

GREEN INFRASTRUCTURE IN SOUTH ELLERBE: REDEVELOPING URBAN STORMWATER INFRASTRUCTURE

UNRBA

Path Forward Committee

September 1, 2015

Butner, NC

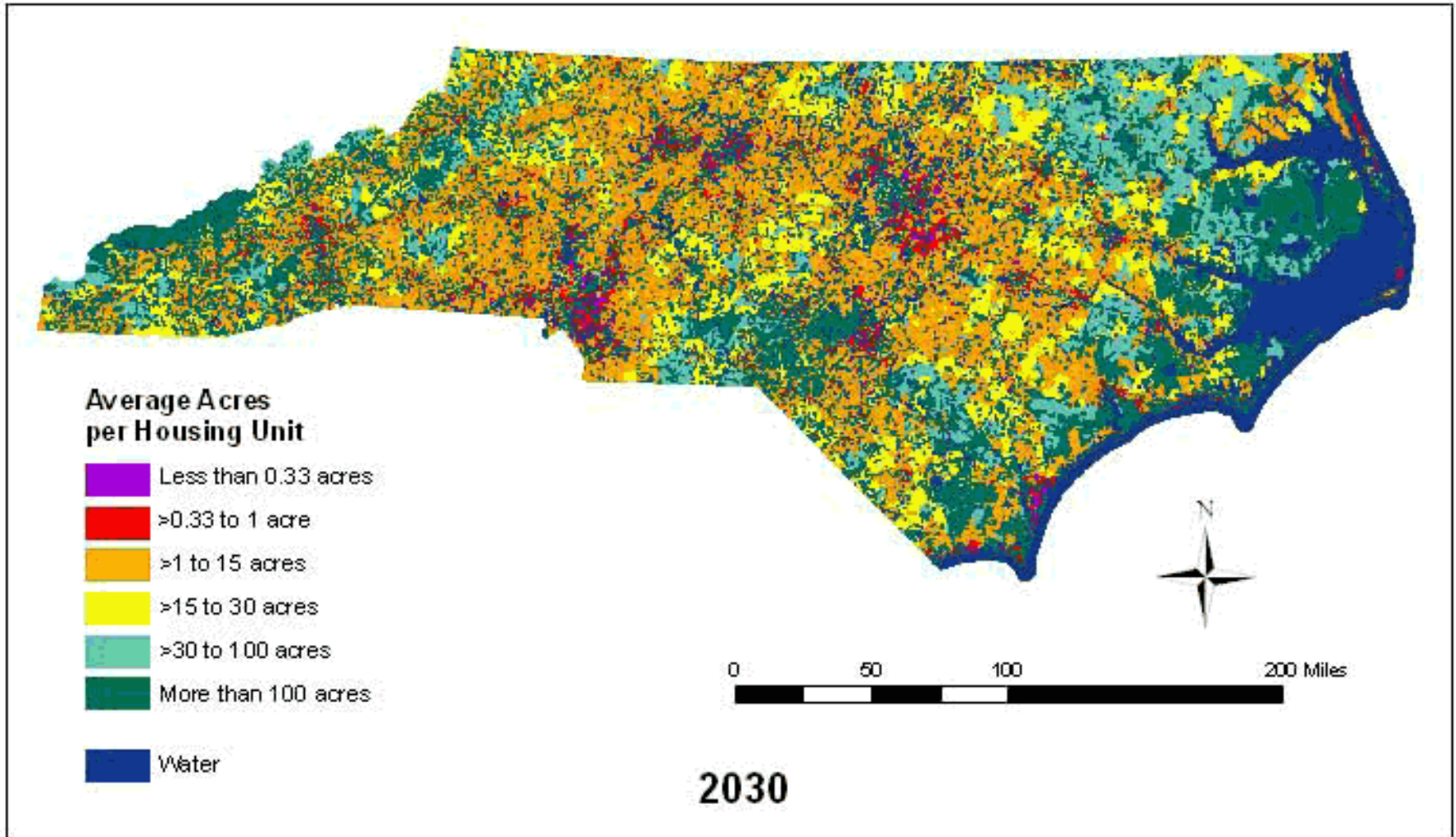


American Rivers
Rivers Connect Us

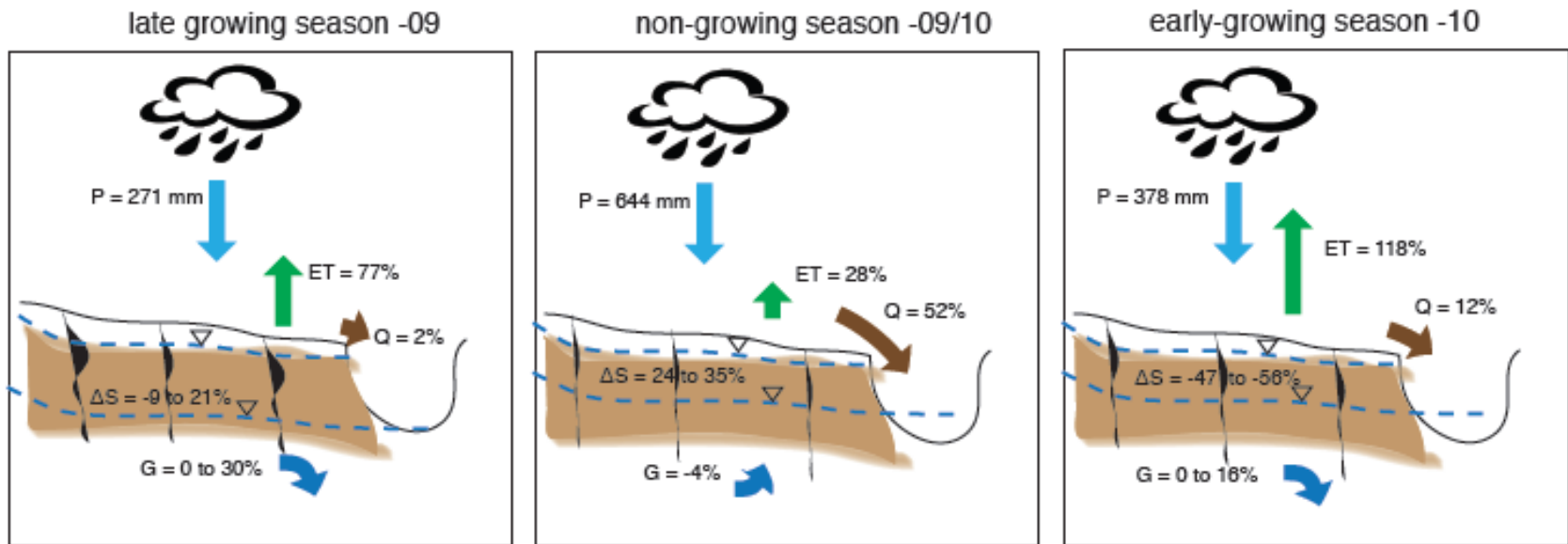
