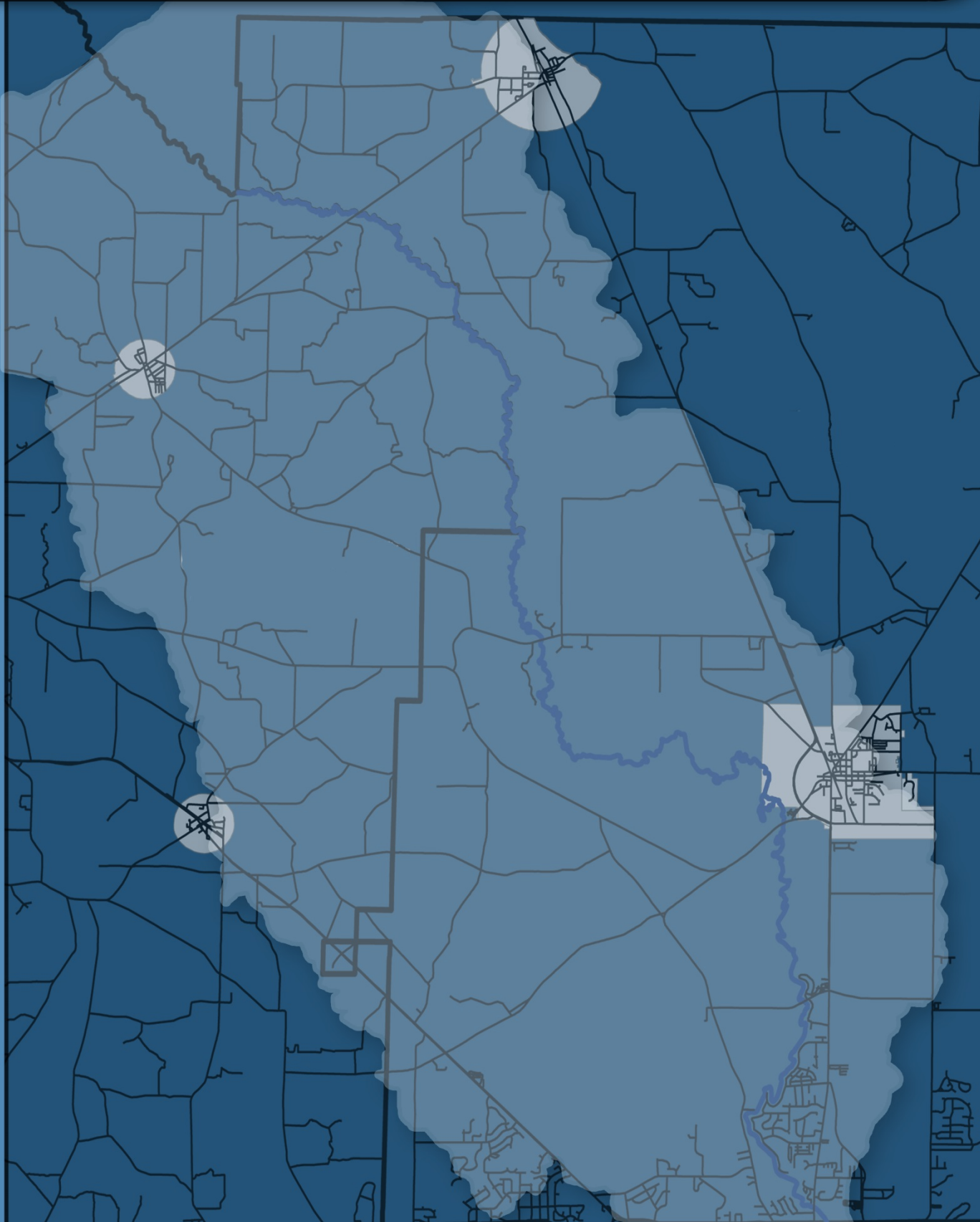


KINCHAFOONEE CREEK

HEALTHY WATERSHED INITIATIVE



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Executive Summary

The Kinchafoonee Creek Watershed is a valuable resource to Lee County, Georgia, providing recreational opportunities and habitat for unique plant and animal communities. The protection and preservation of the flow of these rivers and their watersheds has been identified as an environmental, economic, and cultural concern. The most effective method for protecting and preserving these flows may arise from a Healthy Watershed Initiative developed by local and regional stakeholders.

A Healthy Watershed Initiative is a means by which communities recognize the value of a watershed and identify opportunities to preserve and restore them. Values are wide ranging and include economic, historical, cultural, and ecological values. Economic values include those benefits derived from municipal activities, agriculture, recreation, and tourism; historical and cultural values include maintaining rural lifestyles or preserving regional icons such as springs. Ecological values include maintaining riparian areas for flood control and bank storage, or preserving aquatic habitat for native fish populations.

The identification of values through a Healthy Watershed Initiative Plan helps shape the development of an ethic that promotes land and water stewardship efforts. Development of this stewardship within a community of stakeholders increases the implementation of practices identified in the Plan to preserve the valued resources.

In 2013, local and regional stakeholders met in Leesburg, Georgia to discuss issues they identified as potentially detrimental to the sustainability of the Kinchafoonee Creek. These issues were used to organize the development of an Action Plan.

What is a Watershed?

A watershed is an area of land that water flows across, through or under on its way to a single common point in a stream, river, lake, or ocean. Watersheds include not only water bodies such as streams and lakes, but also all the surrounding lands that contribute water to the system as runoff during and after rainfall events. Relationships between the quality and quantity of water affect the function and health of a watershed. Watersheds can be extremely large, covering many thousands of acres and often are separated into smaller sub-watersheds for the purposes of study and management.

Characteristics of a Healthy Watershed

A watershed is all of the land that drains to a particular stream, river, or bay. All land, from the wildest preserve to the most densely developed urban neighborhood, is part of a watershed. When watersheds are healthy and functioning well, they provide food and fiber, clean water, and habitat for native plants and animals. Healthy watersheds work hard. They move sediment from the mountains to the beaches and bays, sorting it along the way to create diverse landscapes and habitats. They cycle nutrients and convert them into forms that living organisms can use. They purify and store water, and then meter its release into streams to reduce flooding and damaging erosion in the winter and to sustain flows and cool temperatures during the dry season. They even affect air quality by absorbing pollutants and greenhouse gases. Well-functioning watersheds are more resilient to natural and human-induced disturbances than highly-impacted watersheds.

Characteristics of a healthy watershed include:

- Water quality is high enough to support native aquatic species.
- The streams and their floodplains are able to accommodate flood flows without regular destructive flooding and erosion.
- Streamflows are close to historic conditions with moderate peak flows after winter storms and stable summer baseflows. This is strongly correlated to the amount of hard,

impervious surfaces such as roofs and pavements throughout the watershed, especially those that are directly connected to streams through ditches and storm drains.

