BALDWIN COUNTY, ALABAMA

Planning and Zoning Department

Storm Water Management Program (SWMP) Plan

Permit Cycle
2021-2026

NPDES Permit No. ALR040042

April 1, 2022

Updated 5/30/2023

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2022/2023 Baldwin County SWMP Plan Update

The sections of the County's SWMPP were updated as follows:

Section 1- Program Administration
- Master Plan Meeting updated (1.2.5)
- Legislative Act 2005-200 updated (1.2.6)
- Planning Districts updated (Figure 1.1)
- SWMP Revisions updated (1.3)
- SWMP Organization Chart updated (Figure 1.2)

Section 4-Public Education and Outreach
- Local Partnerships updated (4.4.1)

Section 8-Post Construction Storm Water Management
- Language added regarding site review (8.2.1)

Section 9-Pollution Prevention/ Good Housekeeping
- Facility Inventory updated (9.2.1.1)
- Unpaved Roads Study updated (9.2.3.9)

MCM 1-5 Program Strategies and Goals Spreadsheet Tables updated

Minimum Control Measures Program Evaluation Comments

Section 4&5-MCM1-Education Outreach/Public Participation
The County feels that the strategies and goals established for this MCM are effective in meeting the permit requirements. At this time, the County has no plans to change the SWMPP strategies or goals.

Section 6-MCM2-Illicit Discharge Detection and Elimination
The County feels that the strategies and goals established for this MCM are effective in meeting the permit requirements. At this time, the County has no plans to change the efforts. However, Planning and Zoning will continue to work with the Highway Department to streamline the dry weather screening, inspection, and reporting process.

Section 7-MCM3-Construction Site Runoff Control
The County feels that the strategies and goals established for this MCM are effective in meeting the permit requirements. At this time, the County has no plans to change the SWMPP strategies or goals.

Section 8-MCM4-Post Construction Stormwater Management
The County feels that the strategies and goals established for this MCM are effective in meeting the permit requirements. At this time, the County has no plans to change the efforts.

Section 9-MCM5-Pollution Prevention/Good House Keeping for Municipal Operations
The County feels that the strategies and goals established for this MCM are effective in meeting the permit requirements. At this time, the County has no plans to change the efforts. However, the County will strive to make the tracking of employee training more efficient.

Section 10-Water Quality Monitoring Plan
At this time, the County has no plans to change its Water Quality Monitoring efforts.

1. Program Administration

1.1. Introduction

In 1990, the U.S. Environmental Protection Agency (EPA) promulgated regulations establishing Phase I of the National Pollutant Discharge Elimination Systems (NPDES) storm water program. The Phase I program for municipal separate storm sewer systems (MS4s) requires operators of "medium" and "large" MS4s that generally serve populations of 100,000 or greater to implement a storm water management program as a means to control polluted discharges from certain municipal, industrial, and construction activities into the MS4.

In 1999, EPA promulgated regulations establishing Phase II of the NPDES storm water program. The Phase II program extends coverage of the NPDES storm water program to regulated "small" MS4s. A regulated "small" MS4 is located within an "urbanized area" as defined by the Census Bureau or as designated by the NPDES permitting authority.

The Alabama Department of Environmental Management (ADEM) presently has primary jurisdiction over permitting and enforcement of the storm water program for Alabama. In November 2011, Baldwin County submitted a request to ADEM to be re-designated from a Phase I MS4 to a Phase II MS4. On December 22, 2011, ADEM granted this request and issued coverage under the MS4 Phase II General Permit (NPDES Permit Number ALR040042-baldwin-county-ms4-phii-npdes-permit-alr-40042.pdf (baldwincountyal.gov) for storm water discharges associated with the Baldwin County MS4.

The Storm Water Management Program Plan (SWMPP) has been developed to generally describe the County's efforts to maintain compliance with the requirements of NPDES Permit ALR040042. This document is intended to be a dynamic document and shall be revised as needed to accurately reflect the County's activities in implementing its SWMP.

1.2. Legal Authority

1.2.1. Zoning Ordinance

On August 8, 1991, the Baldwin County Planning and Zoning Act (Act No. 91-179), Code of Alabama §45-2-261 was passed by the Alabama State Legislature. This legislation, and its subsequent amendments, provide the basic framework

for the County's growth management activities and required the development and maintenance of a master plan for the use and development of unincorporated Baldwin County. The Baldwin County Planning and Zoning Act authorized the County Commission to:

- Create Baldwin County Planning and Zoning Commission;
- Create Board of Adjustment;
- Create planning districts within unincorporated areas of the County;
- Allowed zoning within planning districts that vote their desire to come under the County planning and zoning authority; and,
- Required the development and maintenance of a "master plan".

On April 6, 1999, the County Commission adopted the Baldwin County Zoning Ordinances. A copy of the Baldwin County Zoning Ordinances can be found on the County's website at the following link: Zoning Ordinance (as amended October 18th, 2022) (baldwincountyal.gov). It was most recently amended on October 18, 2022.

The Zoning Ordinance is in force and effect in the planning districts established in Baldwin County in compliance with the requirements of Act 91-719, as amended, which elect to come within the planning and zoning authority of the Baldwin County Commission. Currently the County has zoning authority of approximately 19.0 mi^2 of the land located within the MS4 Area. The areas where the County has zoning authority within its MS4 Area are shown in **Figure1-1**.

1.2.2. Subdivision Regulations

On, September 21, 2021, the County Commission adopted the latest revisions to the Subdivision Regulations. These Subdivision Regulations establish procedures and standards for the development of subdivisions or proposed additions to existing subdivisions within the subdivision jurisdiction of Baldwin County in an effort to regulate the minimum lot size, the design, planning and construction of all public streets, public roads, drainage structures, and to require the proper placement of public utilities.

A copy of the Baldwin County Subdivision Regulations can be found on the County's website at the following link: Subdivision Regulations (as amended October 1, 2021) (baldwincountyal.gov).

1.2.3. Flood Damage Prevention Ordinance

On April 19, 2019, the County Commission adopted the latest revisions to the Flood Damage Prevention Ordinance. The purpose of this ordinance is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas of provisions designed to:

- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which increase flood heights, velocities, or erosion;
- Control filling, grading, dredging, and other development which may increase flood damage or erosion;
- Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters, or which may increase flood hazards to other lands; and,
- Control the alteration of natural flood plains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters.

A copy of the Flood Damage Prevention Ordinance can be found on the County's website at the following link: Flood Zone Information (baldwincountyal.gov).

1.2.4. Land Disturbance Ordinance for Flood Prone Areas or Territories with Probable Exposure to Flooding

On November 16, 2021, the County Commission adopted the Land Disturbance Ordinance for Flood Prone Areas or Territories with Probable Exposure to Flooding in Unincorporated Baldwin County, AL. The purpose of this ordinance is to promote the public health, safety, and general welfare and to minimize public and private losses on land with probable exposure to flooding, pursuant to Alabama Code 11-19-4 by land use provisions designed to:

(1) control filling, grading, dredging and similar land disturbance activities which may increase flood damage or erosion;

(2) prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters, or which may increase flood hazards to other lands; and,

(3) control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters.

This ordinance's jurisdiction is the un-zoned areas of Baldwin County. A copy of the Land Disturbance Ordinance for Flood Prone Areas or Territories with Probable Exposure to Flooding in Unincorporated Baldwin County, AL can be found on the County's website at the following link: Land Disturbance Ordinance for Flood Prone Areas or Territories (as adopted September 7, 2021) (baldwincountyal.gov).

1.2.5. Baldwin County Master Plan 2013

In accordance with Act No. 91-719 (Codified at Section 45-2-261, et seq., Code of Alabama 1975) the Baldwin County Planning and Zoning Commission prepared, and the Baldwin County Commission adopted, the Baldwin County Master Plan – 2013. According to the Act, the County Commission "shall appoint the Planning Commission to make and maintain in an up-to-date manner, a Master Plan for the physical development of the unincorporated areas of Baldwin County. The Master Plan with accompanying maps, plats, charts, and descriptive material shall show the Planning Commission's recommendations for the use and development of the unincorporated area of Baldwin County".

The Master Plan consists of seven chapters covering topics such as implementation, composition, intergovernmental relations, parks and recreation, and historic preservation. Maps incorporated into the plan include Planning Districts, Current Zoning, Future Land Use, School Locations, Parks and Public Access, and Fire Districts. The final chapter of the Master Plan deals with revision and amendment. The plan is intended to be a living document. As such, it is proposed to be reviewed annually to determine if revisions and amendments are warranted due to changing conditions. The first review would take place within six months of initial adoption. A second review would be conducted six months later, and subsequent reviews would take place on an annual basis. With regard to future land use, the plan initially calls for non-binding future land use designations in the Planning Districts which have voted their desire to come under the Planning and Zoning authority of the Baldwin County Commission.

Future land use designations for specific planning areas and un-zoned Planning Districts could be applied during review and amendment processes.

In preparing the Master Plan, the Planning Commission held eight work sessions and two public hearings. The first public hearing was held on July 11, 2013 for the purpose of obtaining public comment. The second public hearing was held on August 1, 2013; at that time, the Planning Commission voted unanimously to recommend approval of the Baldwin County Master Plan – 2013 to the County Commission. The vote of the Planning Commission served as its final report to the Baldwin County Commission for the adoption of the Master Plan.

The first public hearing was held before the Baldwin County Commission on September 3, 2013. The second and third public hearings were held September 17, 2013 and October 1, 2013, with adoption occurring at the October meeting. The Master Plan will be studied for revisions beginning in April 2014.

In 2021, the County started the process of updating the Master Plan. Several public meetings have been held. The goal is to complete the update in 2023. Once the update is complete, the SWMPP will be updated to reference the new version.

A copy of the current Baldwin County Master Plan – 2013 can be found on the County's website at the following link: Master Plan (as approved in 2013) (baldwincountyal.gov).

1.2.6. Legislative Act 2005-200

On May 26, 2005, the Alabama Legislator passed Act Number 2005-200 known as "The Alabama Limited Self-Governance Act". This act expands the authority of counties to regulate activities that may create a nuisance to include:

- Weeds;
- Litter or rubbish;
- Animals and animal nuisances;
- Junkyards;
- Noise;
- Unsanitary sewage; and,
- Pollution creating a public nuisance.

The act also restricts the powers of a county commission and prohibits the following activities as they relate to a nuisance:

- Authority to levy or collect any tax;

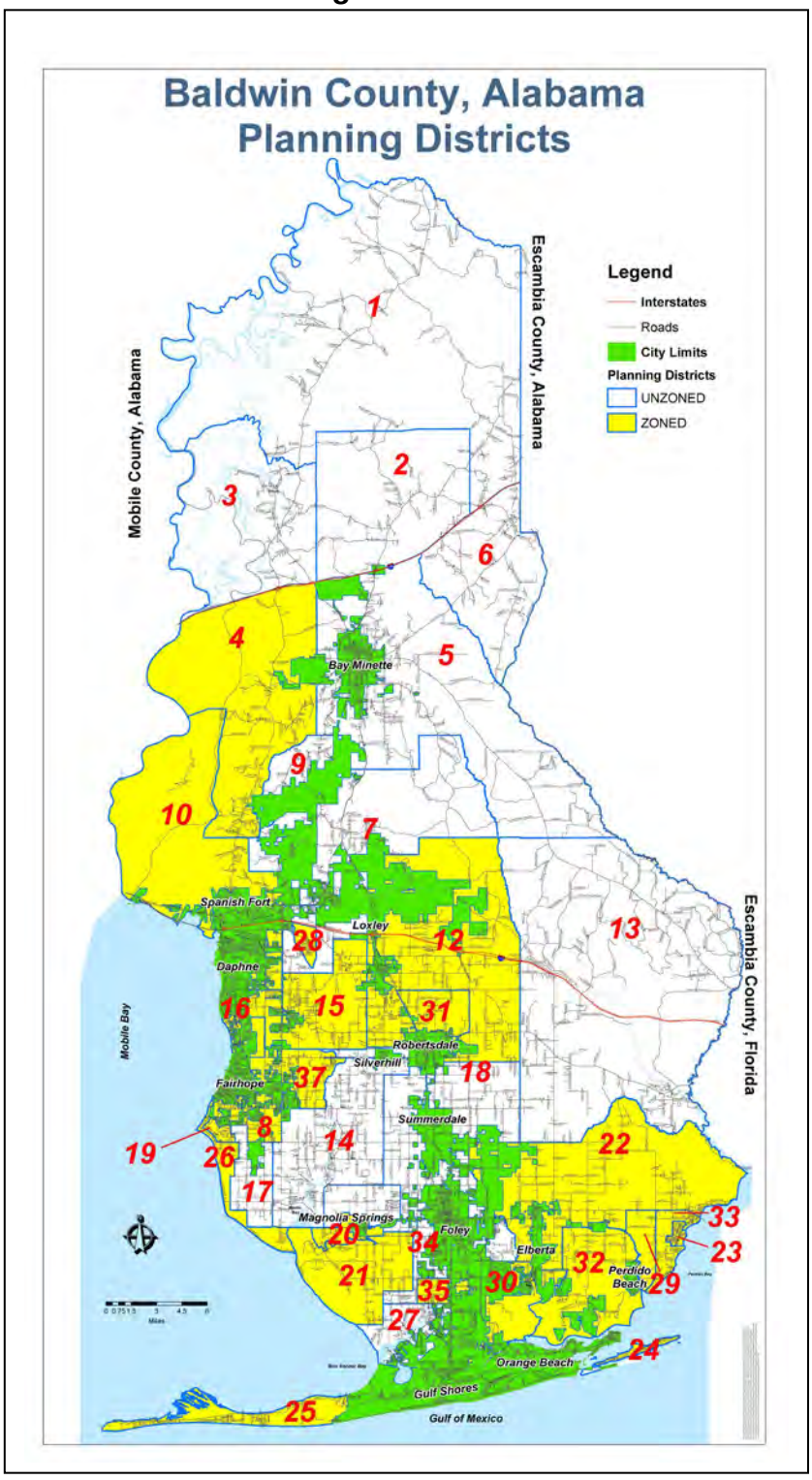
- Regulation over any business activities regulated by the Federal Surface Transportation board, the Public Service Commission, the Department of Agriculture, and Industries, or the Alabama Department of Environmental Management;
- Action affecting any court;
- Action affecting any public school system;
- Action affecting pari-mutuel betting facility;
- Action affecting the private or civil law governing private or civil relationships;
- Action extending the power of regulation over the construction maintenance, operation or removal of facilities used in the generation, transmission, or distribution of water, sewer, gas, telecommunications, or electric utility services;
- Action affecting the rights granted to an agricultural, manufacturing, or industrial plant or establishment, or farming operation;
- Action affecting or enforcing environmental easements; and,
- Action restricting or regulating surface mining or underground mining activities that have been granted federal or state permits.

Since Baldwin County has limited legal authority to implement and/or enforce some requirements of the NPDES permit, the County may rely upon State programs to assist in the implementation and enforcement of its SWMP Plan.

A copy of The Alabama Limited Self Governance Act is provided at the following link: Code of Alabama (state.al.us) .

On June 21, 2022, the Baldwin County Commission adopted Resolution #2022-110 calling for a local referendum to be held on the question of whether the health and safety powers authorized in Ala. Code § 11-3A-1 et seq. shall be effective in Baldwin County, with such referendum to be held during the General Election on November 8, 2022. The referendum failed limiting the County's legal authority in unincorporated Baldwin County.

Figure1-1


Baldwin County, Alabama
Planning Districts
Legend
Interstates
Roads
City Limits
Planning Districts
UNZONED
ZONED
Mobile County, Alabama
Escambia County, Alabama
Escambia County, Florida
Mobile Bay
Bay Minette
Spanish Fort
Loxley
Daphne
Fairhope
Silverhill
Robertsdale
Summerdale
Magnolia Springs
Foley
Elberta
Perdido Beach
Orange Beach
Gulf Shores
Gulf of Mexico
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1.3. SWMP Revision

Revisions to the SWMP Plan shall be documented in Table 1-1.