Where is the Water Quality and Volume Management?



Projected Housing Density



Goal of Stormwater Management: Restore Natural Hydrology



(Dreps et al 2014, JAWRA)

New Additional Infrastructure



Ellerbe Creek





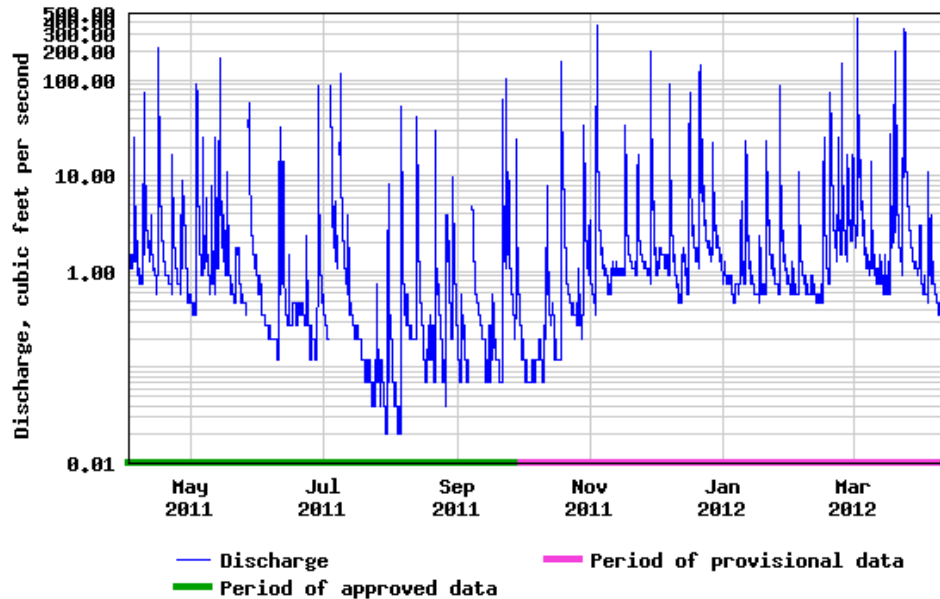
Ellerbe Creek Green Infrastructure Partnership