- Streams have sufficient complex habitat features including pools, gravel bars, and large pieces of wood to support fish and other aquatic wildlife even through short-term changes from drought, wildfires, landslides, or other events that alter habitat conditions in parts of the system.
- Native, keystone plant and animal species are able to sustain stable populations.
- The riparian corridor has a dense, healthy native plant community that regenerates naturally.
- Upland forests and grasslands are managed to promote rain infiltration, provide diverse habitat for native wildlife, reduce soil erosion, and deliver clean water into streams.
- Tidal areas are connected to their wetlands. Not applicable for Lee and Terrell Counties.

Benefits of a Healthy Watershed

The benefits and services provided by healthy watersheds are numerous and include reduced vulnerability to invasive species, climate change, and future land use changes. Healthy watersheds with natural land cover and soil resources also provide vast carbon storage capabilities, offsetting greenhouse gas emissions. Healthy watersheds also provide habitat for fish, amphibians, birds, and insects and stream corridors which provide a key connection across the landscape for animals and birds. Aside from the reduced costs of restoring impaired waters, there are many other economic benefits to protecting and conserving healthy watersheds. Healthy watersheds preserve recreation opportunities such as fishing and water-related recreation (e.g. boating) and contribute to tourism (e.g., hiking and birding). Vulnerability to floods, fires, and other natural disasters is minimized, thereby reducing costs to communities. Similarly, by protecting aquifer recharge zones and surface water sources, costs of drinking water treatment may be reduced.

Watershed Protection Priorities; Issues and Concerns

Continued effort is needed in both urban and rural areas on the Kinchafoonee Creek watershed to identify and eliminate sources of fecal and sediment, and to protect stream buffers. Obvious sources of in-stream pollutants, such as sediment from stream bank erosion, should be

addressed as soon as possible. The obvious source of fecal and sediment in several streams is cattle that are often found in the streams that serve as the drinking water source and to cool off in hot weather. Future activities may include working with private land owners to encourage fencing and protection of buffers along Kinchafoonee Creek and smaller feeder streams. All jurisdictions should increase efforts to track and monitor septic tank performance, and make repairs when needed. In addition, counties and cities should begin development of a stormwater management program similar to the one created by Lee County, GA. Although planning should take place as soon as possible, implementation of watershed protection best management practices may occur on a gradual basis. Long-term protection of the Kinchafoonee Creek will require commitment by local officials as well as additional resources from a variety of sources including the CWA 319(h) Program administered by GA EPD.

What is happening in the Watershed (land use, waste water, etc.)

Since the 1950s, Lee County has changed from an agricultural area to an area of rapid residential and commercial development. Between 1990 and 2000, according to U.S. census records, the county grew at an astonishing rate. The 2000 population of 24,757 showed a 52 percent increase from 1990, much of it from Albany, in adjacent Dougherty County. In 2010 the county's population grew at a more modest pace to 28,298. As a growing market area, Lee County has become an important economic center for southwest Georgia. The majority of the development between 1990 and 2010 was in the residential sector and most of these were connected to public sewer systems. However, there are a number of septic systems that exist in the southern half of Lee County from development that occurred long ago. These septic systems are likely a contributing factor to the fecal coliform content of the Kinchafoonee Creek. Another possible contributing factor is livestock from agricultural areas along the Kinchafoonee Creek and the many tributaries that feed it.

Lee County, GA	
Residential Building Permits	
<u>Year</u>	<u># permits</u>
1996	339
1997	293
1998	303
1999	282
2000	279
2001	294
2002	318
2003	349
2004	384
2005	415
2006	359
2007	240
2008	142
2009	111
2010	111
2011	109
2012	132
Average	262

Figure 1 Residential Building permits.
Source: U.S. Census

Description of the Watershed

Geographic Setting

The watershed for the Kinchafoonee Creek (Figure 1) begin about 610 feet above sea level, just North of the City of Buena Vista in Marion County Georgia, and ends at just under 300 feet above sea level at Albany, Georgia where it joins the Flint River. The area of the watershed we are concerned with is generally that which lies in Lee and Terrell Counties; a map of which can found in Appendix A.

