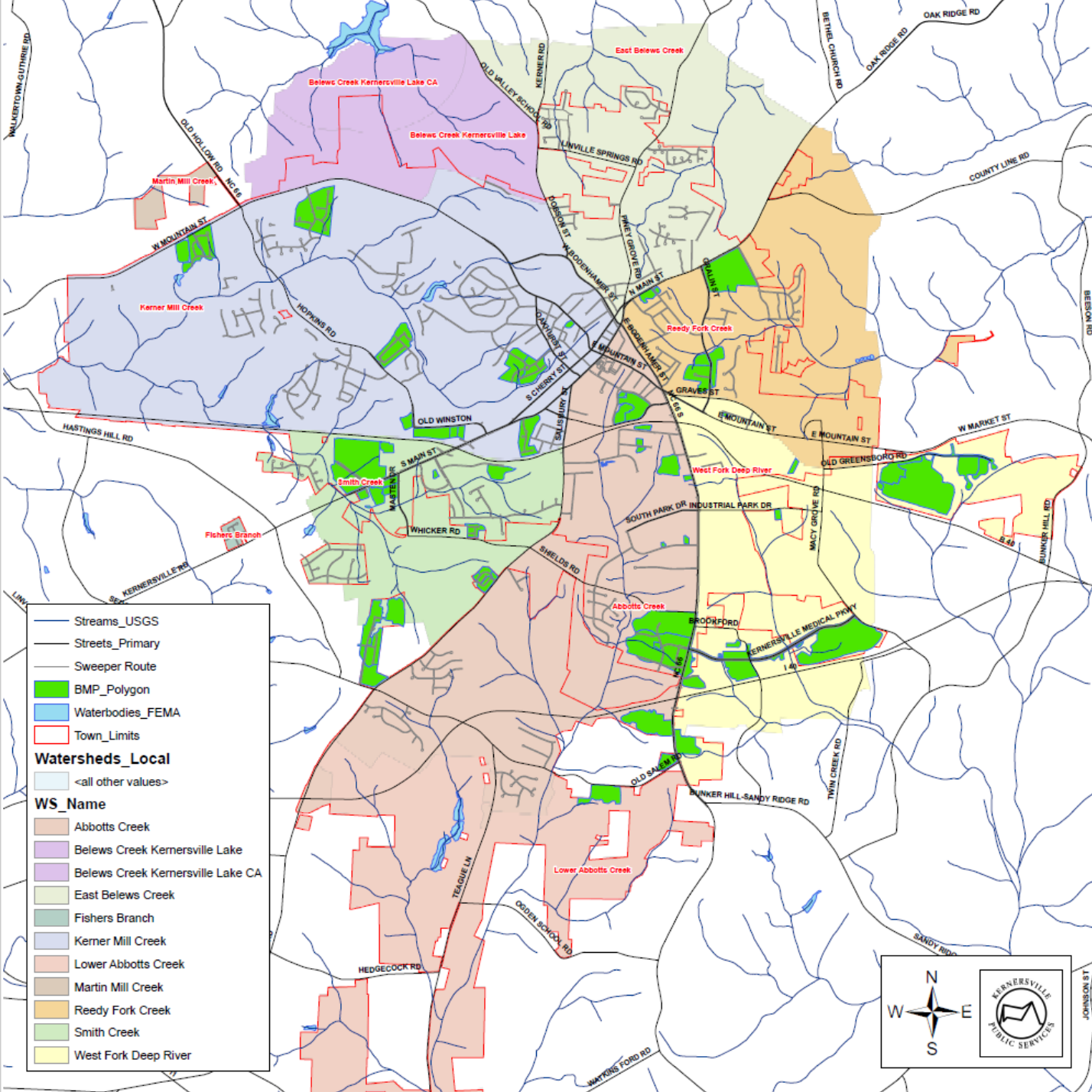


# TOWN OF KERNERSVILLE STORMWATER

Wendi Hartup, stormwater  
manager

# ORGANIZATIONAL CHART