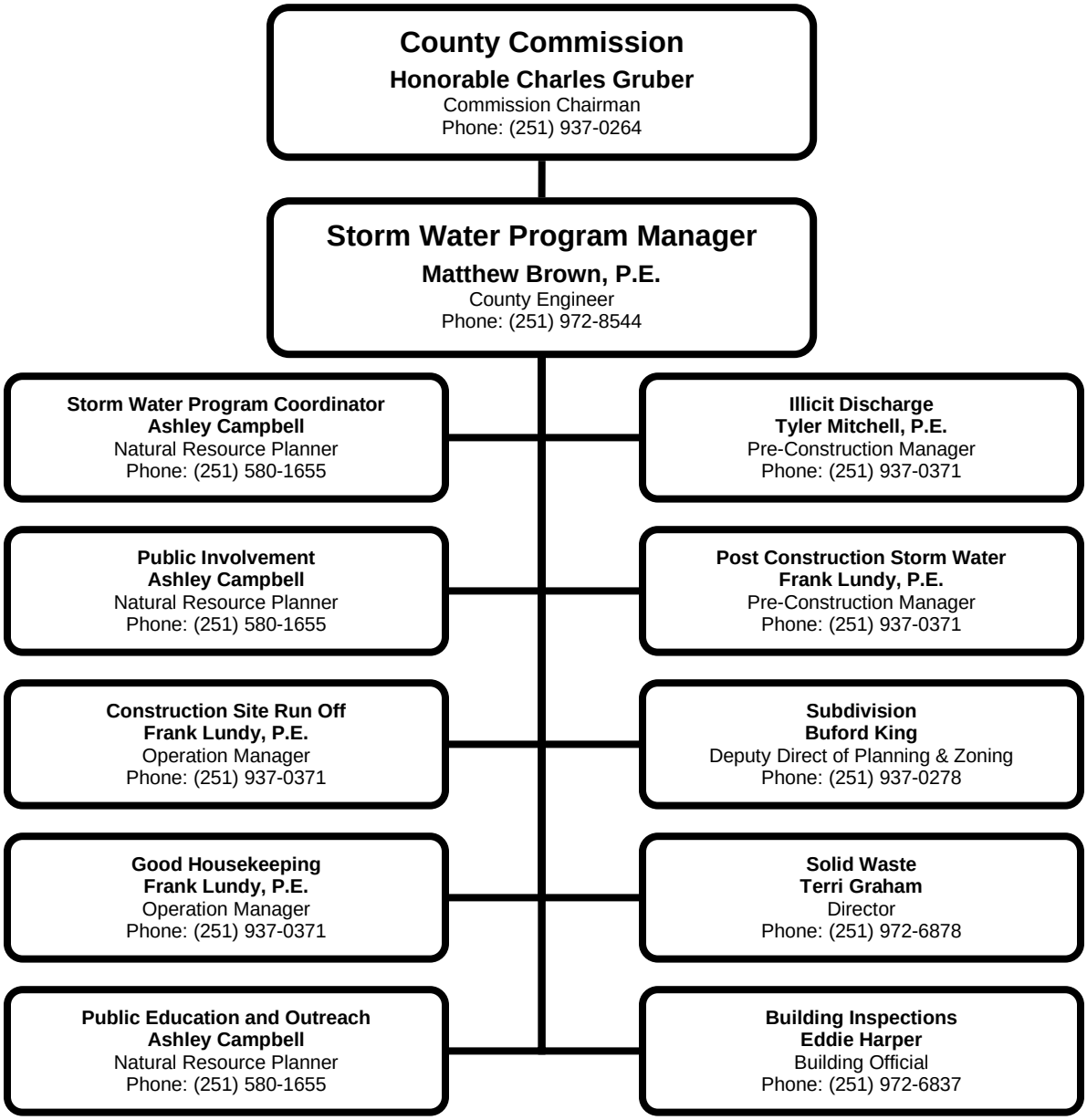
Table 1-1
SWMP Revision Record

Date:	Revised By:	Description of Revision:
21 June 2012	Hydro Engineering Solutions, LLC	Initial Storm Water Management Program (SWMP) Plan (Redesignated from a Phase I MS4 to a Phase II MS4)
31 March 2013	Baldwin County Commission	Annual SWMP Plan Review and Update
31 March 2014	Baldwin County Commission	Annual SWMP Plan Review and Update
31 March 2015	Baldwin County Commission	Annual SWMP Plan Review and Update
31 March 2016	Baldwin County Commission	Annual SWMP Plan Review and Update
31 March 2017	Baldwin County Commission	2016-2021 SWMP Plan Update & Annual Report
31 March 2018	Baldwin County Commission	Annual SWMP Plan Review and Update
31 March 2019	Baldwin County Commission	Annual SWMP Plan Review and Update
31 March 2020	Baldwin County Commission	Annual SWMP Plan Review and Update
31 March 2021	Baldwin County Commission	Annual SWMP Plan Review and Update
31 March 2022	Baldwin County Commission	2021-2026 SWMP Plan Update (Planning & Zoning)
30 May 2023	Baldwin County Commission	Annual SWMP Plan Review and Update

1.4. Program Administration

The County's general organizational structure for administrating its SWMP Plan is provided in Figure 1-2. The specific organizational structure associated with implementation of each program element is described in the following sections.

Figure 1-2
SWMP Organizational Chart



1.5. Signatory Requirements

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Matthew Brown	Director of Planning & Zoning
Name	Title
	5/31/2023
Signature	Date

Address: Baldwin County Commission
Baldwin County Administration Building
312 Courthouse Square, Suite 12
Bay Minette, Alabama 36507

Phone: (251) 937-0264

Fax: (251) 580-2500

2.1. Baldwin County

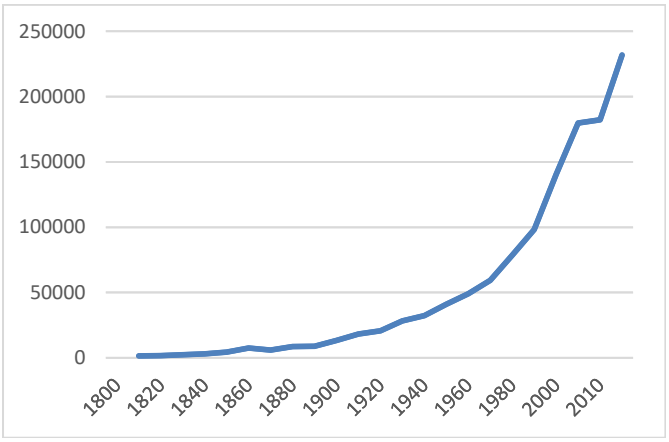
Baldwin County is located in southwest Alabama and borders Mobile Bay and the Gulf of Mexico. The County occupies approximately 2,026.93 square miles that consist of approximately 1,596.35 square miles of land and 430.58 square miles of water. Metropolitan areas located within Baldwin County are listed in Table 2-1.

Table 2-1
Metropolitan Areas

- Bay Minette
- Daphne
- Elberta
- Fairhope
- Foley
- Gulf Shores
- Loxley
- Magnolia Springs
- Orange Beach
- Perdido Beach
- Robertsdale
- Silverhill
- Spanish Fort
- Summerdale

Since the 1900's, Baldwin County has experienced a steady increase in population. Figure 2-1 provides a graph showing the historical population of Baldwin County since 1900.

Figure 2-1
Historical Population



The 2020 Census estimated the total population of Baldwin County to be 231,767. As compared to the population in 2000, Baldwin County has experienced a population increase of 49,502 (approximately 21%) over the past 10 years.

Baldwin County is located in a humid subtropical region that is typical of the Gulf Coast. Summers are characteristically warm and humid while the winters are relatively mild. Precipitation from a combination of winter storms, thunderstorms, and tropical systems produces an average annual rainfall of approximately 64 inches.

2.2. MS4 Area

Baldwin County's NPDES Permit (ALR040042) became effective on December 22, 2011. In accordance with 40 CFR 122.32, only portions of the County that are located within an Urbanized Area are regulated as a small MS4 under the NPDES storm water program. The County has defined its MS4 Areas based on the Daphne-Fairhope Urbanized Area. Unincorporated areas of the County that are located within the Daphne-Fairhope Urbanized Area are shown in Figure 2-2.

2.2.1. Incorporated Areas

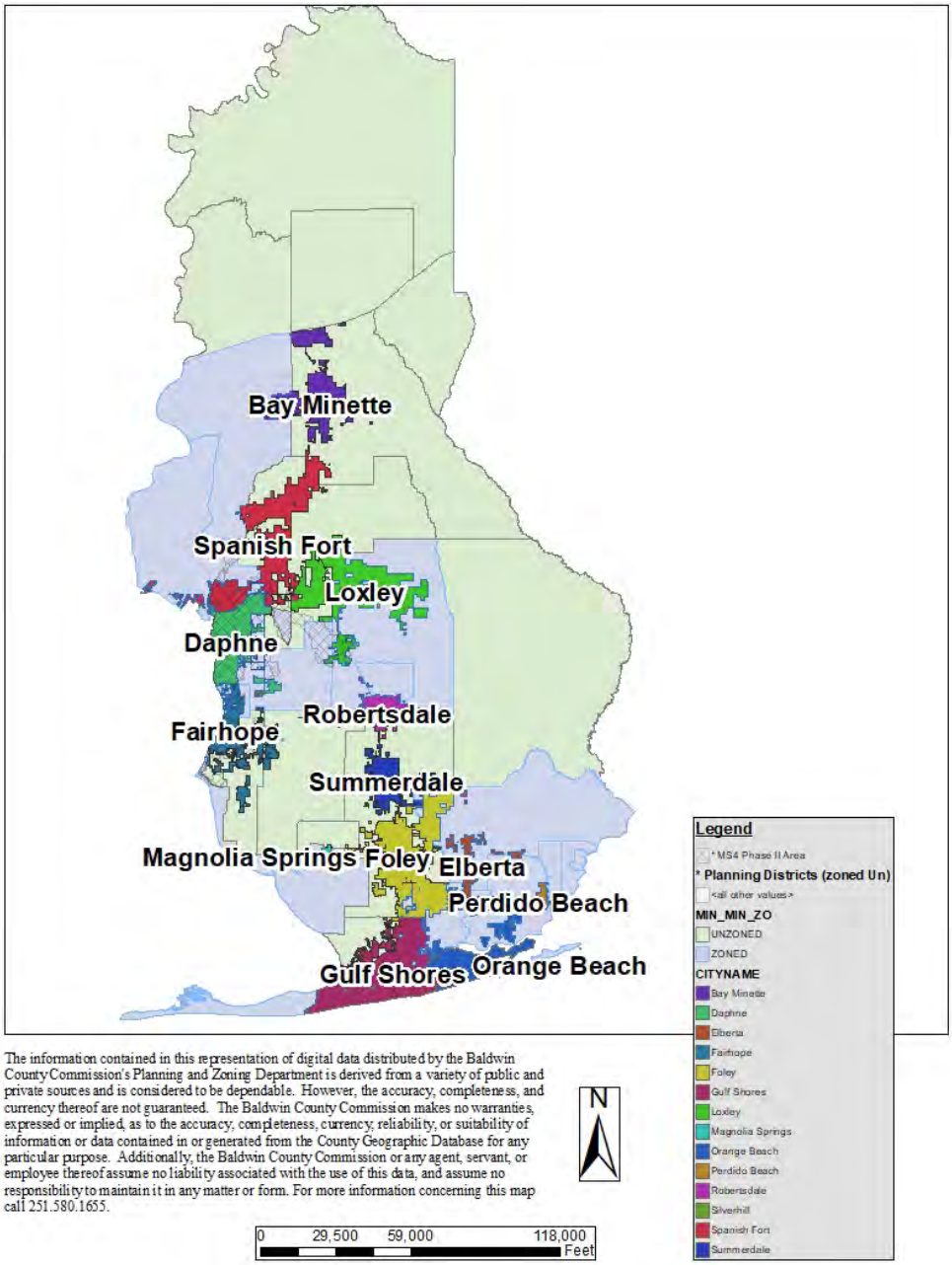
Incorporated areas located within the MS4 Area include Daphne, Fairhope, and Spanish Fort. Table 2-2 provides a breakdown of the MS4 Area by permittee.

Table 2-2
Baldwin County MS4 Area

Permittee	Population (2020)	MS4 Area	
		Area (mi^2)	Area (%)
Daphne	27,462	16.39	25.5
Fairhope	12,477	13.19	20.5
Spanish Fort	10,049	28.00	43.6
Baldwin County	--(1)	6.67	10.4
Total	59,988	64.25	100.0

(1) Due to the level of detail currently available in the Census data, the population of Baldwin County's MS4 Area cannot be estimated.

Figure 2-2
Baldwin County MS4 Area

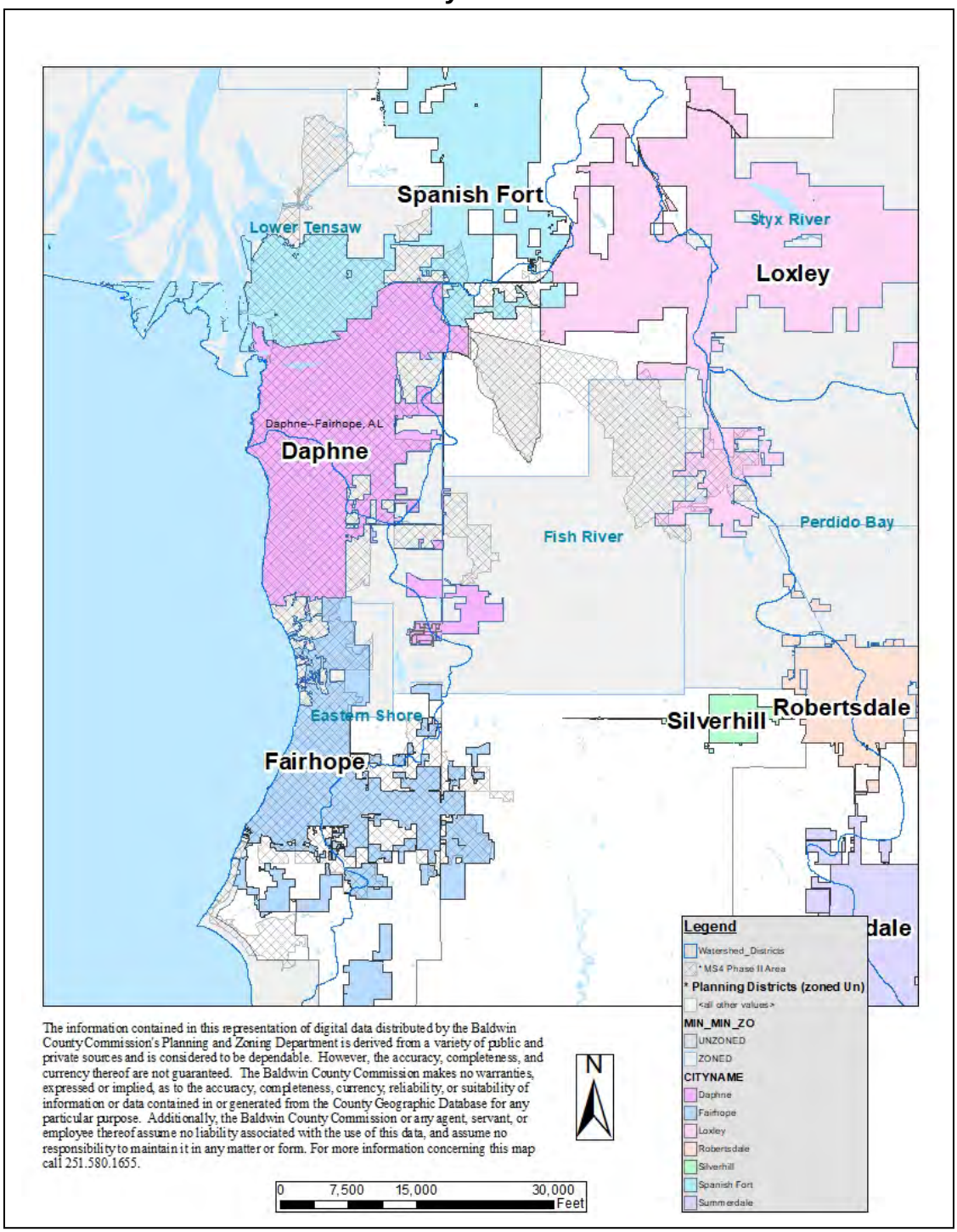


Unincorporated areas of Baldwin County located within the Daphne-Fairhope Urbanized Area occupies approximately 22.644 square miles. The SWMP Plan has been developed to cover Baldwin County's MS4 Area.