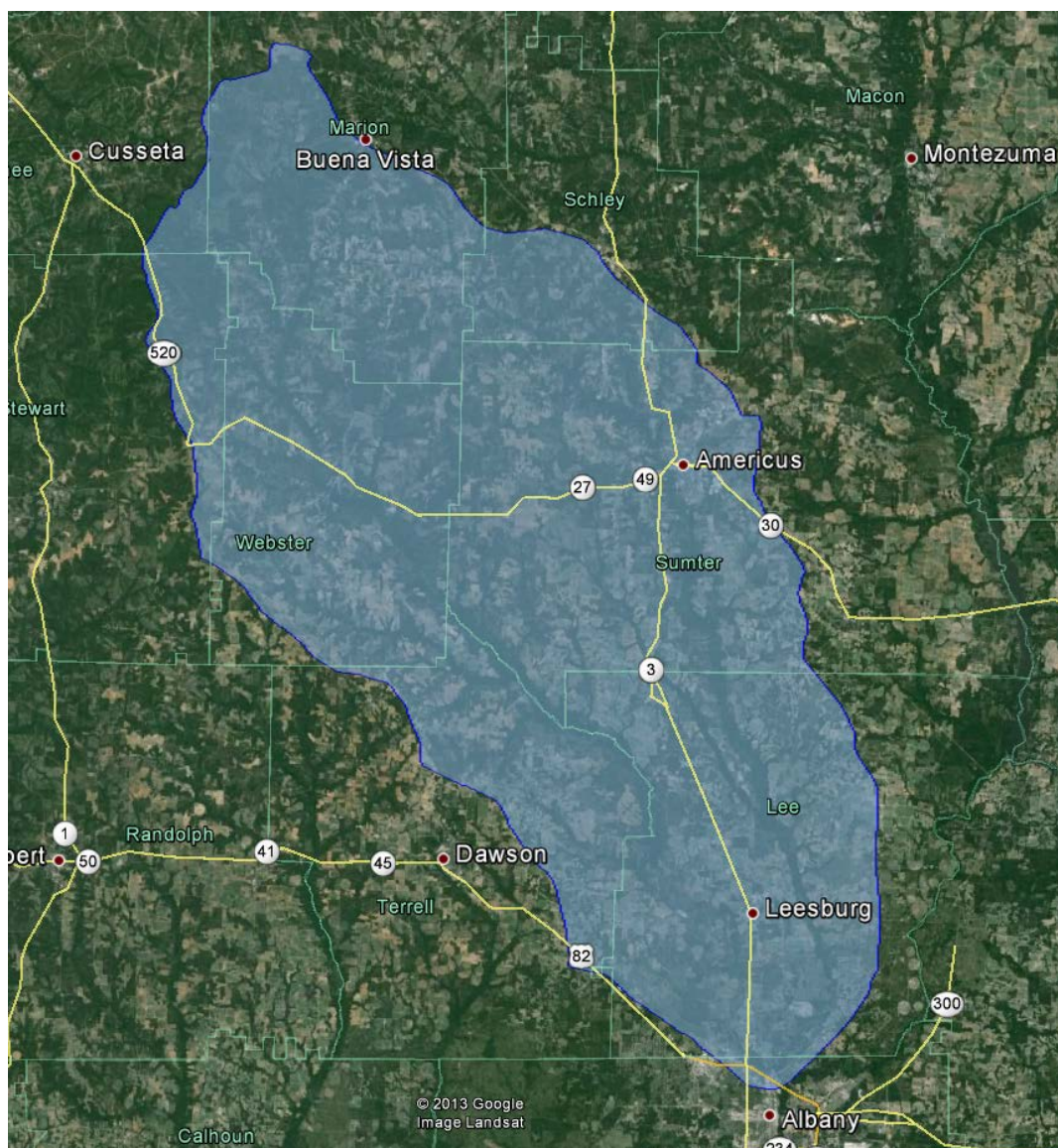


Figure 2. Kinchafoonee-Muckalee Watershed

Population

The estimated population living within the watershed is approximately 15,704. The largest concentration of this population is located from Leesburg south to the Dougherty County line. A map of this data can be found in Appendix B.

Land Use

The dominant land uses in the watershed are agriculture and residential. Agriculture accounts for approximately 90% of the area of study. Silviculture seems to be the most prevalent type of agriculture in the immediate vicinity of the Kinchafoonee Creek with row crops generally comprising the rest of the agricultural uses. Small pockets of livestock grazing are present in the watershed and are likely a contributing factor to the fecal coliform present in the creek.

Residential is a growing use in Lee County and is concentrated more or less to the Southern half of Lee County. While most of the residential growth that has happened in Lee County since the mid-90's has utilized public sewer systems, there are a number of older developments that are still on septic systems. These septic systems are likely a contributing factor to the fecal coliform present in the creek.

Water Resources and Quality

The Kinchafoonee Creek in the study area is fed by numerous tributaries, most of which have head waters in Terrell County to the West and Webster County to the Northwest. Most notably of these tributaries include Fowltown Creek, Reedy Creek, Bear Creek, Middle Creek, Mossy Creek and Sugar Creek. Little in the way of water quality testing has been done on the tributaries to the Kinchafoonee Creek. Fecal Coliform tests have been underway for Fowlstown Creek near the Kinchafoonee Creek. Results of sampling indicate that fecal coliform counts are below the 1000 cfu per 100 ml threshold and provide further indication that the water quality of the Kinchafoonee Creek has improved and has remained healthy.

Results of these tests can found in Appendix D and E.

Aside from tributaries, the Kinchafoonee Creek is fed by 2 blue holes (springs) in the study area.

Habitats

Terrestrial

The health of aquatic ecosystems is linked to the health of terrestrial ecosystems. Many parts of the Kinchafoonee Creek watershed have been subject to varying degrees of forest-cover alteration. Small-scale disturbance of native forests began with American Indians, who used fire to manage pinelands and create fields for cultivation. Forest disturbance was greatly accelerated by European settlers, who logged throughout the basin and extensively cleared land for agriculture in the Piedmont and Coastal Plain.

Prior to European settlement, the Kinchafoonee Creek watershed was mostly forested. The Coastal Plain supported oak-sweetgum-pine forests, with gum-cypress in floodplain forests. Parts of the lower Coastal Plain were vegetated by open savannahs of wiregrass and longleaf pine.

The habitat located along the Kinchafoonee Creek is considered a Riparian Habitat. Conservation of these habitats is crucial for the health of the Kinchafoonee Creek. The riparian zones provide buffers to the creek that absorb pollutants, provide habitat for many different animals, and provide travel routes for animals. These riparian zones also provide bank stability that can minimize unnatural turbidity of the Kinchafoonee Creek. Protection of these riparian habitats should be a top priority to allow any endangered species to thrive.

Aquatic

This section focuses on aquatic or wetland species including fishes, amphibians, aquatic reptiles, and aquatic invertebrates. However, the Flint River Basin is rich in many other fauna that rely on the water resources of the basin, including many species of breeding birds and mammals.

Although a description of these bird and mammal species is beyond the scope of this report, the water needs of these species, such as bald eagles, fish-eating mammals, and migratory waterfowl, should be considered in water-resource planning and management.

Fish Fauna. The Apalachicola-Chattahoochee-Flint (ACF) basin, which the Kinchafoonee Creek is a part of, has the largest diversity of fish fauna among the Gulf Coast river drainages east of the Mississippi River. The Flint River Basin is dominated by a warm-water fishery. Warm-water

species of recreational importance include largemouth bass, white bass, hybrid striped bass, shoal bass, spotted bass, crappie, yellow perch, pickerel, flathead catfish, channel catfish, and several varieties of sunfish and suckers.

Amphibians and Reptiles. In addition to the diversity of fish fauna, the Flint River is noteworthy for its diversity of amphibians and reptiles. the Apalachicola-Chattahoochee-Flint River Basin is inhabited by 16 species of freshwater aquatic turtles, 21 species of salamanders, 26 species of frogs, and the American alligator. All require freshwater to complete or sustain their lifecycles. In addition, numerous species of snakes and lizards inhabit streams and wetlands.

Fifteen species of amphibians or reptiles are noteworthy because of their rarity or protected status. The alligator snapping turtle, the world's largest freshwater turtle, is designated as threatened as a result of commercial overharvesting for its meat. Barbour's map turtle, a federal candidate species under the Endangered Species Act, is endemic to the Coastal Plain part of the ACF basin.

Stakeholder Involvement

Issues of Concern

Through stakeholder meetings in Lee County a number of concerns were identified. They are:

- Litter
- Fecal Coliform
- Sedimentation
- Lack of boat access
- Natural blockages (downed trees across creek) to accessibility

Watershed Protection Priorities

The stakeholder group developed a vision statement for the Kinchafoonee Creek Healthy Watershed Initiative. The Kinchafoonee HWI envisions a

“sustainable waterway in which the Kinchafoonee Creek and the smaller tributaries are managed to conserve the natural habitats and scenery found in and along the creek system while meeting the needs of humans for economic, recreational and community enjoyment.”

