Hinkson Creek

Collaborative Adaptive Management

ACTION TEAM'S

Early Actions Presentation

to

Stakeholder Committee

Wednesday August 29, 2012

Proposed Surveys and Assessments

- Public Perception Survey
- Physical Habitat Assessment
- Body of Knowledge Compilation

Public Perceptions Survey

- Background
  - In 2005 a baseline survey of 10,000 residents in HCW was conducted with 46% response.
  - High level of concern about development, little knowledge about WQ and causes of pollution
  - Since then educational programs, clean-ups, ordinances, etc.
  - What's the change in attitude and awareness after 7 years?

Public Perceptions Survey

- Timeline: 6-8 months
- Costs: $30K (does not include staff time)
  - Printing, postage, data analysis and reports
- Pros and Cons
  - Baseline established, make comparisons
  - Can ask some new questions
  - staff time
  - No guarantee of adequate response

Physical Habitat Assessment

- Background
  - Currently biological, chemical, & hydrological sampling, but no physical habitat assessment
  - Physical habitat alterations may negatively impact MSCI diversity and abundance
    - Incised streams lose pools and riffles as they widen
    - High flow events remove trees and vegetation
    - Riparian corridor removed or under sized.

Physical Habitat Assessment

- Study Design:
  - Use EPA and MDC assessment methods
  - Sample all 11 DNR sites,
    - Longitudinal Profile, Large woody debris, channel and riparian cross section, discharge.
- Costs:
  - Staff time, equipment, and analysis
  - Once - baseline = 100 staff hours
    - Utilize interns, or grad students?

Physical Habitat Assessment

- Pros and Cons
  - May help identify sources of impairment.
  - Follows established methods, should be easily accepted.
  - Currently uninvestigated aspect of Hinkson's ecosystem

  - Significant investment of staff time
  - Considerable training required
  - If consultants used - expensive

Body of Knowledge Compilation

- Many studies have been done
  - 30+ years of material
  - Some not easily accessible
- Compile studies
  - Review pertinence
  - Present findings to Science Team
- Science Team to prioritize studies to fill in gaps

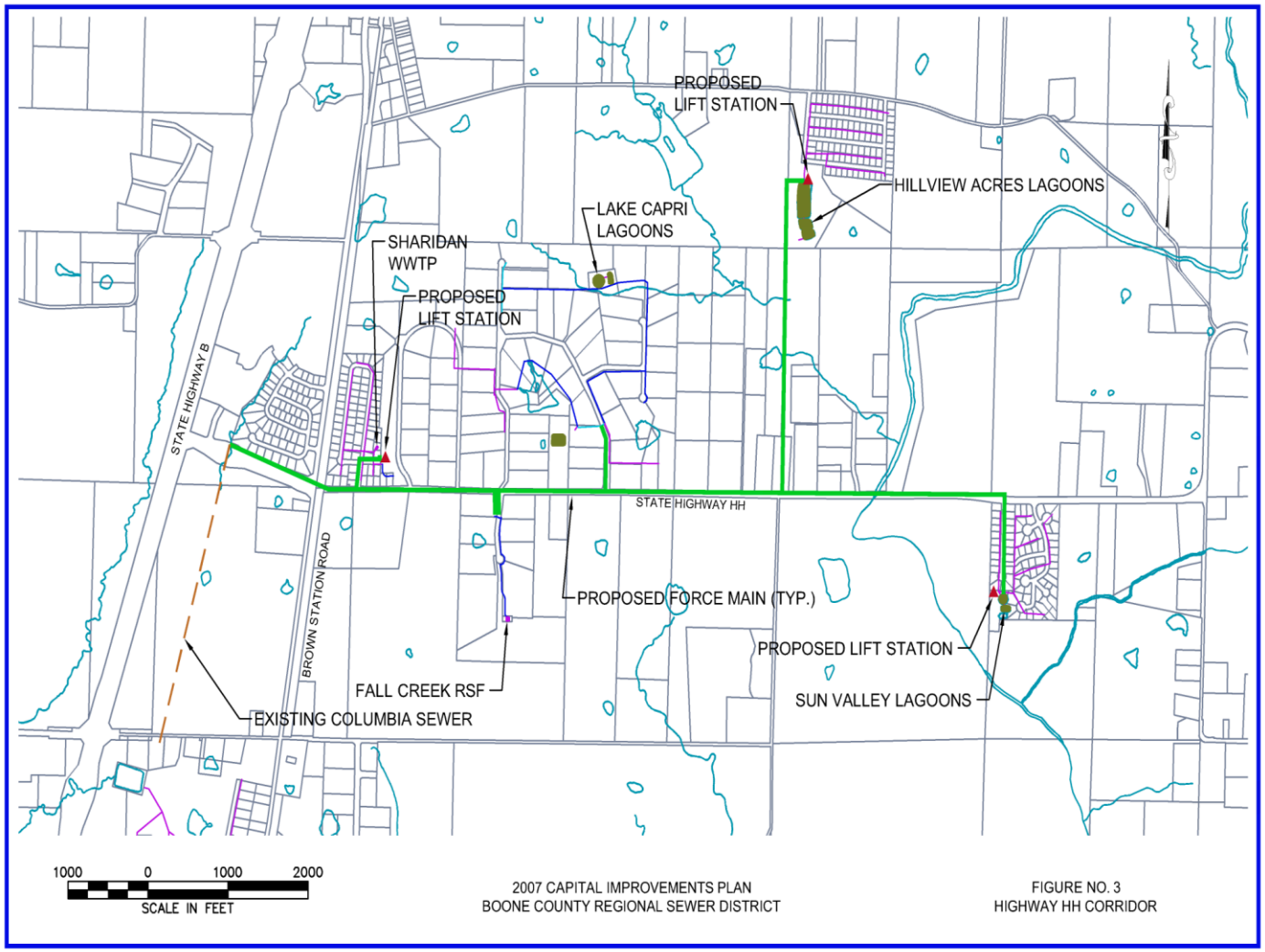
Potential Construction Projects

- Small Sewer Treatment Closure
- Stormwater Management / Riparian Enhancement Projects

Various Small Wastewater Treatment Closures

- Up to 158,000 gallons per day design capacity
- Removed from watershed
  - Connected to main system
  - Will be treated at City's WWTP