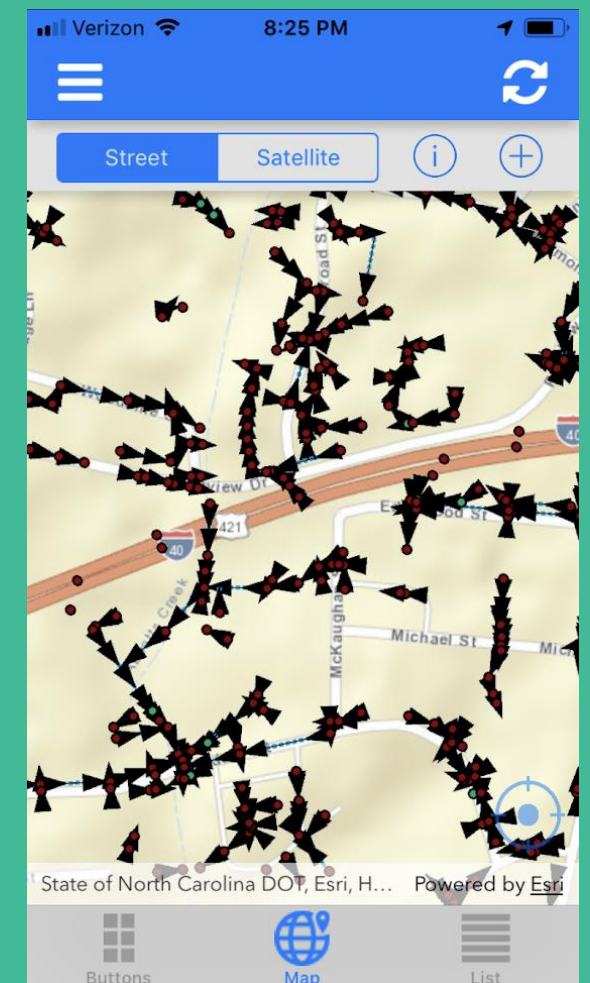
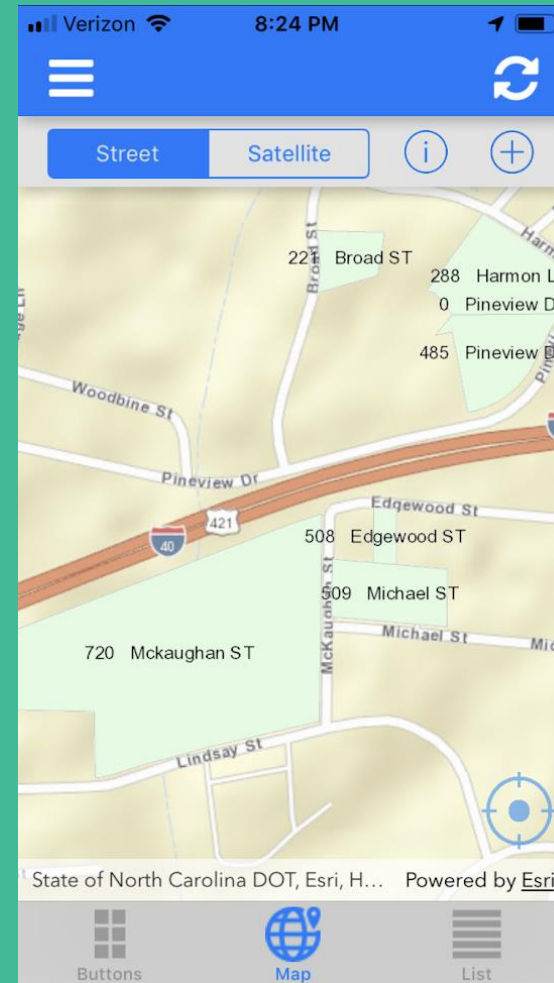
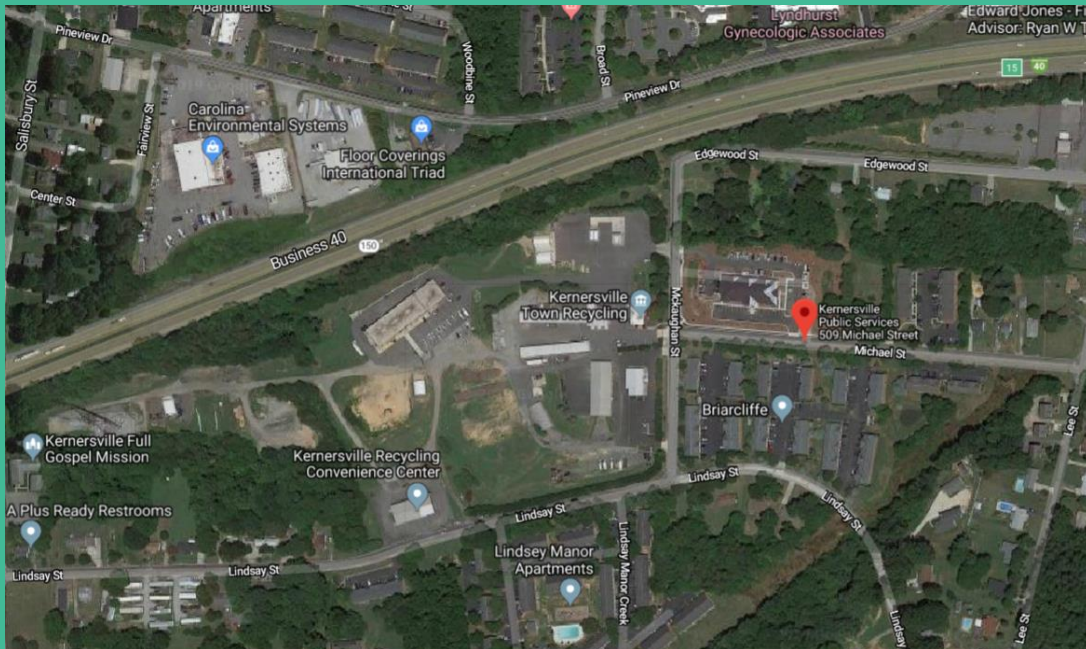
**WATERSHEDS WITHIN ETJ**