In order to preserve the health of the Kinchafoonee Watershed the stakeholder group has created a list of priorities for the watershed. The priorities are as follows:

1. **Fecal Coliform:** Issues with fecal coliform must be addressed to every extent possible. Aging septic systems and the grazing of livestock in or near the creeks within the watershed are likely the biggest contributors to fecal coliform counts.
2. **Sedimentation:** Erosion and sedimentation are natural processes that occur with stream flow. Gravel and cobble-sized sediments are very important as habitat for stream-bottom macro invertebrates, and as spawning habitat for fish. But too much sediment can cause problems. For example, sand and finer grained sediment, including silts and clays, can degrade gravel and cobble habitats. The source of this fine sediment can be runoff from roofs and lawns, as well as development, in urban areas. Sometimes particles carried in urban runoff can be too fine to settle to the bottom and consequently stay suspended in the water causing cloudiness or turbid water. Cloudy water does not allow sunlight to filter through to aquatic flora on the bottom of the creek.
3. **Litter:** Litter originating from the recreational users is probably the biggest problem while illegal dumping has a significant impact on the natural beauty of the watershed as well.
4. **Boat Access:** While not at first glance detrimental to the health of a watershed, boat access on the Kinchafoonee Creek is somewhat limited to and causes large stretches of the creek to become somewhat unreachable. A series of access points is important because it provides more access to fishing, litter cleanup and patrols and emergency services. All of which contribute to a healthier and safer recreational experience. With more boats on the water the area can possibly police itself and cut down on any illegal dumping.
5. **Natural blockages:** Blown down trees prevent canoes, kayaks and boaters from passing and enjoying the creek as well as preventing emergency response personnel from reaching segments of the stream.

Identified Resource Issues in the Kinchafoonee Watershed

Water and Land Resources

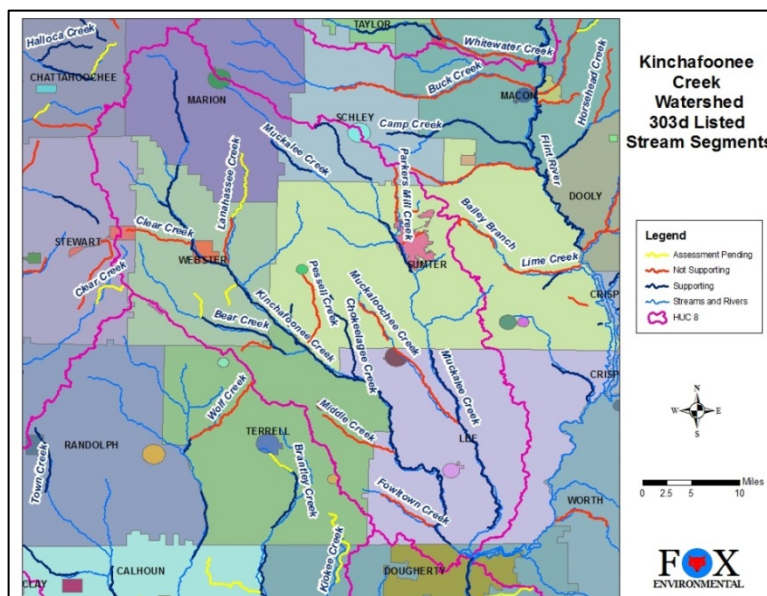
The Kinchafoonee Creek provides the area with numerous amenities that deserve protection from degradation. The Kinchafoonee provides recreation in the form of paddling, fishing,

birdwatching and at the same time its riparian areas provide greenspace for neighboring residents and habitat linkages for animals. The riparian areas also provide stormwater retention and the wetlands in the riparian areas provide pollutant filtering. It is crucial to protect the riparian area from human encroachment to keep the Kinchafoonee creek watershed healthy. As part of that protection from human encroachment, areas with bank stability problems need to be mitigated to ensure proper stream health. Sedimentation of the creeks destroys the natural habitat of the stream bed for the flora and fauna that inhabit it.

Potential Pollutant Source Assessment

The following section was derived from “Watershed Protection Plan Progress Report for Lee County, GA” originally authored by Fox Environmental in July 2011.

The majority of Kinchafoonee Creek is currently listed on the state’s 2010 Integrated 305(b)/303(d) list as meeting their designated use of fishing. The three specific stream segments listed include: (1) ten (10) mile segment from its headwaters to Lanahassee Creek in Marion County; (2) twenty-three (23) mile segment from the Marion County line to the Terrell County line in Webster County; and (3) forty (40) mile segment from Georgia Highway 45 (the Webster County line) to Lake Chehaw/Worth in Terrell, Sumpter, Lee, and Dougherty Counties. The most downstream segment was previously listed as not meeting its designated use due to elevated fecal coliform bacteria and mercury. A TMDL was completed for this segment in 1998. A TWR (Trophic-Weighted Residue Value of Mercury in fish tissue exceeding the EPD human health standard of 0.3 mg/kg) was also identified in 2003. Although recent data demonstrated that these two pollutants are no longer a threat, five streams that flow into the Kinchafoonee are currently listed due to excess loadings of sediment or fecal coliform bacteria. A map of Kinchafoonee Creek and nearby 303d streams is presented in the map below



7/01/2014

EPA requires Georgia EPD to demonstrate good cause for not including streams that were previously listed on the Section 303(d) list. Good cause includes, but is not limited to, more recent and accurate data, more sophisticated water quality modeling, flaws in the original analysis that led to the waterbody being listed or changes in conditions, for example, new control equipment, or elimination of discharges. In the Draft 2004 Section 303(d) listing proposal Georgia EPD submitted good cause justification to EPA to delist the stream segments listed above from its 2004 Section 303(d) list.

Water quality assessments of water quality were conducted by the EPD in 2001/2002 at samples collected at four sites along the Kinchafoonee. The results indicated that the creek is in relatively good condition. Fecal Coliform counts were higher than optimal and were attributed to stormwater runoff from agricultural and residential areas, especially those areas with older septic systems.

The Lee County-Kinchafoonee Creek Water Pollution Control Plant is also permitted to discharge to Kinchafoonee Creek near the southern border of the county. As a condition of the permit, Lee County Utilities Authority to perform long-term monitoring of water quality and biological conditions of Kinchafoonee and Muckalee Creeks. This is significant because these sampling sites are located at the bottom of the watershed, before Kinchafoonee Creek flows into the Flint River. Thus the data provide excellent information on historical water quality of the entire Kinchafoonee watershed.

In the original watershed assessment conducted in 2001/02, four of the six sampling sites were located along Kinchafoonee Creek. Study results indicated that Kinchafoonee Creek was in relatively good condition with respect to the majority of chemical and biological indicators. Some parameters, such as fecal coliform (K-3) and copper (K-1, K-2) were present at levels that posed a potential threat to in-stream organisms and human health. The sources of fecal coliform were attributed to non-point source stormwater runoff from agricultural and residential areas, especially older homes with septic tanks located along the Kinchafoonee Creek. Fecal coliform levels were significantly higher during rain events suggesting potential

inputs from other non-point sources such as domestic animals and livestock. The potential source(s) of copper were not identified.