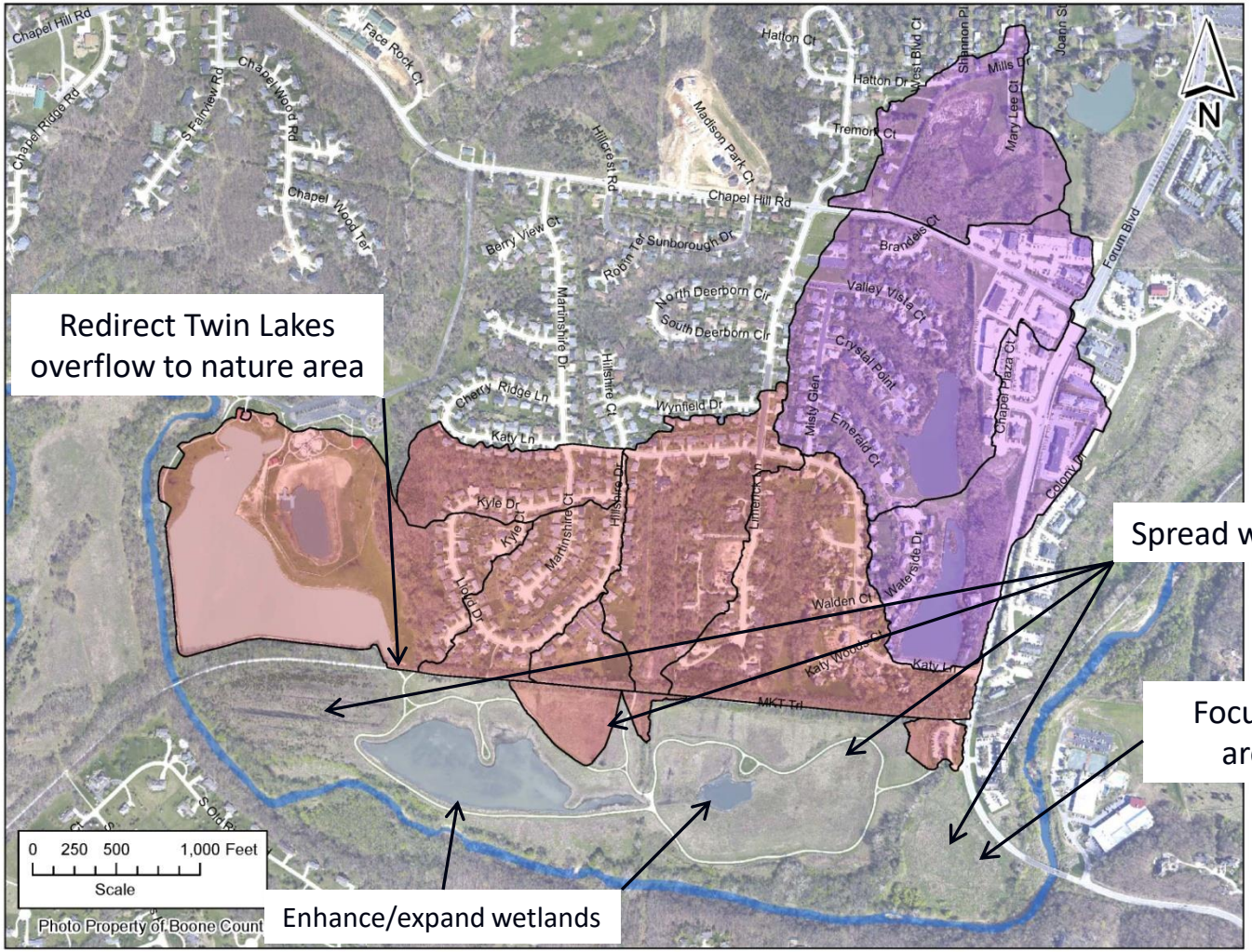
Example: Highway HH Corridor



Stormwater Management / Riparian Enhancement Projects

Forum Nature Area

Hinkson Creek

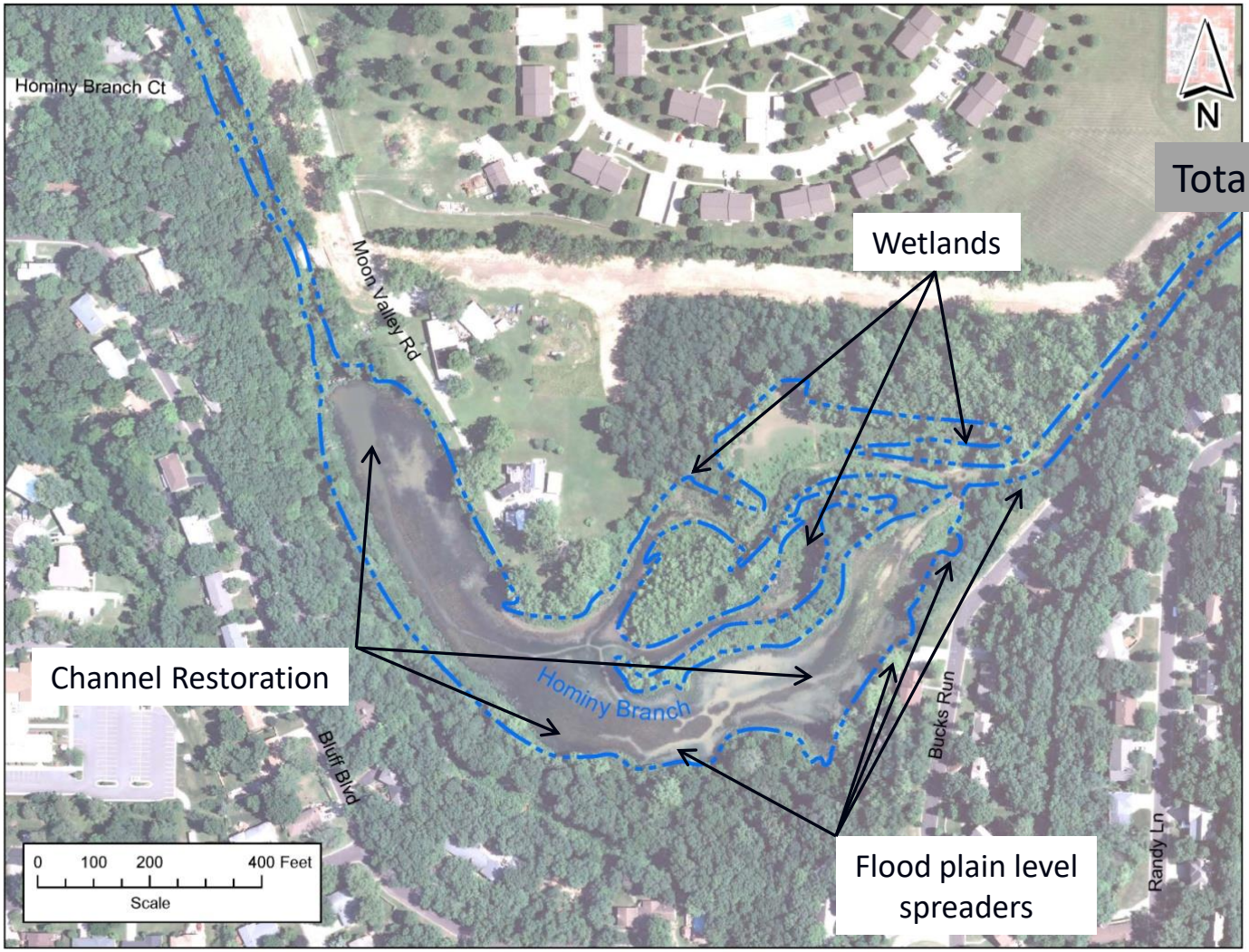


Red: Total Area: ~151 acres

Purple: (Limerick Lakes)
Total Area: ~103 acres

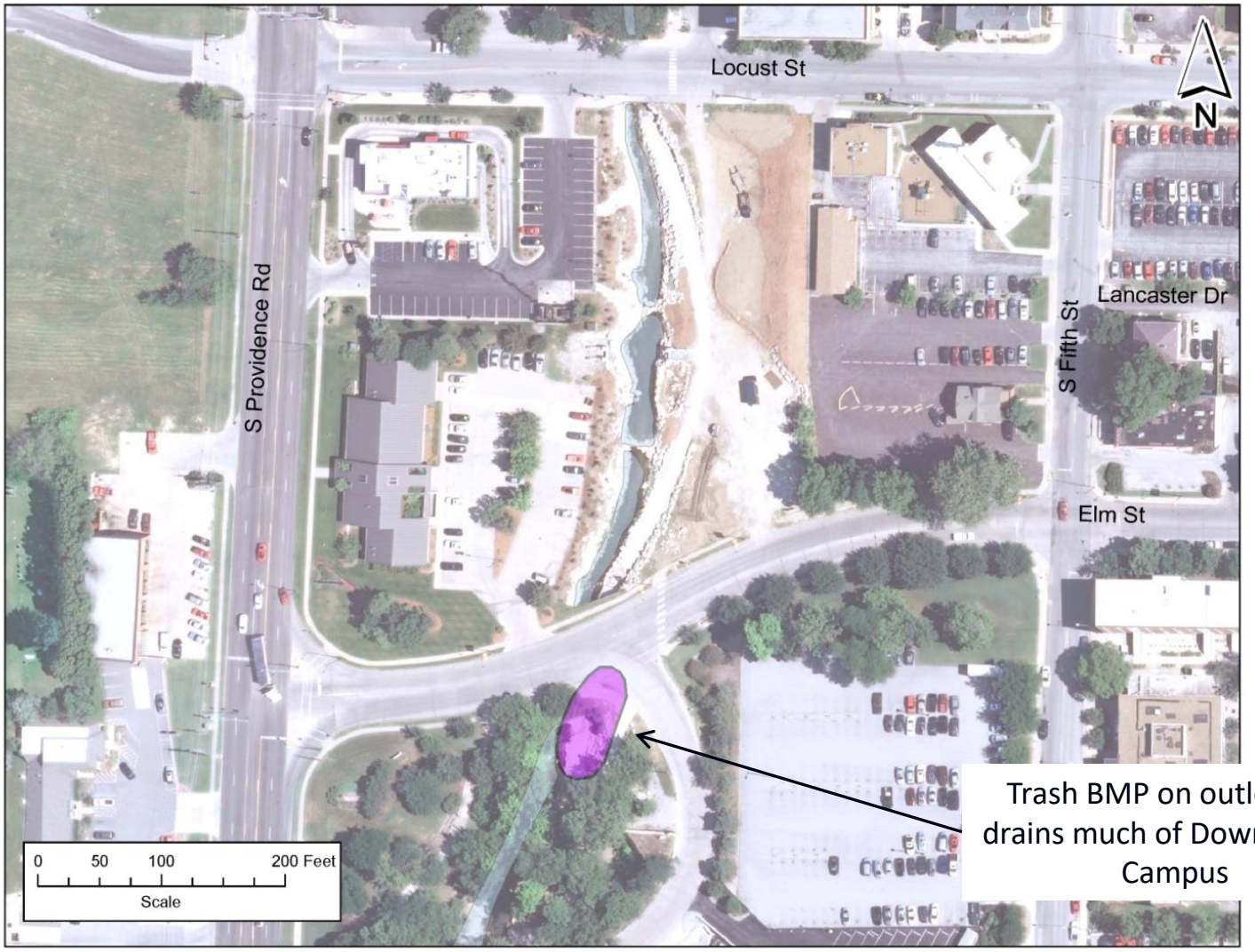
Moon Valley Restoration

Hominy Branch



Total Area: 6.45 sq. miles

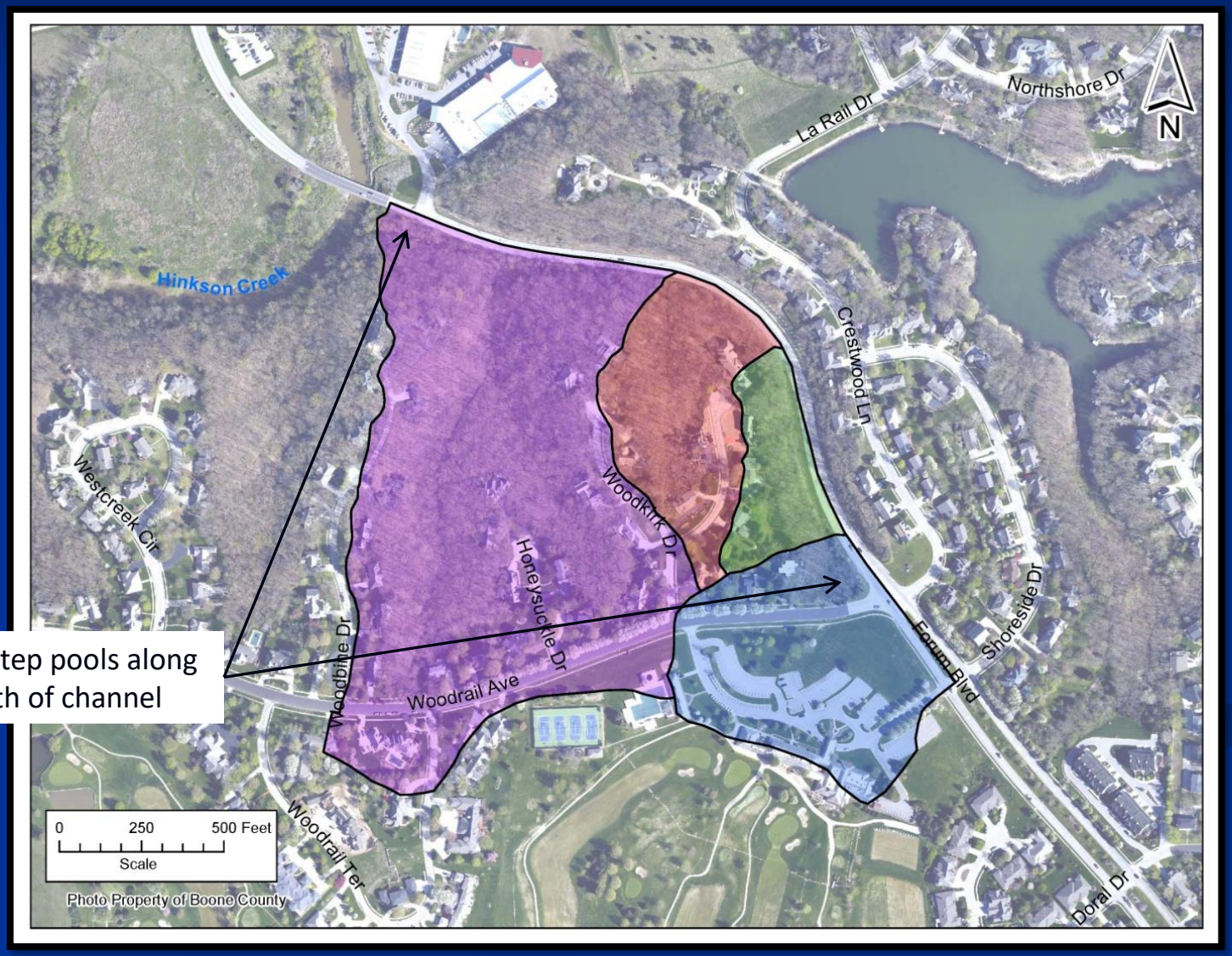
Trash Collector
Flat Branch



Forum Roadside Channel Step Pools

Hinkson Creek

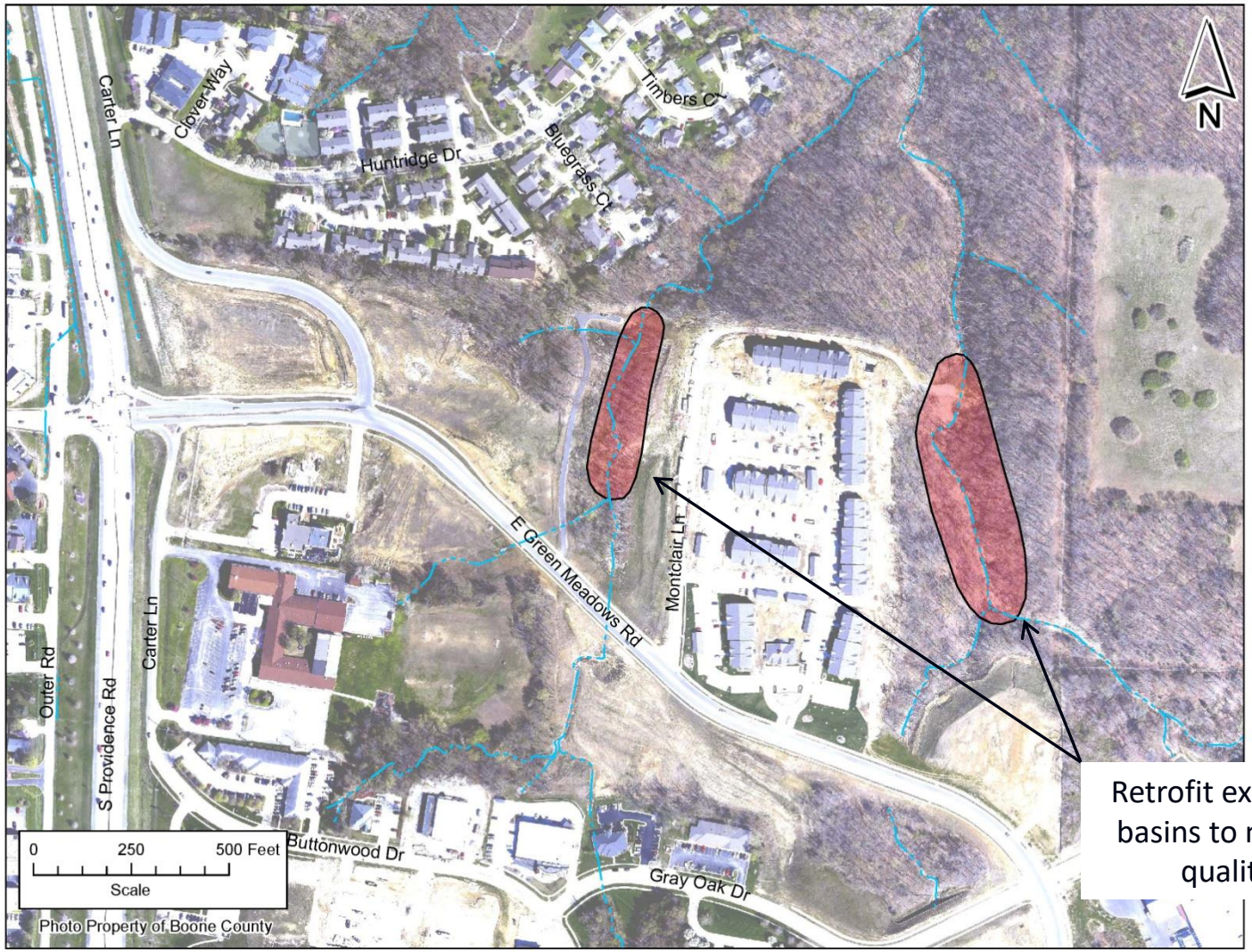
Total Area: ~50 acres