2.2.2. Watersheds

Baldwin County's MS4 Area expands across eight (8) watersheds that have a 12-digit Hydrologic Unit Code (HUC 12). The watersheds of Baldwin County's MS4 Area are shown in Figure 2-3. The majority of the Baldwin County's MS4 area is located within the Fish River watershed.

Figure 2-3
Baldwin County MS4 Area Watersheds



2.3. Known Problems

Section 303(d) of the Clean Water Act (CWA) establishes that states are to identify and list waters (rivers, streams, etc.) for which technology-based limits alone do not ensure attainment of applicable water quality standards. The 303(d) list of impaired waters will include a priority ranking for establishment of Total Maximum Daily Loads (TMDLs) for these waters. The state will establish a TMDL that will meet water quality standards for impaired streams, considering seasonal variations, and a margin of safety that accounts for uncertainty. TMDLs establish the maximum amount of a pollutant that a water body can assimilate without exceeding water quality standards. Once a TMDL is developed for a water, that water will be removed from the 303(d) list.

According to ADEM's 303(d) list (Alabama Department of Environmental Management)dated April 2020, there are ten (10) streams that are located within the drainage basins of the MS4 Area that have been designated as impaired. ADEM's 303(d) listed streams are summarized in Table 2-3 and shown in Figure 2-4. Currently there are no EPA approved TMDLs for streams located within the MS4 Area.

2.3.1. Lower Bay Minette Creek Watershed

ADEM has included Bay Minette Creek on the 303(d) list as impaired for metals (mercury). The source of this pollutant is identified as unknown. Due to the small area of Baldwin County's MS4 Area located within this watershed and the type of land uses, Baldwin County's MS4 should not be a contributor to the impairment on Bay Minette Creek.

2.3.2. Tensaw River Apalachee River Watershed

ADEM has included Tiawasee Creek, Unnamed Tributary to Tiawasee Creek, D'Olive Creek, and Unnamed Tributary to D'Olive Creek on the 303(d) list as impaired for siltation and habitat alteration. The source of this impairment is attributed to land development.

The majority of the drainage basin of Tiawasee Creek and its tributary are located within the corporate limits of Daphne. There are small pockets of the drainage basin located within the County's MS4 Area. The land use within these pockets primarily consists of forested or agricultural and limited amount of residential or commercial.

The majority of the drainage basin of D'Olive Creek and its tributary are located within the corporate limits of Daphne and Spanish Fort. There is a small area located in the headwaters of the drainage basin that is located within the County's MS4 Area. The land use of this area is either forested or agricultural and should not be a significant contributor to the impairment of D'Olive Creek. Figure 2-4 shows the drainage basin, 303(d) listed streams and the areas of the County's MS4 Area.

Table 2-3
2020 303(d) Listed Streams

Stream		Designated Use	Pollutant of Concern	Sources
Name	River Basin			
Bay Minette Creek	Upper and Lower Bay Minette Creek	Fish & Wildlife	Metals (Mercury)	Atmospheric Deposition
UT to D'Olive Creek	Tensaw River Apalachee River	Fish & Wildlife	Siltation Habitat Alteration	Land Development
D'Olive Creek	Tensaw River Apalachee River	Fish & Wildlife	Siltation Habitat Alteration	Land Development
UT to Tiawasee Creek	Tensaw River Apalachee River	Fish & Wildlife	Siltation Habitat Alteration	Land Development
Tiawasee Creek	Tensaw River Apalachee River	Fish & Wildlife	Siltation Habitat Alteration	Land Development
Cowpen Creek	Lower Fish River	Swimming, Fish & Wildlife	Metals (Mercury)	Atmospheric Deposition
Fly Creek	Mobile/Eastern Shore	Swimming, Fish & Wildlife	Pathogen	Pasture Grazing
Fish River	Mobile/Fish River	Swimming, Fish & Wildlife	Metals (Mercury)	Atmospheric Deposition
Turkey Branch	Mobile/Fish River	Swimming, Fish & Wildlife	Pathogens	Pasture Grazing
Turkey Branch	Mobile/Fish River	Swimming, Fish & Wildlife	Metals (Mercury)	Atmospheric Deposition

2.3.3. Lower Fish River Watershed

ADEM has included Cowpen Creek on the 303(d) list as impaired for metals (mercury). The source of this pollutant is identified as atmospheric. Due to the type of land uses located within this watershed, Baldwin County's MS4 should not be a contributor to the impairment on Cowpen Creek.

2.3.4. Fish River Watershed

ADEM has included Fish River on the 303(d) list as impaired for metals (mercury). The source of this pollutant is identified as atmospheric. Due to the type of land uses located within this watershed, Baldwin County's MS4 should not be a contributor to the impairment on Fish River.

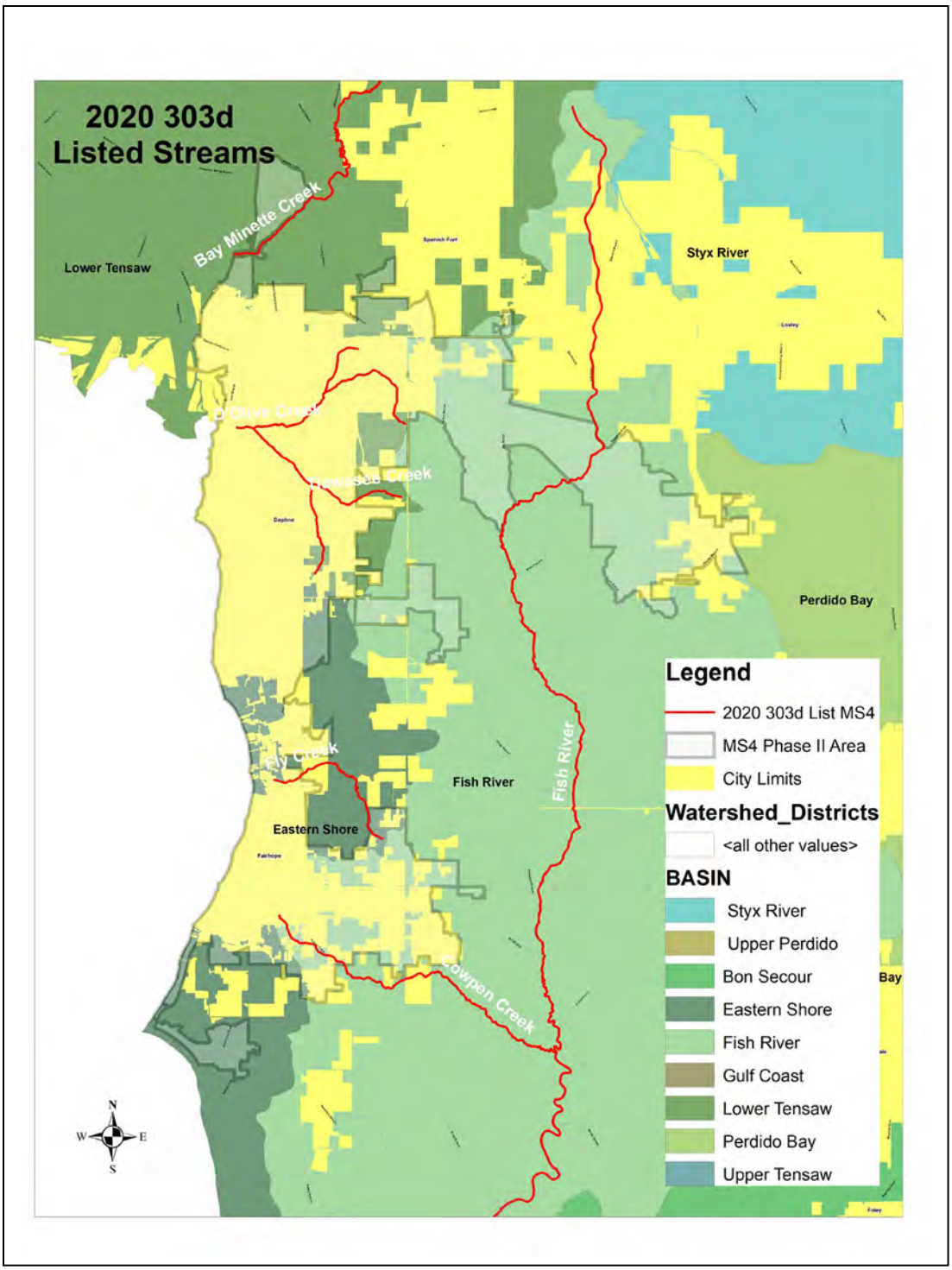
ADEM has included Turkey Branch on the 303(d) list as impaired for metals (mercury). The source of this pollutant is identified as atmospheric. Due to the type of land uses located within this watershed, Baldwin County's MS4 should not be a contributor to the impairment on Turkey Branch.

ADEM has included Turkey Branch on the 303(d) list as impaired for pathogens. The source of this pollutant is identified as pasture grazing.

2.3.5. Fly Creek

ADEM has included Fly Creek on the 303(d) list as impaired for pathogens. The source of this pollutant is identified as pasture grazing.

Figure 2-4
Baldwin County Impaired Streams



3. Regulatory Requirements

3.1. U.S. Environmental Protection Agency

3.1.1. Phase II MS4 Requirements

U.S. EPA defines the requirements for a SWMP Plan designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act in Title 40, Part 122, Sections 30 through 37 of the Code of Federal Regulations (40 CFR Parts 122.30 through 122.37). These regulations are incorporated into the SWMP Plan by reference.

3.1.2. Effluent Limitation Guidelines

40 CFR 450 Construction and Development Point Source Categories establishes effluent limitation requirements for constructions sites and is incorporated into the SWMP Plan by reference. An outline of 40 CFR 450 is provided below.

Part 450 – Construction and Development Point Source Category

Subpart A – General Provisions

450.10 Applicability

450.11 General Definitions

Subpart B – Construction and Development Effluent Guidelines

450.21 Effluent limitations reflecting best practicable technology currently available (BPT).

450.22 Effluent limitations reflecting the best available technology economically achievable (BAT).

450.23 Effluent limitations reflecting the best conventional pollutant control technology (BCT).

450.24 New source performance standards reflecting the best available demonstrated control technology (NSPS).

3.2. Alabama Department of Environmental Management

The County's MS4 Program is currently operating under the requirements of the National Pollutant Discharge Elimination Systems (NPDES) Permit No. ALR040042 that became effective on 1 February 2011 and was renewed on September 16, 2021, and again on October 1, 2021. Part III of the NPDES permit defines the requirements of the SWMP Plan and the requirements of the five (5) minimum control measures.

A copy of NPDES Permit ALR040042 can be found on the County's website at the following link:

https://www.baldwincountyal.gov/departments/planning-zoning/storm water-information

A copy of the County's SWMPP can be found on the County's website at the following link:

https://www.baldwincountyal.gov/departments/planning-zoning/storm water-information

4. Public Education and Outreach

4.1. Introduction

The MS4 NPDES permit requires the County to develop, implement and evaluate a public education and outreach program. Goals of the program are to:

- Educate the community about the impacts of storm water discharges into streams, rivers, lakes, and ponds; and,
- Identify steps that the community can take to help reduce pollutants in storm water runoff.

4.2. Target Audiences

Development within the County's MS4 Area primarily consists of residential and commercial uses. Audiences typically associated with this type of development and land use include:

- Homeowners;
- Renters;
- Schools;
- Business owners and employees;
- Professionals;
- Engineers;
- Developers;
- Contractors; and,
- Elected officials.

Educational materials will be specifically tailored to communicate a specific topic to a targeted audience.

4.3. Target Pollutant Sources

There are several sources of pollution that need to be targeted in the public education program. Target pollutant sources include:

- Illegal dumping;
- Improper disposal;
- Failing septic systems;

- Impacts of development;
- Construction site erosion;
- Improper application of fertilizers, herbicides, and pesticides, and,
- Trash, floatables.

Educational materials will also be developed to describe BMPs that are effective in reducing the impacts of development on storm water runoff. Topics may include, but are not limited to the following:

- General impacts of storm water runoff;
- Rainwater reuse;
- Low impact development practices; and,
- Impacts of development.

Educational materials will be specifically tailored for the targeted pollutant source of concern and/or pollution prevention practices.

4.4. Outreach Strategy

The County will utilize a variety of techniques to implement its public education and outreach program. Mechanisms and activities that have proven to be effective in educating the public include:

- Local Partnerships;
- Articles in Local Media, & Brochures:
- Planning & Zoning Environmental Website;
- Environmental Workshops;
- Classroom Presentations;
- Reduction of Litter, Floatable & Debris and Watershed signage;
- Local Environmental Festivals; and,
- Staff Training.

A description of how the County is using these activities is described in more detail in the following sections.

4.4.1. Local Partnerships

Baldwin County's leadership and staff have been actively involved with environmental and citizen organizations located throughout the County. To capitalize on education materials and programs that have been developed, Baldwin County has formed partnerships with several federal, state, and local organizations including, but not limited to:

- Alabama Department of Environmental Management;
- Alabama Coastal Foundation;
- Alabama Water Watch (AWW);
- Baldwin County Cities & Towns;
- Baldwin County Community Rating System
- Baldwin County Emergency Management Agency
- Clean Water Alabama;
- Clean Water Future Campaign;
- Weeks Bay Reserve;
- Weeks Bay Watershed Project;
- Mobile Bay National Estuary Program (MBNEP);
- Wolf Bay Watershed Watch;
- Pensacola-Perdido Bay Estuary Program;
- Baldwin County Environmental Advisory Committee;
- People Against a Littered State (PALS); and,
- U.S. Corps of Engineers.

As the County's MS4 program continues to evolve, the County will seek partnerships with other agencies and organizations to facilitate the public education program.

4.4.1.1. Clean Water Future Storm Water Education Outreach Campaign

The Create a Clean Water Future is a public service campaign to help residents of Alabama learn more about storm water runoff and its impacts; increase demand for storm water management programs; and provide tools that empower Alabama residents to reduce polluted runoff in our waterways. The Create a Clean Water Future Campaign focuses on the serious issue of polluted storm water runoff in Alabama's creeks, streams, rivers, and bays and the simple steps Alabama's citizens can take to help solve the problem.

The County will partner with the MBNEP to use the CWF Campaign to educate and involve citizens in ways to improve local stream's water quality (watershed stewardship).The CWF website (Homepage (CWF) - Clean Water Future) provides many resources which include storm water information, brochures, and videos that can be used to reach all the targeted audiences of the County's MS4 Program.

4.4.2. Articles in Local Media & Brochures

The County has a list of local media outlets (paper, magazines) to contact and work with to release articles related to the MS4 program, storm water, and other education outreach topics.