Ellerbe Creek Hydrology

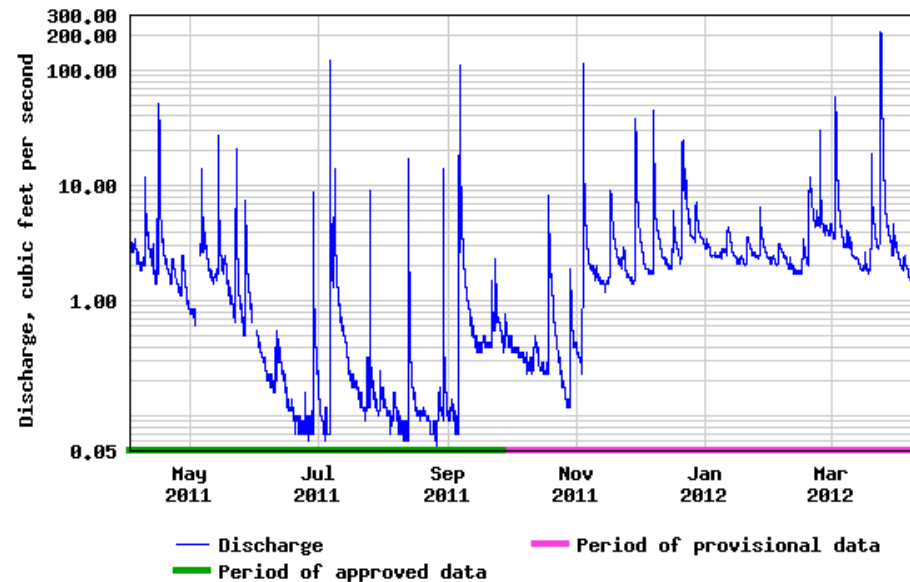
Ellerbe Creek at Club Blvd.

USGS 0208675010 ELLERBE CREEK AT CLUB BOULEVARD AT DURHAM, NC



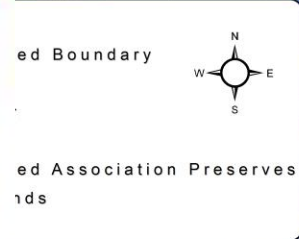
Mountain Creek near Bahama

USGS 0208524090 MOUNTAIN CREEK AT SR1617 NR BAHAMA, NC



Study Area: 467-acre catchment

Ellerbe Creek Watershed



Project Identification

Field Map Legend

Map Symbols and Colors (OSMP):

- Water
- Tree
- OSMP
- Proposed location of parking with 1000 car capacity
- Proposed location of parking with 2000 car capacity
- Proposed location of parking with 3000 car capacity
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- Proposed location of parking with 6000 car capacity
- Proposed location of parking with 7000 car capacity
- Proposed location of parking with 8000 car capacity
- Proposed location of parking with 9000 car capacity
- Proposed location of parking with 10000 car capacity

Existing OSMP's:

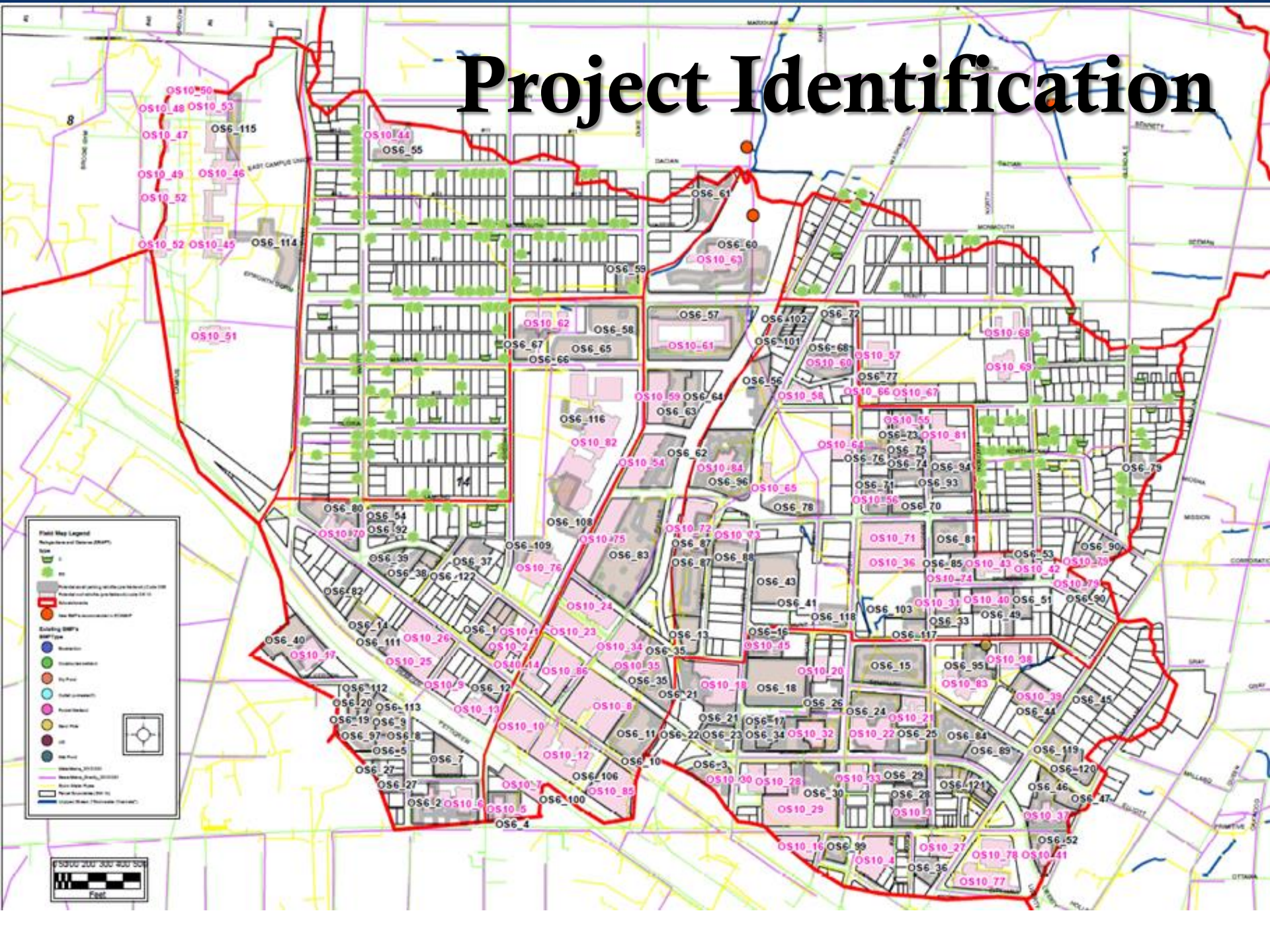
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Field Work



Ellerbe14_AllOpportunities

All Opportunities identified by Ellerbe Creek Green Infrastructure Partnership in subwatershed 14. [View more](#)