**JURISDICTION & ETJ: 25.07 SQ MI**

**BUDGET: 1.8 MILLION**

**UTILITY FEE:**  
**2980SF RESIDENTIAL = \$39.51/YR**  
**EACH 1000SF ADDITIONAL = \$13.26**

# UTILIZE MOBILE311 FOR ASSET MANAGEMENT



# UTILIZE SAFETY COMMITTEE THAT DOES FACILITY INSPECTIONS ANYWAY

PUBLIC SERVICES - FACILITY SAFETY INSPECTION CHECKLIST					
PERSONAL PROTECTIVE EQUIPMENT		Y	N	N/A	COMMENTS
1	Are employees wearing required personal protective equipment?				
2	Is PPE in good working condition?				
3	Are Fire Extinguishers in good working order?				
EMERGENCY PRECAUTIONS & FIRST AID		Y	N	N/A	COMMENTS
1	Are emergency phone numbers posted throughout facility?				
2	Are fire evacuation routes and procedures posted?				
3	Are First Aid kits available with approved supplies?				
4	Are First Aid kits inspected periodically?				
5	Are Exit signs posted throughout the facility?				
6	Are MSDS's available for all chemicals at the facility?				
EXITS		Y	N	N/A	COMMENTS
1	Are exits kept free of obstructions?				
2	Are exits marked with an exit sign and lighted by a reliable light source?				
3	Are exits signs provided throughout the facility when the exit is not apparent?				
4	Can exit doors be opened in the direction of travel without the use of a key or any special knowledge or effort when the building is occupied?				
GENERAL HOUSEKEEPING		Y	N	N/A	COMMENTS
1	Are all work areas free of debris, tools parts and equipment not being used?				
2	Is all storage in designated locations?				
3	Are floors and stairs free of liquids and tripping hazards?				
4	Are all aisles, walkways and work areas clear of obstruction?				
5	Is the general appearance of the area and the overall layout neat and orderly?				
6	Is all trash and litter picked up around buildings and grounds.				
7	Are there any visible areas of erosion that need to be addressed.				
8	Are all stormdrains and grates free of debris.				
LADDERS		Y	N	N/A	COMMENTS
1	Are there adequate number and type of ladders available for the shop?				
2	Are ladders in good condition with no broken rungs or visible				

CENTRAL MAINTENANCE - FACILITY SAFETY INSPECTION CHECKLIST					
PERSONAL PROTECTIVE EQUIPMENT		Y	N	N/A	COMMENTS
1	Are employees wearing required personal protective equipment?				
2	Is PPE in good working condition?				
EMERGENCY PRECAUTIONS & FIRST AID		Y	N	N/A	COMMENTS
1	Are emergency phone numbers posted throughout facility?				
2	Are fire evacuation routes and procedures posted?				
3	Are First Aid kits available with approved supplies?				
4	Are First Aid kits inspected periodically?				
5	Are Exit signs posted throughout the facility?				
6	Is the necessary spill response equipment available?				
7	Are MSDS's available for all chemicals at the facility?				
GENERAL HOUSEKEEPING		Y	N	N/A	COMMENTS
1	Are all work areas free of debris, tools parts and equipment not being used?				
2	Is all storage in designated locations?				
3	Are floors and stairs free of liquids and tripping hazards?				
4	Are all aisles, walkways and work areas clear of obstruction?				
5	Is the general appearance of the area and the overall layout neat and orderly?				
6	Is all trash and litter picked up.				
7	Are there any signs of erosion around the facility that need to be addressed.				
8	Are any stormdrains or grates clogged around facility.				
9	Are all garbage cans & dumpster lids closed to prevent rainwater from entering.				
10	Are all drain plugs present on dumpsters.				
11	Are all trash cans & dumpsters away from stormdrains.				
FACILITIES EQUIPMENT		Y	N	N/A	COMMENTS
1	Is air pressure regulated to a maximum 90 PSI at the point of use within the shop?				
2	Is machine and equipment securely anchored?				
3	Are grinders, saws, compressors and similar equipment provided with appropriate guards?				
LADDERS		Y	N	N/A	COMMENTS
1	Are there adequate number and type of ladders available for the shop?				
2	Are ladders in good condition with no broken rungs or visible				