Install step pools along length of channel

Oak Forest Detention Retrofits

Hinkson Creek

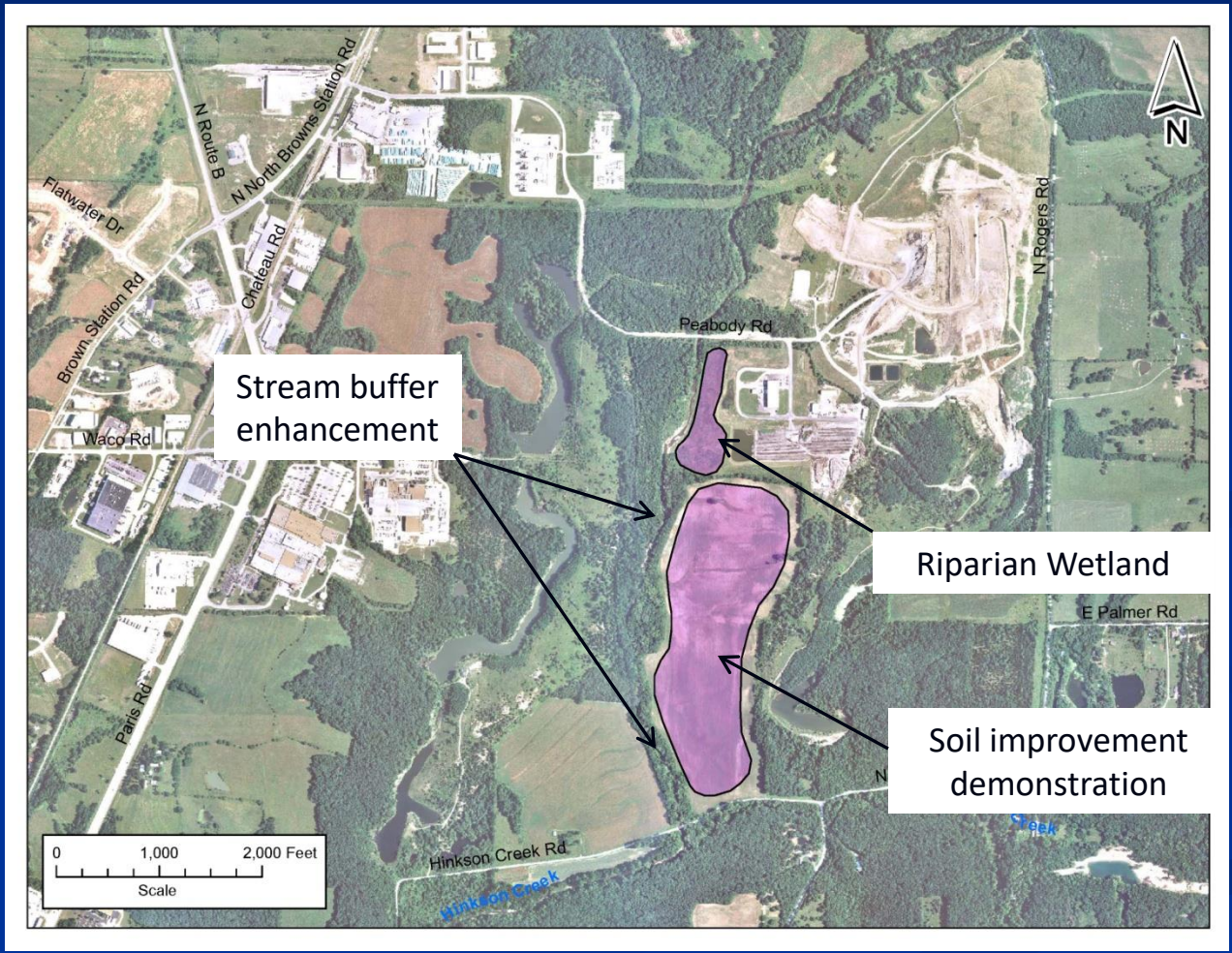


Total Area: ~325 acres

Retrofit existing detention basins to maximize water quality function

Landfill Property Improvements

Hinkson Creek



QUESTIONS ?

BOONE COUNTY REGIONAL SEWER DISTRICT

Boone County Regional Sewer District (BCRSD) Early Actions

- Highway HH Wastewater Treatment Facility (WWTF) Closures
- Sunrise Estates WWTF Closures
- El Rey WWTF Closure

Highway HH WWTF Closures

- Sun Valley Lagoon (Design Flow = 30,000 gallons per day (gpd))