Baldwin County has developed several brochures for a variety of audiences and topics. Currently, most of their brochures are directed toward developers, contractors, and other professionals pertaining to planning, zoning, and construction. Brochures are available at the Baldwin County Courthouse in Bay Minette and Satellite Courthouses in Foley and Fairhope. The County will work toward the ultimate goal of putting all brochures on the County's website. The County will implement a tracking system for the brochures to ensure that they are a good avenue for education outreach. Brochures currently available through Baldwin County are summarized and provided in Appendix A.

Table 4-1
Summary of Brochures

Description	Target Pollution Source	Target Audience
Storm Water Management Best Practices	Construction Site Erosion	Professionals Developers Contractors
Wetlands (2022)	Informational	Homeowners Renters Schools Business Owners Professionals Developers Contractors Elected Officials
Rain Barrel (2021)	Storm Water Quantity	Homeowners Renters Schools Business Owners Professionals Developers Contractors Elected Officials

4.4.3. Website

The internet provides a very accessible mechanism for making information and data available to residents. A specific section of the County's Planning and

Zoning Department website Stormwater Information (baldwincountyal.gov)) is devoted to the MS4 program, as well as information regarding the County's storm water related activities.

4.4.4. Workshops

Workshops are useful in educating a specific target audience about a specific topic or issue. Capitalizing on existing training programs, the County will work with its partners to sponsor workshops in a variety of topics. Workshops that have been identified for this permit cycle may include the following:

- Erosion and Sediment Control – The County will evaluate and identify workshops that will be beneficial to city staff, professionals, and development community;
- Low Impact Development – The County will evaluate and identify workshops that will be beneficial to County staff, professionals, and development community; and
- Alabama Water Watch - The County will evaluate and identify dates and locations for AWW training that will be beneficial to the community.

As the County's MS4 program continues to evolve, the types and frequency of workshops may be modified to address the changing needs of the County.

4.4.5. Classroom & Outdoor Education Outreach Presentations

4.4.5.1. ACES Master Environmental Education

Many County employees have also participated in the Alabama Cooperative Extension System (ACES) Master Environmental Educator (MEE) program (Baldwin County Master Environmental Educator - Alabama Cooperative Extension System (aces.edu)). The Baldwin County MEE Program was created in 1995 and is an outreach program of the Baldwin County Extension Office. Volunteers are trained to teach eight environmental lessons pertaining to the most critical environmental issues facing Baldwin County:

- Aquatic Nuisance Species;
- Alabama Water Watch (AWW)
- Backyard Wildlife Habitat;
- Energy;
- Groundwater Pollution;

- Invasive Plant Species;
- Nonpoint Source Pollution;
- Recycling;
- Stormwater: and,
- The Water Cycle.

Volunteers throughout Baldwin County participate in an intensive two-day MEE training each year. Each volunteer gives back at least 20 hours a year to the community. Classroom teachers can request and schedule a lesson, which also correlates to the Alabama Course of Study for Science. The County sponsors the ACES's programs annually and staff volunteers for the MEE program.

4.4.5.2. Coastal Kids Quiz

The Alabama Coastal Foundation sponsors the Coastal Kid's Quiz. This fun online program is open to every 5th grade teacher, public or private, in the state to help their students learn about Alabama's precious coastal environment.

4.4.5.3. Baldwin County Water Festival-Local Festival

The mission of the Baldwin County Water Festival is to educate students about all aspects of surface water, groundwater, other related natural resources (such as wetlands, forestry, wildlife, and much more) and to instill in them a general environmental awareness and stewardship ethic. Students and their teachers leave with an increased knowledge and awareness of the importance of precious water resources and becoming good environmental stewards of these resources. All 4th grade students in Baldwin County including public, private, and home-schooled students are invited to participate. Since 2003, the festival has had over 7,000 participants.

4.4.6. Local Environmental Festivals

4.4.6.1. Delta Woods and Water Expo

The Delta Woods and Waters Expo (Delta Woods and Waters Expo | Spanish Fort, AL USA) is an annual event sponsored by the City of Spanish Fort and held at 5 Rivers Delta Resource Center for the purpose of celebrating the beauty and diversity of the Mobile-Tensaw Delta. The event features a variety of informative presentations, exhibitions and interactive displays by experienced outdoorsmen, professionals, educators, and enthusiasts. It includes numerous fun and exciting hands-on demonstrations which allow attendees to learn and practice new skills with one-on-one instruction.

The mission of the Delta Woods and Waters Expo is to promote responsible and enjoyable outdoor recreational experiences through a fun and educational event.

4.4.6.2. Earth Day and Jubilee Festival-Local Festivals

Earth Day

Earth Day (Earth Day Mobile Bay) is an annual celebration during which worldwide events are held for the purpose of demonstrating support for environmental protection. The first Earth Day was celebrated in 1970. It is now celebrated in more than 192 countries around the world and is coordinated by the Earth Day Network. According to the Earth Day website (www.earthday.org), "The Earth Day Network's year-round mission is to broaden, diversify, and activate the environmental movement worldwide, through a combination of education, public policy, and consumer campaigns."

In Baldwin County, Earth Day Mobile Bay is held during April at the Fairhope Pier Park in Fairhope, Alabama. The Baldwin County Planning and Zoning Department includes a link to the Earth Day celebration on the Storm Water web site. Support from Baldwin County includes the provision of transportation by the Baldwin Rural Area Transportation Service and the provision of recycling drop offs for aluminum, plastic, and cardboard items, by the Baldwin County Solid Waste Department.

Jubilee Festival

The Jubilee Festival is an Eastern Shore tradition offering fine art, crafts, entertainment, and amazing food in Olde Towne Daphne sponsored by the Eastern Shore Chamber of Commerce in cooperation with the City of Daphne. Admission to the Jubilee Festival is always free. Booth and exhibitor space is available for participants near and far. For additional information on the Jubilee Festival or schedules dates, visit the Eastern Shore Chamber of Commerce website.

4.4.7. Reduction of Litter, Floatables & Debris and Other Environmental Education Signage

4.4.7.1. Environmental Education Signage

Baldwin County installs environmental education signage on its right of ways to educate the public. Current litter and environmental awareness signage includes:

- Adopt-a-Mile Signs, (ALPALS - Alabama People Against a Littered State);
- Adopt-a-Stream Signs, ALPALS - Alabama People Against a Littered State; and,
- Watershed Signage.

The Counties highway department has an inventory of the signs and their locations. The county will maintain and enhance the environmental sign inventory/program throughout the permit cycle.

4.4.7.2. Storm Drain Stencil/Labeling

Baldwin County will work with other MS4's to support local volunteer groups labeling storm drains and catch basins with no dumping messages throughout the Eastern Shore MS4 boundary.

4.4.8. Training

County departments that aid in implementing the County's SWMP include the Highway Department, Planning and Zoning Department, Building Inspection Department, Emergency Management Agency, and Solid Waste Department. The County will evaluate potential training programs, activities and/or materials that can be used to educate the County's staff in storm water related issues.

4.5. Program Goals

The County has developed realistic, achievable, and measurable goals and performance milestones to measure the progress in implementing a Public Education and Outreach Program. Program goals are summarized in Table 4-2.

4.6. Program Evaluation

The most basic measure to evaluate the program effectiveness is to evaluate whether the program goals are being met. At the end of the permit year, the County will evaluate the program goals and overall effectiveness in educating the public on storm water related issues. Results of the program evaluation will be summarized in the Annual Report.

Table 4-2
Public Education – Program Goals

TABLE 4-2 BALDWIN COUNTY PHASE II MS4
MCM 1 -Public Education Outreach Strategies and Goals

NPDES Permit Section	SWMPP Section	4-Public Education & Outreach Strategy	Goal	Pollution Targeted	Responsible Departments	2022 Proposed	2022 Achieved	2023 Proposed	2023 Achieved	2024 Proposed	2024 Achieved	2025 Proposed	2025 Achieved	2026 Proposed	2026 Achieved
Part III-B1	4.4.1	Local Partnerships	Throughout the permit cycle, the County will keep an update list of local partnerships with other agencies and organizations	All	P&Z	✓	✓								
Part III-B1bv	4.4.1	Local Partnerships	Coordination with other agencies and groups on environmental efforts, County staff will attend four (4) environmental agency meetings a years	All	P&Z	4	15 🗁								
Part III-B1bv	4.4.1	Local Partnerships	In year one (1), the County will see to partner with USDA/NRCS to educated Livestock Farmers regarding potential pathogen pollution impacts to local streams	Pathogens	P&Z	✓	🗁								
Part III-B1bv	4.4.1	Local Partnerships	Eastern Shore MS4s Meetings In years one (1) through (5), host or attend one meeting a year	All	P&Z	**1**	2 🗁								
Part III-B1	4.4.1.1	Local Partnerships-Clean Water Future Campaign	Throughout permit cycle continue to support the Clean Water Future (CWF) Campaign which informs individuals, households, schools, & businesses about steps they can take to reduce storm water pollution	All	P&Z	✓	🗁								
Part III-B1	4.4.2	Articles in Local Media & Brochures	Once per permit cycle, survey Environmental Advisory Committee (EAC) to determine target storm water pollutants and audiences for MS4 Education Outreach Program	All	P&Z	*	*								
Part III-B1	4.4.2	Articles in Local Media & Brochures	In years one (1)through five (5), create and update a list of local media outlets	All	P&Z	✓	✓								
Part III-B1	4.4.2	Articles in Local Media & Brochures	Throughout the permit cycle, the County will submit or participate in five (5) Stormwater related materials/articles being released to local media outlet or social media per permit cycle	All	P&Z	1	8 🗁								
Part III-B1	4.4.2	Articles in Local Media & Brochures	In year one of the permit cycle, the County will compile and update a list of EPA stormwater related education outreach materials	All	P&Z	✓	✓								
Part III-B1	4.4.2	Articles in Local Media & Brochures	In year one (1), review the county's building locations for brochure distribution and update as needed	All	P&Z	✓	✓								
Part III-B1	4.4.2	Articles in Local Media & Brochures	In year two, initiate a tracking system for EO Brochures-Pamphlets distribution	All	P&Z	**	**								

TABLE 4-2 BALDWIN COUNTY PHASE II MS4
MCM 1 -Public Education Outreach Strategies and Goals

NPDES Permit Section	SWMPP Section	4-Public Education & Outreach Strategy	Goal	Pollution Targeted	Responsible Departments	2022 Proposed	2022 Achieved	2023 Proposed	2023 Achieved	2024 Proposed	2024 Achieved	2025 Proposed	2025 Achieved	2026 Proposed	2026 Achieved
Part III-B1bi	4.4.2	Articles in Local Media & Brochures	Create two (2) stormwater education brochures for a targeted pollutant every permit cycle	All	P&Z	1									
Part III-B1bv	4.4.3	Website P&Z Environmental	In year one (1) of the permit cycle, work with the County's Marketing Department to create & design a separate county environmental web page which will inform and involve individuals and groups on how to participate in storm water programs	All	P&Z & Marketing	✓									
Part III-B1bv	4.4.3	Web Site P&Z Environmental	In year two (2) of the permit cycle, work with the County's Marketing Department to release the new environmental web page	All	P&Z & Marketing	**	**								
Part III-B1bii	4.4.4	Environmental Workshops	During the permit cycle, host or sponsor two (2) education outreach workshop with at least one targeting land development community (i.e., construction)	Sediment, ALL	P&Z	2	4								
Part III-B1	4.4.5.1	Classroom Presentations-Master Environmental Education Presentations	During permit cycle, present two (2) MEE lessons to school age classrooms per year	All	P&Z	2	12								
Part III-B-1	4.4.5.2&3	Local Environmental Festivals-Watershed Festivals	Baldwin County Water Festival & Coastal Kids Quiz- The County will participate in two (2) events per permit cycle.	All	P&Z	1									
Part III-B-1	4.4.6.1&2	Local Environmental Festivals-Watershed Festivals	Woods-n-Water, Jubilee Festival & Earth Day-The county will sponsor or participate in one (1) festival a year	All	P&Z	1	1								
Part III-B-1-b-iii-(2)	4.4.7.1	Reduction of Littler, Floatable & Debris-Watershed Signage & Environmental Awareness Signage	In year one of the permit cycle, the County will create an inventory watershed and environmental awareness signage located in the MS4 area.	Trash & Floatable	Highway & P&Z	✓									
Part III-B-1-b-iii-(2)	4.4.7.1	Reduction of Littler, Floatable & Debris-Watershed Signage & Environmental Awareness Signage	In year one of the permit cycle, install watershed signage in the Magnolia River Watershed	Trash & Floatable	Highway & P&Z	✓									
Part III-B-1-b-iii-(2)	4.4.7.1	Reduction of Littler, Floatable & Debris-Watershed Signage & Environmental Awareness Signage	In year three of the permit cycle, install or update watershed signage in one additional MS4 Watershed	Trash & Floatable	Highway & P&Z	*	*								

TABLE 4-2 BALDWIN COUNTY PHASE II MS4
MCM 1 -Public Education Outreach Strategies and Goals

NPDES Permit Section	SWMPP Section	4-Public Education & Outreach Strategy	Goal	Pollution Targeted	Responsible Departments	2022 Proposed	2022 Achieved	2023 Proposed	2023 Achieved	2024 Proposed	2024 Achieved	2025 Proposed	2025 Achieved	2026 Proposed	2026 Achieved
Part III-B-1-b-iii-(2)	4.4.7.1	Reduction of Littler, Floatable & Debris-Watershed Signage & Environmental Awareness Signage	Throughout the permit cycle, maintain watershed and environmental awareness signs and inventory	Trash & Floatable	Highway & P&Z	✓	✓								
Part III-B-1-b-iii-(1)	4.4.7.2	Reduction of Littler, Floatable & Debris-Watershed Signage & Environmental Awareness Signage	In year one (1), partner with Eastern Shore (ES) MS4 to plan a community event to install storm drain labels throughout the ES MS4 area.	Trash & Floatable	Solid Waste & P&Z	✓	🗀								
Part III-B-1-b-iii-(1)	4.4.7.2	Reduction of Littler, Floatable & Debris-Watershed Signage & Environmental Awareness Signage	In year two (2), partner with Eastern Shore (ES) MS4 to host the community event to install storm drain labels throughout the ES MS4 area.	Trash & Floatable	P&Z	*	*								
Part III-B-1d	4.6	Program Evaluation	Throughout the permit cycle, evaluate the Education Outreach Minimum Control Measure strategies and goals achieved and submit an annual report	All	P&Z	✓	✓								
					Total Goals	27	58								
	*	**Not Proposed for Permit Year**													
	**	**Completed Prior to Proposed Year**													
	X	**Not Completed-Goal Not Met**													
	🗁	**Attachment Included in Report**													
	P&Z	**Planning & Zoning**													
	Hwy	**Highway**													

5. Public Involvement / Participation

5.1. Introduction

The MS4 NPDES permit requires the County to develop, implement, and evaluate a public involvement and participation program. Goals of the program are to:

- Provide opportunities for public input and feedback;
- Engage the public to actively participate; and,
- Facilitate opportunities to provide public education.

As the public gains a greater understanding of the benefits of a storm water program, the County is likely to gain more support for the SWMP and increased compliance with the NPDES permit requirements. Public education and involvement provide a mechanism to help the public understand how their actions can potentially impact storm water quality. Public participation can also help reduce the amount of pollution generated and identify potential pollution causing activities and/or sources.

5.2. Outreach Strategy

The County will utilize a variety of techniques to implement its public involvement and participation program. Mechanisms and activities that have proven to be effective in educating the public include:

- Litter and Trash Abatement Programs;
- Committees, Watershed Organizations and Groups; and,
- Commissions, Board of Adjustment and Other Public Involvement Opportunities.

A description of how the County is using these activities is described in more detail in the following sections.

5.2.1. Litter & Trash Abatement Programs

The County partners with People Against a Littered State (PALS) in order to help implement litter abatement programs. Current litter abatement programs include:

- Adopt-a-Mile;
- Adopt-a-Stream;
- Alabama Coastal Cleanup; and,
- Baldwin County Clean Sweep.