TJCOG, ECWA - Edited on August 12, 2013

File Edit Tools Help

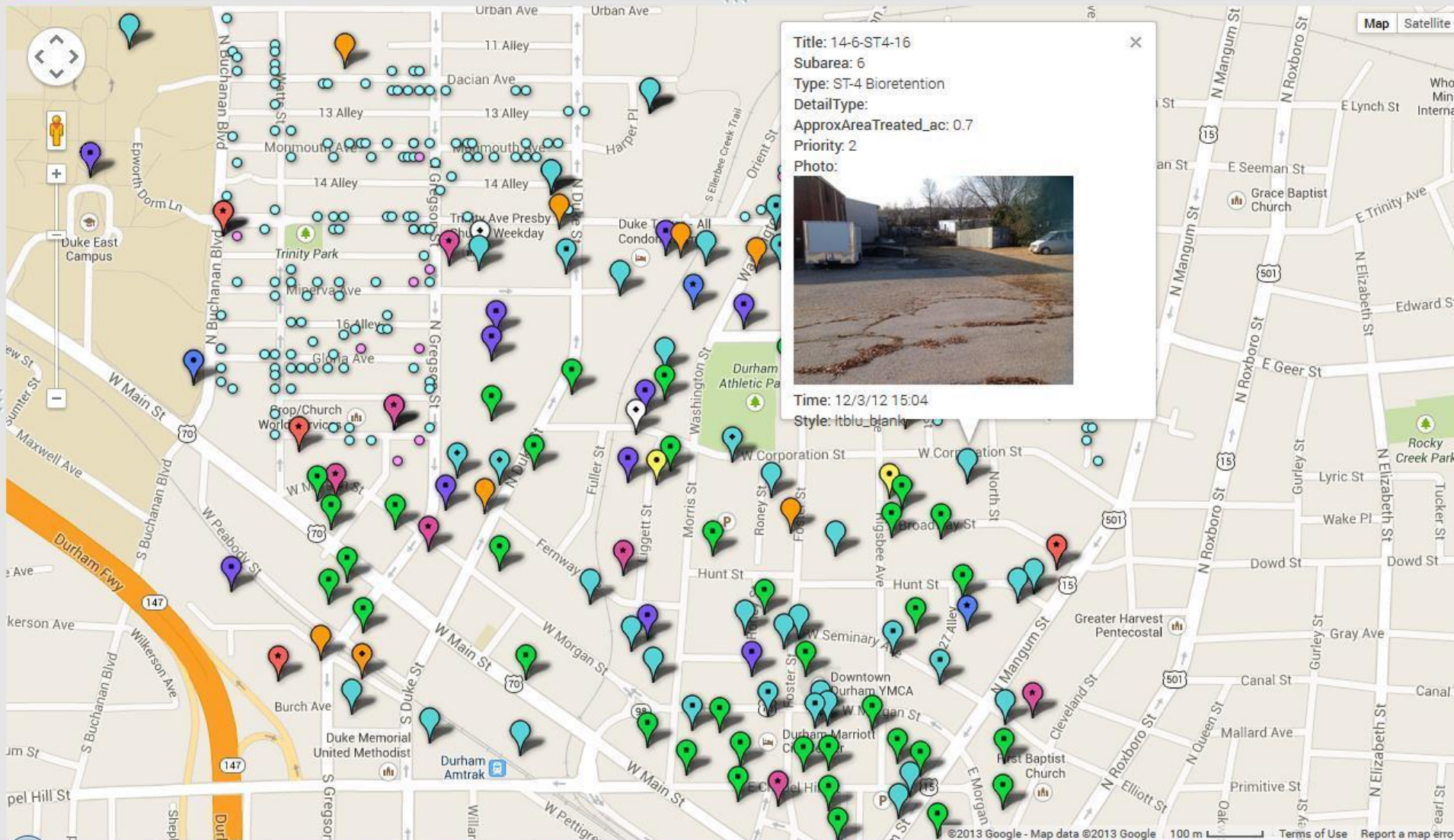
Rows 1

Cards 1

Map of Location

Filter No filters applied

Not saving 326 rows





Rigsbee Ave

