



Sandy Run Creek and Ocmulgee River Watershed Management Plan 2018

Middle Georgia Regional Commission

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Background

The Sandy Run Creek and Ocmulgee River is primarily located in Bleckley, Houston, and Peach Counties. Image 1 identifies all river basins found throughout Georgia. The Ocmulgee River Basin is located in Central Georgia, occupying an area of 6,102 square miles. The Oconee River Basin to the east and the Flint River Basin to the west borders the Ocmulgee River Basin. The Ocmulgee River Basin originates in the eastern edges of the City of Atlanta. The Upper Ocmulgee River Basin is made up of the South River, Yellow River and Alcovy River sub-watersheds. These converge at Lake Jackson to form the Ocmulgee River. The Ocmulgee River flows south and southeast, runs through the northeast side of the City of Macon, and then travels approximately 120 miles until it finally joins the Oconee River near the City of Hazlehurst, to form the Altamaha River. The Ocmulgee River Basin contains parts of the Piedmont and Southeastern Plain physiographic provinces, which extend throughout the southeastern United States.

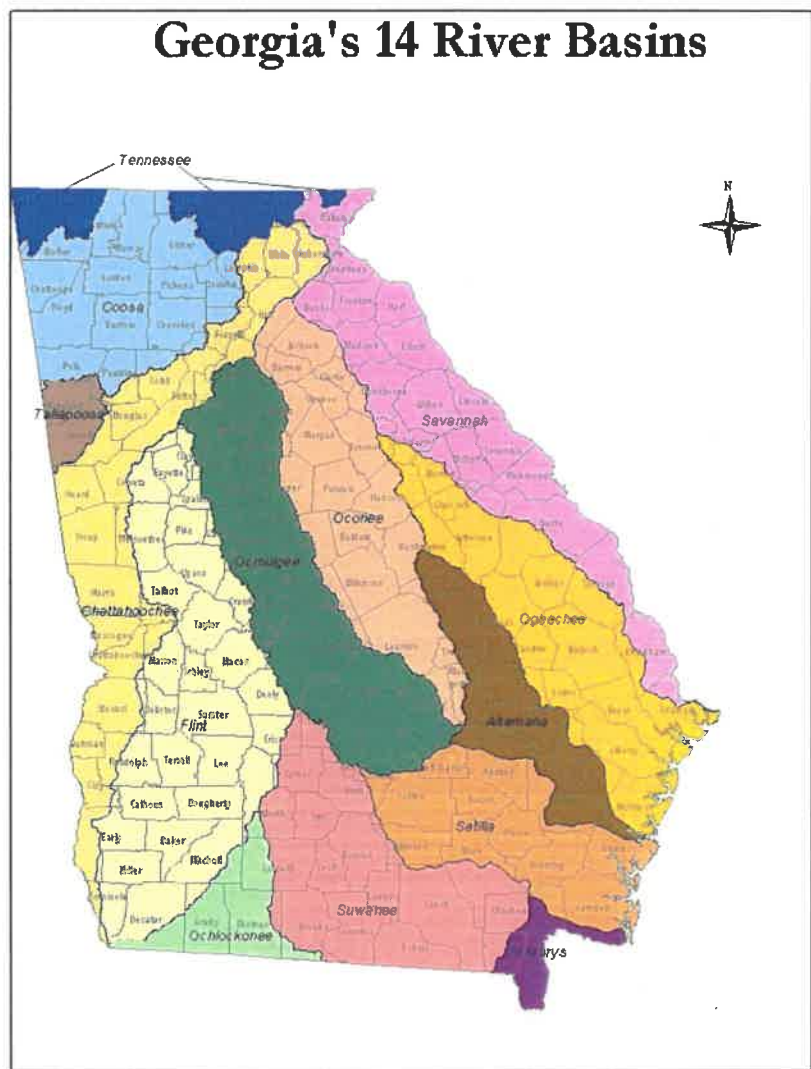


Image 1: Georgia River Basin Map

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

The Georgia Environmental Protection Division (GAEPD)'s 2014 Integrated 305(b)/303(d) List of Streams Not Supporting Designated Uses included 39 miles of waterways in Middle Georgia (Houston, Twiggs and Bleckley Counties) as not meeting its designated use. The following waterways are impacted:

Big Grocery Creek (Headwaters to Ocmulgee River)

Big Grocery Creek is bordered by a wide swath of bottomland forest (one of the largest patches of bottomland hardwoods remaining in Houston County). This waterway lies in a unique and rare clay soil type and contains the federally endangered Relict Trillium and Lanceleaf Trillium flowers. It also contains unique and fragile freshwater mussels and crayfish. The confluence of Big Grocery Creek and the Ocmulgee River is currently on the 303(d) list in the State of Georgia for Impacts of Biota to the fish community.

Ocmulgee River (Sandy Run Creek to Big Indian Creek)

The impacted segment of Ocmulgee River runs from Sandy Run Creek to Big Indian Creek. The segment forms the border of Houston, Twiggs, and Bleckley Counties and is within the Lower Ocmulgee River Basin. This 23-mile segment of the Ocmulgee River is currently on the 303(d) list in the State of Georgia for violating the water quality standard for Fecal Coliform. The water use classification of this stream segment is "Fishing" and is identified as partially supporting its designated use.

Two (2) section of Sandy Run Creek

(Headwaters to Bay Gall Creek and from Bay Gall Creek to Ocmulgee River)

The Sandy Run Creek watershed is located in the Ocmulgee River Basin in Houston County. The water use classification of Sandy Run Creek from Bay Gall Creek to its confluence with the Ocmulgee River is "Fishing." The watershed is part of the Southeastern Plains Ecoregion. It is in the Coastal Plain Physiographic Province. The watershed is mostly urban and residential, as it bisects the city limits of Warner Robins. The City of Warner Robins Water Pollution Control Plant (WPCP) has a point source discharge to this creek. This watershed is currently on the 303(d) list in the State of Georgia for containing increased levels of copper and low dissolved oxygen. A map of these areas can be found on the following page.

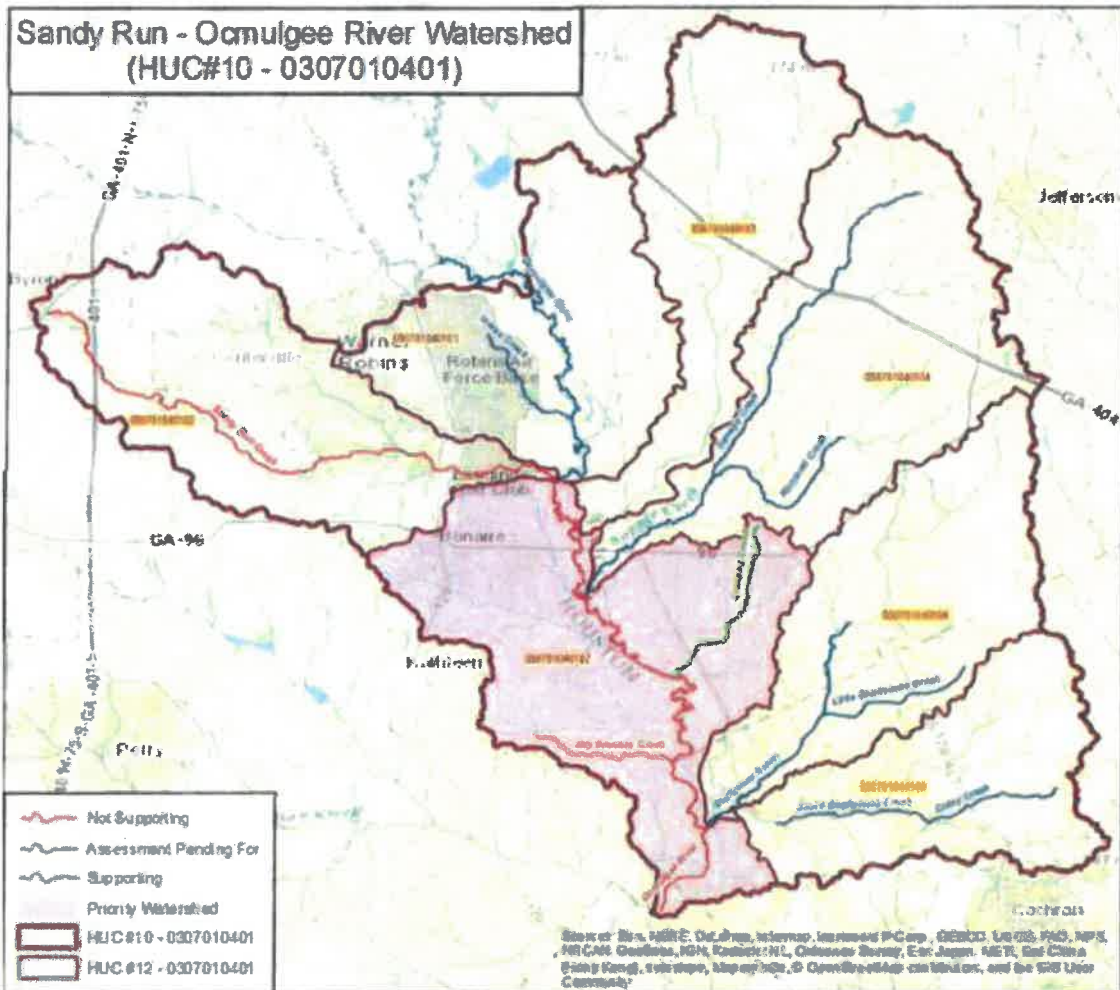


Image 2: Sandy Run Creek and Ocmulgee River Watershed Map

Total Daily Maximum Loads (TMDL) for Fecal Coliform and Copper in the watershed were completed in 2007. Under Section 319(h) of the Clean Water Act, the U.S. Environmental Protection Agency (USEPA) awards a Nonpoint Source Implementation Grant to Georgia Environmental Protection Division (GAEPD) to fund eligible projects that support the goals of Georgia Nonpoint Source Program (NSPS). Section 319(h) Grant funds are awarded to projects that specifically identify the nonpoint sources of pollution to be addressed and the activities proposed to prevent, control and/or abate the identified nonpoint pollution sources. Possible sources of pollution in this watershed are assumed to fall under four possible sources, which include:

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

Table 1: Sandy Run Creek and Ocmulgee River Watershed Sources of Pollution

Source	Description of Contribution to Impairment
Agricultural Land Uses	Nonpoint-cattle and poultry operations
Urban Impervious	Nonpoint- Storm water run-off
Urban	Nonpoint- Failing Septic and Sewer Pipes
Forest land uses	Wildlife

In addition to the nine element Watershed Management Plan (WMP) assisting the local communities in the goal of delisting of both water bodies from the EPD 305(b)/303(d) List, there are many ancillary benefits of the project. Economically, improved water quality will support increased local property values (residential, commercial and industrial) and enable the local communities to better market the area to business and industry prospects. Several social and public health benefits will also be realized by community residents from a better quality of life through additional recreational opportunities (such as fishing) to environmental justice and greater equity for those living along the creeks who lack the resources to move to non-polluted areas of the region.

Plan Preparation and Implementation

The Middle Georgia Regional Commission was selected for the preparation and implementation of the Sandy Run Creek and Ocmulgee River Watershed Management Plan (WMP) because the areas of concern closely align with the local governments comprising the Middle Georgia Regional Commission service area. Enlisting an agency with ongoing interaction with the communities surrounding the watershed is key to ensuring the plan is incorporated into daily life and measures are constantly taken to improve the water for future generations. The purpose of this WMP is to outline a feasible method and timeline to restore the Sandy Run Creek and Ocmulgee Watershed to levels that meet water quality criteria. It is the intent of this plan to identify and inform the process of restoration with the goal that the watershed will be removed from the EPD 305(b)/303(d) List.

This WMP does not take on the role of providing regulations for the local governments to follow. It only serves as guidance to improve the watershed. Throughout the development of the plan, many local stakeholders, advocacy organizations, and waterway professionals' expertise were gathered to accurately address the concerns that have arisen over the years. Details regarding the composition of the planning committee can be found in **Table 2** and **Table 3**. Additional information for each individual can be found in **Appendix F** and **Appendix G**. These individuals will continue to serve important roles in the implementation of the plan, whether it be furthering the identification of

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

pollution sources or providing information to the public on how to care for the watershed. Every member of the planning committee has much to offer to the communities comprising the watershed.

Table 2: Sandy Run Creek and Ocmulgee River Watershed Management Plan Planning Committee

Name	Organization	Title
Jake Cox	Houston County	Community Planner
Blake Studstill	Houston County	Environmental Engineer
April Cunard	City of Byron	Stormwater Coordinator
Autumn Triplett	City of Byron	Intern
Brian Jones	Houston County	County Engineer
Becky Cox	Peach County	General Engineering Manager, Stormwater
Michael Chidester	City of Byron	Mayor Pro-Tem
Chad Bryant	Bryant Engineering	President
Timothy Andrews	Houston County	Planning & Zoning Administrator

Table 3: Ocmulgee Water Trail Partnership Plan Input Committee

Name	Representing County
Jim Rhodes	Bleckley
Peg Jones	Macon-Bibb
Sheryl Rhodes	Bleckley
Roy Wood, Jr.	Twiggs
Sherri Wood	Twiggs
Robert Hedricks	Telfair
Mary Brooks	Bleckley
Lee Slade	Pulaski
Kit Carson	Jones
Debra A. Jones	Houston
Charles Nimmo	Southern Georgia Regional Commission
Jim Sewell	Jeff Davis
Lucy Sewell	Jeff Davis
Tommy Rogers	Telfair

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

Guy Bland	Telfair
Basha Slater	Wilcox
Eric Smith	Telfair
Sam Perren	Pulaski
Tonya Mole	DCA
Brian Mullis	Dodge
Tal Jones	Houston
Tilden Bembry	Pulaski
Linda Parrish	Butts
Jim Herbert	Butts

The nine elements of the plan focused on increasing stakeholder involvement and ultimately improving the Sandy Run Creek and Ocmulgee River Watershed to restorative standards are:

1. The identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reduction, and any other goals identified in the watershed plan.
2. An estimate of the load reductions expected from management measures.
3. A description of the nonpoint source management measures that will need to be implemented to achieve load reductions and a description of the critical areas in which those measures will be needed to implement this plan.
4. An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.
5. An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.
6. A schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious.
7. A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are implemented.
8. A set of criteria that can be used to determine whether loading reductions are achieved over time and whether substantial progress is made toward attaining water quality standards.

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

9. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item 8.

Land Use and Sources of Pollution

To accurately identify pollutants along the watershed, a thorough evaluation of the land use surrounding the watershed is needed. **Appendix A** provides an overview of the land use data for the entire Sandy Run Creek and Ocmulgee River Watershed as well as for every county that surrounds it. Each map was created based on current land use data collected during Comprehensive Plan updates. Twiggs County's Comprehensive Plan was last updated in 2013. The Comprehensive Plans for Bleckley, Houston, Peach, and Pulaski Counties were completed in 2016.