# REGULAR PESTICIDE CLASSES OFFERED FOR ALL EMPLOYEES



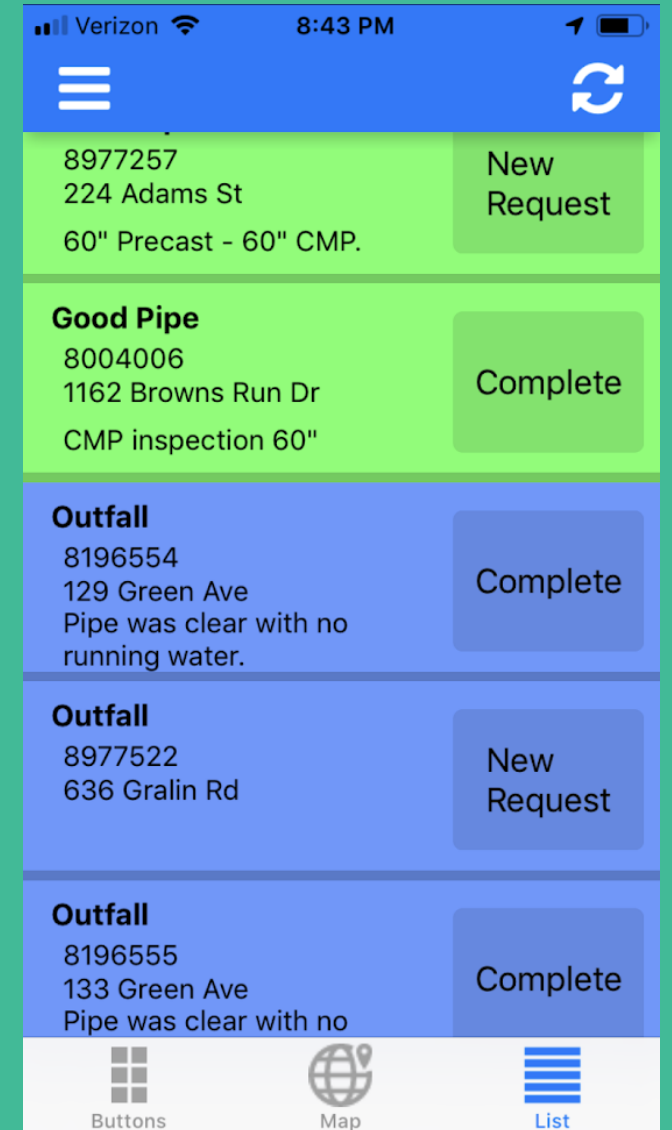




# WEAK LINK... PARKS AND REC



# UTILIZE MOBILE311 FOR ASSET MANAGEMENT



# LEAF TRUCKS AND STREET SWEEPERS

LEAF PICKUP: 5824 CU YD  
(OCT-DEC LEAF SEASON)

STREET SWEEPING SCHEDULE

DOWNTOWN —EVERY WEEK

EVERY TOWN-MAINTAINED CURB AND GUTTER ROAD —EVERY 8 WEEKS

356 SWEEPING HOURS

60 TONS OF DEBRIS



# WATER QUALITY PROJECTS

Stormwater wetland –Town supported

Oct 2016 –AWARDED CWMTF stream restoration grant \$400,000

- Livestake install, small-scale streambank repair, construction workshop with Cooperative Extension

APR 2017 –AWARDED Water resource, DEQ grant for TIERED bioretention \$43,424 (we match the same amount)