The County currently has a link (ALPALS - Alabama People Against a Littered State) to apply for Adopt-a-Mile on their website. Citizens can "adopt" a stretch of county roads or federal or state highways.

In the fall of each year, PALS will plan, organize, and host The Alabama Coastal Cleanup. The County is an in-kind sponsor with this event.

Baldwin County Clean Sweep is an activity approved by the Baldwin County Commission which provides county residents a free day to discard any unwanted debris and waste. The event encourages the proper disposal of waste in Baldwin County and discourages illegal dumping and piling of debris on roadways.

5.2.1.1. Recycling

The County's Solid Waste Department has established 30 recycling locations throughout the County for residents to drop off items. Accepted recyclables include:

- Unwaxed Cardboard;
- Newspapers;
- Magazines;
- Phonebooks;
- Aluminum Cans;
- Aluminum Scrap Metal; and,
- Category 1 through 4 Plastics.

The County also has a used cooking oil recycling program which converts the oil into useable energy and a seasonal Christmas Tree recycling program which contributes material to the County compost program.

5.2.1.2. Household Hazardous Waste Collection

The County operates a household hazardous waste collection facility at the Magnolia Landfill on a year-around basis. For a fee, residents can dispose of household hazardous waste such as paints, motor oil, pesticides, herbicides, cleaners, solvents, etc.

As mentioned under 5.2.2 Recycling, Baldwin County Clean Sweep is an activity approved by the Baldwin County Commission which provides county residents a free day to discard any unwanted debris and waste including household hazardous waste. The event encourages the proper disposal of waste in Baldwin County and discourages illegal dumping and piling of debris on roadways.

5.2.2. Committees, Watershed Organizations & Groups

5.2.2.1. Local Emergency Planning Committee (LEPC) & Hazardous Materials Planning Sub-Committee Meetings

The LEPC and Hazardous Materials Planning Sub-committee meet regularly with mission for completing a Hazardous Materials Response Plan for the county. Committee members consist of representatives from federal and state agencies, county departments, healthcare community, first responders, volunteers, and faith-based organizations.

5.2.2.2. Environmental Advisory Committee (EAC)

The EAC is an advisory committee for the Baldwin County Commission. The mission of the EAC is to study such environmental issues as may be suggested by the Baldwin County Commission, Committee members, and County staff and provide policy advice on these matters to the Commission. The EAC is made up of fifteen (15) citizens who meet once a month. The EAC has several sub-committees that address specific topics. The sub-committees include the following:

- Dirt Road Sub-committee;
- Water Quality Sub-committee;
- Farmland Protection Sub-committee;
- Ordinance Review Sub-committee; and,
- Stewardship Awards Sub-committee.

5.2.2.3. Eastern Shore MS4 (ESMS4)

The County hosts annual Eastern Shore MS4 meetings. The annual meetings allow for permittees to network and partner on education outreach and other programs and events. ALDOT, Baldwin County, Daphne, Fairhope, and Spanish Fort are members of the ESMS4.

5.2.2.4. Watershed Organizations/Group

The County supports local environmental watershed organizations efforts by having staff attend watershed organization meetings. Wolf Bay Water Watch is an example of a local watershed group.

5.2.2.5. Alabama Water Watch (AWW)

Alabama Water Watch is a citizen volunteer, water quality monitoring program covering all of the major river basins of the state. The mission of AWW is to improve both water quality and water policy through citizen monitoring and action. Established in 1992, AWW is a national model for citizen involvement in watershed stewardship, largely because of its three interrelated components: citizen monitoring groups, a university-based program, and a non-profit association. AWW uses EPA-approved monitoring plans with a community-based approach to train citizens to monitor conditions and trends of their local water bodies. With a "data-to-action" focus, AWW helps volunteers collect, analyze, and understand their data to make positive impacts.

The AWW vision is to have a citizen monitor on every stream, river, lake, and coast in Alabama. The goal of AWW is to foster the development of statewide water quality monitoring by:

- **Educating** citizens on water issues in Alabama and the world
- **Training** citizens to use standardized equipment and techniques to gather credible water information using quality assurance protocols.
- **Empowering** citizens to make a positive impact by using their water monitoring data for environmental education, waterbody restoration and protection, and involvement in watershed stewardship.

Baldwin County partners with the Mobile Bay National Estuary Program (MBNEP) and Alabama Water Watch Program to offer training, water quality kits and chemicals. For more information regarding AWW visit their website at the following link: Alabama Water Watch (auburn.edu).

5.2.2.6. Watershed Management Plan Meetings

The MBNEP has completed watershed management plans for Bon Secour River, D'Olive Creek, Weeks Bay, Wolf Bay, and is in the process of completing plans

for the Eastern Shore of Mobile Bay, Fly Creek, Tensaw, and the Western Shore of Perdido Bay.

A Watershed Management Plan (WMP) identifies water quality problems in a watershed, proposes solutions, and creates a strategy for putting those solutions in action. Watershed Management Plans take a long-term, comprehensive approach, which has proven to be successful in D'Olive Watershed. The plans serve as a road map directing stakeholders from the start to finish of their effort, it helps create a strategic, targeted plan for making changes in the watershed.

The Baldwin County Commission supports the MBNEP, and staff participate in watershed steering committee meetings throughout the county.

5.2.3. Commissions, Board of Adjustment & Other Public Involvement Opportunities.

5.2.3.1. Baldwin County Commission Meetings

All regular meetings of the Baldwin County Commission are advertised and open to the public. Meetings are televised and broadcast on a delayed basis by local cable access stations. In addition, the meetings may be viewed live on the County website. Past meetings are also available on the website. Public hearing items are advertised through certified mail and through notices in the newspapers of general circulation within Baldwin County, depending on legal requirements. Baldwin County Commission - All Meetings Calendar (legistar.com)

5.2.3.2. Board of Adjustments

The Baldwin County Commission was authorized to create the Boards of Adjustment (BOA)by the Baldwin County Planning and Zoning Act (Act No. 91-719). The County has two (2) BOAs that are arranged by the four County Commission Districts and includes only the planning districts which are zoned. The Boards' responsibilities include variance and special exception cases, and each holds a separate meeting each month, as necessary. Baldwin County Commission - All Meetings Calendar (legistar.com)

5.2.3.3. Baldwin County Planning and Zoning Commission Meetings

All meetings of the Baldwin County Planning and Zoning Commission, as with the County Commission, are advertised and open to the public. Meetings are generally held on the first Thursday of each month, unless rescheduled due to a holiday. The Planning Commission is a recommending body to the County

Commission on rezoning applications and amendments to the *Baldwin County Zoning Ordinance* and is the final voting authority on conditional use applications and highway construction setback appeals. Baldwin County Commission - All Meetings Calendar (legistar.com)

5.2.3.4. Call Center

The County has a call center to receive complaints from its residents. Depending upon the type of complaint, the call center will route information to the appropriate department for evaluation and response. A centralized call center has been established at the Baldwin County Emergency Operations Center in Robertsdale. Telephone contact information is (251) 972-6897. Citizen Service Center (baldwincountyal.gov)

The call center is provided on the County's website.

5.3. Program Goals

The County has developed realistic, achievable, and measurable goals and performance milestones to measure the progress in implementing a Public Involvement Program. Program goals are summarized in Table 5-1.

5.4. Program Evaluation

The most basic measure to evaluate the program effectiveness is to evaluate whether the program goals are being met. At the end of the permit year, the County will evaluate the program goals and overall effectiveness of the Public Involvement Program on storm water related issues. Results of the program evaluation will be summarized in the Annual Report.

Table 5-1
Public Involvement – Program Goals

Table 5-1 Baldwin County Phase II MS4

MCM 1-Public Involvement/Public Participation Strategies and Goals

NPDES Permit Section	SWMPP Section	5-Public Involvement/Participation Strategy	Goal	Pollution Targeted	Responsible Departments	2022 Proposed	2022 Achieved	2023 Proposed	2023 Achieved	2024 Proposed	2024 Achieved	2025 Proposed	2025 Achieved	2026 Proposed	2026 Achieved
Part III-B1bv	5.2.1	Litter & Trash Abatement Programs	Throughout the permit cycle, the County will partner with Adopt-a-Mile, Adopt-a-Stream litter programs and track program events	Trash & Floatables	Solid Waste & P&Z	*	*								
Part III-B1bv	5.2.1	Litter & Trash Abatement Programs	Community Clean-Up -County will participate and /or sponsor one (1) event a year	Trash & Floatables	Solid Waste & P&Z	1	2								
Part III-B1bv	5.2.1	Litter & Trash Abatement Programs	Baldwin County Clean Sweep- Household Waste Amnesty Day- the County will host one household solid waste amnesty day a year	Hazardous Waste- & Trash	Solid Waste	✓	🗀								
Part III-B1bv	5.2.2.1	Litter & Trash Abatement Programs	Throughout the permit cycle, the County will provide recycle dumpsters within the MS4 area of the county. The county will track recycle quantities in the annual report	Trash	Solid Waste	✓	🗀								
Part III-B1bi	5.2.2.2	Committees, Watershed Organizations & Groups;	During the permit cycle the County EAC hold eight (8) meeting a year	All	P&Z	8	25 🗀								
Part III-B1bi	5.2.2.2	Committees, Watershed Organizations & Groups;	During the Master Plan/Comprehensive Plan process, the EAC Review and Update the proposed plan updates.	All	P&Z & EAC	✓	🗀								
Part III-B1bi	5.2.2.2	Committees, Watershed Organizations & Groups;	In year one of the permit cycle, the EAC Review and Update SWMPP	All	P&Z & EAC	✓	🗀								
Part III-B1bv	5.2.2.3	Committees, Watershed Organizations & Groups;	Oncer per year, the County will host or attend Eastern Shore MS4 meeting	All	P&Z	1	2 🗀								
Part III-B1bv	5.2.2.4	Committees, Watershed Organizations & Groups;	County staff will promote, participate and track watershed organization events	All	P&Z	✓	✓								
Part III-B1bv	5.2.2.4	Committees, Watershed Organizations & Groups;	County Staff will promote, participate and track attendance in County Watershed Management Plan Steering Committees	All	P&Z	✓	🗀								
Part III-B1bv	5.2.2.5	Committees, Watershed Organizations & Groups;	Alabama Water Watch Monitoring (AWW)-Partner with the MBNEP to provide two (2) AWW trainings per permit cycle	All	P&Z	*	*								
Part III-B1bv	5.2.3	Commissions, Board of Adjustment & Other Public Involvement Opportunities	Through out the permit cycle, the County will track all Master Plan public meetings	All	P&Z	✓	🗀								
Part III-B1bv	5.2.3.2	Commissions, Board of Adjustment & Other Public Involvement Opportunities	Through out the permit cycle, track Commission, BOA & Other Public Involvement Meetings	All	P&Z	✓	🗀								
Part III-B-1d	5.4	Program Evaluation	Throughout the permit cycle, evaluate the Public Involvement and Participation Minimum Control Measure strategies and goals achieved and submit an annual report	All	P&Z	✓	✓								
					Totals	19	38								
	*	**Not Proposed for Permit Year**													
	**	**Completed Prior to Proposed Year**													
	X	**Not Completed-Goal Not Met**													
	🗁	**Attachment Included in Report**													
	P&Z	**Planning & Zoning**													
	Hwy	**Highway**													

6. Illicit Discharge Detection and Elimination

6.1. Introduction

Illicit discharges are defined as a storm drain that has measurable flow during dry weather containing pollutants and/or pathogens. A storm drain with measurable flow but containing no pollutants is simply considered a discharge. Dry weather discharges are composed of one or more possible flow types:

- Sewage and septage flows from sewer pipes and septic systems;
- Wash water flows generated from commercial laundry wastewater, commercial carwash wastewater, gray water from homes, fleet washing, and floor washing from shop drains;
- Liquid wastes such as oil, paint, process water, etc. that enter the storm drain system;
- Tap water leaks and losses;
- Landscape irrigation from residential and commercial sources; and,
- Groundwater and spring water flows occurring when the groundwater table rises above the storm pipe invert and infiltrating cracks and joints.

This illicit discharge program has been developed using the following guidance materials:

- NPDES Permit, ALR040042;
- 40 CFR 122.26;and,
- Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments, October 2004. The document can be found at the following link: Illicit Discharge Detection and Elimination (IDDE) Guidance Manual (epa.gov).

These documents are incorporated into the SWMP Plan by reference and are available in the office of the Storm Water Program Coordinator.

6.2. Allowable and Occasional Incidental Discharges

In accordance with Part I, Section B2 of the NPDES permit, the following non-storm water sources are allowed. The County has determined that these non-storm water discharges are not substantial contributors of pollutants to the MS4:

1. Water line flushing;
2. Landscape irrigation water;
3. Diverted stream flows;
4. Uncontaminated ground water infiltration to storm drains;
5. Uncontaminated pumped ground water;
6. Discharges from potable water sources;
7. Foundation and/or footing drain water (not including active groundwater dewatering systems);
8. Air conditioning condensation;
9. Irrigation water;
10. Rising ground waters;
11. Springs;
12. Water from crawl space pumps;
13. Footing drains;
14. Lawn watering runoff;
15. Individual residential car washing;
16. Discharge or flows from firefighting activities (including fire hydrant flushing);
17. Flows from riparian habitats and wetlands;
18. Dechlorinated swimming pool discharges; and,
19. Discharges authorized by, and in compliance with, a separate NPDES permit.

6.3. Preventing Illicit Discharges

The Illicit Discharge Detection and Elimination Program identifies key behaviors of the public, facilities, and municipal operations that produce intermittent and/or transitory discharges. These key behaviors are targeted to improve pollution prevention practices and prevent or reduce the risk of discharge. The County shall develop a wide variety of education and enforcement tools to promote pollution prevention practices.

6.4. Data Management

The County has a GIS manager responsible for obtaining, developing, and maintaining the County's Graphic Information System (GIS) data and system. The County uses a state-of-the-art GIS system to manage all types of information and data. Mapping layers used to support the County's illicit discharge program include, but are not limited to, the following:

- Aerial photography;
- City and County boundaries;
- MS4 Permit area boundaries;
- Roads and Bridges;
- Parcels;
- Zoning information;
- Hydrologic data (streams, wetlands, drainage basins, etc.);
- TMDL and 303d listed stream segments; and,
- Cross drains, side drains, and storm sewers.

The County has acquired Trimble Geo-Explorer field computers to assist with data collection during the illicit discharge inspections. The Trimble field computer integrates a rich array of functionality, including a high-yield GPS receiver with 1-to-3-meter positioning accuracy. This allows field crews to augment their GPS information and photographs while performing GIS data collection and inspection activities.

The County has developed a data form that can be used by the Trimble field computers to collect specific data for each structural control. This not only provides the field crews with an efficient method for performing data collection, but also provides a very efficient way to integrate field data into the County's GIS system.

6.5. Searching for Illicit Discharges

The County shall implement a comprehensive program to detect and eliminate illicit discharges. There are two categories of pollutants that will be addressed in different ways.

1. The first category is pollutants introduced into the MS4 from individuals in a one-time distinct episode at a discrete point of entry. Examples of these are dumping of yard waste, motor oil, antifreeze, or trash into a creek or storm drain. These types of pollutants, when discovered in the MS4 or

local streams, cannot be effectively investigated as to the source (i.e., the individual causing the pollution). Also, they are not normally discovered using a County-wide MS4 inspection program of monitoring fixed stations with scheduled work-day inspections. One of the best means of discovery will be through input from citizens, County crews, Police and Fire departments, businesses, and area agency field crews. Prevention of future isolated pollution episodes will rely upon implementation of public education and public involvement programs.