Detailed land use maps are provided to offer a visualization of the land surrounding the watershed and data to accurately present the area by parcel counts. The land use maps will follow the watershed from beginning to end within the designed parameters of the grant. Key land uses to observe will be identified to allow possible recognition of the sources and a means of responsibility for future protection for the watershed.

Table 4: Adjacent Land Use Data for the Entire Watershed

Totals	
Land Use of Adjacent Parcels	Count
Agriculture	196
Commercial	566
Industrial	66
Park/Recreation/Conservation	54
Public/Institutional	235
Residential	8428
Transportation/Communication/Utilities	17
Undeveloped/Vacant	240

Note: A 2000 foot buffer of the water features was used during this analysis. Only land use data of parcels within 2000 feet of the feature were used in these totals

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

Tables were created by the Middle Georgia Regional Commission GIS Department to provide accurate information on the parcels adjacent to the Sandy Run Creek and Ocmulgee River Watershed. **Table 4** identifies the land use of all adjacent parcels within 200 feet of the Watershed. Parcels can vary in size from small 0.5 acre lots to multiple acres. According to the data for the entire Sandy Run Creek and Ocmulgee River Watershed, 86 percent of the adjacent parcels are residential properties. Due to the sheer number of small residential lots, much of the Watershed is in Houston County.

1. Bay Gall Creek Land Use

All of Bay Gall Creek exists within the City Limits of the City of Centerville or Warner Robins. It flows under many busy highways including Watson Boulevard and Russell Parkway. The area is largely residential. In fact, 90 percent of creek-adjacent properties (within 2,000 feet) are residential (see **Table 5** and **Images 3 -7**). Since the area is heavily developed, many of the properties utilize city sewer services instead of septic tanks. The leading cause of pollution within this area is nonpoint, possibly from stormwater runoff or failing sewer lines.

Table 5: Adjacent Land Use Data for Bay Gall Creek

Bay Gall Creek	
Land Use of Adjacent Parcels	Count
Agriculture	18
Commercial	275
Industrial	1
Park/Recreation/Conservation	2
Public/Institutional	118
Residential	3828
Transportation/Communication/Utilities	9
Undeveloped/Vacant	24
Note: A 2000 foot buffer of the water features was used during this analysis. Only land use data of parcels within 2000 feet of the feature were used in these totals	

Bay Gall Creek Land Use Overview

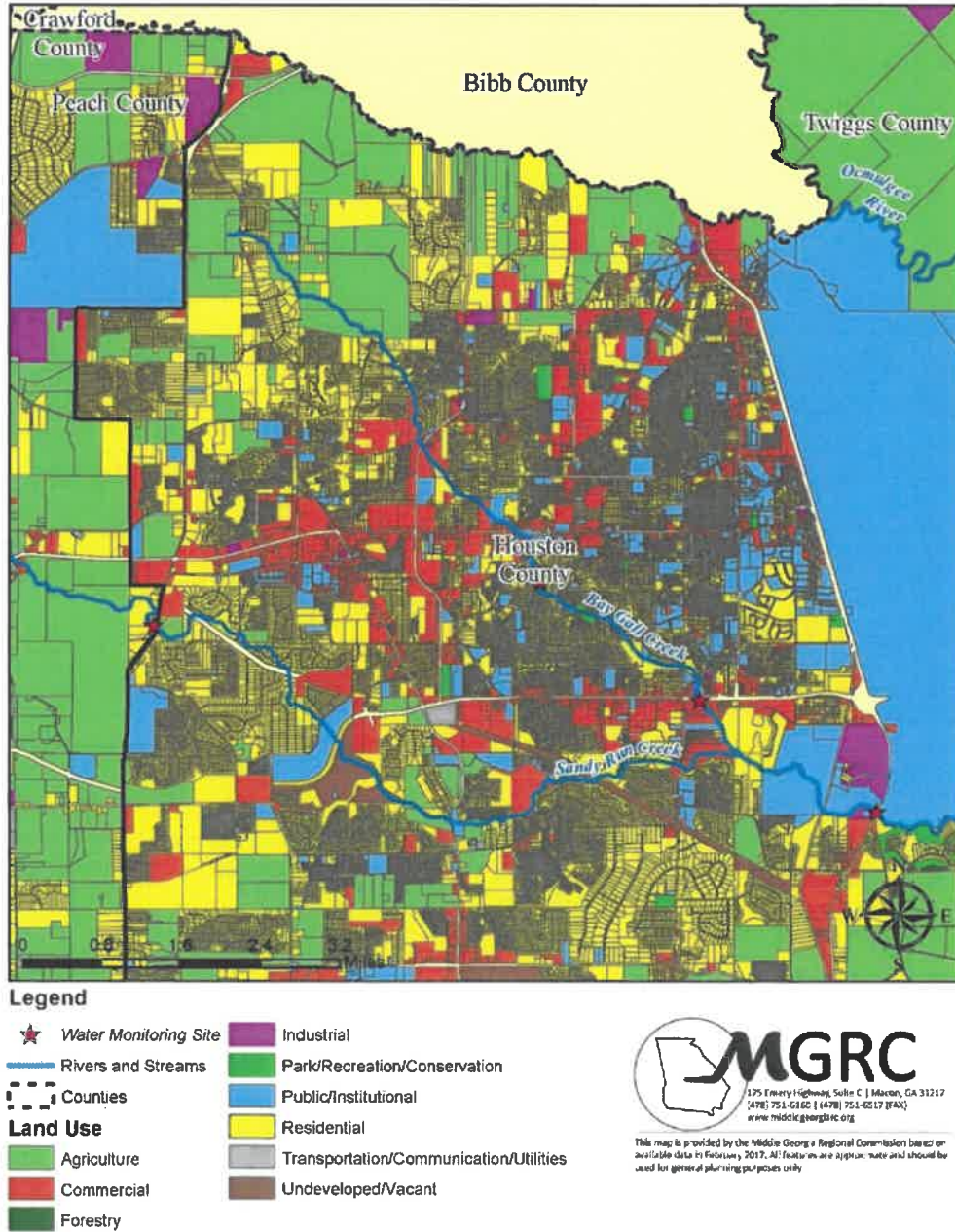
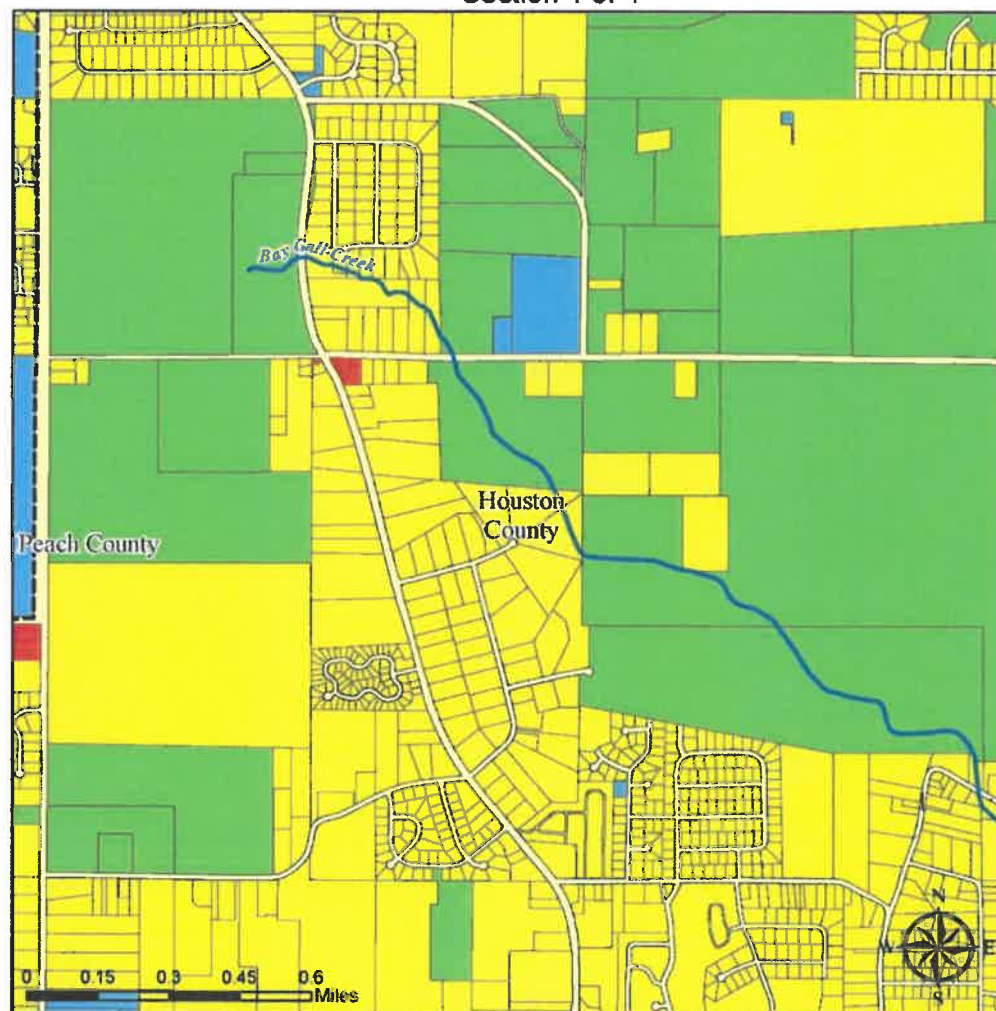


Image 3: Bay Gall Creek Land Use Overview

Bay Gall Creek Land Use

Section 1 of 4



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant

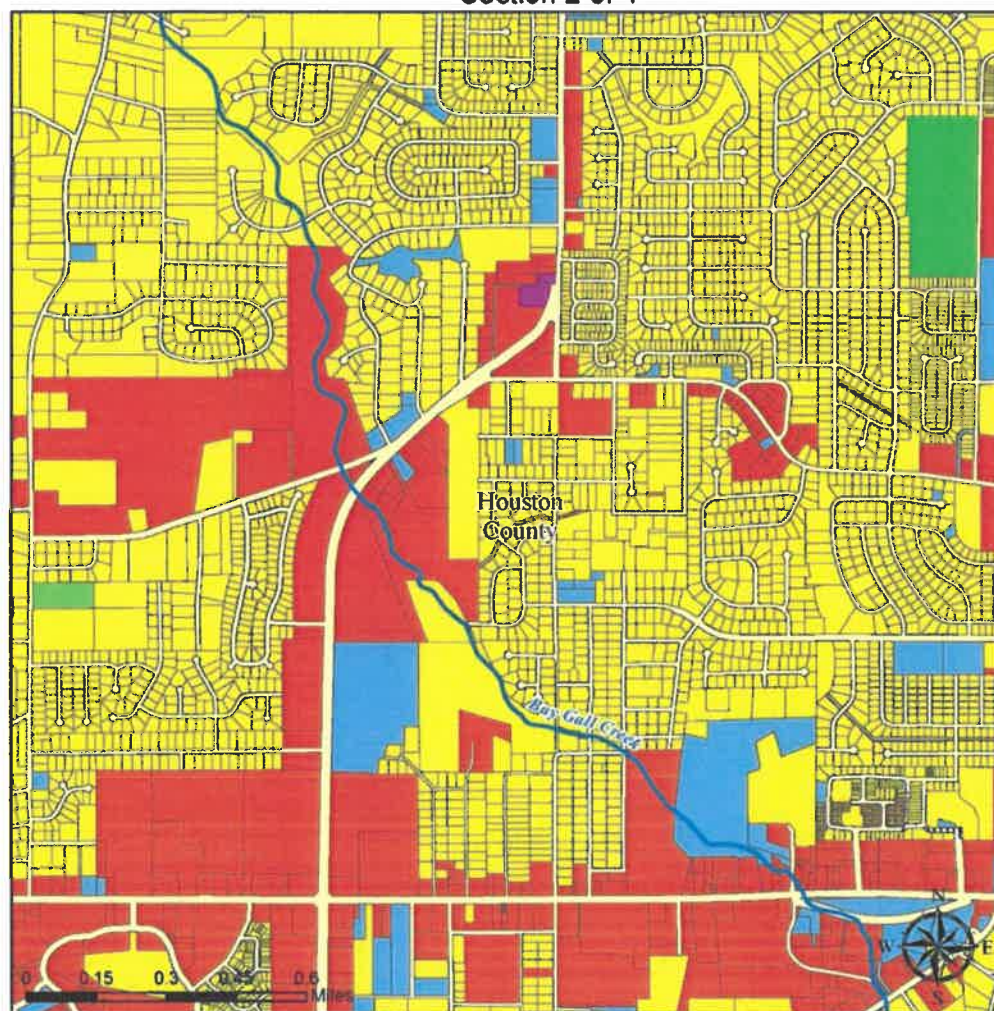


This map is provided by the Middle Georgia Regional Commission based on available data in February 2017. All features are approximate and should be used for general planning purposes only.