- Rain Garden workshop with Cooperative Extension

Linear Drinking Gardens Pilot project –Town supported

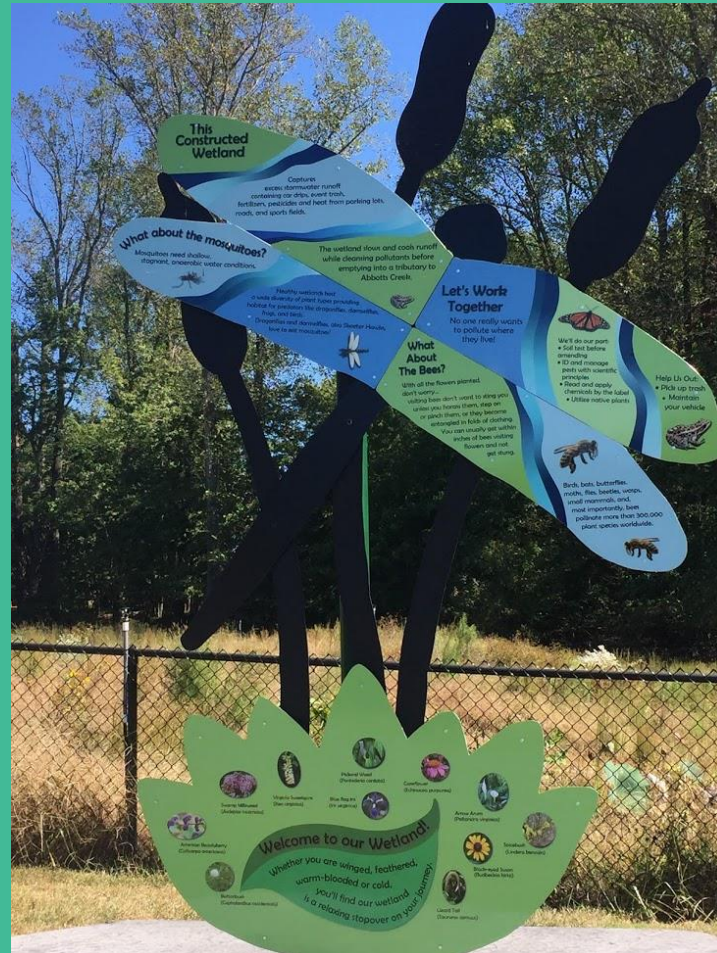
GOALS: every project will have an education component and signage



# STORMWATER WETLAND COMPLETED IVEY REDMON SPORTS COMPLEX



UPPER WETLAND



LOWER WETLAND