The biological assessment showed that the in-stream habitat at the upstream location on the Kinchafoonee Creek (K-1) was distinctly different from that found at Stations K-3 downstream. Station K-1 was narrower, with swifter flows, greater channel sinuosity, and has less accumulation of detritus in the form of leaf packs than the downstream study site. The differences in habitat were reflected in differing benthic macroinvertebrate communities (i.e., lower diversity or absence of Shredders and, especially Scrapers upstream as compared to downstream sampling stations). Due to diversity and quality of its in-stream and riparian habitats, Station K-1 received the highest ("best") habitat score. Riparian zone features in this area consists mostly of forests and pastures, in contrast to the riparian zone in the lower study area where residential areas are more prevalent. In general, the fish communities of Stations K-1 and K-3 each reflected relatively diverse and healthy fish populations given the types and quality of habitat present. Species richness metrics indicated that the fish community at Station K-1 is dissimilar to those of the lower study area due mostly to differences in physical habitat.

The watershed assessment indicated that the study area is in relatively good condition with respect to the majority of chemical and biological indicators. The watershed assessment documented that water quality concerns in the Lee County study area are primarily attributed to: (1) non-point source stormwater runoff from agricultural (primarily) and residential areas which introduces fecal coliform bacteria into the Kinchafoonee and Muckalee Creeks, especially during rain events; and (2) inputs of copper and mercury from unknown point and/or non-point sources that may be impacting the fish community.

Over the past ten years, Lee County has continued to monitor two sites on Kinchafoonee Creek on an annual basis. Parameters collected at most sampling events included: ammonia; nitrate-nitrite; TKN; ortho-phosphorus; biological oxygen demand; copper; zinc; and fecal coliform. Water quality monitoring data were compared to the Georgia in-stream water quality standards and other recommended thresholds to determine potential risk to human health and in-stream biota. These results indicated did not demonstrate any significant impacts to the streams with respect to ammonia biological oxygen demand, copper and zinc. Several parameters were measured at levels suggesting potential impacts to human health and/or in-stream biota. Orthophosphorus concentrations were reportedly present at three to four times acceptable levels (0.1 mg/l) at K-3 (0.34 mg/l). Average acceptable levels of fecal coliform bacteria (200 cfu/100 mls) were exceeded at sites K-3 (1075 cfu/100 mls). Biological monitoring

was conducted in February 2007 (Sites K-1 and K-3). In this study as in the previous 2001/02 study, K-1 received the highest (best) habitat score.

The 2010 monitoring results did not demonstrate any significant impacts to study streams with respect to numerous constituents, namely: water temperature; pH; ammonia; nitrate; total kjeldahl nitrogen; nitrite; nitrate; ammonia; biological oxygen demand; chemical oxygen demand; cadmium; copper; lead; and zinc. Orthophosphorus and total orthophosphorus were elevated at Lower Kinchafoonee Creek (K2) in 2010. These results are consistent with historical data from Kinchafoonee Creek. The source of the phosphorus may be from nearby agricultural activities and/or perhaps the Lee County Wastewater Treatment Plant located upstream of K1. More study is needed to identify the specific sources of this pollutant. No elevated fecal coliform and E. Coli (>200 cfu/100 mls) in Kinchafoonee Creek in the 2010 study.

Results to date suggest that sediment levels, bacteria and TKN appear to have decreased over time throughout the watershed. It is noteworthy that in a recent rain event, fecal and sediment levels were much greater suggesting pollutant sources are still present.

Recommendations for Maintaining a Healthy Watershed

Public Education and Outreach Program

The County continues to distribute of fact sheets and brochures provided by the Clean Water Campaign from the Building Inspector's Office and the Code Enforcement Office on an on-going basis. To increase distribution numbers, brochures were also handed out at training classes and facility tours via the new Leadership Lee Program. These brochures have proven to be an efficient, cost effective means of public outreach and education and should be continued.

The County also advertised the stormwater web site and reporting link (www.lee.ga.us) in newspaper articles. A violation can be reported to Code Enforcement by filling out the form and sending by e-mailing to the Code Enforcement Officer. No complaints were received during the 2010 reporting period by the reporting system. The County web-site was advertised in the local newspaper, the Lee County Ledger, on February 17th 2010, March 10th and June 23rd 2010.

In addition, stormwater topics were presented to the Lee County Board of Commissioners on at least two occasions during the annual reporting period. On May 25th 2010, the Community Development Director discussed a FEMA Flood Management Study which was approved by the

Lee County Board of Commissioners. The second presentation was made by the same individual on June 8th 2010 regarding various stormwater projects in Lee County.

Public Participation and Involvement

The Great American Cleanup was held Saturday April 20th 2013 and was very successful in the removal of 16.45 tons of debris and 29 discarded tires from the City of Smithville, Leesburg and the unincorporated areas of Lee County. On the same day, the county also hosted a county wide amnesty day including the City of Leesburg and Smithville as well as a drug take back day. Volunteers numbered at 110+ and divided into six groups which had specific target areas to clean. The groups consisted of civic groups, church youth groups, elected officials, citizens of various age groups, off duty city and county employees. A newspaper article advertising the event was published in the Lee County Ledger on April 17th 2013.

The Rivers Alive Cleanup Event was held on Saturday August 10th, 2013 and was a great success. The event was advertised through the local newspapers, television stations, the county's website, Rivers Alive web site, and by flyers that were posted at various public locations. Event advertised on county web-site starting June 6th 2013. Posters were displayed in various locations in the county and advertised on the Rivers Alive web-site. The event was covered by the local newspaper, the Lee County Ledger on June 12th 2013. Close to one hundred volunteers from the Lee County area participated in the event which removed approximately 1.33 tons of trash from under bridges crossing the Muckalee Creek, Kinchafoonee Creek, and Flint River. The local chapter of Rivers Alive hosts at least an annual cleanup day along the Kinchafoonee Creek to remove litter and debris. The clean events usually get media coverage and this practice should continue to inform people of the efforts being undertaken and to invite them to participate.

Illicit Discharge Detection and Elimination Program

Lee County has identified a total of 25 outfalls on the Kinchafoonee and Muckalee Creeks. On September 12th & 13th, The Lee County Code Enforcement Office inspected ten (10) outfalls (25%) on the Kinchafoonee Creek for the presence of illicit discharges. No illicit discharges were located.

In 2010, the County divided the business inspections into two lists - the first being High Visibility Pollution Sources (HVPS) and the second being Industrial Facilities. The County updated and revised its business database to add new businesses and remove businesses that were not

physically in Lee County or are no longer are in operation, and to identify those that businesses that posed the greatest potential for stormwater pollutants. Thirty-four or 22% of Lee County's HVPS were inspected by the County Code Enforcement Officer during the reporting period of 2013. Seven or 50% of Lee County's Industrial Facilities were inspected by the County Code Enforcement Officer during the reporting period of 2013. No Notices of Violation were issued during the reporting period. Most owners, operators and/or employees were given appropriate educational material and/or guidance on how to prevent polluted stormwater runoff during their business's operation.