Image 4: Bay Gall Creek Land Use, Section 1

Bay Gall Creek Land Use

Section 2 of 4



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| Agriculture | Transportation/Communication/Utilities |
| Commercial | Undeveloped/Vacant |
| Forestry | |

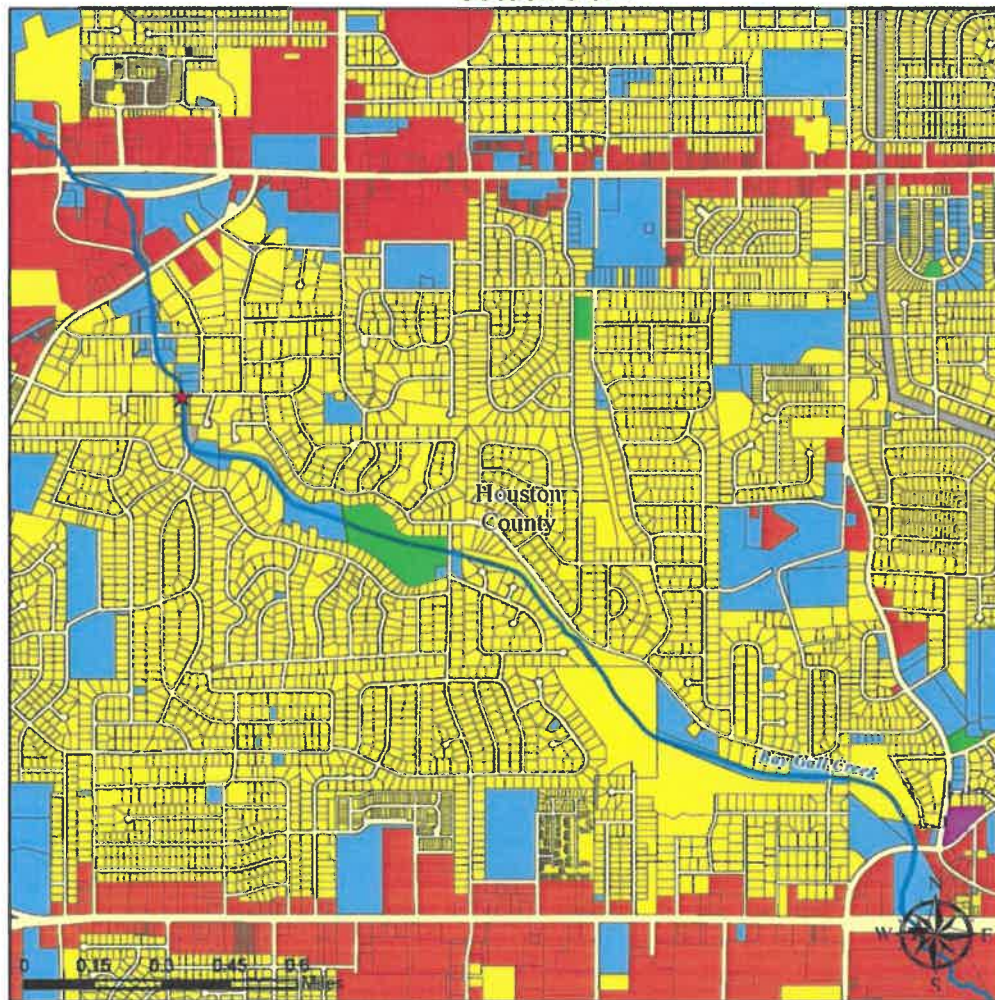


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 5: Bay Gall Creek Land Use, Section 2

Bay Gall Creek Land Use

Section 3 of 4



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| — Agriculture | Transportation/Communication/Utilities |
| — Commercial | Undeveloped/Vacant |
| — Forestry | |

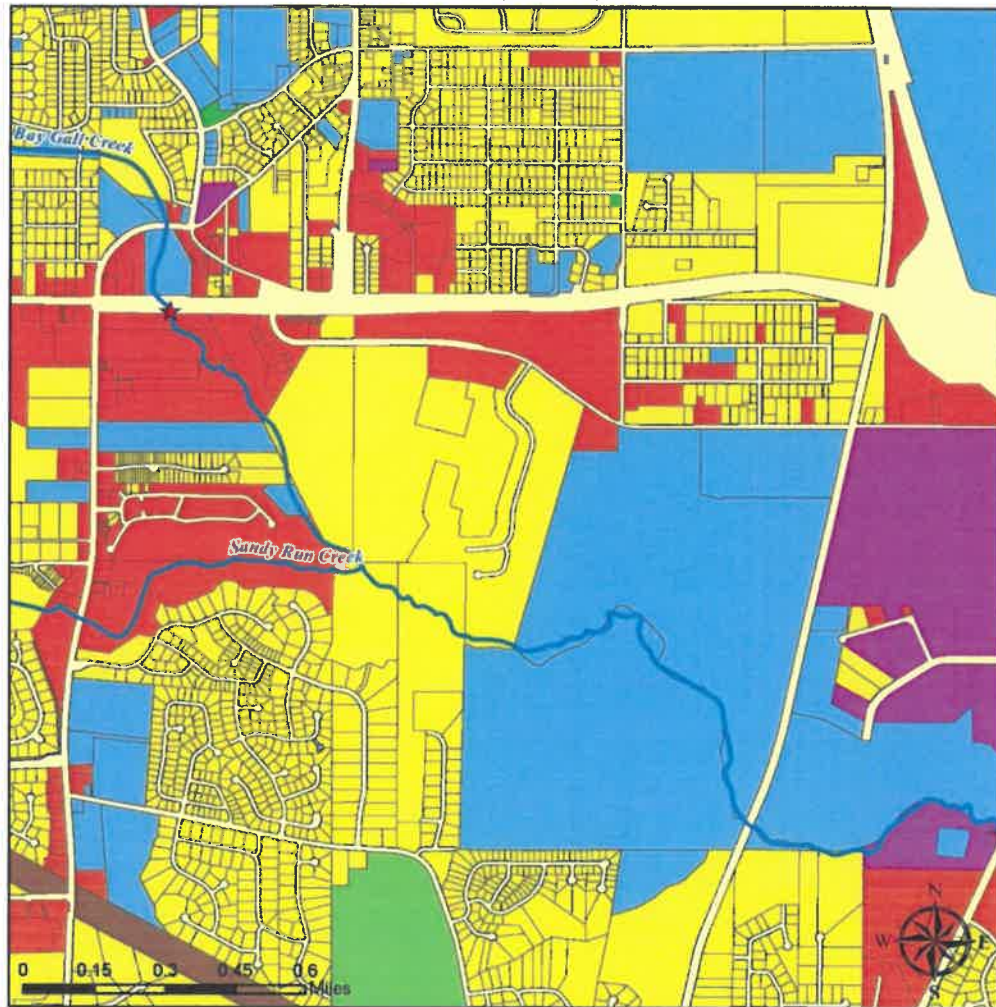


This map is provided by the Middle Georgia Regional Commission based on aerial data from February 2017. All features are approximate and should be used for general planning purposes only.

Image 6: Bay Gall Creek Land Use, Section 3

Bay Gall Creek Land Use

Section 4 of 4



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant



This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 7: Bay Gall Creek Land Use, Section 4

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

Major contributors to stormwater runoff within residential areas include chemicals, trash, and yard waste. **Image 8** below provides a visualization of how various types of debris enter the stormwater system and continue to inhabit the Watershed. All forms of water eventually inhabit the watershed. If residents take special caution in the maintenance of their yards and collection of all rubbish, stormwater contamination would be reduced.



Source: http://www.nclondtwp.com/public_works/StormWater/stormwater.html

Image 8: Contributions to Stormwater Runoff

The possibility of failing sewer lines is always of great concern as many of the lines throughout Middle Georgia are approaching 50 years in age. Depending on pipe material, several lines are reaching the end of their useful life. Although lines are replaced as soon as possible, times do arise in which failing pipes are not noticed until a major event occurs and immediate replacement is required. These times present a much greater amount of water pollution than normally would be expected during regular replacement of pipe.

2. Sandy Run Creek

Since the creek travels throughout Peach and Houston Counties it must cross under Interstate 75 and many major highways including GA Highway 41, GA Highway 247, Russell Parkway, Houston Lake Road and Moody Road. Along the route, the creek bypasses many rural and suburban residential neighborhoods, International City Golf Course, Robins Air Force Base, and large commercial and industrial areas comprised of medical complexes, Wal-Mart, supermarkets, and truck stops. All these avenues present a plethora of pollution opportunities, including stormwater runoff, failing septic and sewer pipes, and wildlife.

Table 6: Adjacent Land Use Data for Sandy Run Creek

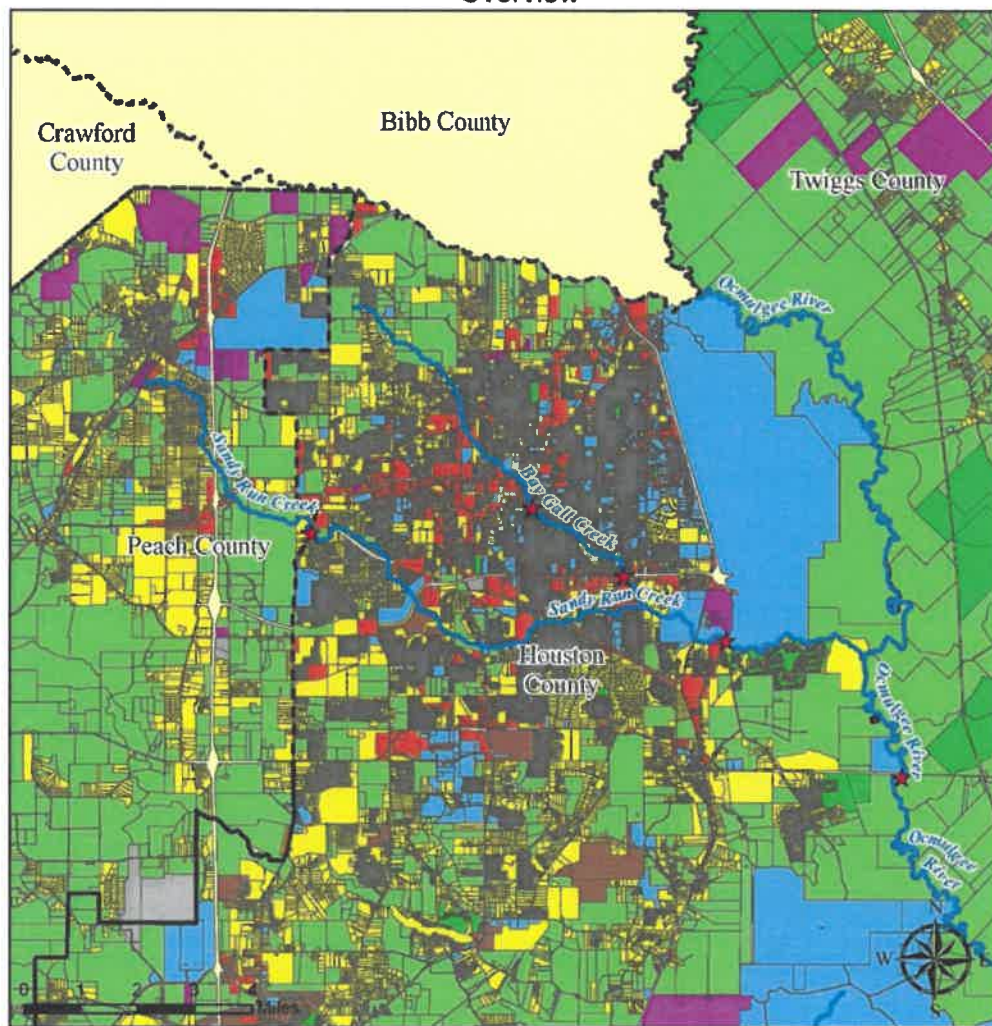
Sandy Run Creek	
Land Use of Adjacent Parcels	Count
Agriculture	40
Commercial	143
Industrial	28
Park/Recreation/Conservation	6
Public/Institutional	57
Residential	3972
Transportation/Communication/Utilities	2
Undeveloped/Vacant	7
Note: A 2000 foot buffer of the water features was used during this analysis. Only land use data of parcels within 2000 feet of the feature were used in these totals	

Golf courses, in general, introduce different pollutants to stormwater runoff than that normally introduced from residential areas. They tend to expend a large amount of chemicals onto the grounds to maintain lush greens. Many of these chemicals are disbursed daily or weekly in very high concentrations. Close observation of Sandy Run Creek along International City Golf Course is needed.

Robins Air Force Base also poses a threat to Sandy Run Creek as stormwater runoff may be contaminated by pollutants related to military training situations and repair work performed on the various airplanes. Based on the large amount of work performed on the Base, environmental control measures are constantly at the forefront of the civilian and military employees' minds. **Appendix B** includes the Environmental Restoration Program Community Relations Plan Introduction that Robins Air Force Base uses to ensure the public is aware of situations as they arise. A copy of the full plan is available if needed.

Sandy Run Creek Land Use

Overview



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant

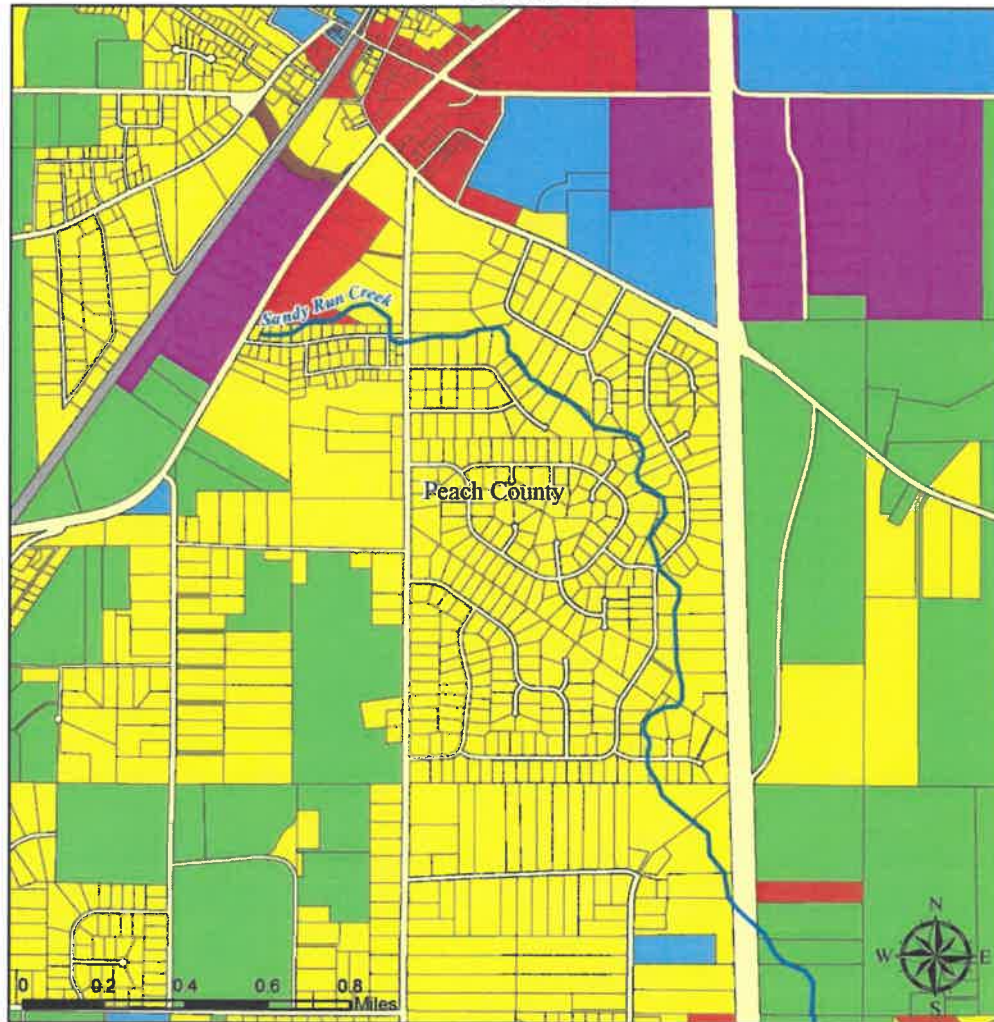


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 9: Sandy Run Creek Land Use, Overview

Sandy Run Creek Land Use

Section 1 of 6



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| Agriculture | Transportation/Communication/Utilities |
| Commercial | Undeveloped/Vacant |
| Forestry | |