- Hillview Lagoon (Design Flow = 22,500 gpd)
- Lake Capri Lagoon (Design Flow = 21,830 gpd)
- Sharidan Wastewater Treatment Plant (WWTP) (Design Flow = 30,000 gpd)
- Fall Creek Recirculating Sand Filter (RSF) (Design Flow = 3,600 gpd)

Sunrise Estates WWTF Closures

- Sunrise Estates Northeast Lagoon (Design Flow = 13,800 gpd)
- Sunrise Estates Northwest Lagoon (Design Flow = 9,500 gpd)

El Rey WWTF Closure

- El Rey WWTP (Design Flow = 13,960 gpd)

Boone County Commission Early Actions

- Manchester Heights Sanitary Sewer Neighborhood Improvement District (NID)

Manchester Heights NID

- Manchester Heights Lagoon Closure (Design Flow = 13,100 gpd)

UNIVERSITY OF MISSOURI

Early Actions by MU

July 13, 2012

- UMHC Patient Care Tower (in construction)
  - Green roof on lower roof
- Animal Resources Center (in construction)
  - Rain gardens/bioswales in landscape design for building
  - Retention basin downstream of bioswales
- East Campus Chilled Water Plant (in construction)
  - Bioswale
- Johnston/Wolpers Renovation (in design)
  - Porous pavement
  - Mini-retention area with landscape
  - Silva cells for tree roots