**UPPER WETLAND**



**LOWER WETLAND**



# Ivey Redmon Stream Restoration

Phase I: Reaches 1, 3, 4  
Phase II: To be determined



Reach 1



Reach 5



Reach 6 Conditions



Reach 4 Conditions



Reach 2



Reach 7 Conditions



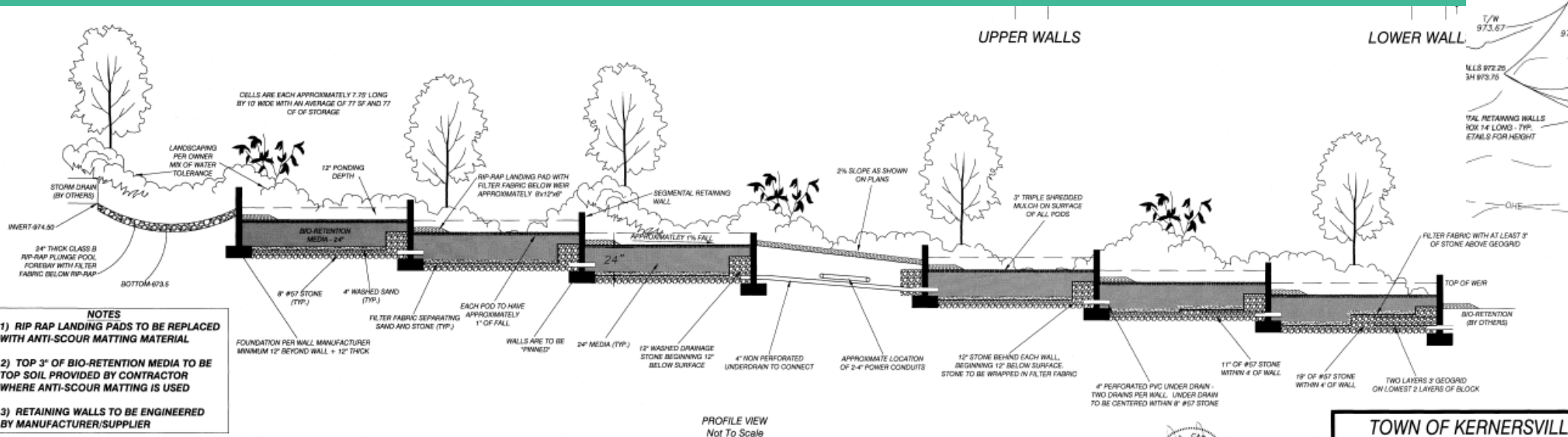
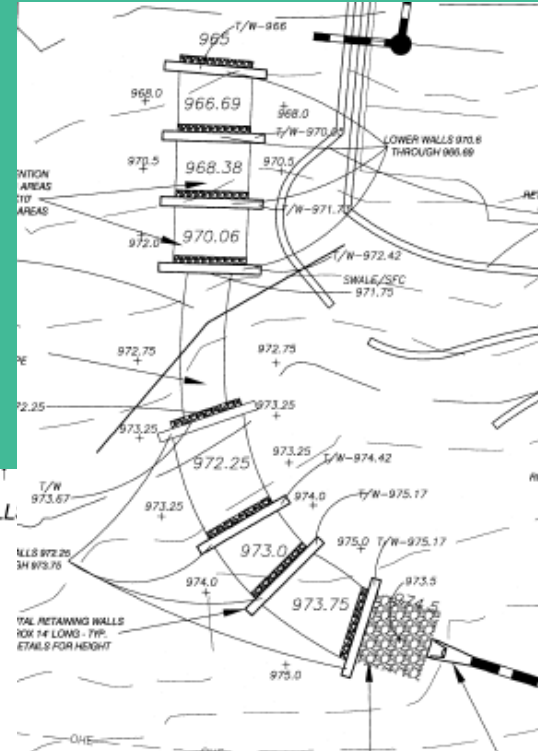
Reach 3