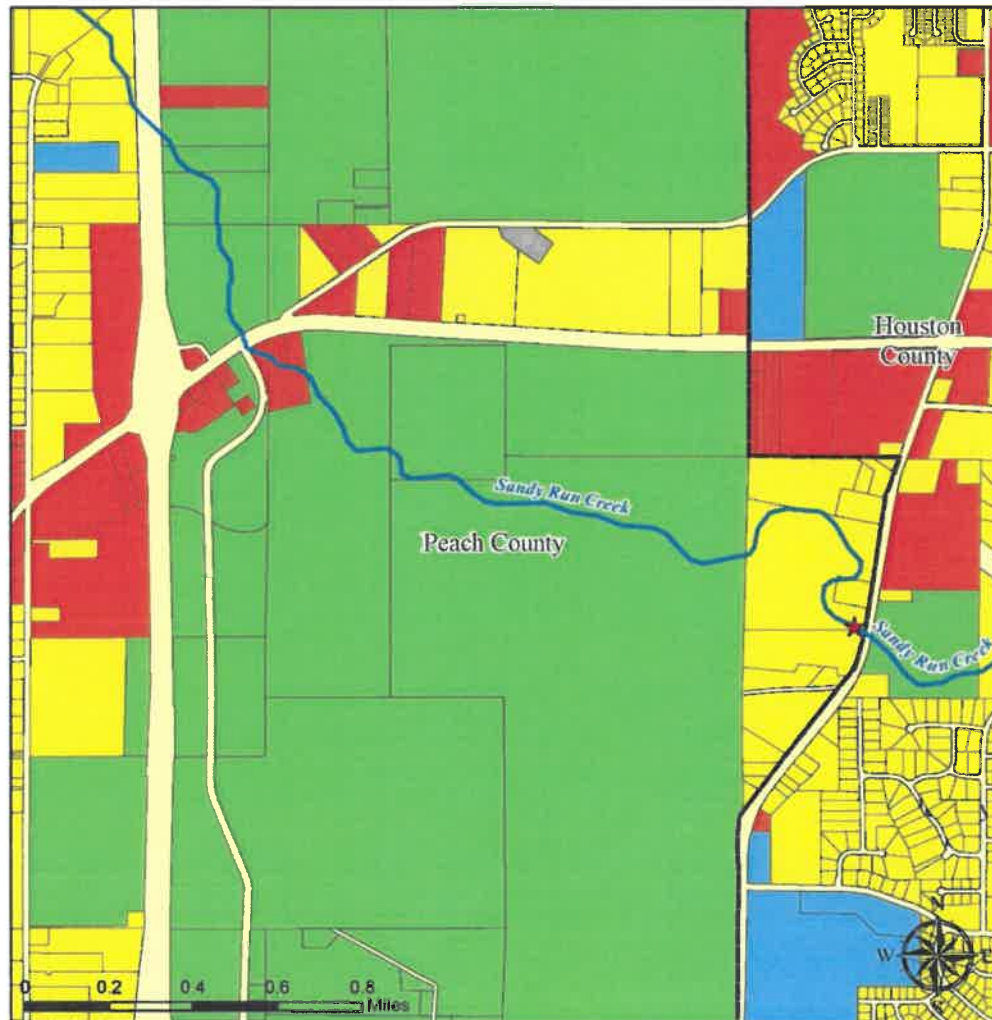


This map is provided by the Middle Georgia Regional Commission based on available data in February 2017. All features are approximate and should be used for general planning purposes only.

Image 10: Sandy Run Creek Land Use, Section 1

Sandy Run Creek Land Use

Section 2 of 6



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant

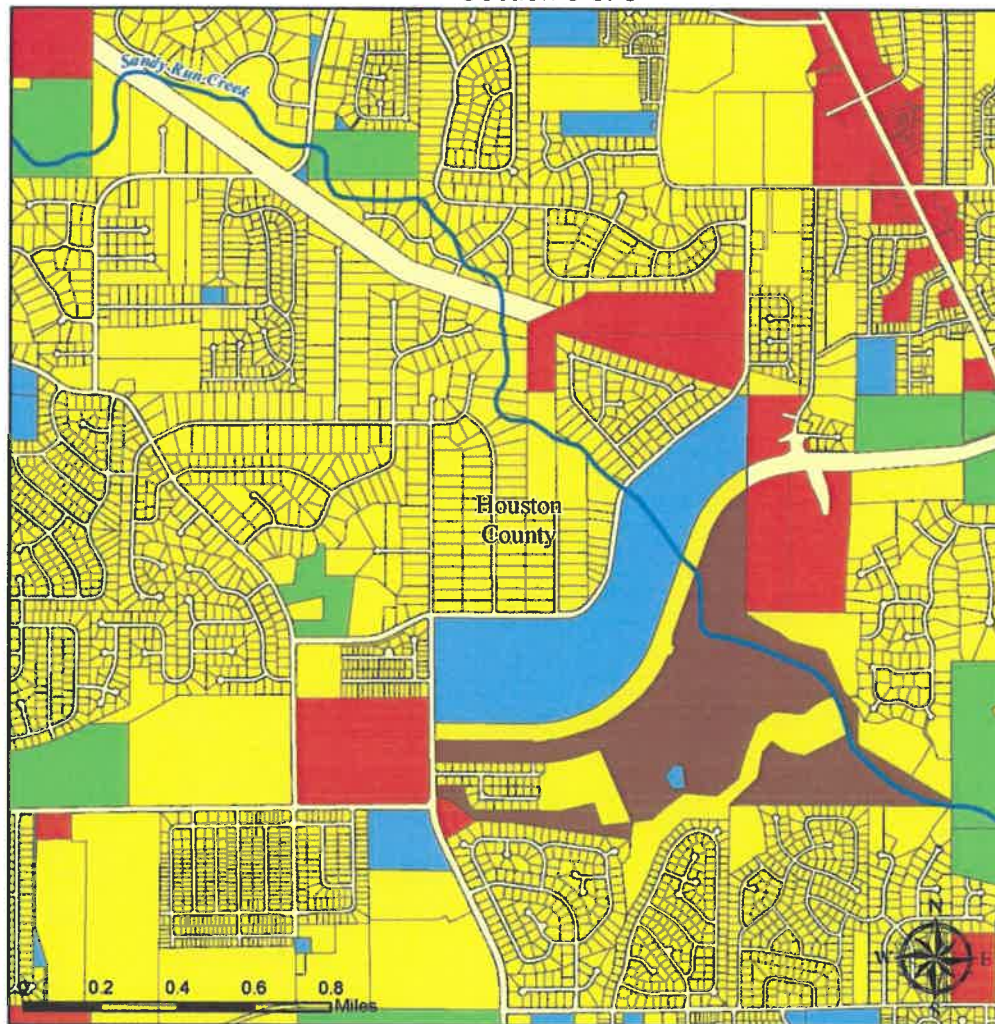


This map is provided by the Middle Georgia Regional Commission based on available data in February 2017. All features are approximate and should be used for general planning purposes only.

Image 11: Sandy Run Creek Use, Section 2

Sandy Run Creek Land Use

Section 3 of 6



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| Agriculture | Transportation/Communication/Utilities |
| Commercial | Undeveloped/Vacant |
| Forestry | |

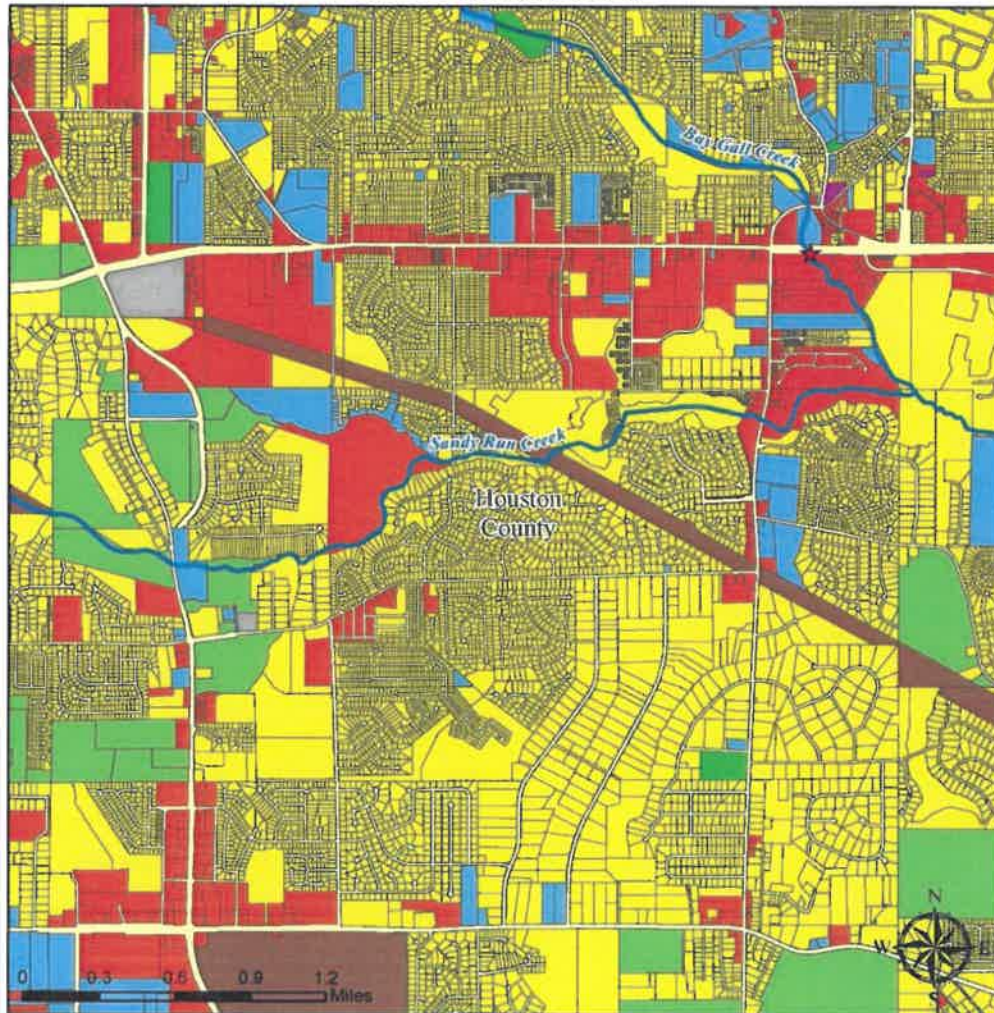


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 12: Sandy Run Creek Use, Section 3

Sandy Run Creek Land Use

Section 4 of 6



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| - - - Counties | Public/Institutional |
| Land Use | Residential |
| — Agriculture | Transportation/Communication/Utilities |
| — Commercial | Undeveloped/Vacant |
| — Forestry | |

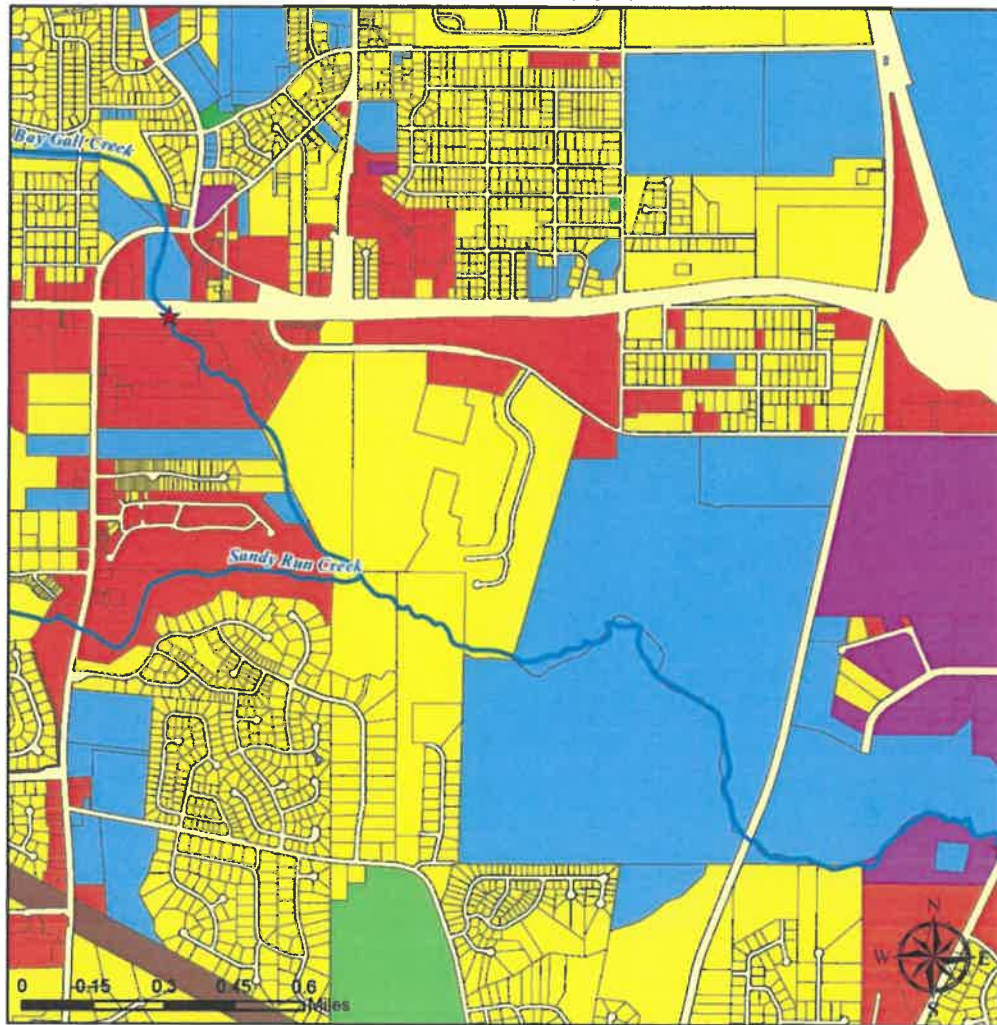


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 13: Sandy Run Creek Use, Section 4

Sandy Run Creek Land Use

Section 5 of 6



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| Agriculture | Transportation/Communication/Utilities |
| Commercial | Undeveloped/Vacant |
| Forestry | |