Construction Site Runoff Control

The Lower Chattahoochee River Soil and Water Conservation District (LCRSWCD) and Lee County Planning and Engineering staff reviewed and approved no new infrastructure built during the previous year as well as one new residential, four new commercial developments, no new industrial developments to ensure erosion and sediment control requirements would be met. Lee County will continue to send ESPCP's to the proper reviewing agency for review and approval prior to commencement of construction.

Due to limited rain fall, and insufficient staffing levels, most sites were inspected only on an "as needed basis. Twenty-one sites were inspected during this reporting period. Some sites were inspected numerous times depending on the duration of construction. No Notice of Violations or Stop Work Orders were issued in 2013.

Five of six Lee County Stormwater Web pages contain a link where visitors can report a problem directly to the Code Enforcement Officer. The webpage was advertised several times in the Lee County Ledger during 2013. During this reporting period the code enforcement office received four complaints via the website. Three complaints were corrected after the property owner or contractor received a Notice of Violation. The fourth complaint was forwarded to the Albany Office of E.P.D. The public was also encouraged to call the Code Enforcement Office at (229)759-6000 or e-mail Code Enforcement Officer to report any problems.

Post-Development Stormwater Management for New Development and Redevelopment

Lee County adopted the Post-Development Stormwater Management Ordinance on September 23, 2005. This ordinance defines requirements for a post-development stormwater management plan that details of how the development will address post-development stormwater runoff quality and quantity impacts resulting from the permanent alteration of the character and hydrology of the land surface. The majority of technical criteria and standards are

adopted by reference through the use of the Georgia Stormwater Management Design Manual, latest edition.

Seventeen plans were reviewed and approved in 2013. The approved plan review checklist was fully utilized in all development plans. Final inspections were completed for only one development in 2013 with seven signed recorded maintenance agreements (the remaining projects are still under construction). A few projects fell under the jurisdiction of the State Fire Marshal or had no structure requiring a (CO).

The Post-Development Stormwater Management for New Development and Redevelopment Ordinance is an important facet of maintaining a healthy Kinchafoonee Watershed and should be continued.

Final Recommendations

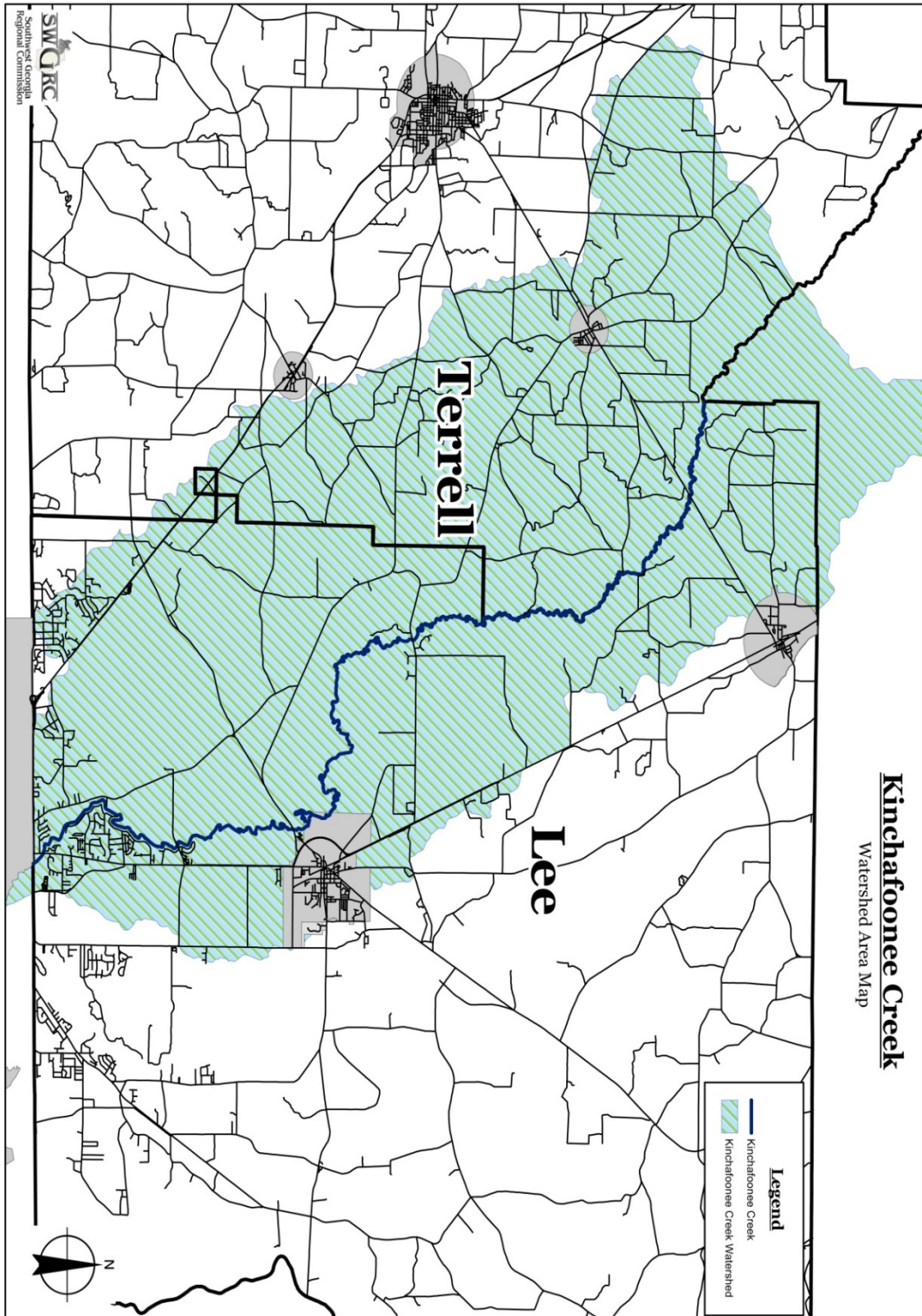
We recommend continued effort is needed in both urban and rural areas on the Kinchafoonee Creek watershed to identify and eliminate sources of fecal and sediment, and to protect stream buffers. Obvious sources of in-stream pollutants, such as sediment from stream bank erosion, should be addressed as soon as possible. The obvious source of fecal and sediment in several streams is cattle that are often found in the streams that serve as the drinking water source and to cool off in hot weather and new development and just bad residential practices. Future activities may include working with private land owners to encourage fencing and protection of buffers along Kinchafoonee Creek and smaller feeder streams. All jurisdictions should increase efforts to track and monitor septic tank performance, and make repairs when needed. In addition, counties and cities should begin development of a stormwater management program similar to the one created by Lee County, GA. Although planning should take place as soon as possible, implementation of watershed protection best management practices may occur on a gradual basis. Long-term protection of the Kinchafoonee Creek will require commitment by local officials as well as additional resources from a variety of sources including the CWA 319(h) Program administered by GA EPD.