2. The second category is pollutants from sources that have a chronic or frequently repeating discharge which can be traced through stream channels and the MS4 system using visual inspections and chemical field test kits, and laboratory monitoring. Pollutants from these sources will be dispersed downstream as a detectable odor, visual color, increased turbidity, excessive algae growth, or changes in water chemistry (e.g., pH or conductivity) when compared to uncontaminated water in the stream or MS4. These chronic pollutants are amenable to "source tracking" inspections and the sources are more likely to be found and mitigated.

Searching for illicit discharge problems consists of detective work and involves field screening of sub-watersheds to locate outfalls and identify suspect illicit discharges. The primary field screening tool that will be used is the Outfall Reconnaissance Inventory (ORI). This recommended method is very effective for finding illicit discharge problems and developing an outfall inventory of the MS4. If suspect discharges are encountered during the field screening, the ORI will be supplemented with indicator monitoring methods to test suspect discharges.

6.5.1. Field Activities

Field activities associated with the outfall reconnaissance inventory shall be performed when there has been a prolonged dry period with a minimum of 72 hours from the previous measurable (greater than 0.10-inch rainfall) storm event.

6.5.2. Outfall Inventory Schedule

The County has developed an outfall inventory of major outfalls located within the MS4 boundary. The County's MS4 major outfalls have been located and screened. The County will evaluate the screening data and identify priority areas for future evaluation. The inventory is a work in progress. It will be updated as needed and updates submitted with the annual report. The County shall screen all major outfalls per the permit requirements.

- A major outfall is defined as any storm water outfall that is 36” or greater in size.

- A minor outfall is defined as any outfall that is smaller than 36”.

6.6. Outfall Reconnaissance Inventory

The outfall reconnaissance inventory is designed to locate and record basic characteristics of each outfall. During the inventory process, each outfall shall be screened for the presence of illicit discharge(s). The County’s outfall reconnaissance inventory methodology and procedures was developed in accordance with Chapter 11 of the Illicit Discharge Detection and Elimination guidance manual Illicit Discharge Detection and Elimination (IDDE) Guidance Manual (epa.gov).

6.6.1. Field Sheets

The County has and will continue to utilize the Outfall Reconnaissance Inventory / Sample Collection Field Sheet provided with the Illicit Discharge Detection and Elimination guidance manual to collect and document each outfall located and screened. A copy of the Outfall Reconnaissance Inventory / Sample Collection Field Sheet is provided in Illicit Discharge Detection and Elimination (IDDE) Guidance Manual (epa.gov).

6.6.2. Screening Data

Information and data that will be collected for each major outfall includes the following:

Section 1 – Background Data
- Coordinates
- Photograph

Section 2 – Outfall Description
- Location
- Material
- Shape
- Dimensions
- Submerged

Section 3 – Quantitative Characterization
- Parameter
- Result
- Unit

- Equipment

Section 4 – Physical Indicators for flowing outfalls only

- Indicator
- Description
- Relative Severity Index

Section 5 – Physical Indicators for both flow and non-flowing outfalls.

- Indicator
- Description

Chapter 11 of the Outfall Reconnaissance Inventory of the Illicit Discharge Detection and Elimination Guidance Manual provides direction in completing the Outfall Reconnaissance Inventory / Sample Collection Field Sheet information.

6.7. Outfalls Screened

The County has inventoried its MS4 outfalls (Appendix B). As the County updates the outfall inventory, the breakdown of major and minor outfalls by sub-basin will be updated and an updated map shall be developed.

6.8. Suspect Illicit Discharges

If a suspect illicit discharge is encountered during the outfall reconnaissance inventory at a major outfall, field personnel shall take the following steps to identify and locate a suspect illicit discharge:

- Conduct field screening of the suspect illicit discharge;
- Try to identify the source of the suspect illicit discharge; and/or,
- Collect a sample of the suspect illicit discharge.

6.8.1. Field Screening

If a suspect illicit discharge is encountered, field personnel shall evaluate the physical indicators of the suspect illicit discharge and document the findings on an ORI Field Sheet. Field personnel shall also estimate the flow and/or volume of the suspect illicit discharge. If the initial screening observations and/or data indicate a suspect illicit discharge, field personnel will proceed in locating the source of the suspect illicit discharge.

6.8.2. Locating Illicit Discharges

If a suspect illicit discharge is identified during the outfall reconnaissance inventory, field personnel will try to locate the source of the illicit discharge before proceeding to the next outfall. Field personnel shall attempt to follow the suspect illicit discharge up the storm sewer system to identify its source.

If the source of a suspect illicit discharge cannot be easily located by field personnel, the location of the suspect illicit discharge will be reported to the Storm Water Program Coordinator for further evaluation.

6.8.3. Sample Collection

If a discharge from a major outfall exhibits a physical characteristic of an illicit discharge and/or the source of the suspect illicit discharge cannot be easily identified, field personnel may collect a grab sample of the discharge. The sample shall be shipped to an independent laboratory and analyzed for the following parameters.

Table 6-1
Screening Parameters

- Ammonia
- Turbidity
- E. Coli
- Hardness
- Chlorine
- Conductivity
- Total Coliform
- Potassium
- Surfactants
- Detergents
- Fluoride

The County shall use the sample collection protocol provided in Appendix G of the Illicit Discharge Detection and Elimination Guidance Manual. Analytical methods for samples submitted to an independent laboratory shall be in accordance with 40 CFR 136.

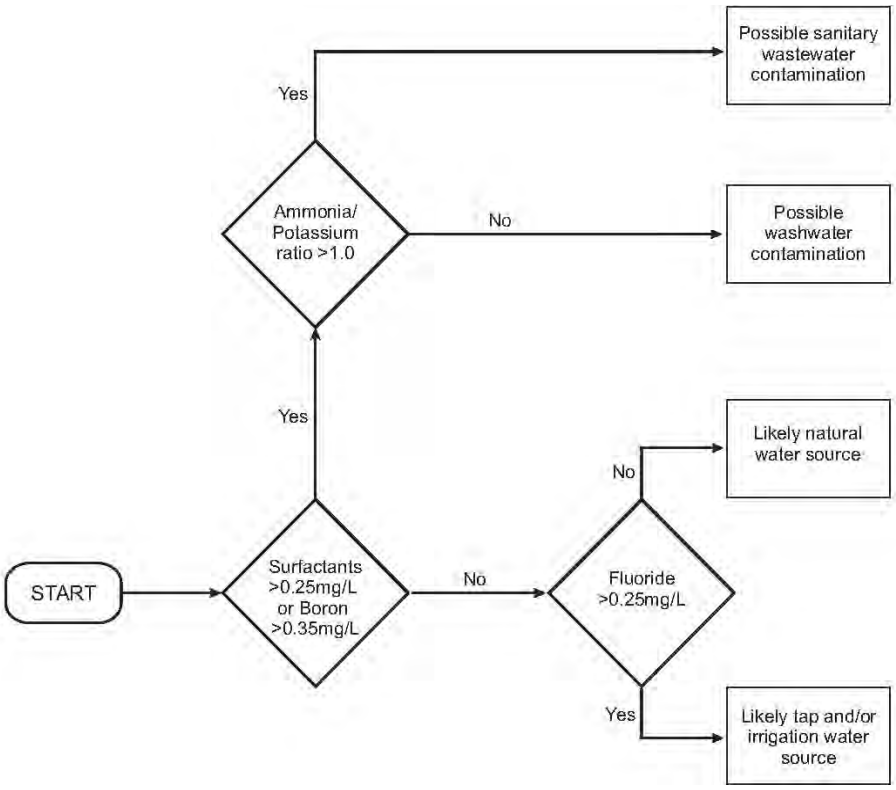
6.8.4. Evaluation of Results

The Illicit Discharge Detection and Elimination Guidance Manual recommends the use of the Flow Chart Method for identifying the type of illicit discharge. The Flow Chart Method is recommended because it is a relatively simple technique that analyzes four or five indicator parameters that are safe, reliable, and inexpensive to measure. The basic decision points involved in the Flow Chart Method for a residential area are shown in Figure 6-1.

6.9. Locating and Removing Illicit Discharges

When episodic incidental pollution is reported to the County (e.g., motor oil dumped into a storm drain), the County shall record the date, location, information source, and description of the event. If necessary, field personnel shall be sent to investigate and to determine if the site should be cleaned (e.g., removal of yard waste, containment of oil, etc.). After inspection and/or cleanup, the County shall keep a record of all actions taken regarding the incident.

Figure 6-1
Flow Chart to Identify Illicit Discharges in Residential Areas



6.9.1. Locating Illicit Discharges

If a suspect illicit discharge is identified during the outfall reconnaissance inventory, field personnel shall try to locate the source of the illicit discharge before proceeding to the next outfall. Field personnel shall employ the following techniques to locate the suspect illicit discharge:

- Storm Sewer System Evaluation – Field personnel shall attempt to follow the suspect illicit discharge up the storm sewer system to identify its source.

- Drainage Area Evaluation – Field personnel shall conduct a "windshield" survey of the drainage area to identify its source.

- If the source of an illicit discharge is located, field personnel shall report the location and source of the illicit discharge to the Storm Water Program Coordinator.

Upon receipt of the analytical results from samples collected of the suspect illicit discharge, the Storm Water Program Coordinator shall coordinate and/or perform a more detailed investigation to identify the source of a suspect illicit discharge.

- Analytical Results Evaluation – Evaluate the analytical results to characterize the type of illicit discharge.

- Detailed Storm Sewer System Evaluation – Using best available maps and data, attempt to follow the suspect illicit discharge up the storm sewer system to identify its source. Investigation methods may include dye tracing, video inspection of storm sewer system, specialized contractors, and other methods as appropriate.

- Drainage Area Evaluation – Review the land used and types of facilities located within the drainage area. Conduct a survey of potential generating sites to identify the source of the illicit discharge.

6.9.2. Removing Illicit Discharges

After the source of an illicit discharge has been identified, the Storm Water Program Coordinator shall take appropriate actions to abate the illicit discharge.

6.10. Spill Response

The County's Emergency Management Agency (EMA) is responsible for responding to any type of spill that may occur within the MS4 Area. If a spill enters the MS4, the EMA shall notify the Storm Water Program Coordinator. The Storm Water Program Coordinator shall evaluate the impacts of the spill on the MS4 and ensure appropriate corrective measures are taken to abate the spill. Follow-up inspections of the affected area shall be performed as needed.

6.11. Website Citizen Complaint Reporting

The County has an environmental complaint form on its website. Citizens can go to the site and submit potential illicit discharge complaints.

6.12. Sanitary Sewer System

Residents within the County's portion of the MS4 boundary are provided sanitary sewer service by one of the following sources;

1) Sanitary Sewer System; or,
2) On-Site Sewage Disposal.

6.12.1. Sanitary Sewer Systems

Portions of the County's MS4 Area may be serviced by a sanitary sewer system operated by the adjacent municipalities. If the County observes any problems with the sewer system, the County shall report the problem to the following:

City of Daphne
Tim White
(251) 621-3080

City of Fairhope
Kim Burmeister
(251) 990-2887

City of Spanish Fort
Casey Rains
(251) 626-4884

6.12.2. Baldwin County Health Department

Some residents located within the County's MS4 area may utilize on-site sewage disposal systems. The Alabama Department of Public Health has the regulatory authority for the design, permitting, construction, and maintenance of individual on-site sewage disposal systems. If the County observes any problems with an on-site sewage disposal system, the County shall report the problem to the following:

Baldwin County Health Department
Environmental
(251) 937-6935 Bay Minette
(251) 947-1910 Robertsdale

As the County acquires data regarding the location of on-site sewage disposal systems, the County will update GIS data and maps to incorporate best available data.

6.13. Enforcement

An effective illicit discharge and detection program uses an escalating scale of enforcement action to abate illicit discharges. Due to limited home rule, Baldwin County does not have the authority to create or adopt an Illicit Discharge Ordinance. Through the subdivision regulations and education, the County is encouraging the prevention of illicit discharges. The current procedure is to report illicit discharge complaints to the appropriate agency such as the Baldwin County Health Department or ADEM. In addition, the County can only maintain what is in the County right-of-way. It cannot maintain private subdivision storm water systems. The County will investigate its ability to require maintenance in zoned areas.

6.14. Staff Training

Staff selected to perform the outfall reconnaissance inventory shall receive IDDE training. The strategy and goals for staff training will be listed in the program goals spreadsheet. All training and other program goals data shall be submitted in the annual report.

6.15. Standard Operating Guidance

The County has developed Standard Operating Guidance (SOGs) for the various activities required for implementing the Illicit Discharge Detection and Elimination Program. SOGs shall include but are not limited to the following:

- Sampling equipment use, maintenance and storage;
- Outfall Reconnaissance Inventory;
  - Field procedures
  - Data collection
  - Data management

  - Sample Collection
- Illicit discharge evaluation; and,
- Hazardous materials.

SOGs shall be included in Appendix C.

6.16. Program Goals

The County has developed realistic, achievable, and measurable goals and performance milestones to measure the progress in implementing the Illicit Discharge Detection and Elimination Program. Program goals are summarized in Table 6-2.

6.17. Program Evaluation

The most basic measure to evaluate the program effectiveness is to evaluate whether the program goals are being met. At the end of the permit year, the County will evaluate the program goals and overall effectiveness of Illicit Discharge Detection and Elimination Program. Results of the program evaluation will be summarized in the Annual Report.

Table 6-2
Illicit Discharge – Program Goals

Table 6-2 Baldwin County Phase II MS4
MCM 2 IDDE Strategies and Goals

NPDES Permit Section	SWMPP Section	6-Illicit Discharge Detection and Elimination Strategy	Goal	Pollution Targeted	Responsible Departments	2022 Proposed	2022 Achieved	2023 Proposed	2023 Achieved	2024 Proposed	2024 Achieved	2025 Proposed	2025 Achieved	2026 Proposed	2026 Achieved
Part III-2ai	6.4	Data Management	Throughout the permit cycle, the County will continue to improve and update its stormwater infrastructure inventory and inspection process	All	Hwy & P&Z	✓	✓								
Part III-2aiii	6.7	Outfalls Screened	The County will screen 15% a year of major outfalls with 100% being screened during permit cycle	All	Hwy & P&Z	✓	🗀								
Part III-2aiii	6.8.4	Evaluation of Results	Evaluate field assessments and inspections to establish priority areas and major outfalls for more focused inspections	All	Hwy & P&Z	✓	✓								
Part III-2a	6.10	Spill Response	Throughout the permit cycle, the County's EMA is responsible for tracking reported spills and potential Illicit discharges. Data will be submit in annual report	All	EMA, Hwy & P&Z	✓	🗀								
Part III-2avii	6.11	Website Citizen Complaint Reporting	Throughout the permit cycle, the environmental complaint form on the County website will be maintained and updated as needed	All	Hwy & P&Z	✓	🗀								
Part III-2aii	6.13	Enforcement	In year one (1), the County's will have legal review its authority in zoned areas to determine if an IDDE ordinance can be implemented	All	Hwy & P&Z	✓	🗀								
Part III-2aviii	6.14	Staff Training	Provide IDDE training to new employees with program responsibilities including but not limited to *Understanding Your Stormwater Management Plan*	All	Hwy & P&Z	✓	🗀								
Part III-2aviii	6.14	Staff Training	Provide additional stormwater training as needed during permit cycle to employees with program responsibilities	All	Hwy & P&Z	*	*								
Part III-2aiv	6.15	Standard Operating Guidance (SOG)	Throughout the permit cycle, the County will review and update its Standard Operating Guidance documents	All	P&Z	✓	🗀								
Part III-2b	6.17	Program Evaluation	Throughout the permit cycle, review the IDDE minimum control measure strategies and goals achieved , prepare an annual report and update the SWMPP	All	P&Z	✓	✓								
		P&Z	**Planning & Zoning**		**Totals**	**9**	**9**								
		*	**Not Proposed for Permit Year**												
		**	**Completed Prior to Proposed Year**												
		X	**Not Completed-Goal Not Met**												
		🗁	**Attachment Included in Report**												

7. Construction Site Runoff

7.1. Introduction

The variety of pollutants present at a construction site and the severity of their potential effects to receiving waters are dependent upon several factors:

- Nature of construction activity – During clearing and grading activities, the primary pollutant of concern is sediment. As the construction activity progress in the building phase other potential pollutants of concern include concrete wash, paints, stucco, pesticides, herbicides, fertilizers, cleaning solvents, asphalt products, scrap wood, metal, glass, trash debris, etc.