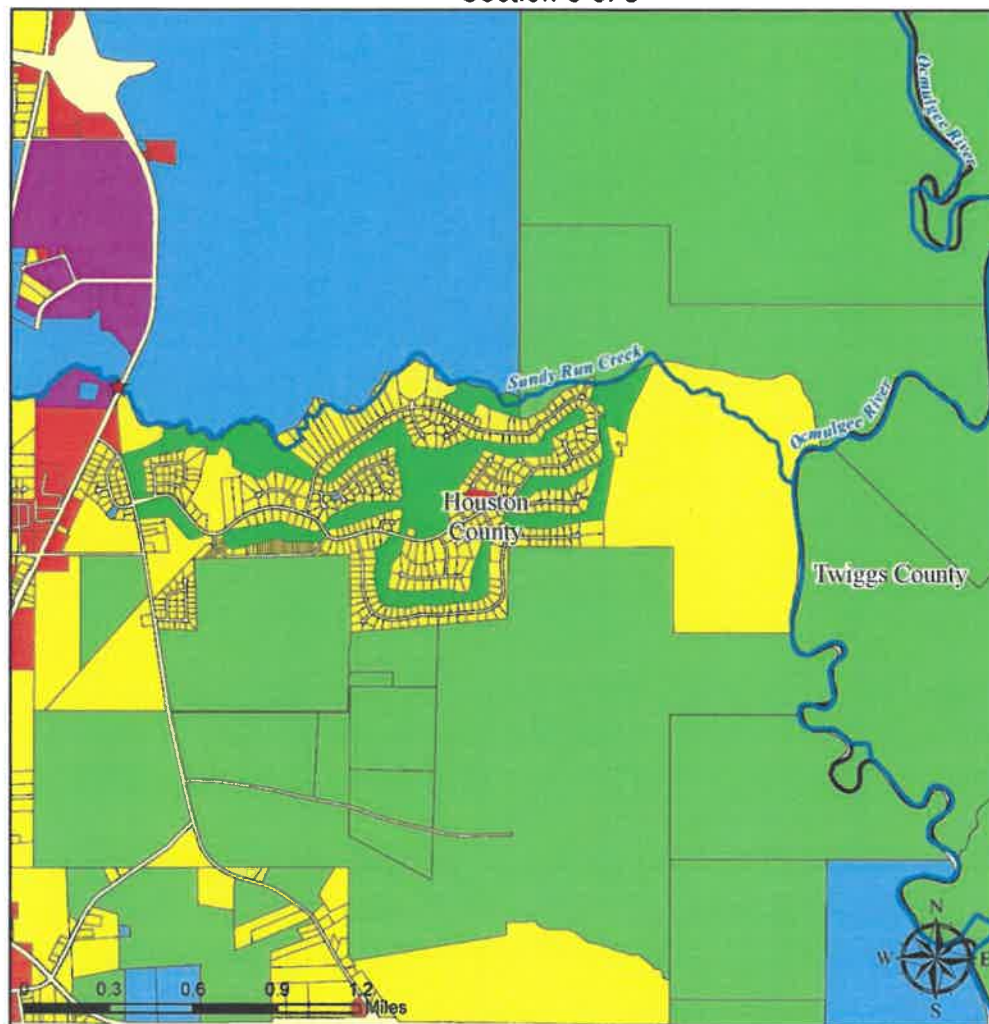


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 14: Sandy Run Creek Use, Section 5

Sandy Run Creek Land Use

Section 6 of 6



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant



This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 15: Sandy Run Creek Use, Section 6

3. Big Grocery Creek

Big Grocery Creek is mostly surrounded by the Oaky Woods Wildlife Management Area which provides fishing, camping, and hunting opportunities for deer, turkey, small game, coyotes, and feral hogs. All these activities present potential water pollutants like campsite debris and wildlife. Wildlife is identified as one of the four main pollutants of the Sandy Run Creek and Ocmulgee Watershed, including animal waste and possible inadequate disposal by hunters. The area is maintained by the Georgia Department of Natural Resources Wildlife Resources Division. With the property encompassing over 12,000 acres, it is difficult to capture every possible means of water pollution; monitoring of Big Grocery Creek will always be a necessity.



Source: Georgia Wildlife Resource Division

Image 16: Bryan Plummer with a deer killed at Oaky Woods Wildlife Management Area

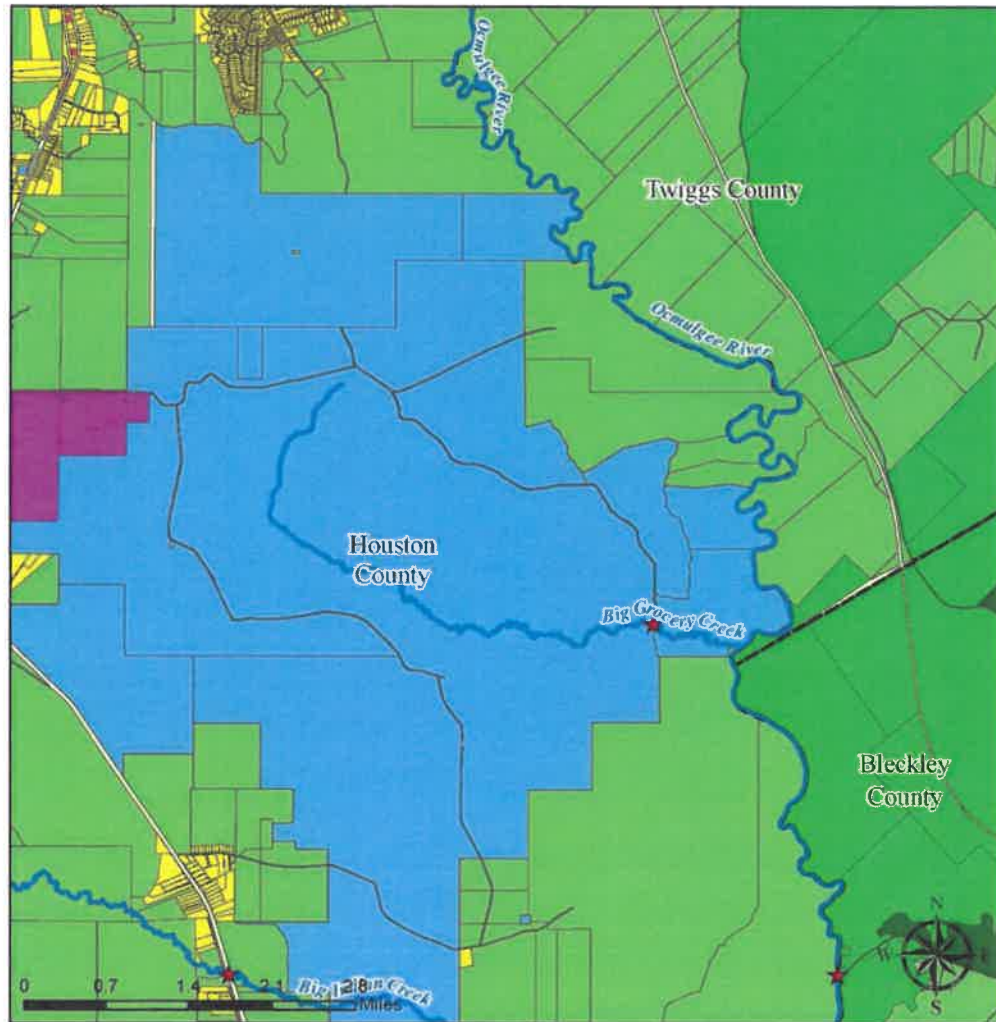
Directly outside of the Oaky Woods Wildlife Management Area is a large industrial area comprised of the Frito Lay Manufacturing Plant. Along with the production of various Frito Lay products the facility also distributes the products via a rail spur and large transfer trucks. These avenues can present their own occasions of water pollution if not carefully maintained. Having a buffer from the industrial area and watershed serves a major role in diminishing the possibility of additional water pollution sources.

Table 7: Adjacent Land Use Data for Big Grocery Creek

Big Grocery Creek	
Land Use of Adjacent Parcels	Count
Agriculture	2
Park/Recreation/Conservation	4
Public/Institutional	6
Note: A 2000 foot buffer of the water features was used during this analysis. Only land use data of parcels within 2000 feet of the feature were used in these totals	

Big Grocery Creek Land Use

Overview



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant



This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 17: Big Grocery Creek Land Use, Overview

4. Big Indian Creek

Big Indian Creek runs throughout Peach and Houston Counties within the Sandy Run Creek and Ocmulgee River Watershed. Out of all the creeks within the Watershed, Big Indian Creek is most threatened by all four of the possible pollutant sources, such as cattle and poultry operations, stormwater runoff, failing septic and sewer lines, and wildlife.

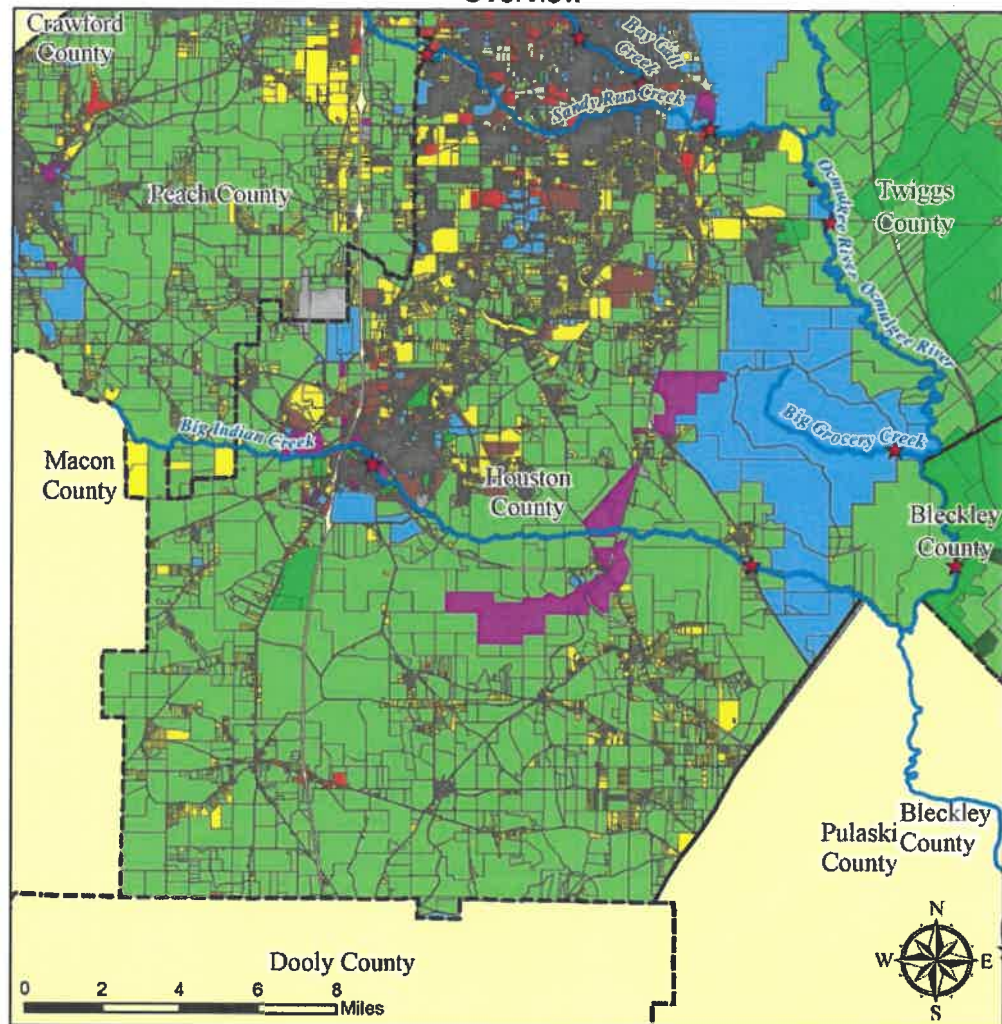
Much of the route throughout Peach County runs along rural residential and agricultural areas, which focus on farming for peaches and pecans. The route also includes the largely experimental property of Fort Valley State University. Fort Valley State University uses the land within this area for observation of cattle and goats along with the regular planting of row crops. All these rural residential and strongly agricultural-based areas present the opportunity for water pollution from septic tank failure and agriculture byproducts.

Once Big Indian Creek reaches Houston County it travels under Interstate 75 and bypasses a large industrial and commercial area before leading into the suburban residential area of Downtown Perry. Throughout Downtown Perry, public parks stretch alongside the creek and provide avenues for outdoor recreation including fishing. Once the creek reaches further out into the county before joining the Ocmulgee River it runs beside the Houston County Landfill. At this point and further, observation of the creek is needed to ensure no landfill contamination is introduced into the Watershed.

Table 8: Adjacent Land Use Data for Big Indian Creek

Big Indian Creek	
Land Use of Adjacent Parcels	Count
Agriculture	78
Commercial	148
Industrial	37
Park/Recreation/Conservation	25
Public/Institutional	38
Residential	626
Transportation/Communication/Utilities	6
Undeveloped/Vacant	209
Note: A 2000 foot buffer of the water features was used during this analysis. Only land use data of parcels within 2000 feet of the feature were used in these totals	

Big Indian Creek Land Use Overview



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant

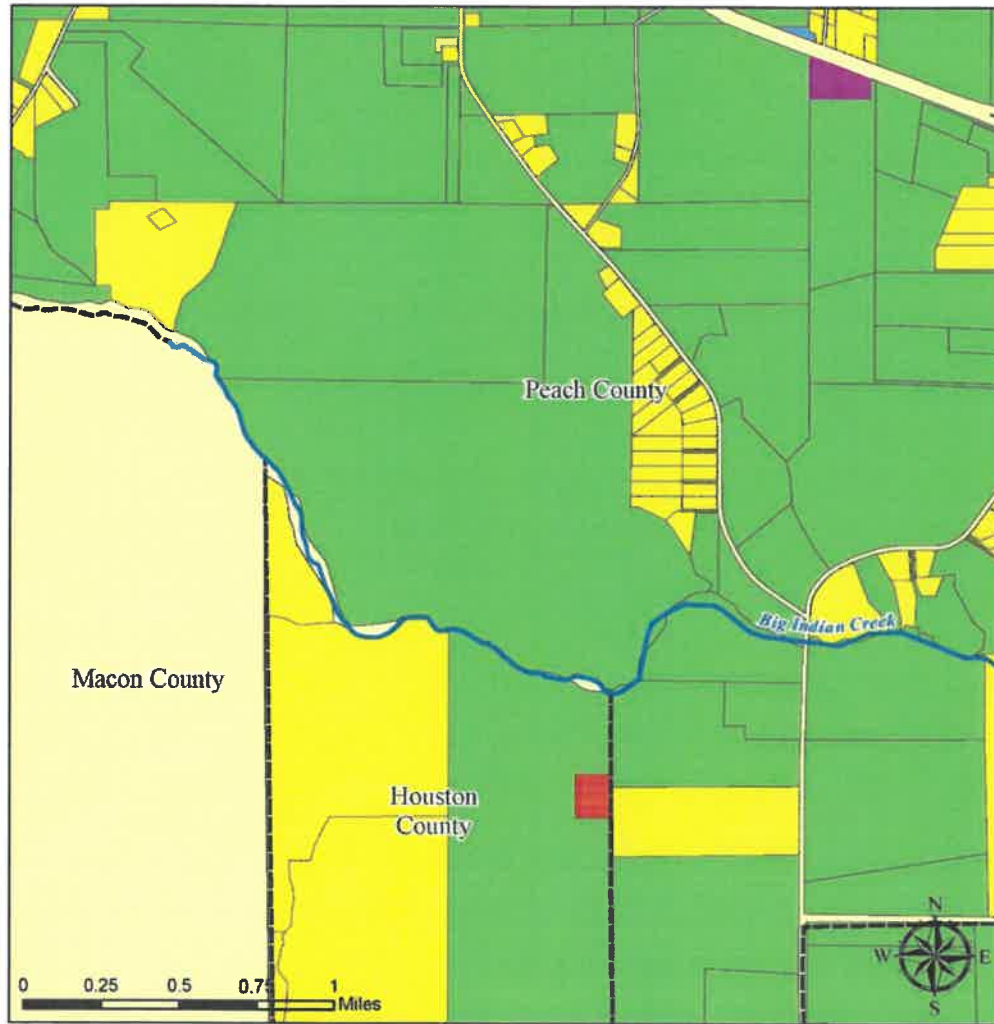


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 18: Big Indian Creek Land Use, Overview