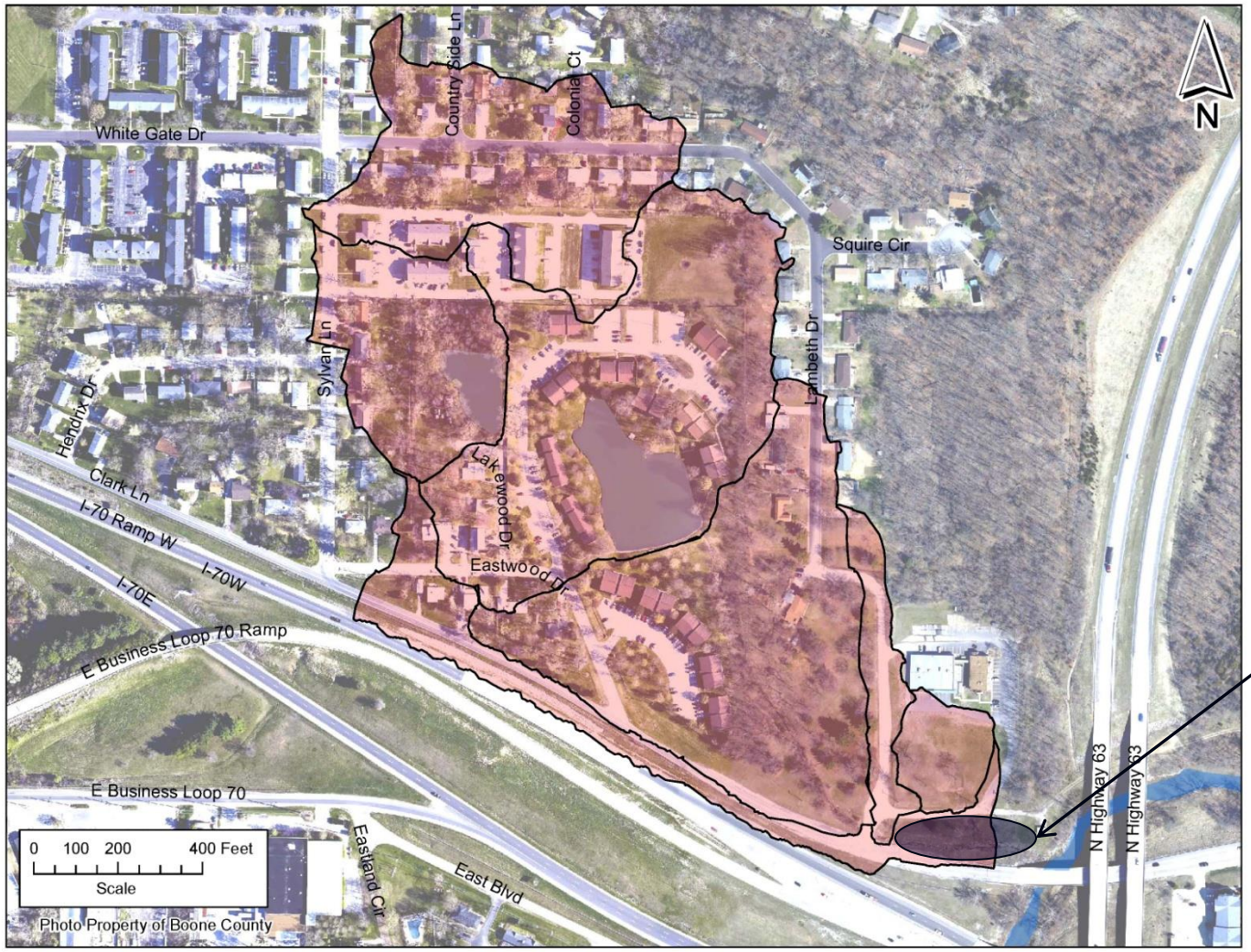
Early Actions by MU

July 13, 2012

- Storm system examination of 20%, by Facility Operations (yearly)
- Stormwater Management Plan, by Geosyntec (completed August 2012)
- Incorporate site specific BMP's, as projects are developed (ongoing)
- Work with Civil Engineering researchers (ongoing)