# NCDEQ WATER RESOURCES DEVELOPMENT GRANT

<https://deq.nc.gov/about/divisions/water-resources/water-resources-grants/financial-assistance>

Use conversion of sediment pond to regulated BMP as match

Use Cooperative Extension rain garden workshop as match



- NOTES**
- 1) RIP RAP LANDING PADS TO BE REPLACED WITH ANTI-SCOUR MATTING MATERIAL
  - 2) TOP 3" OF BIO-RETENTION MEDIA TO BE TOP SOIL, PROVIDED BY CONTRACTOR WHERE ANTI-SCOUR MATTING IS USED
  - 3) RETAINING WALLS TO BE ENGINEERED BY MANUFACTURER/SUPPLIER

**TOWN OF KERNERSVILLE  
PUBLIC SERVICES OPERATI**  
KERNERSVILLE, NORTH CAROLINA

# WHAT IS SO DIFFERENT ABOUT THIS PROJECT

- Segmented walls with drainage to next cell
- C33 sand (no mixed media)
- Not regulated
- Tiered instead of typical swale

# SWALE — USED PYRAMAT

- Rake and seed
- Mat with Pyramat and use duckbill anchors
- Cover with some soil and seed
- Cover mat with Excelsior matting and more seed
  
- *Juncus effusus* and *Carex lurida* = seed mix



# 1<sup>ST</sup> CELL NOT PLANTED — REVETMAX'S SHOREMAX

- Rake and seed
- Mat with Landlok TRM
- Seed
- Mat with ShoreMax and more seed



- *Juncus effusus* and *Carex lurida* = seed mix

# DEAD SOD





# POLY-FLO FILTER MEDIA



# SOIL LIFT



# BURLAP, CARDBOARD FRAME

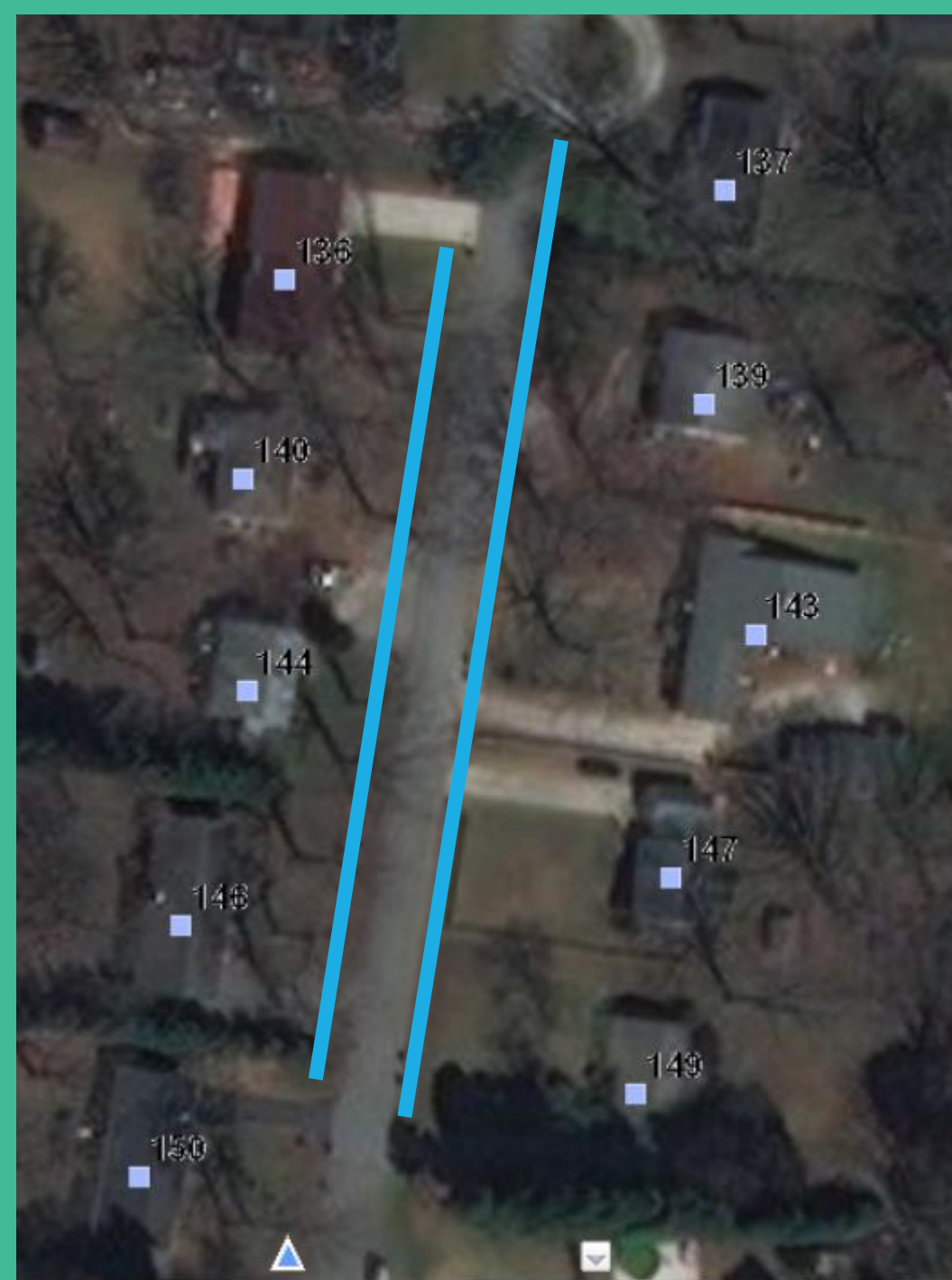




# LINEAR DRINKING GARDENS

Rehabbing current swale to drink in flashy storms:

- Excavate down 4 ft, if possible by 3 ft wide
- Grade to blend into existing side slopes
- Remove soil and replace with C33 sand
- Clean out drainage pipes
- Add fescue sod on top of the sand