Schedule for Implementation of Plan

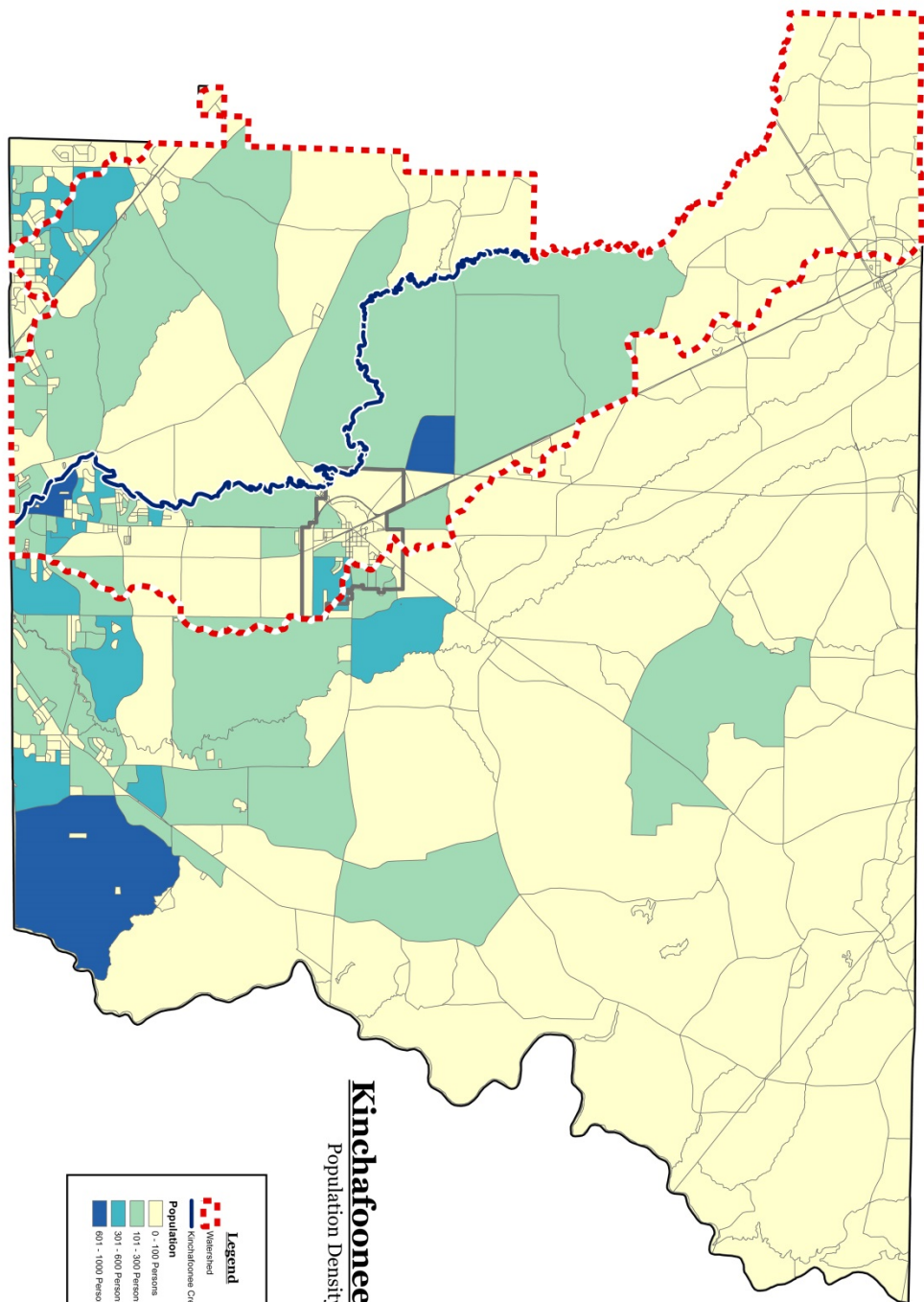
Activity	Years	Responsible Party	Cost Estimate	Funding Source
Work with landowners to encourage farmers to keep cattle out of streams feeding the Kinchafoonee	2015-2020	Lee County	Staff Time	N/A
Work with the Health Dept. to count and monitor septic systems along the Kinchafoonee and tributaries	2015-2020	Lee County, Lee County Health Dept	Staff Time	N/A
Distribute fact sheets and brochures regarding Clean Water benefits and best practices.	2015-2020	Lee County	Staff Time	N/A
Continue the Rivers Alive Cleanup Efforts	2015-2020	Lee County, Rivers Alive	Volunteer time	Volunteers
Revise county ordinances to require conservation or cluster subdivisions along the Kinchafoonee Creek and its tributaries.	2015-2020	Lee County	Staff Time	N/A
Mitigate areas where bank stability is evident along the Kinchafoonee Creek and its tributaries.	2015-2020	Lee County, Landowners	Staff time, Unknown	Volunteers and donated materials