Big Indian Creek Land Use

Section 1 of 5



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| Agriculture | Transportation/Communication/Utilities |
| Commercial | Undeveloped/Vacant |
| Forestry | |

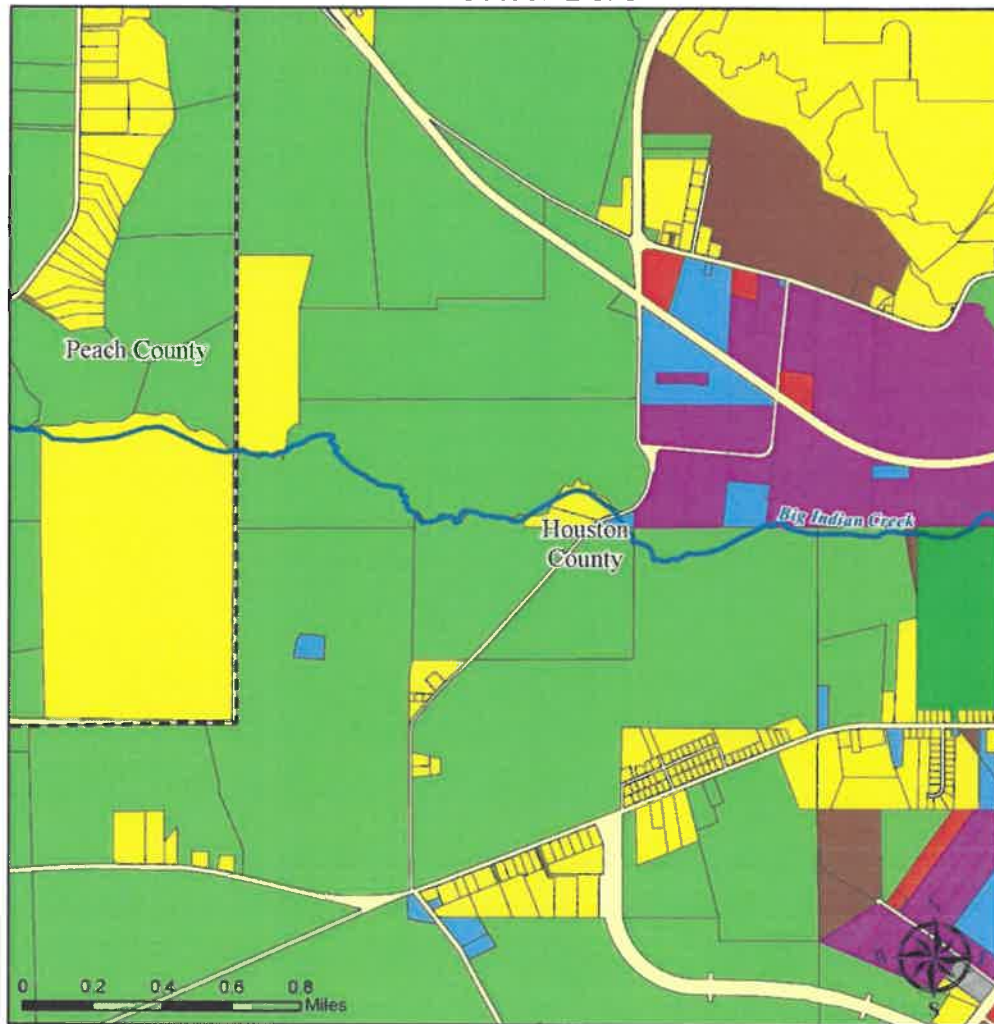


This map is provided by the Middle Georgia Regional Commission based on available data to February 2017. All features are approximate and should be used for general planning purposes only.

Image 19: Big Indian Creek Land Use, Section 1

Big Indian Creek Land Use

Section 2 of 5



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| Agriculture | Transportation/Communication/Utilities |
| Commercial | Undeveloped/Vacant |
| Forestry | |

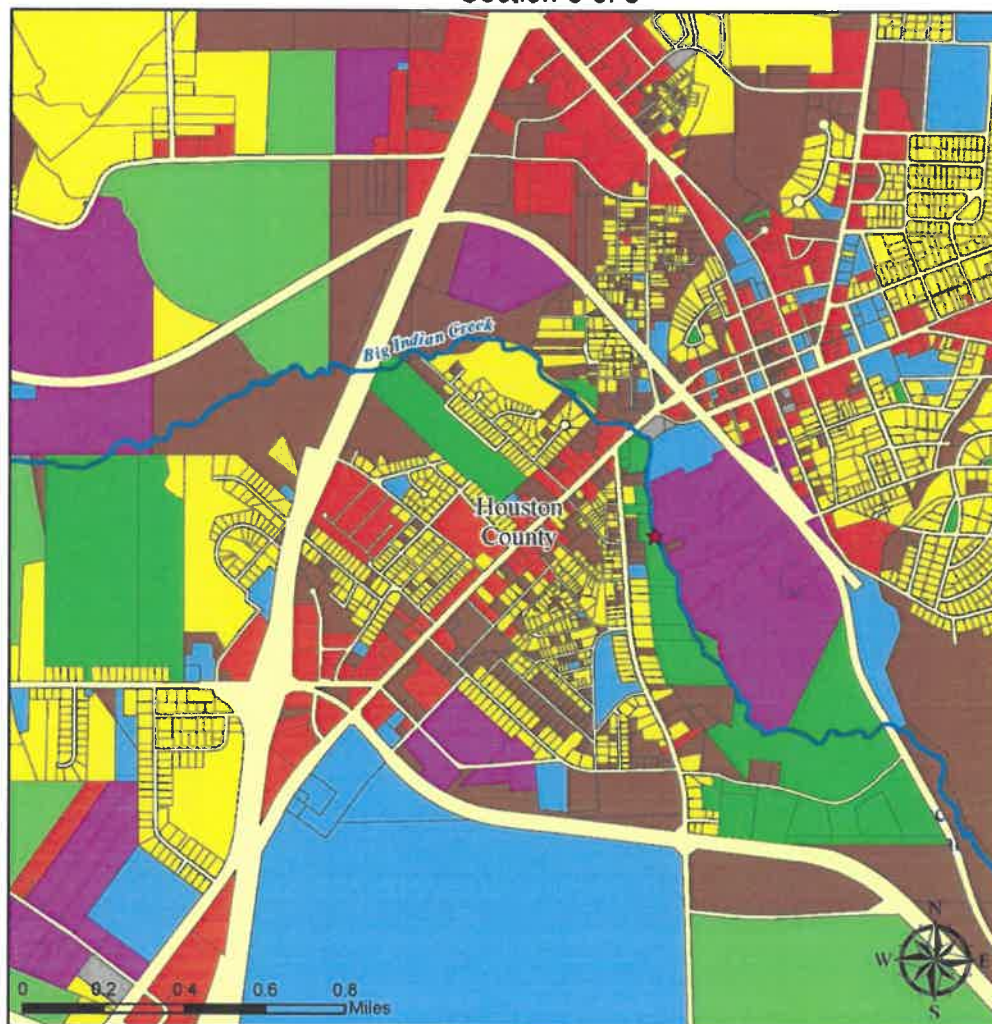


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 20: Big Indian Creek Land Use, Section 2

Big Indian Creek Land Use

Section 3 of 5



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant

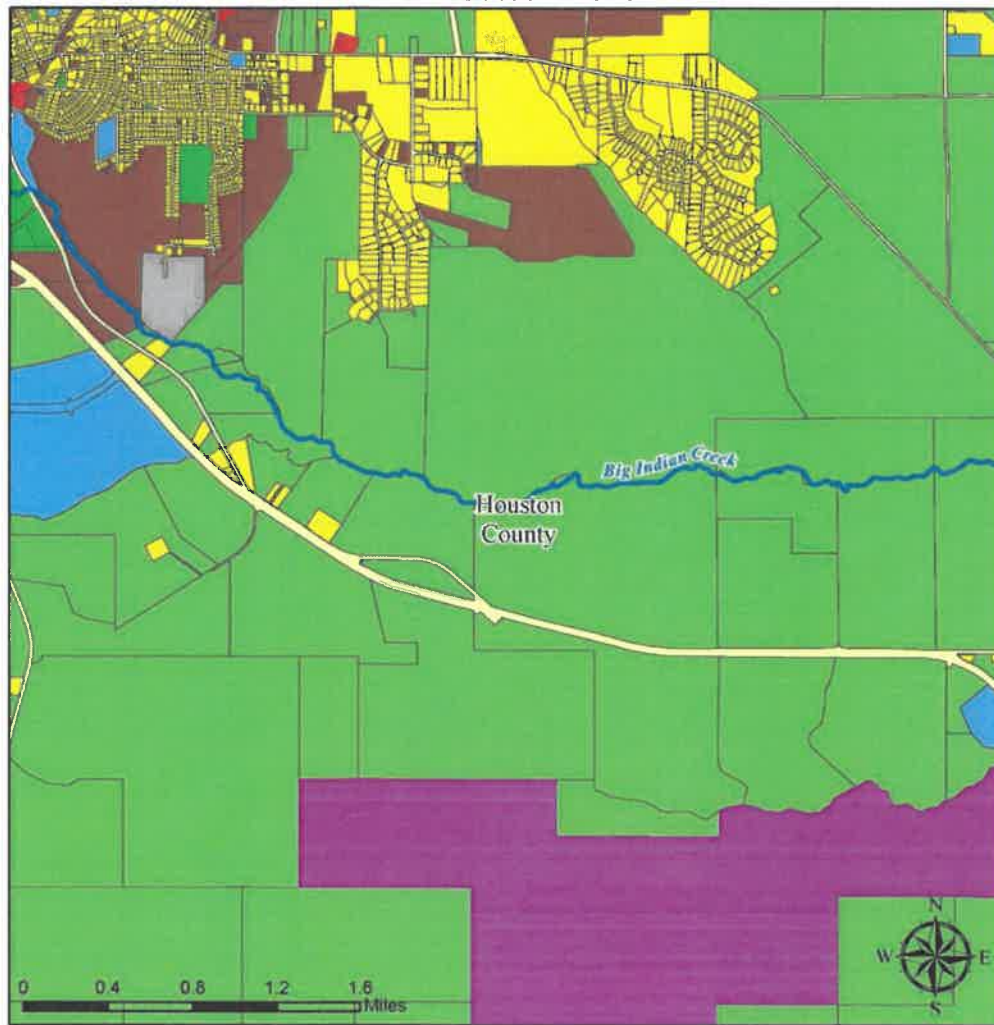


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 21: Big Indian Creek Land Use, Section 3

Big Indian Creek Land Use

Section 4 of 5



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| Agriculture | Transportation/Communication/Utilities |
| Commercial | Undeveloped/Vacant |
| Forestry | |

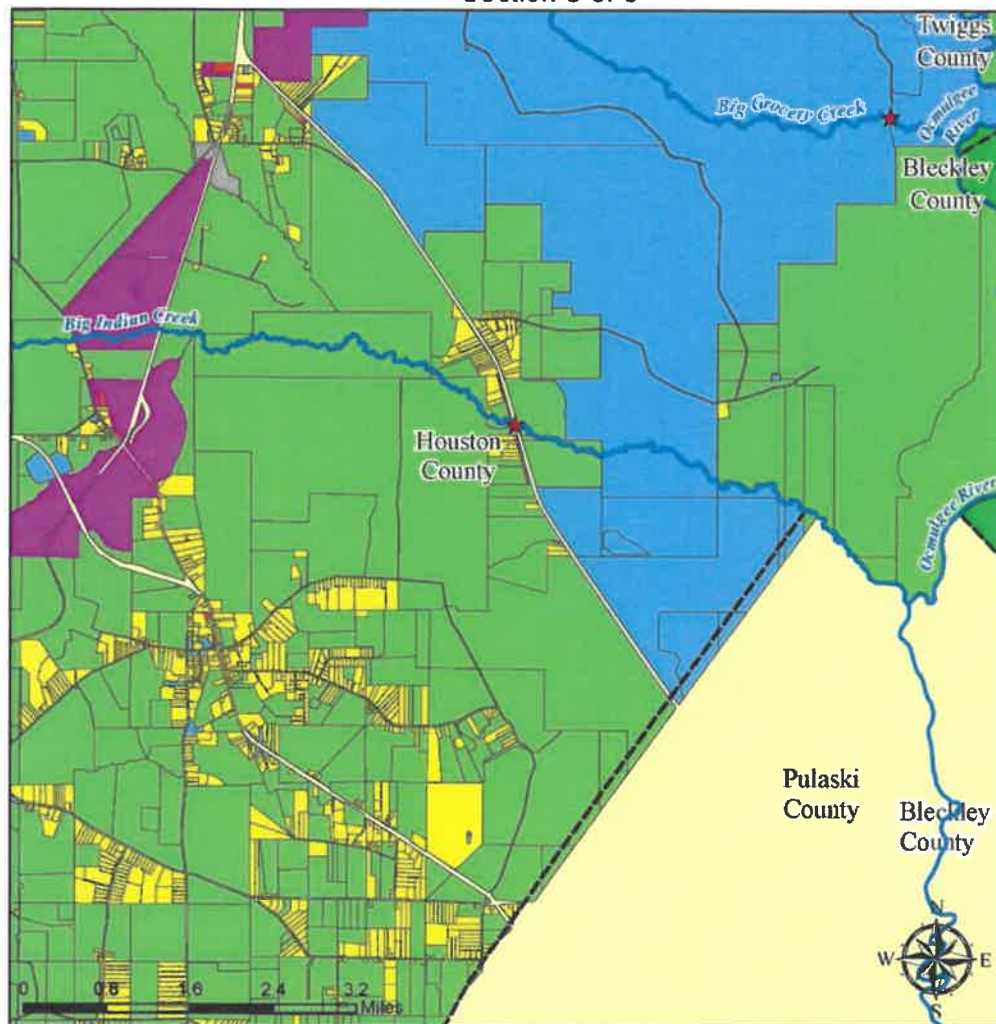


This map is provided by the Middle Georgia Regional Commission based on available data to February 2017. All features are approximate and should be used for general planning purposes only.