Clark Lane at Highway 63

Hinkson Creek



Total Area: ~42 acres

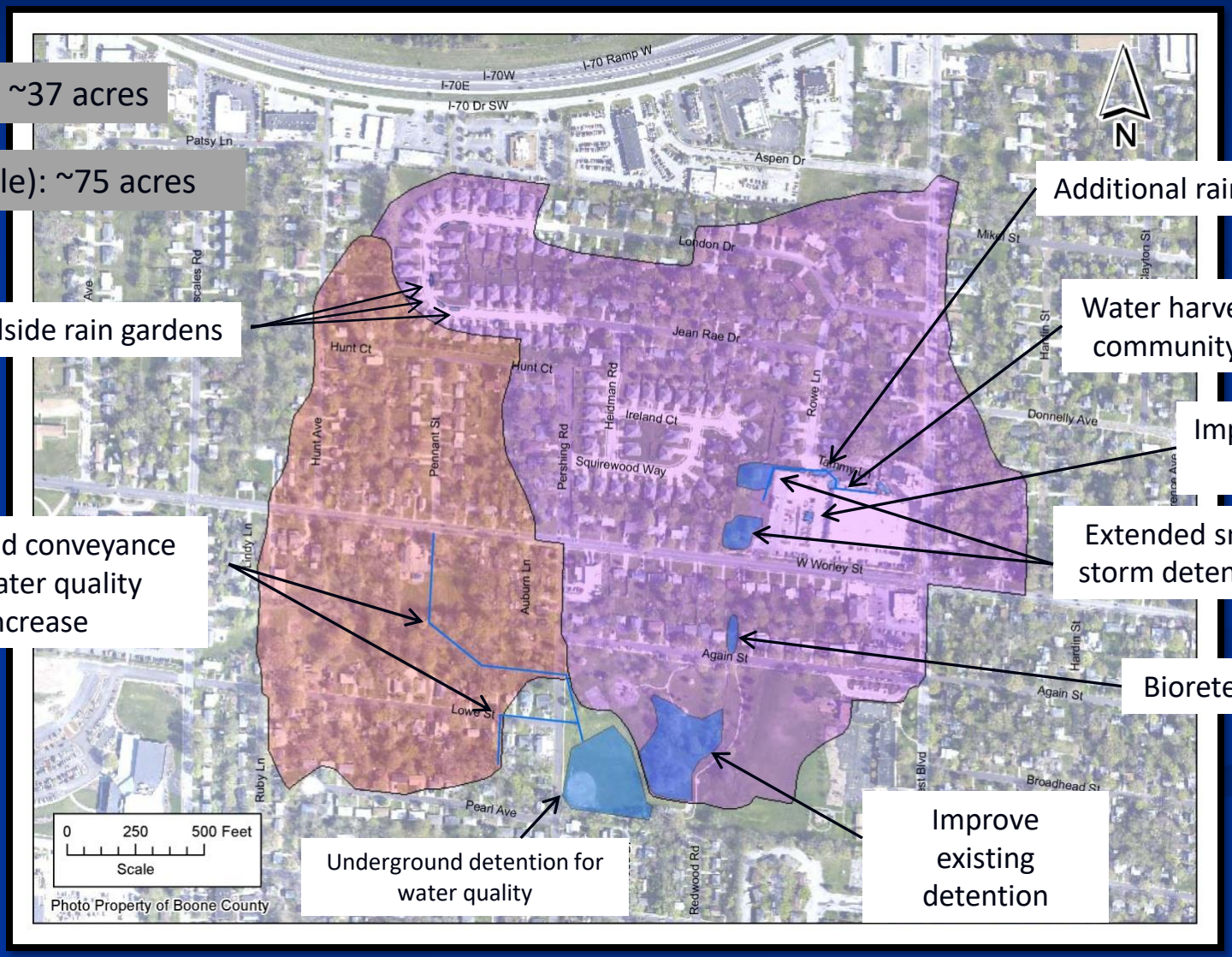
Small storm extended detention

Again Park Watershed

County House

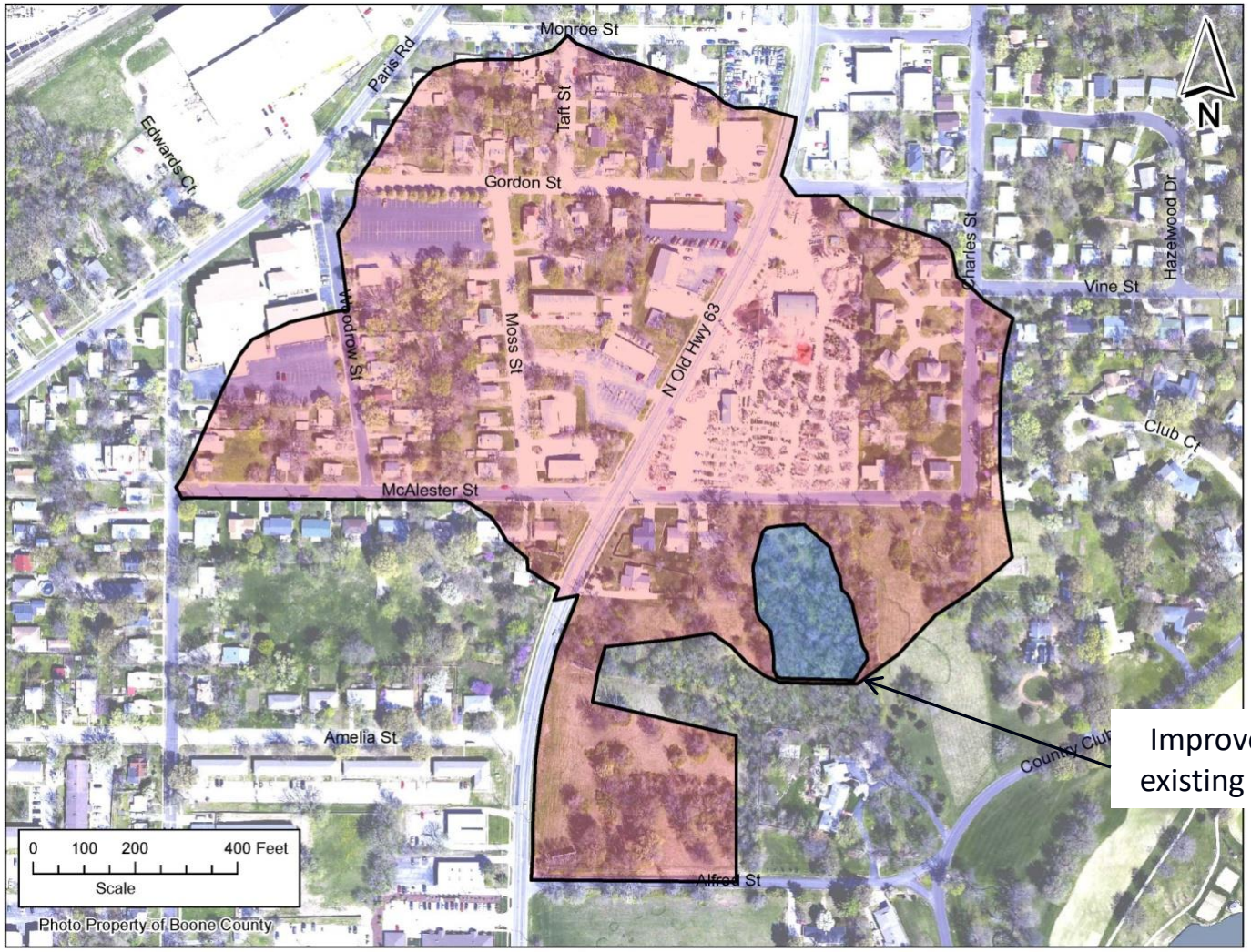
Area (red): ~37 acres

Area (purple): ~75 acres



Landmark Detention Retrofit

Hinkson Creek

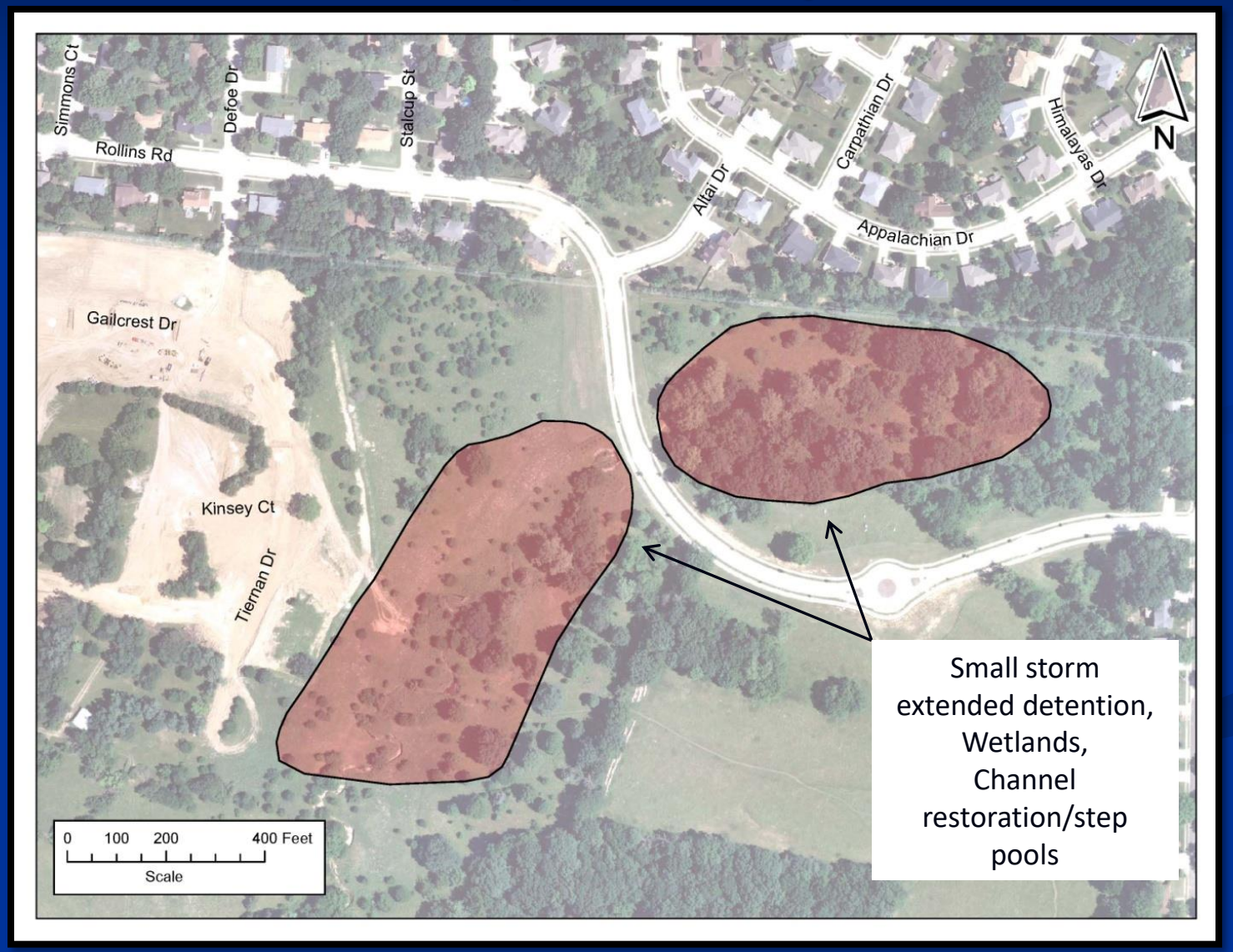


Total Area: ~38 acres

Improve/expand existing detention

Bonnie View Park
Scott's Branch (Merideth)

Total Area: ~248 acres



Lemone Industrial Water Quality

Grindstone Creek

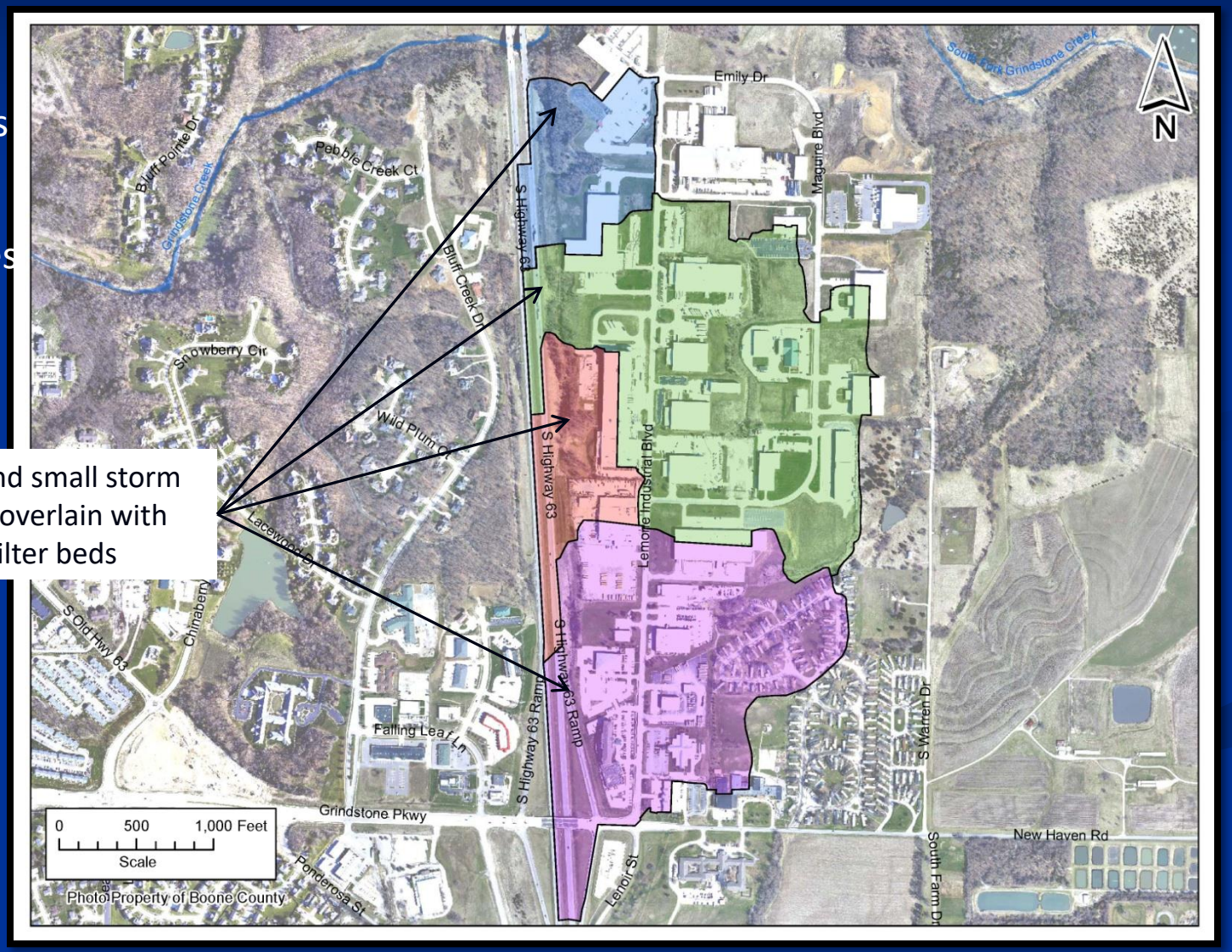
Area (blue): ~18 acres

Area (green): ~82 acres

Area (red): ~18 acres

Area (purple): ~66 acres

Underground small storm detention overlain with large filter beds



COLUMBIA – PARKS AND RECREATION

TreeKeeper & C.A.R.P Projects involve volunteers working with park staff in riparian forest restoration, invasive plant removal and shoreline management.

planting with CARP Volunteers at Stephens Lakes, June 2008

Tree planting with TreeKeepers along Hinkson Creek, September 2006

Success is evident in many of the projects completed, Although invasive plant species such as Japanese hops, Johnson grass and Callery pear hybrids has set back efforts in some areas.

2008 CARP planting fills in, filters runoff from Stephens lake parking lot

Seedling planted by TreeKeepers in 2006 as seen today