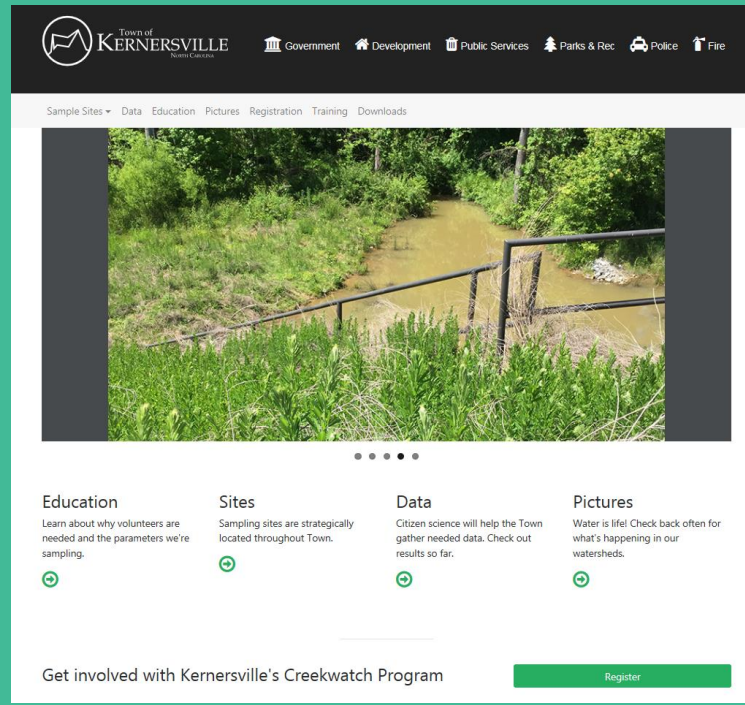
# RENOVATE SWALES AND CLEAN OUT PIPES



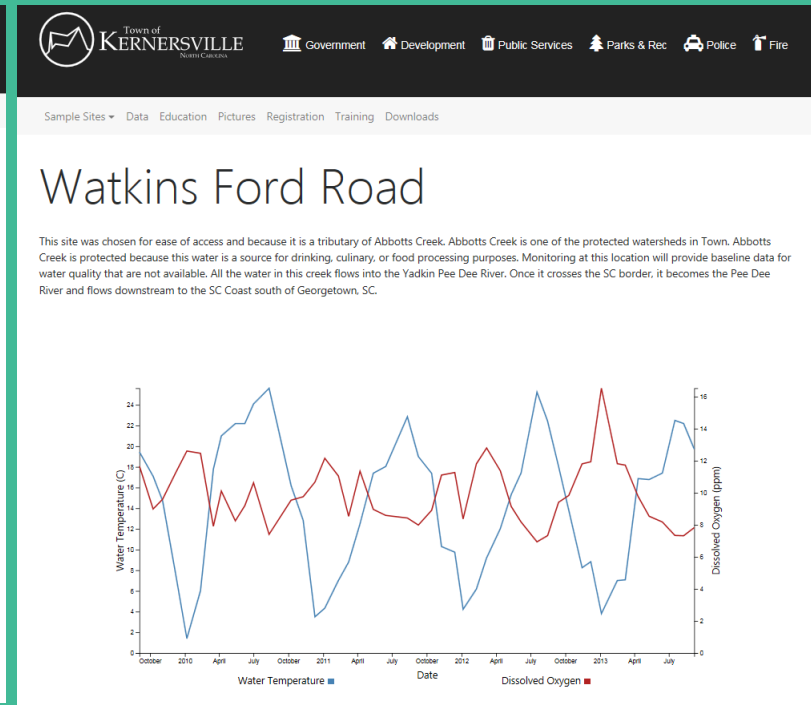
# VOLUNTEER MONITORING PROGRAM (ALREADY WORKING ON THIS WITH WEBSITE AND AN APP!)

Volunteer Monitoring Program (already working on this with Website and an APP!)

- Water Chem
- Stream Walk
- E. coli
- Bioassessment



The screenshot shows the Town of Kernersville website with a navigation menu including 'Sample Sites', 'Data', 'Education', 'Pictures', 'Registration', 'Training', and 'Downloads'. The main content area features a large image of a stream with a metal railing. Below the image are four columns of text: 'Education' (Learn about why volunteers are needed...), 'Sites' (Sampling sites are strategically located...), 'Data' (Citizen science will help the Town gather needed data...), and 'Pictures' (Water is life! Check back often for what's happening in our watersheds.). At the bottom, there is a green button labeled 'Register' and the text 'Get involved with Kernersville's Creekwatch Program'.



The screenshot shows the Town of Kernersville website with a navigation menu including 'Sample Sites', 'Data', 'Education', 'Pictures', 'Registration', 'Training', and 'Downloads'. The main content area features a large heading 'Watkins Ford Road' and a paragraph of text: 'This site was chosen for ease of access and because it is a tributary of Abbotts Creek. Abbotts Creek is one of the protected watersheds in Town. Abbotts Creek is protected because this water is a source for drinking, culinary, or food processing purposes. Monitoring at this location will provide baseline data for water quality that are not available. All the water in this creek flows into the Yadkin Pee Dee River. Once it crosses the SC border, it becomes the Pee Dee River and flows downstream to the SC Coast south of Georgetown, SC.' Below the text is a line graph showing 'Water Temperature (C)' and 'Dissolved Oxygen (ppm)' from October 2010 to July 2013. The graph has two y-axes: the left axis for Water Temperature (0 to 24) and the right axis for Dissolved Oxygen (0 to 16). The x-axis is labeled 'Date' and shows months from October 2010 to July 2013. A blue line represents Water Temperature and a red line represents Dissolved Oxygen. Both lines show seasonal fluctuations, with water temperature peaking in summer and dissolved oxygen peaking in spring.