Image 22: Big Indian Creek Land Use, Section 4

Big Indian Creek Land Use

Section 5 of 5



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant



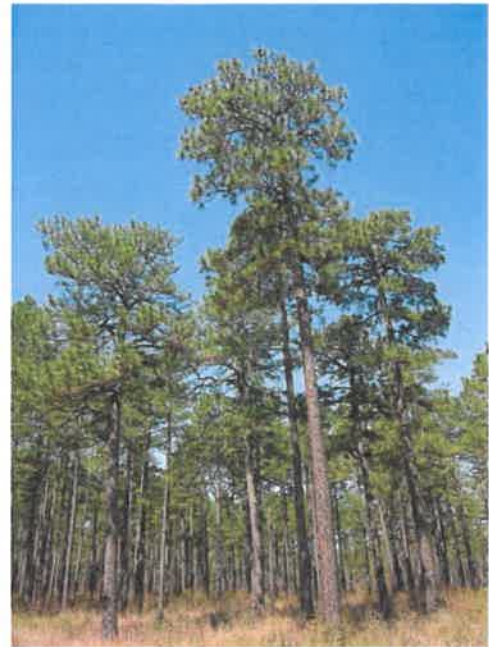
This map is provided by the Middle Georgia Regional Commission based on available data in February, 2017. All features are approximate and should be used for general planning purposes only.

Image 23: Big Indian Creek Land Use, Section 5

5. Ocmulgee River

The Ocmulgee River travels along the county borders of Houston, Twiggs, and Bleckley County throughout the Sandy Run Creek and Ocmulgee River Watershed. This area is largely comprised of agriculture lots. Much of the land is used for timber production resulting in very minor pollutants except during harvesting and planting in comparison to the stormwater runoff and sewage spills.

As with Sandy Run Creek, the Ocmulgee River runs alongside the Robins Air Force Base. Multiple precautions are in place to protect the Watershed and to inform the public of any concerns that may arise. The role the Base has taken on is tremendous in its efforts to diminish any harmful effects. An Environmental Restoration Program-Community Relations Plan was established to easily communicate to the public cleanup programs that take place on the base and identify goals and objectives associated with the cleanup activities performed. The plan is essential to incorporate the activities of the base into the community surrounding the base. **Appendix B** includes the Introduction of the Environmental Restoration Program Community Relations Plan. The full plan can be provided upon request.



Source: Georgia Encyclopedia

Image 24: Longleaf Pine Trees

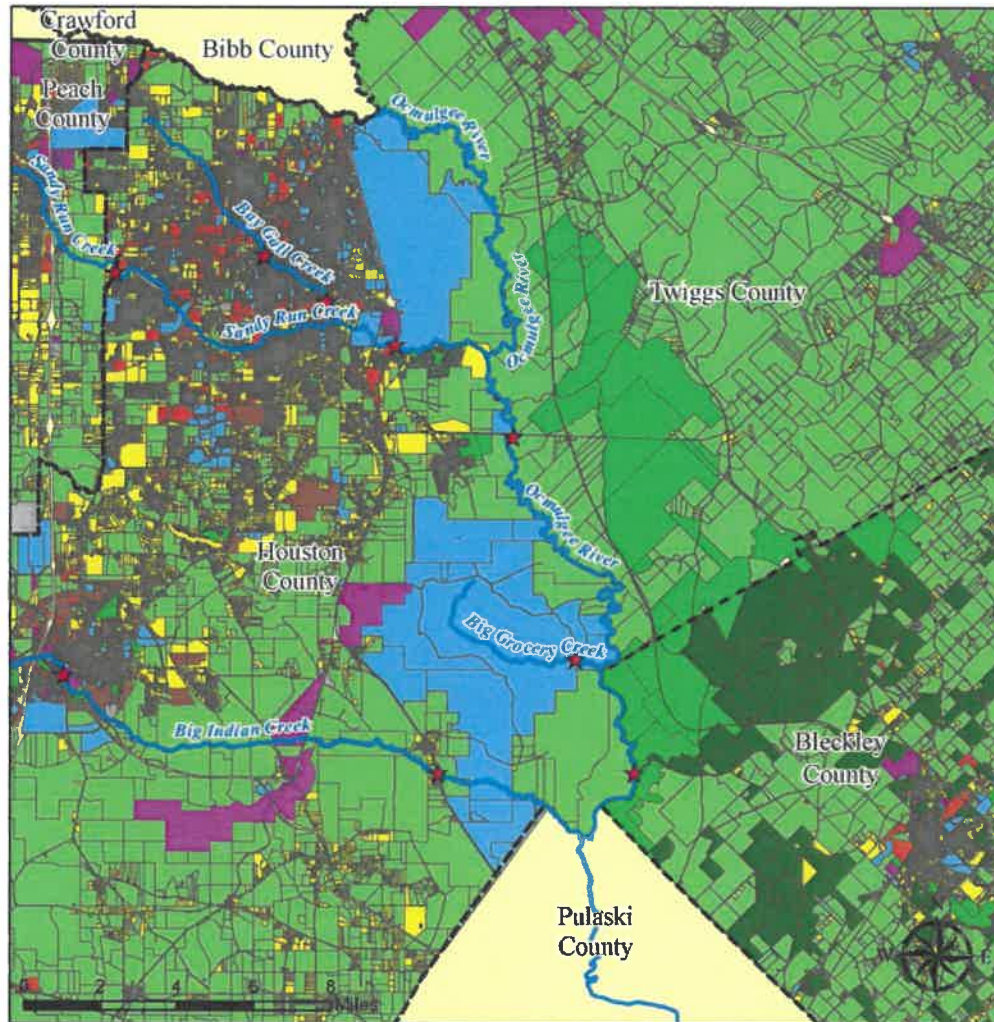
Ocmulgee River	
Land Use of Adjacent Parcels	Count
Agriculture	58
Park/Recreation/Conservation	17
Public/Institutional	16
Residential	2

Note: A 2000 foot buffer of the water features was used during this analysis. Only land use data of parcels within 2000 feet of the feature were used in these totals

Table 9: Adjacent Land Use Data for the Ocmulgee River

Ocmulgee River Land Use

Overview



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- - - Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant

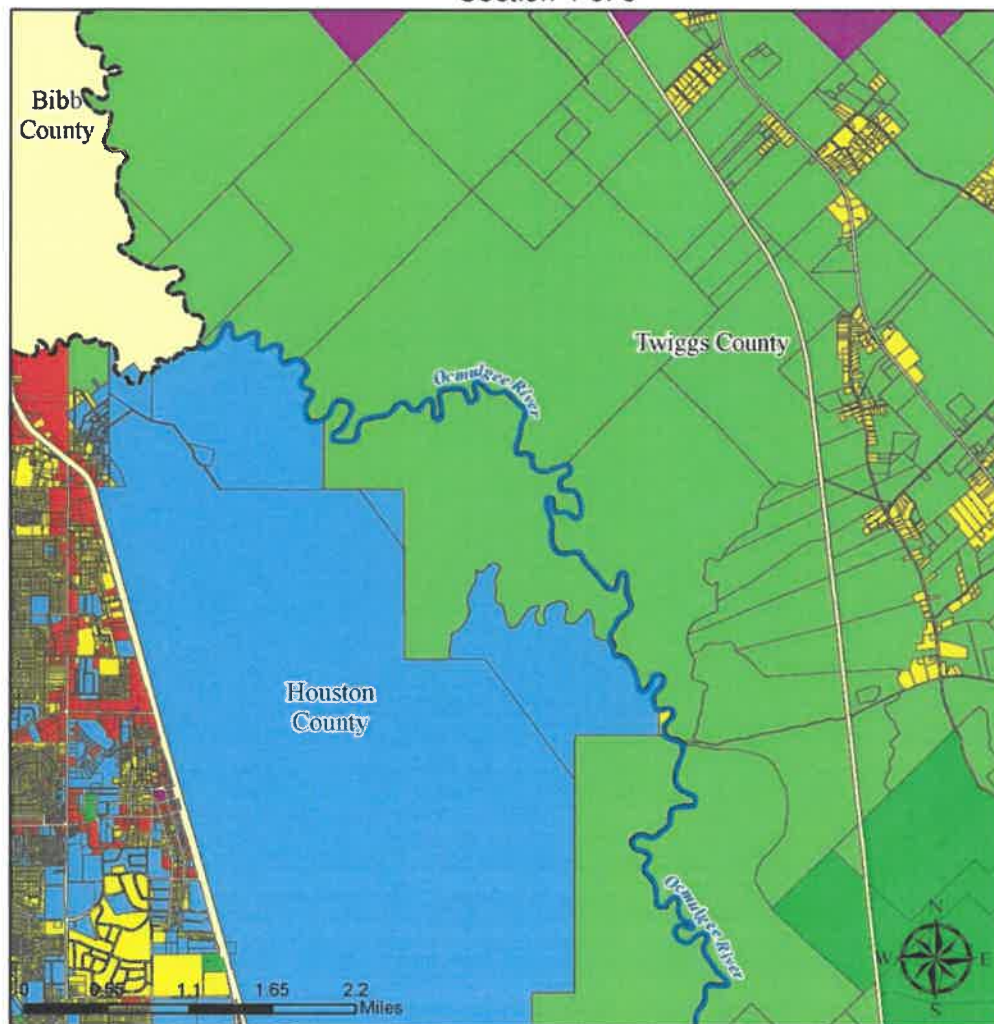


This map is provided by the Middle Georgia Regional Commission based on available data in February 2017. All features are approximate and should be used for general planning purposes only.

Image 25: Ocmulgee River Land Use, Overview

Ocmulgee River Land Use

Section 1 of 3



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant

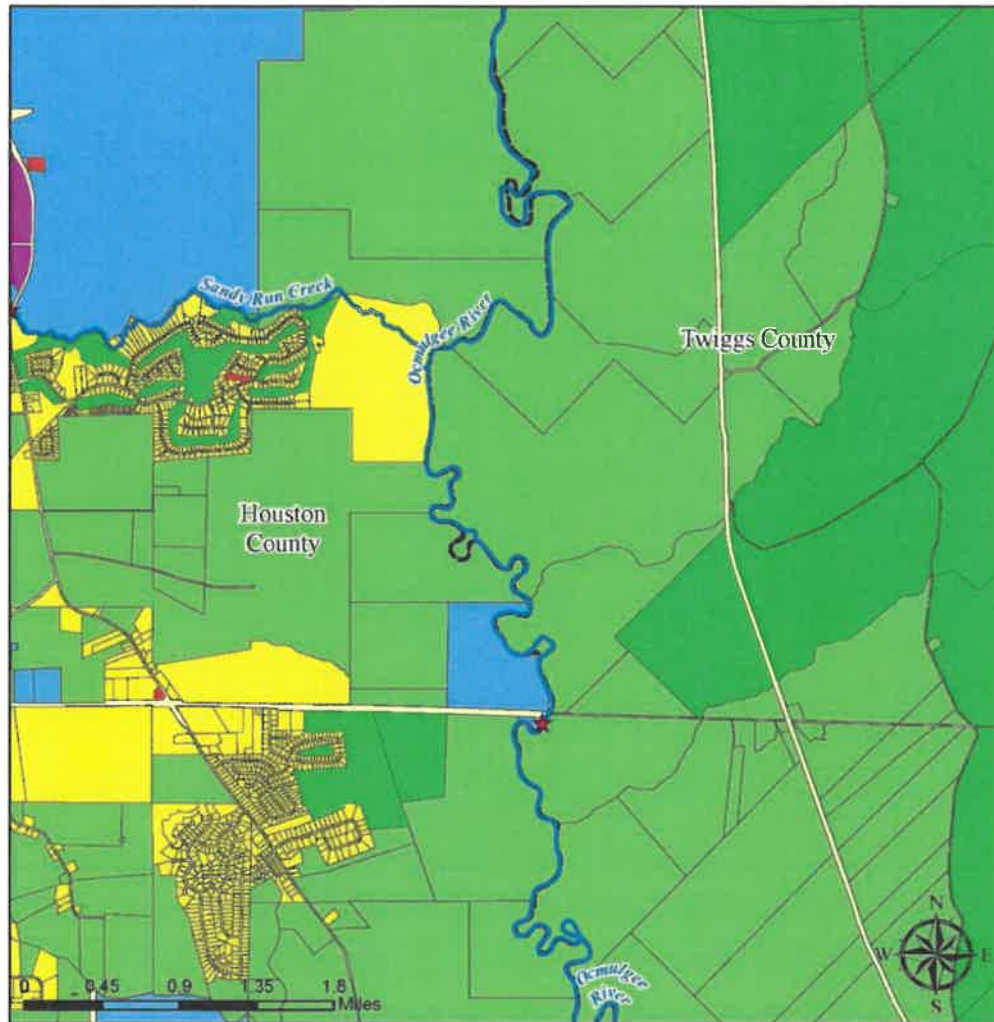


This map is provided by the Middle Georgia Regional Commission based on available data in February 2017. All features are approximate and should be used for general planning purposes only.