Appendix

APPENDIX A



APPENDIX B



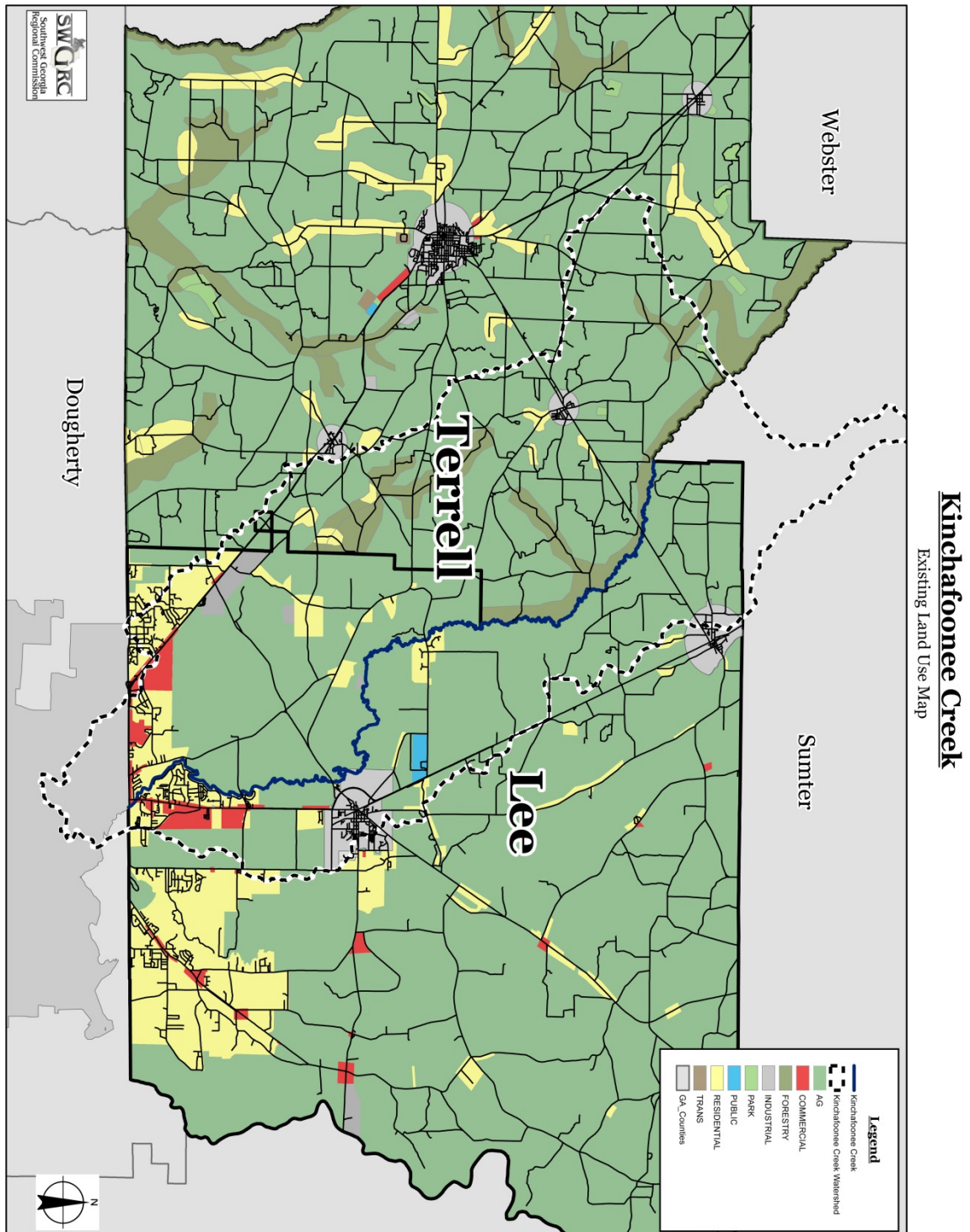
Kinchafoonee Creek
Population Density Map

Legend

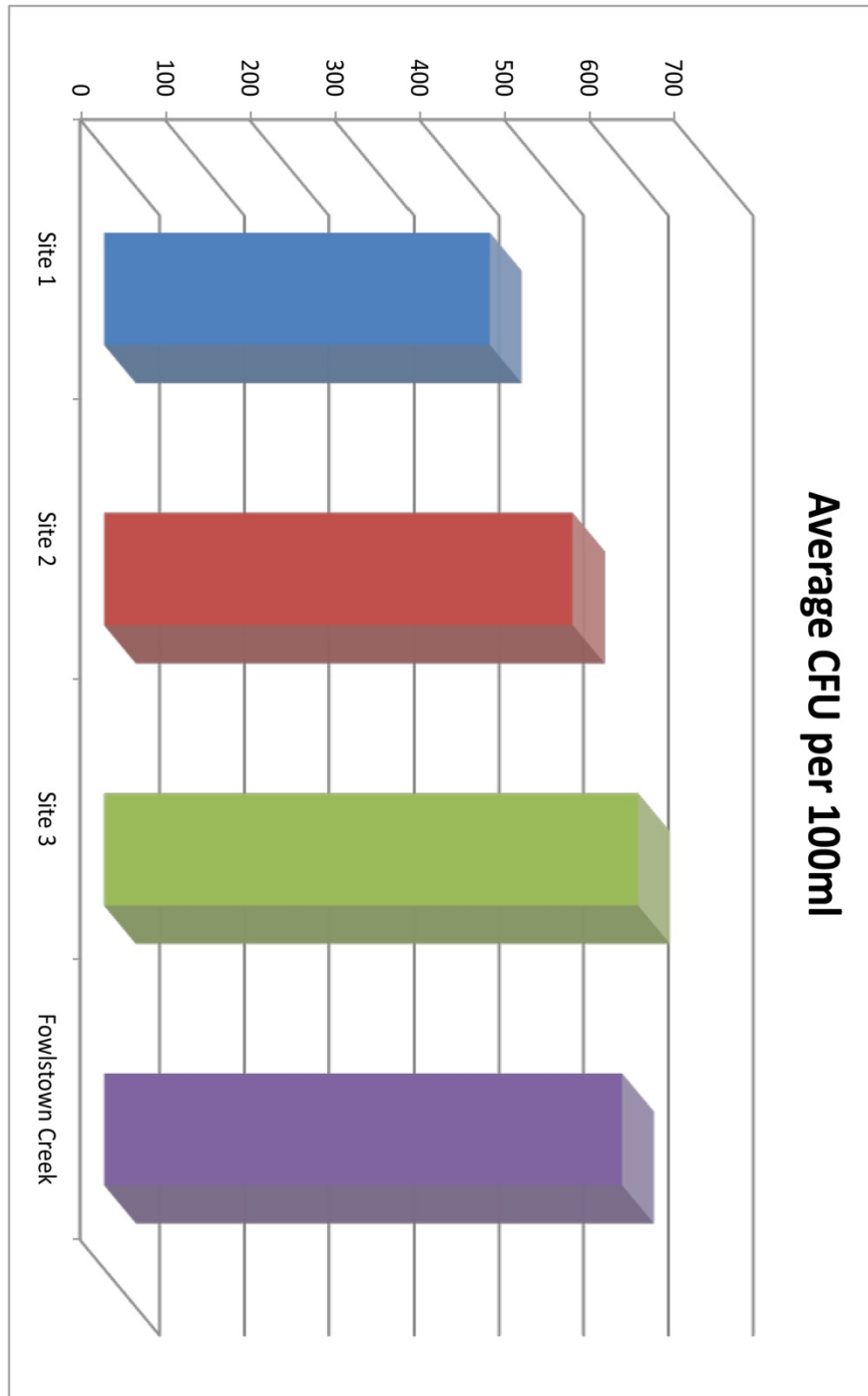
- Watershed
- Kinchafoonee Creek
- Population**
- 0 - 100 Persons
- 101 - 300 Persons
- 301 - 600 Persons
- 601 - 1000 Persons



APPENDIX C



APPENDIX D



Appendix E

Water sampling results

	Site 1	Site 2	Site 3	Fowlstown Creek
Sample Date	<i>cfu/100mL</i>	<i>cfu/100mL</i>	<i>cfu/100mL</i>	<i>cfu/100mL</i>
4/8/2013	133	433	333	567
6/17/2013	566	500	833	566
7/9/2013	667	726	726	700
Average	455.3333	553	630.6667	611

Results of sampling indicate that fecal coliform counts are below the 1000 cfu per 100 ml threshold and provide further indication that the water quality of the Kinchafoonee Creek has improved and remained healthy.