- Physical characteristics of the construction site – Potential pollutants at a construction site are carried off in storm water runoff. Construction sites can potentially increase the intensity and volume of storm water runoff resulting in an increase of pollutant loadings.

- Proximity of surface waters – The closer the construction activity is to a surface water increase the potential impacts to surface waters.

Baldwin County has developed and continuously implemented a Construction Site Runoff Program to monitor and control pollutants in storm water discharges to the MS4 from the following land disturbing activities:

- Minor Project – Land disturbance activities less than one (1) acre limited to single family homes and accessory structures;

- Major Project – Land disturbance activity equal to or greater than one (1) acre or land disturbance involving less than one (1) acre that is part of a larger common plan of development; and,

- All other land disturbance activities that are not exempted from obtaining a permit. Land disturbing activities that are exempted from obtaining a permit are defined in Section 13 of the Baldwin County Zoning Ordinance.

This Construction Site Runoff Program has been developed using the following guidance materials:

- NPDES Permit No. ALR040042;
- Developing Your Storm Water Pollution Prevention Plan, A Guide for Construction Sites, Environmental Protection Agency, EPA 833-R-06-004, May 2007. The document can be found at the following link: Developing a Stormwater Pollution Prevention Plan (SWPPP) | US EPA;
- Alabama Handbook for Erosion Control, Sediment Control, and Storm Water Management on Construction Sites and Urban Areas, Alabama Soil and Water Conservation Committee, March 2014. The Handbook can be found at the following link: 20220801_HandBook_Vol_1.pdf (alabamasoilandwater.gov) 20220801_HandBook_Vol_1.pdf (alabamasoilandwater.gov);
- Baldwin County Territory with Probable Exposure to Flooding Ordinance Planning & Zoning (baldwincountyal.gov);
- Baldwin County Zoning Ordinance Planning & Zoning (baldwincountyal.gov); and,
- Baldwin County Subdivision Regulations Planning & Zoning (baldwincountyal.gov).

These documents are incorporated into the Construction Site Runoff Program by reference and are available in the office of the Storm Water Program Coordinator.

7.2. Requirements and Control Measures

The County's Construction Site Runoff Program will require owners and/or operators of construction sites to select, design, install, implement, inspect, and maintain effective Best Management Practices (BMPs) to minimize the discharge of pollutants into the MS4 to the maximum extent practicable (MEP).

7.2.1. Erosion and Sediment Controls

The owner and/or operator shall select, design, install, implement, inspect, and maintain BMPs appropriate to specific site conditions to, at a minimum;

1. Control storm water volume and velocity within the site to minimize soil erosion;

2. Control storm water discharges, including both peak flow rates and total storm water volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion;

3. Minimize the disturbance of steep slopes;

4. Minimize sediment discharges from the site;

5. Minimize the generation of dust and off-site tracking of sediment from vehicles;

6. Stabilize all construction entrances and exits;

7. Provide and maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration, unless infeasible; and,

8. Implement measures or requirements to achieve the pollutant reductions consistent with a Total Maximum Daily Load (TMDL) finalized or approved by EPA.

7.2.2. Soil Stabilization

Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 13 calendar days.

7.2.3. Dewatering

Discharges from dewatering activities, including discharges from dewatering of trenches and excavations are prohibited unless managed by appropriate BMPs.

7.2.4. Pollution Prevention Measures

The owner and/or operator shall select, design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained to:

1. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated

in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;

2. Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to storm water; and,

3. Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

7.2.5. Prohibited Discharges

The following discharges are prohibited:

1. Wastewater from washout of concrete, unless managed by an appropriate BMP;
2. Wastewater from washout and cleanout of stucco, paint, from release oils, curing compounds, and other construction materials;
3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and,
4. Soaps or solvents used in vehicle and equipment washing.

7.2.6. Surface Outlets

When discharging from basins and impoundments the owner and/or operator shall utilize outlet structures that withdraw water from the surface, unless infeasible.

7.3. Permitting

Before the commencement of any land disturbing activity that is not exempted from obtaining a permit under Section 13.13.10 of the Zoning Ordinance, the owner and/or operator of the construction site is required to submit a Land Disturbance Application for approval of the Erosion Control Plan. The Land Disturbance Application requires the following information:

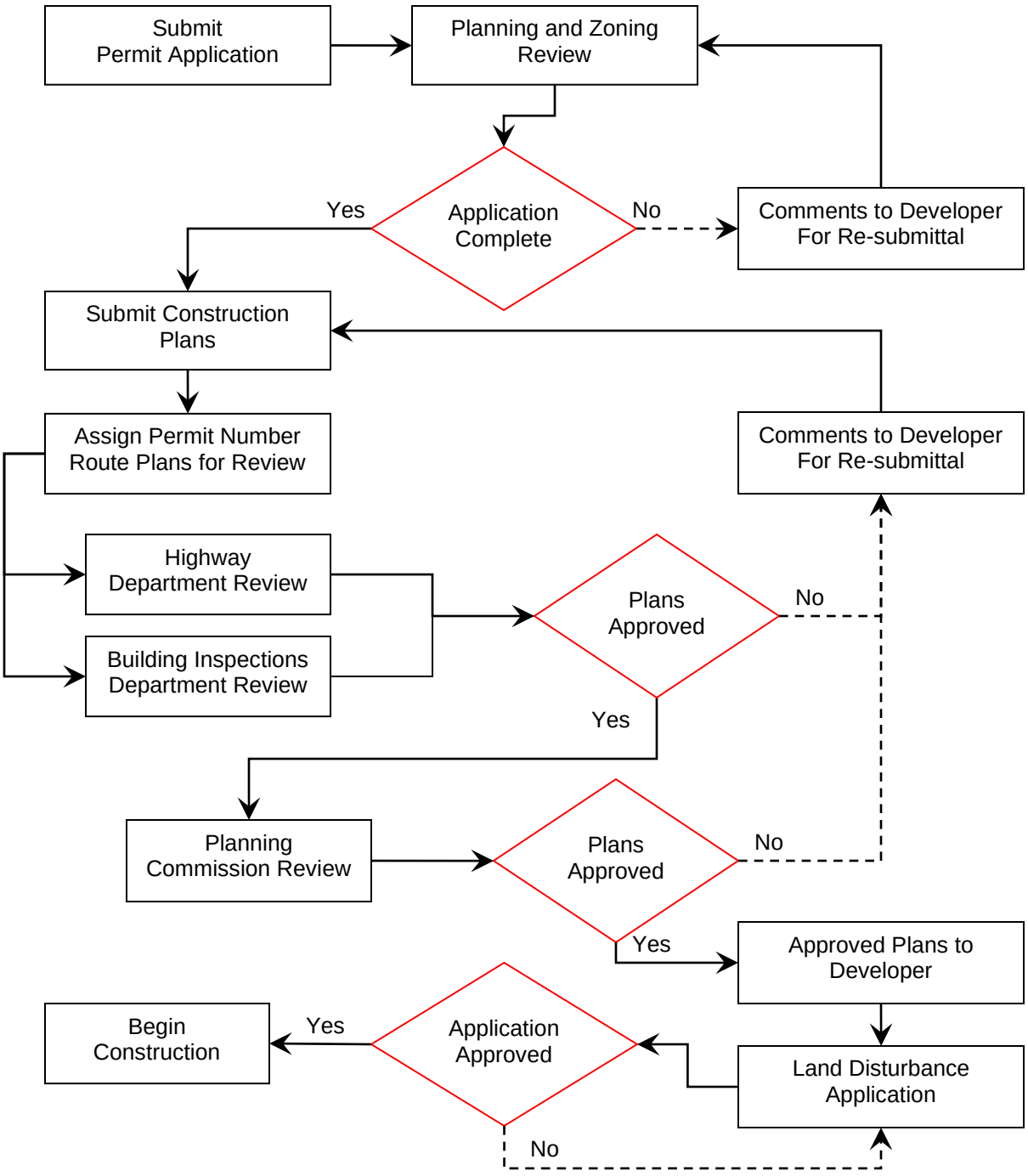
- Applicant Information;
- Site Information;
- Project Description;
- Type of Construction;

- If the proposed construction activity is required to obtain a General NPDES Permit for construction activity from ADEM, a copy of the Notice of Intent (NOI) submitted to ADEM, and a copy of ADEM's authorization under the General NPDES Permit;
- Erosion Control Plan; and,
- Application Fee.

A Copy of the Land Disturbance Application and Application Submittal Checklist are provided in Appendix F.

Land Disturbance Applications are submitted to the Planning and Zoning Department. The permitting and plan review process is provided in Figure 7-1.

Figure 7-1
Permitting and Plan Review Flow Chart



7.4. Plan Review

Before the commencement of any land disturbing activity that is not exempted from obtaining a permit under Section 13.13.10 of the Zoning Ordinance, the owner and/or operator of the construction site is required to submit a Site Plan or Land Disturbance Application for approval of the Erosion Control Plan for both Minor and Major projects. Section 13.13.7 of the Zoning Ordinance defines the requirements for the content of the Erosion Control Plan. BMPs selected for the site shall be designed, sized, and/or maintained in accordance with the following references:

- Alabama Handbook for Erosion Control, Sediment Control, and Storm water Management on Construction Sites and Urban Areas, Alabama Soil and Water Conservation Committee, March 2009; and,

- Developing Your Storm water Pollution Prevention Plan, A Guide for Construction Sites, Environmental Protection Agency, EPA 833-R-06-004, May 2007.

Review of the Erosion Control Plans for Subdivisions are performed in the Highway Department by personnel that are registered professional engineers knowledgeable in the many facets of design, storm water management, erosion and sediment control, and construction. The County has developed a checklist for Erosion Control Plan (Land Disturbance Permit Checklist) review to ensure consistency with the Erosion Control section of the Zoning Ordinance. The checklist can be found at the following link: Simplified CBMPP Form (baldwincountyal.gov)

7.5. Construction Site Inventory

The County shall continuously maintain an updated inventory of all active construction sites within the County's MS4 area.

7.6. Inspections

The Planning Department and/or Highway Department Permit Division shall review the Erosion Control Plan, design plans, and all applicable project documents. All inspections and activities associated with the project will be tracked by the permit number.

The Code Enforcement Officer and subdivision inspectors shall maintain the Qualified Credentialed Inspector (QCI) certification.

the satisfaction of the Code Enforcement Officer, the Code Enforcement Officer shall continue with periodic inspections. The Code Enforcement Officer shall document the results of the inspection.

7.6.4. Final Inspection

Upon completion of all construction activity, the Developer shall request a final inspection. The inspection shall address the following:

- Inspect all discharge points from the site;
- Inspect areas with final stabilization;
- Inspect perimeter areas;
- Request copies of the Developer's inspection reports; and,
- Request copy of the Termination of Registration letter from ADEM.

If deficiencies are noted during the inspection, the Code Enforcement Officer shall discuss the nature of the deficiencies with the Developer and the Developer shall be asked to reschedule the final inspection. The Code Enforcement Officer shall document the results of the inspection and schedule the site for re-inspection.

7.7. Enforcement

The Erosion Control section of the Zoning Ordinance provides the Code Enforcement Officer with an escalating scale of enforcement action for violation of any provision in the ordinance. A flow chart showing the escalating scale of enforcement action is provided in Figure 7-2 and further described in the sections below.

7.7.1. Verbal Warning

If deficiencies are noted during an inspection, the Code Enforcement Officer shall discuss the nature of the deficiencies with the Developer. The following actions shall be taken to abate any violations:

- The Developer shall be given a verbal warning and 48 hours to correct all deficiencies noted by the Code Enforcement Officer;

- The Code Enforcement Officer shall perform a re-inspection within 48 hours; and,

- If the deficiencies are not corrected within 48 hours of the verbal warning, the Code Enforcement Officer shall determine if the enforcement action should be escalated to a Stop Work Notice.

7.7.2. Stop Work Notice

If a Developer has been issued a verbal warning and continues to violate any provision of the Erosion Control Ordinance, the Code Enforcement Officer may issue a Stop Work Notice to the Developer. The Stop Work Notice shall require the Developer to stop all work immediately and to take all appropriate remedial or preventive actions as may be required to abate all violations.

If the violation is not corrected immediately, the Code Enforcement Officer shall notify the Planning and Zoning Director to determine if the enforcement action should be escalated to a written notice of violation.

7.7.3. Notice of Violation

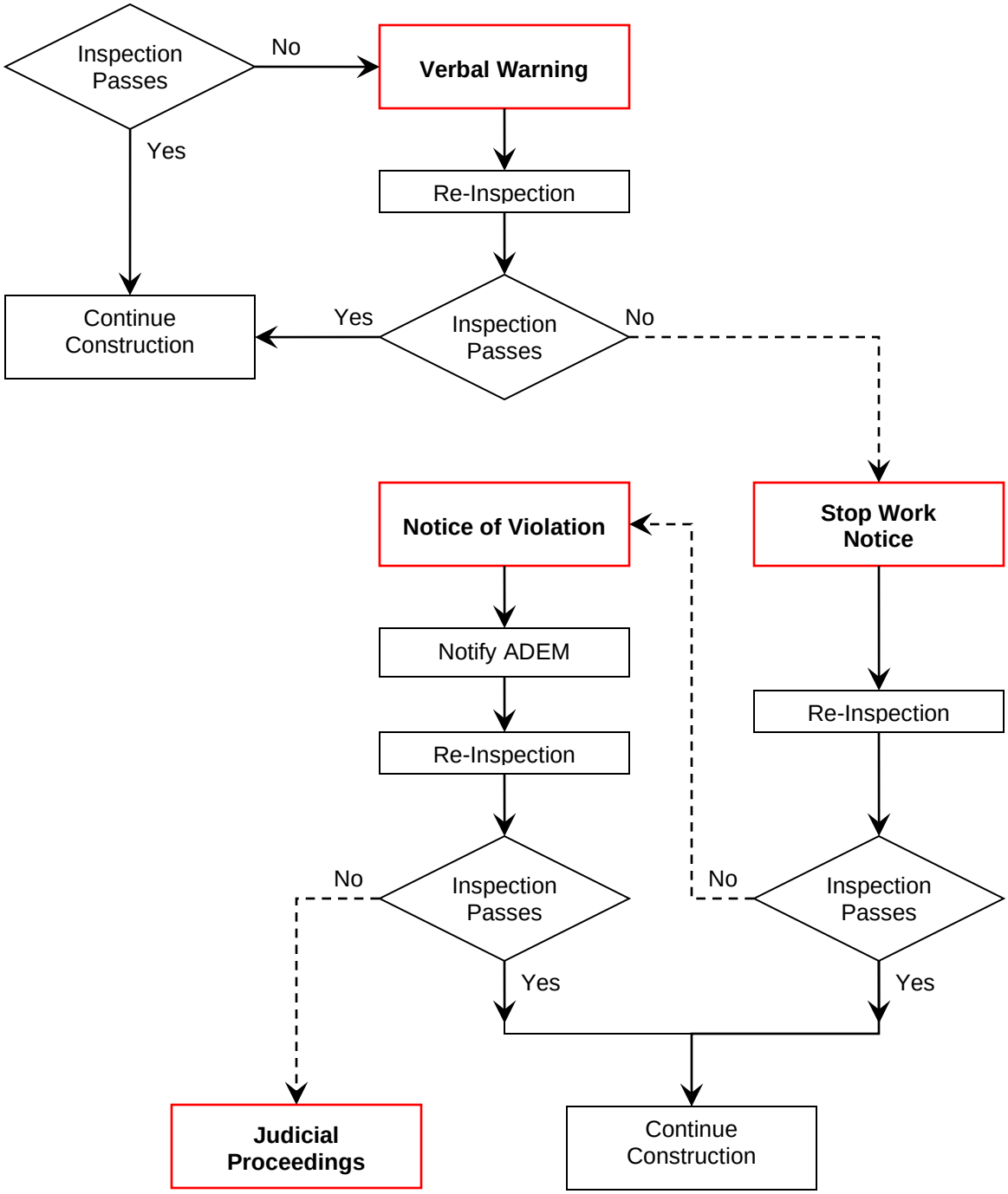
If the Planning and Zoning Director determines that a Developer has violated and/or continues to violate any provision of the Erosion Control Ordinance, the Planning and Zoning Director may issue the Developer a written Notice of Violation. At a minimum, the Notice of Violation shall contain the following:

- Name and address of alleged violator;
- Location or address of the site where the violation occurred;
- Nature of the violation;
- Description of the remedial actions required to abate the violation;
- Description of the penalties that may be assessed;
- Description of the appeal procedures;
- Time frame for abating the violation; and,
- If the violation is not abated within the specified time frame, the County may utilize its resources to abate the violation.