RUE CLER

RUE CLER

Green roofs

Permeable Pavers

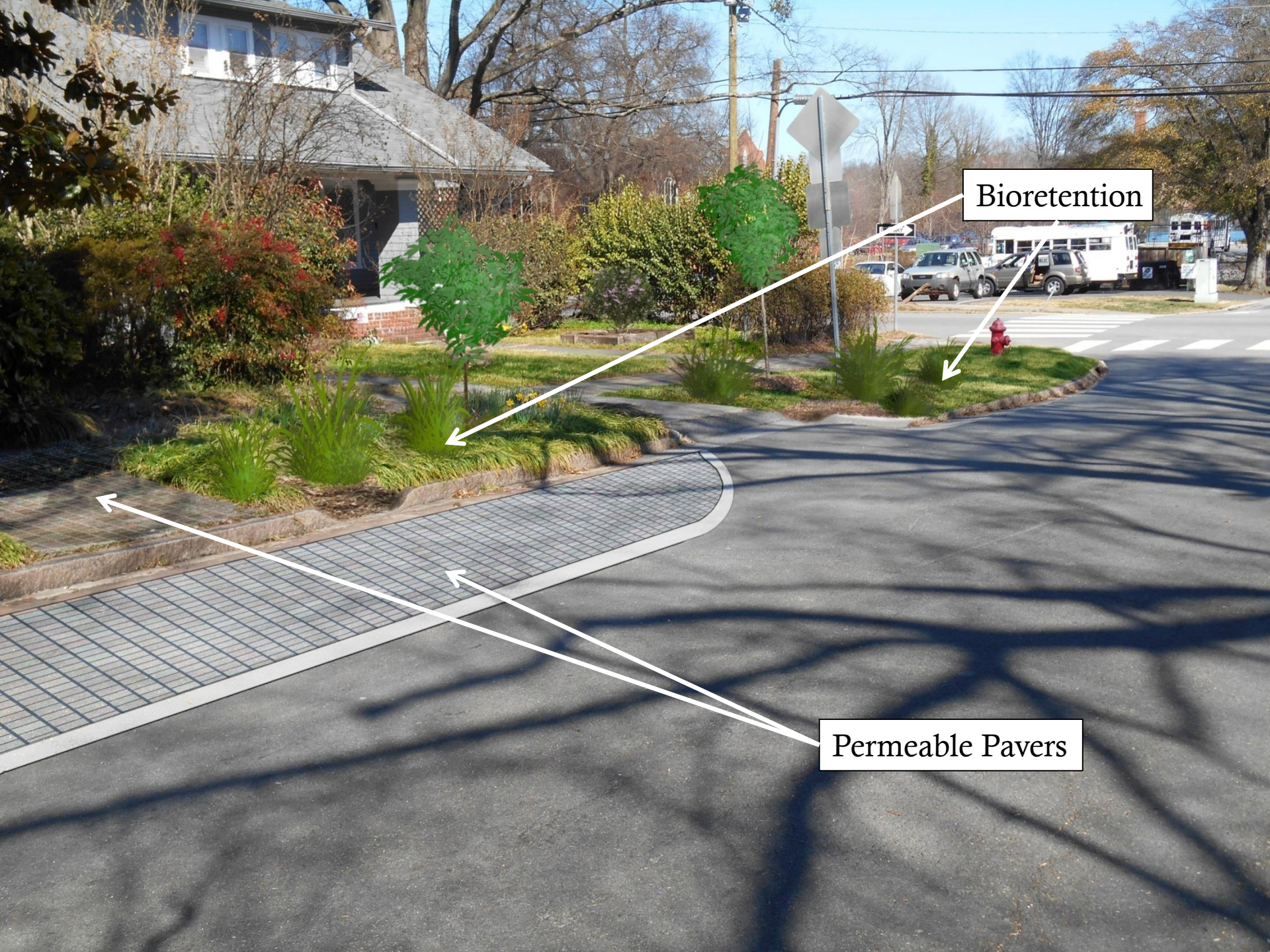
Bioretention





Bioretention

Permeable Pavers





Identified Green Infrastructure Opportunities:

Green Street:

2.08 million sq ft treated

Cisterns: 246

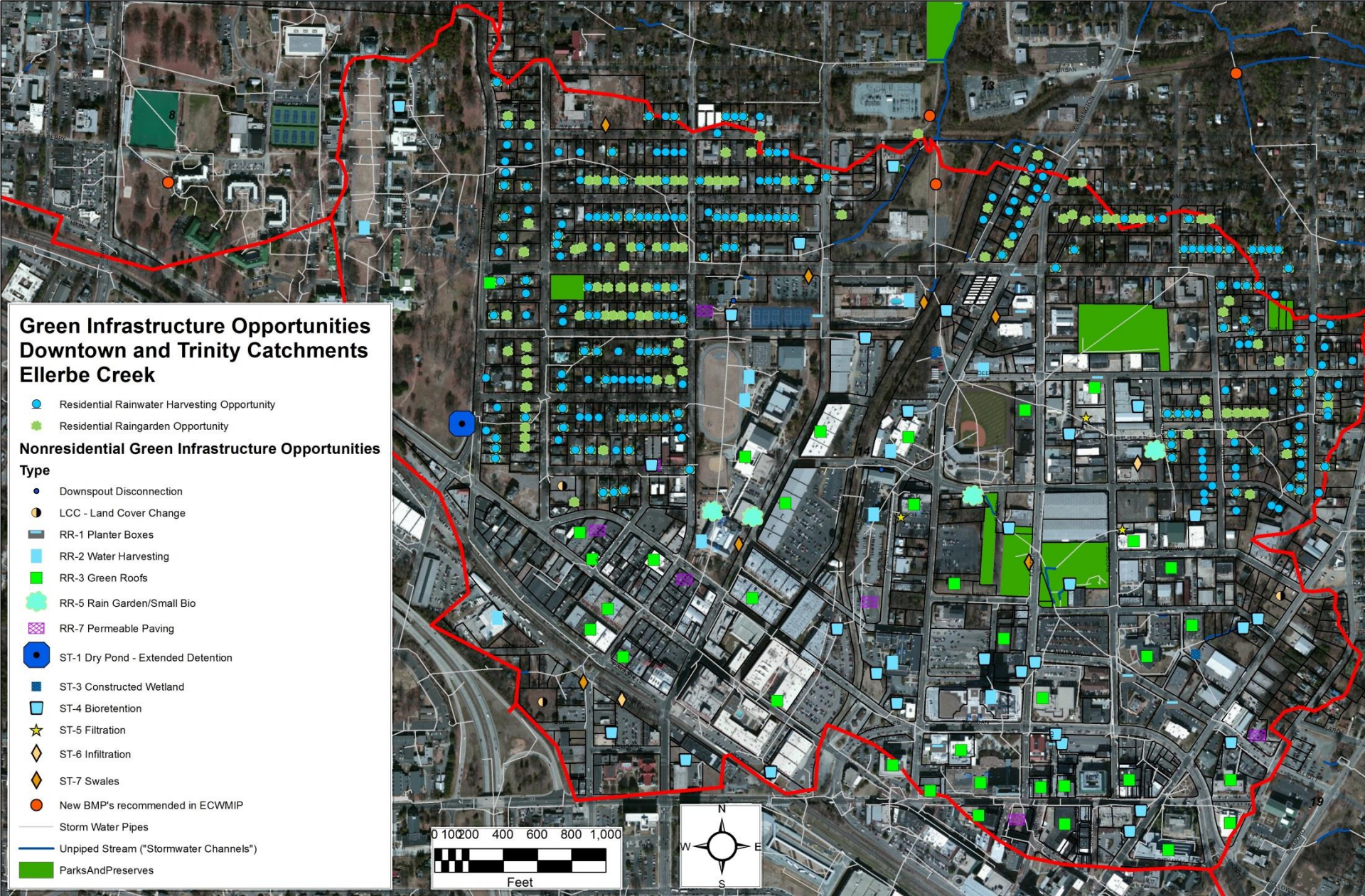
Bioretention: 279

Green roofs: 40

Permeable Pavers: 3.7 acres

Wetlands: 2

Results



Results

| Scenario | Volume reduction [MG/yr] | N reduction [lbs/yr] | P reduction [lbs/yr] |
|--|--------------------------|----------------------|----------------------|
| RRI (Site Retrofits) – Immediate Opportunities | 28.4 | 396.5 | 70.9 |
| RRI (Site Retrofits) - Full Green | 13.5 | 162.8 | 23.7 |
| RRI (Site Retrofits) - Total | 41.9 | 559.3 | 94.6 |
| Residential – Immediate Opportunities | 1.8 | 21.0 | 10.4 |
| Residential - Full Green | 0.15 | 2.0 | 0.5 |
| Res. Total | 2.0 | 23.0 | 10.9 |
| Streets – Immediate Opportunities | 6.7 | 105.7 | 51.3 |
| Streets - Full Green | 6.7 | 105.7 | 51.3 |
| Streets - Total | 13.4 | 211.3 | 102.5 |
| <i>Subtotal - Immediate Opportunities</i> | <i>36.9</i> | <i>523.2</i> | <i>132.6</i> |
| <i>Subtotal - Full Green</i> | <i>20.4</i> | <i>270.4</i> | <i>75.4</i> |
| TOTAL | 57.3 | 793.6 | 208.0 |



Next Steps:

Implementation of key projects

Incentives for landowners

Monitoring at catchment scale

Thank you!

Questions?



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