Image 26: Ocmulgee River Land Use, Section 1

Ocmulgee River Land Use

Section 2 of 3



Legend

- | | |
|-------------------------|--|
| ★ Water Monitoring Site | Industrial |
| — Rivers and Streams | Park/Recreation/Conservation |
| --- Counties | Public/Institutional |
| Land Use | Residential |
| Agriculture | Transportation/Communication/Utilities |
| Commercial | Undeveloped/Vacant |
| Forestry | |

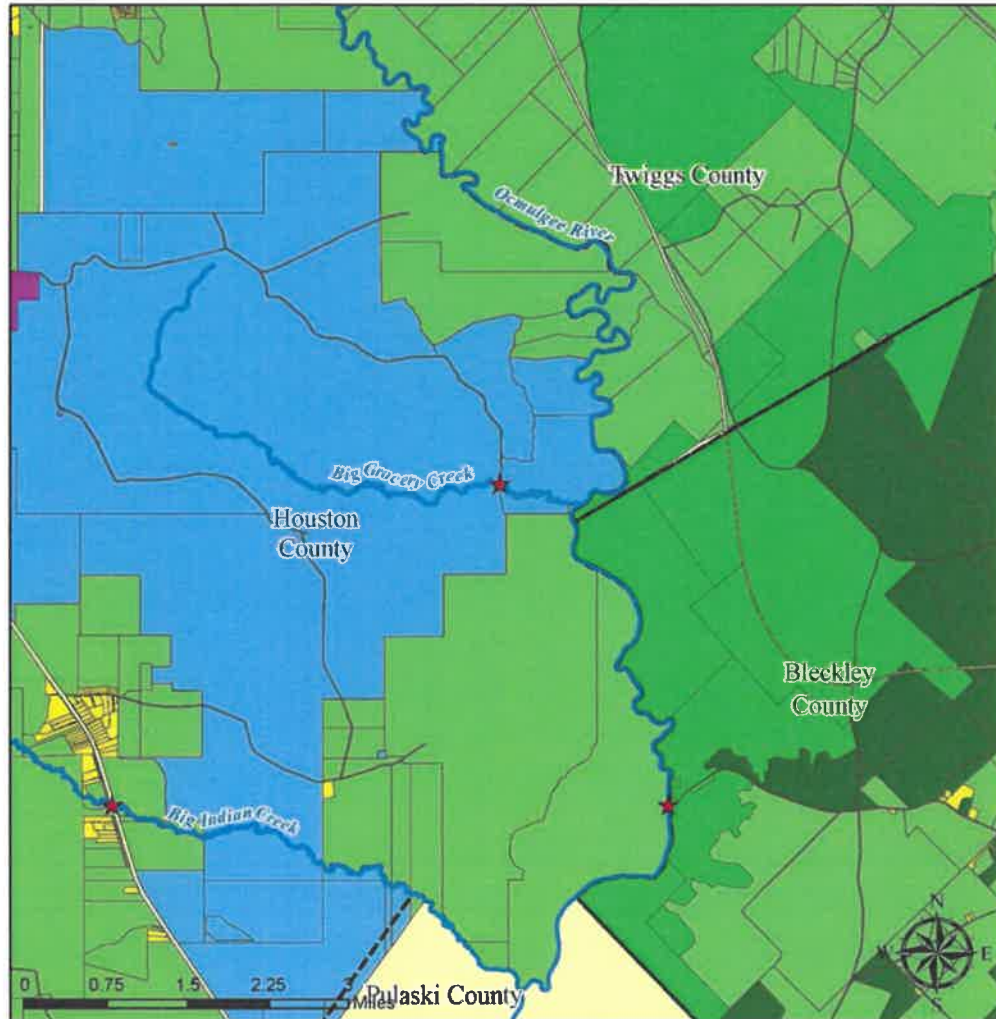


This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 27: Ocmulgee River Land Use, Section 2

Ocmulgee River Land Use

Section 3 of 3



Legend

- ★ Water Monitoring Site
- Rivers and Streams
- Counties
- Land Use**
 - Agriculture
 - Commercial
 - Forestry
 - Industrial
 - Park/Recreation/Conservation
 - Public/Institutional
 - Residential
 - Transportation/Communication/Utilities
 - Undeveloped/Vacant



This map is provided by the Middle Georgia Regional Commission based on available data as of February 2017. All features are approximate and should be used for general planning purposes only.

Image 28: Ocmulgee River Land Use

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

The information compiled by the Georgia Environmental Protection Division in January 2007 extending throughout the entire Ocmulgee River basin shows the sections of the Sandy Run Creek and Ocmulgee River Watershed as presenting much larger than expected levels and provides reduction counts required to be within the stream's water quality standards. Following the TMDL Implementation Plan established a schedule for the installation and evaluation of point and nonpoint source control measures, data collection, assessment of water quality standard attainment. The total maximum daily seasonal fecal coliform loads for Georgia are given below:

$$\text{TMDL}_{\text{summer}} = 200 \text{ counts (as a 30-day geometric mean)}/100 \text{ mL} \times Q$$

$$\text{TMDL}_{\text{winter}} = 1,000 \text{ counts (as a 30-day geometric mean)}/100 \text{ mL} \times Q$$

$$\text{TMDL}_{\text{winter}} = 4,000 \text{ counts (instantaneous)}/100 \text{ mL} \times Q$$

Table 10: Fecal Coliform Loads and Required Fecal Coliform Load Reductions

Stream Segment	Current Load	TMDL Components					Percent Reduction
		WLA (counts/ 30 days)	WLA _{sw} (counts/ 30 days)	LA (counts/ 30 days)	MOS (counts/ 30 days)	TMDL (counts/ 30 days)	
Ocmulgee River	4.55E-14		4.05E+13	2.66E+14	3.41E+13	3.41E+14	25
Big Indian Creek	3.14E+14	9.19E+11	5.15E+12	1.60E+14	1.84E+13	1.84E+14	41

Source: Total Maximum Daily Load Evaluation for Seventy-four Stream Segments in the Ocmulgee River Basin for Fecal Coliform

Calculations of the TMDL are important to quantify the impact of any measures taken to reduce the fecal coliform loads within the Sandy Run Creek and Ocmulgee River Watershed within the season. The TMDL is re-evaluated every five years to ensure adequate measures are taken to reduce the fecal coliform counts and to ensure greater reductions are not needed within the Sandy Run Creek and Ocmulgee River Watershed.

During this plan development visual assessments and water samples were collected from various points throughout the Sandy Run Creek and Ocmulgee River Watershed for fecal coliform testing. The visual assessments noted the extensive amount of debris surrounding many of the sample points. The test results concluded the areas sampled did not have excessively high fecal coliform counts. Since the samples were collected during the cooler months it is assumed that during the warmer months the fecal coliform counts will be higher. The areas documented as needing the greatest amount of

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

management measures completed are Big Indian Creek in Perry adjacent to Rotary Centennial Park, Sandy Run Creek on Georgia Highway 247 south of Robins Air Force Base, and Big Indian Creek on Georgia Highway 247 north of the Houston County Landfill. Details of the samples collected, and visual assessments can be found in **Appendix H**.

Existing Management Measures

Several organizations and local governments within the Sandy Run Creek and Ocmulgee River Watershed incorporate routine procedures to protect the watershed from daily hazardous exposure including:

- The Bleckley, Houston, and Peach County Health Departments review locations and plans for septic tank and well installation to ensure state regulations are being met. On-site inspections of new septic tanks and wells are completed to ensure proper installation.
- Houston and Peach Counties enforce their Solid Waste Ordinance to eliminate illegal dumping in county streams and waterways.
- Department of Natural Resources instructors continue to educate hunters on the proper disposal of animal and human waste during hunter safety courses offered to all area hunters.
- Various partners participate in public education measures including water quality related issues whether it be through in-person presentations or distribution of printed material.
- Local farmers follow Best Management Practices for Georgia Agriculture. The principles are reinforced by organizations like the University of Georgia Cooperative Extension. The Best Management Practices for Georgia Agriculture Introduction can be found in **Appendix E**.
- Local Development Codes regulate the minimum lot sizes for houses with septic tanks and well while also enforcing stream buffer requirements for new development.
- Houston County Public Works performs regular water monitoring of Mossy Creek and Sandy Run Creek as required by the Environmental Protection Division. The Impaired Waters Monitoring and Implementation Plan is included in **Appendix E**.

Each organization or local government has set forth indicators to validate the measures effectiveness or cooperation throughout the community. The measures identified are not extensive of all measures performed throughout the Sandy Run Creek and Ocmulgee River Watershed to reduce the fecal coliform levels.

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

Future Management Measures

The Middle Georgia Regional Commission also identified several additional management measures, costs associated over the next five years, and a timeline for implementation that could be completed to continue the reduction of the hazards posed to the Sandy Run Creek and Ocmulgee River Watershed. The cost and timeframe associated with each measure is strictly an estimate based on the supplies or equipment required to perform the measure. Until each measure is implemented accurate cost projections are not available.

Table 11: Identifies Future Management Measures to be taken throughout the watershed.

Goal: Implement Management practices to reduce fecal coliform loads by 25% in order to meet water quality standards.				
Task	Who	Cost	Milestone Indicators	Timeframe
Objective 1: Reduce the fecal coliform levels throughout the Sandy Run Creek and Ocmulgee River Watershed.				
Task 1: Organize and conduct monthly cleanups of debris around the watershed.	Schools, non-profits, local governments, etc.	\$125,000	Number of bags of debris collected per event	Begin in year 1 and continue on.
Task 2: Establish a formal advisory committee to serve as advocates and resources for community concerns.	City/County staff, UGA Cooperative Extension, local professionals	In-kind. Many professionals will offer their experience and expertise to simply improve the watershed	Number of meetings held by the committee and tracking of the number of groups or individuals encountered	Begin in year 1 and continue on.
Task 3: Install stormwater control measures and implement Best Management Practices.	City/County staff	\$2,000,000	Number of controls put in place	Begin in year 2 and continue on.
Objective 2: Reduce fecal coliform loads from agricultural sites.				
Task 1: Educate farmers on the effects on livestock waste and control methods.	City/County staff, UGA Cooperative Extension	The only cost associated would be for any educational materials needed Estimated: \$500	Number of courses conducted and farmers interacted with throughout the month	Begin in year 1 and continue on.

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

Task 2: Encourage regular use of soil testing to ensure precise fertilization to prevent over-application of nutrients.	City/County staff, UGA Cooperative Extension, Farmers	Staff Time and educational materials and soil kits Estimated: \$1,000	Number of courses conducted and soil tests utilized.	Begin in year 1 and continue on.
Task 3: Encourage the use of Agricultural BMPs such as riparian buffers and vegetative filter strips to serve as a buffer to maintain stream bank integrity.	City/County staff, UGA Cooperative Extension, Farmers	Staff Time and educational materials Estimated: \$500	The implementation of Agricultural BMPs to serve as a buffer to maintain stream bank integrity, address agricultural runoff and for water quality criteria to be addressed of pH and fecal coliform.	Begin in year 1 and continue on.
Objective 3: Reduce the fecal coliform loads resulting from residential waste.				
Task 1: Repair leaking sewer lines or septic tanks.	City/County staff and residents	\$2,500,000	Number of lines or tanks repaired/replaced	Begin in year 1 and continue on.
Objective 4: Monitor water quality for load reduction achievement.				
Task 1: Identify and train local groups to conduct water monitoring.	MGRC, City/County Staff, and Local AAS	\$25,000	Number of samples collected and results	Begin in year 1 and continue on.

To complete these measures many experts will be needed. There are already numerous experts within the area whose assistance can be requested. Since many of the professionals within the Sandy Run Creek and Ocmulgee River Watershed already complete many of the activities requested as part of their daily jobs, Middle Georgia Regional Commission staff believes that a simple introduction to the Watershed and potential regulatory measures set forth in this plan is what is needed to peak their interest in the Watershed. Many of the tasks are identified as needing to be completed within the first year to ensure measures begin as soon as possible and continue forward. The formal advisory committee must be set first, and all other measures can follow. The partners identified during the plan process can be seen in **Table 10**. Detailed contact information can be found in **Appendix C**.

Table 12: Identified Potential Partners

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

Organization/Company Name	Contact Person, Title
Ocmulgee Water Trail Partnership	Lee Slade, Chairman
Bryant Engineering	Chad Bryant, President
Houston County Public Works	Brian Jones, County Engineer
Peach County Public Works	Paul Schwindler, Director
City of Byron Public Works	Tiffany Bibb, Director
City of Warner Robins Public Works	George Brannen, Director
City of Perry Public Works	Sarah Nottingham, Stormwater Operations Manager
City of Fort Valley Public Works	Benjamin Carpenter, Director
City of Centerville Public Works	Mike Brumfield, Director
City of Cochran Public Works	Tony Darsey, Field Supervisory Street/Sewer Department
Ocmulgee Outdoor Expeditions	Kathleen O'Neal
Geotechnical & Environmental Consultants, Inc.	Thomas Driver, President
Robins Air Force Base Environmental Advisory Board	Public Affairs Office
Keep Warner Robins Beautiful	Debra Jones, Executive Director
Georgia Association of Water Professionals	Gary McCoy, District Director
Georgia Association of Groundwater Professionals	Jim McClain, President
Boy Scouts of America, Central Georgia Council	Garrett L. Williams, Scout Executive
Mercer University Environmental Studies	Brian Rood, Director
Fort Valley State University Public Health	Oreta M. Samples, Program Coordinator
University of Georgia Archway Partnership	Sam Perren, Archway Professional
UGA Extension Houston County Office	Charlotte Meeks, County Extension Coordinator
UGA Extension Peach County Office	Jeff Cook, County Extension Coordinator

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

UGA Extension Bleckley County	Brandi Susanne McGonagill, County Extension Coordinator
Central Georgia Technical College	Paula Peña, Health Sciences Dean
Environmental Protection Division West Central District Office	
Georgia Department of Public Health North Central Health District	Carla Coley, District Environmental Health Director

Evaluation Measures

The short-term effectiveness of the management measures implemented will be measured by the milestone indicators identified in Table 11. The milestone indicators will be recorded following the performance of each task. Overall results should be reported on a monthly basis.

The ultimate evaluation measure to be used to observe the success of the existing and future regulatory measures will be test results. The data collected from water monitoring conducted by schools, non-profit organizations, or local government partners will be able to provide accurate information on whether the measures set in place are successful. If the results are not consistent with positive implementation of the measures, evaluations will be performed by the formal advisory committee to identify new measures to implement and who will oversee them.

Education and Outreach

To further the understanding and completion of projects to improve the Sandy Run Creek and Ocmulgee River Watershed various educational and outreach tools will be explored.

Georgia Adopt-A-Stream Workshops

Georgia Adopt-A-Stream is housed in the Nonpoint Source Program in the Water Protection Branch of the Georgia Environmental Protection Division. The five program goals of Georgia Adopt-A-Stream are:

1. Increase public awareness of the State's nonpoint source pollution and water quality issues.
2. Collect quality baseline water quality data.
3. Gather observations.
4. Encourage partnerships between citizens and their local government.
5. Provide citizens with the tools and training to evaluate and protect their local waterways.

SANDY RUN CREEK AND OCMULGEE RIVER WATERSHED MANAGEMENT PLAN

The Middle Georgia Regional Commission will take on the role of coordinating workshop sessions for those interested in protecting local streams, creeks, or sections of the Ocmulgee River.

Water Quality Monitoring

Currently, water quality monitoring is performed by the Middle Georgia Regional Commission by trained staff for Bacterial Monitoring. The monitoring will continue to be performed on a quarterly basis with the hope that Sandy Run Creek and Ocmulgee River Watershed to be removed from the 305(b)/303(d) List. All results will be reported on the Georgia Adopt-A-Stream website.

Educational Material Distribution

The Middle Georgia Regional Commission will take on the role of distributing information throughout the local governments to ensure the public and elected officials are aware of the concerns with the Sandy Run Creek and Ocmulgee River Watershed. Material distributed will include print sources and web-related material. A section of the Middle Georgia Regional Commission website will be dedicated to housing such information. Examples of brochures to be distributed can be found in **Appendix D**. Additional materials will be provided once they are developed or recommended.