Upon issuance of a written Notice of Violation, the Code Enforcement Officer shall notify ADEM regarding status of the site.

If the violation is not corrected within the time frame specified in the Notice of Violation, the Planning and Zoning Director shall determine if the enforcement action should be escalated to a Judicial Proceedings.

Figure 7-2
Enforcement Action Flow Chart



7.7.4. Judicial Proceedings

If a Developer has been issued a written Notice of Violation and continues to violate any provision of the Erosion Control Ordinance, the Planning and Zoning Director may recommend to the County Commission to initiate legal proceedings against the Developer.

The Planning and Zoning Director, with the consent of the County Commission, may also initiate civil proceedings seeking monetary damages for any damages caused to public storm water facilities by the Developer and may seek injunctive or other equitable relief to enforce compliance with the Erosion Control Ordinance.

7.7.5. Fines and Penalties

Any person guilty of a violation; and each day of such violation, failure, or refusal to comply with all provisions of the Erosion Control Ordinance shall be deemed a separate offense and punishable accordingly. Any person found to be in violation of any provision of the Erosion Control Ordinance shall be punished by a fine of not more than one hundred and fifty dollars ($150) per day for each offense.

7.8. Website Citizen Complaint Reporting

The County has an environmental complaint form on its website (Building Department (baldwincountyal.gov)). Citizens can go to the site and submit erosion and sediment control and other construction related complaints.

7.9. Staff Training

The Planning and Zoning Department and Highway Department Permit Division have been tasked with the responsibility of implementing the Construction Site Runoff Program. All inspectors shall maintain current certification as a Qualified Credentialed Inspector (QCI). To further support this program element, the Storm water Program Manager may select additional staff to obtain and maintain either a Qualified Credential Professional (QCP) or QCI certification.

Staff shall receive annual refresher training. Copies of the current QCI training certificates and other applicable training shall be maintained in the County's Annual Report.

7.10. Program Goals

The County has developed realistic, achievable, and measurable goals and performance milestones to measure the progress in implementing the Construction Site Runoff Program. Program goals are summarized in Table 7-1.

7.11. Program Evaluation

The most basic measure to evaluate the program effectiveness is to evaluate whether the program goals are being met. At the end of the permit year, the County will evaluate the program goals and overall effectiveness of Construction Site Runoff Program. Results of the program evaluation will be summarized in the Annual Report.

Table 7-1
Construction Site Runoff – Program Goals

Table 7-1 Baldwin County Phase II MS4
MCM 3 Construction Site Stormwater Runoff Control Strategies and Goals

NPDES Permit Section	SWMPP Section	7-Construction Site Stormwater Runoff Control Strategies	Goal	Pollution Targeted	Responsible Departments	2022 Proposed	2022 Achieved	2023 Proposed	2023 Achieved	2024 Proposed	2024 Achieved	2025 Proposed	2025 Achieved	2026 Proposed	2026 Achieved
Part III-3a	7.1	Construction Site Stormwater Runoff Control	Review and updated as needed the ordinances (Zoning, Subdivision, & Territory with Probable Exposure to Flooding) that regulate erosion control review procedures, & inspections.	Sediment, Oils, Paints, & Trash	P&Z	✓	🗀								
Part III-3a	7.1	Construction Site Stormwater Runoff Control	In year one (1), review existing Construction Runoff Program and update as needed to meet new permit requirements.	Sediment, Oils, Paints, & Trash	P&Z	✓	🗀								
Part III-3ai	7.1	Construction Site Stormwater Runoff Control	In year one (1), review Standard Operating Guidance/Checklist/Flow Charts and update as needed to meet new permit requirements.	Sediment, Oils, Paints, & Trash	P&Z	✓	✓								
Part III-3ai	7.4	Plan Review & Permitting-Construction sites associated with Sensitive Areas Such as Beaches, Waterways and Wetlands	Within the County's MS4 boundary, review subdivision and zoning applications that contain beaches, waterways and wetlands to ensure compliance with County, State and Federal permit requirements.	Sediment, Oils, Paints, & Trash	P&Z	✓	🗀								
Part III-3ai	7.4	Plan Review & Permitting-Subdivision & Zoning Ordinance Erosion Control Sections	Within the County's MS4 Boundary, review subdivisions & zoning applications for compliance with the County's Erosion Control Ordinance & ADEM's NPDES General Construction Permit, track and submit data in annual SWMPP report.	Sediment, Oils, Paints, & Trash	Hwy & P&Z	✓	🗀								
Part III-3avi	7.6	Inspections	In years one (1) through five(5),within the County's MS4 boundary, inspect qualifying subdivision & zoned construction sites as per permit requirements.	Sediment, Oils, Paints, & Trash	Hwy & P&Z	✓	✓								
Part III-3avi	7.6	Inspections	In years one (1) through five(5),track construction site inspections including enforcement actions, and complaints within the County's MS4 boundary.	Sediment, Oils, Paints, & Trash	Hwy & P&Z	✓	🗀								
Part III-3aix	7.8	Website Citizen Complaints Reporting	Throughout the permit cycle, the County will maintain and update as needed the Environmental Complaint Form on the Baldwin County Website.	Sediment, Oils, Paints, & Trash	Solid Waste & P&Z	✓	🗀								
Part III-3aiii	7.9	Staff Training	Throughout the permit cycle, County staff responsible for erosion and sediment control inspections and complaints will be trained in the identification of appropriate construction BMPs. Training will be tracked in the annual report.	Sediment, Oils, Paints, & Trash	P&Z	✓	🗀								
Part III-3e	7.11	Program Evaluation	Throughout the permit cycle, review the Construction Site Stormwater Runoff minimum control measure strategies and goals achieved and prepare an annual report and update the SWMPP.	Sediment, Oils, Paints, & Trash	P&Z	✓	✓								
					Totals	10	10								
	P&Z	**Planning & Zoning**													
	Hwy	**Highway**													
	*	**Not Proposed for Permit Year**													
	**	**Completed Prior to Proposed Year**													
	X	**Not Completed-Goal Not Met**													
	🗁	**Attachment Included in Report**													

8. Post Construction Storm Water Management

8.1. Introduction

Post construction runoff generally has two types of impacts. First, developed areas will increase the type and quantity of pollutants in storm water runoff. When storm water flows over areas altered by development it has a potential to pick up a variety of pollutants including but not limited to trash, debris, sediment, oil, grease, pesticides, heavy metals and/or nutrients, and carry these pollutants to the streams and lakes. Second, development increases the impervious surfaces of an area resulting in an increase of storm water runoff. Increased impervious surfaces like buildings and parking lots interrupt the natural cycle of gradual percolation of storm water through the vegetation and soil. Instead, storm water is collected on the impervious surface and conveyed to drainage systems where increase volumes of storm water runoff enter the stream quickly. As a result, stream banks are more susceptible to scouring and the downstream areas have a higher potential of flooding.

The NPDES permit requires the County to develop, implement and enforce a program to address storm water discharges from new development and redevelopment projects that disturb greater than one acre, and projects less than one acre that are part of a larger common plan of development. Goals of this program are to:

- Retain the pre-disturbance hydrological conditions of both surface and groundwater;
- Remove suspended solids and associated pollutants entrained in storm water runoff that result from activities occurring during and after development;
- Decrease the erosive potential of increased runoff volumes and velocities associated with development;
- Preserve natural systems including in-stream habitat, riparian areas, and wetlands; and,

- Reduce the thermal impacts that result from impervious surfaces and treatment devices with large amounts of surface exposed to sunlight such as wet ponds.

8.2. Program Components

Post construction storm water management involves the implementation of structural and/or non-structural BMPs to provide permanent storm water management over the life of a property's use. It is important to recognize that many BMPs are climate dependent and not all BMPs are suitable for every site. The County shall evaluate and identify BMPs that are suitable for this area and are within the County's regulatory control. The following sections will generally describe BMPs that have been or shall be considered.

8.2.1. Development Regulations

The County has developed a comprehensive process to implement and enforce controls that help reduce pollutants in storm water runoff. Documents used to define this process as well as the requirements for development within the County include:

- Zoning Ordinance; and,
- Subdivision Regulations.

A detailed description of these documents is provided in Section 1 of the SWMP Plan. The County has incorporated various Overlay Districts within the Zoning Ordinance to provide additional protection of the County's natural resources. Overlay Districts include:

- Flood Hazard Overlay District;
- Wetland Protection Overlay District; and,
- Gulf Beach Overlay District.

The Wetland Protection Overlay District requires a minimum buffer of 30 feet from a wetland. Regulations governing the Overlay Districts are contained in Article 10 of the Zoning Ordinance.

The County has developed a master plan that evaluates the existing land uses, development patterns, and natural resources within the County. The County's zoning ordinance and subdivision regulations provide a mechanism to implement a post-construction storm water management program. Non-structural BMPs include, but not limited to, the following:

- Develop design standards;
- Develop plan review and approval procedures;
- Develop post construction BMP evaluation and inspection procedures; and,
- Develop BMP maintenance requirements.

The subdivision regulations contain provisions to address the quantity of post developed storm water runoff. Subdivision and commercial site plans will be reviewed to determine if they are compliant with the County's Zoning and Subdivision Requirements.

8.2.2. Low Impact Development

Where feasible, the County shall consider and encourage developers to utilize Low Impact Development (LID) and/or green infrastructure BMPs to minimize the post construction impacts of storm water runoff. The use of the Low Impact Development Handbook for the State of Alabama is encouraged. A copy of the handbook can be found at the following link: LID Handbook.indb (alabama.gov)

8.2.3. Conservation Development

The County has developed regulations and requirements for a Conservation Development. The purpose of a Conservation Development is to provide a development option that permits flexibility of design in order to promote environmentally sensitive and efficient uses of the land. This development option was created to:

- Preserve in perpetuity unique or sensitive natural resources such as groundwater, floodplains, wetlands, streams, steep slopes, woodlands, and wildlife habitat;
- Preserve important historic and archaeological sites;
- Permit clustering of houses and structures on less environmentally sensitive soils which will reduce the amount of infrastructure, including paved surfaces and utility easements necessary for residential development;
- Reduce erosion and sedimentation by minimizing land disturbance and removal of vegetation in residential development through a reduced building footprint;
- Promote contiguous greenways and corridors throughout the community;

- Promote contiguous green space with adjacent jurisdictions;
- Encourage interaction in the community by clustering houses and orienting them closer to the street, providing public gathering places, and encouraging use of parks and community facilities as focal points in the neighborhood;
- Encourage street designs which reduce traffic speeds and reliance on major arteries;
- Promote construction of convenient landscaped walking trails and bike paths both within the subdivision and connected to neighboring communities, businesses, and facilities to reduce reliance on automobiles;
- Conserve scenic views and reduce perceived density by maximizing the number of houses with direct access to and views of open space; and,
- Preserve prime agricultural and forest lands and reduce the economic pressures of converting such land to urbanized uses.

Regulation governing Conservation Developments are contained in Article 11 of the Zoning Ordinance.

8.2.4. Post Construction BMPs

There are a variety of structural BMPs capable of not only managing the volume and velocity of storm water runoff, but also provides very effective treatment of storm water runoff. Structural BMPs may include the following:

- Storm water retention / detention basins;
- Infiltration basins / trenches;
- Pervious pavement;
- Grass swales;
- Filter strips;
- Constructed wetlands; and,
- Rain gardens.

As the County's post construction storm water management program develops, the County will evaluate and identify the most appropriate BMPs. A design rainfall event with an intensity up to a 2-year, 24-hour storm event shall be the basis for the design and implementation of post-construction water quality BMPs.

8.2.5 Tracking System

As post development BMPs are implemented, the County shall determine if it has the authority to implement a tracking and inspection program to ensure that BMPs continue to function properly.

8.2.6 Operation and Maintenance

In order for post developed BMPs to be effective, routine maintenance of the BMP will be required. The County shall evaluate mechanisms that can be utilized to ensure proper maintenance of the BMPs. The County shall determine if it has the authority to implement an inspection program to ensure that BMPs continue to function properly.

8.2.7 Training

County departments that aid in implementing the County's Post Construction Storm Water Management program include the Highway Department, Building Inspections Department and Planning and Zoning Department. The County shall evaluate potential training programs, activities and/or materials that can be used to educate the County's staff in storm water related issues. The type and frequency of training shall be determined by the Storm Water Program Manager or Coordinator.

8.3. Program Goals

The County has developed realistic, achievable, and measurable goals, and performance milestones to measure the progress in implementing a Post Construction Storm Water Management Program. Program goals are summarized in Table 8-1.

8.4. Program Evaluation

The most basic measure to evaluate the program effectiveness is to evaluate whether the program goals are being met. At the end of the permit year, the County will evaluate the program goals and overall effectiveness of post construction storm water controls to improve storm water quality. Results of the program evaluation will be summarized in the Annual Report.

Table 8-1
Post Construction Storm Water Management – Program Goals

Table 8-1 Baldwin County Phase II MS 4
MCM 4 Post Construction Stormwater Management in New and Redevelopment Sites Strategies and Goals

NPDES Permit Section	SWMPP Section	8-Post Construction Stormwater Management in New and Redevelopment Sites Strategies	Goal	Pollution Targeted	Responsible Departments	2022 Proposed	2022 Achieved	2023 Proposed	2023 Achieved	2024 Proposed	2024 Achieved	2025 Proposed	2025 Achieved	2026 Proposed	2026 Achieved
Part III-4aiv	8.2.1	County Subdivision & Zoning Ordinance Review	Review and update county subdivision and zoning ordinances and guidance documents to reflect the applicable MS4 permit post construction requirements.	Storm water Quantity, Trash, Sediment & Paint, etc.	P&Z	✓	✓								
Part III-4aiii	8.2.2	Promote Low Impact Development/Green Infrastructure (LID/GI)	In year one (1), review county subdivision and zoning ordinance for opportunities to incentivize the use of LID/GI	Storm Water Quantity	Planning & Zoning	✓	✓								
Part III-4aiii	8.2.2	Promote Low Impact Development/Green Infrastructure (LID/GI)	Throughout the permit cycle, track LID/GI BMPS implemented in the County's MS4 boundary	Storm Water Quantity	P&Z	✓	✓								
Part III-4ai2	8.2.1	County Subdivision & Zoning Ordinances	Within the County's MS4 boundary, review subdivision and zoning applications for compliance with the county's stormwater management requirements and track in annual SWMPP report	Storm water Quantity, Trash, Sediment & Paint, etc.	Hwy & P&Z	✓	🗀								
Part III-4avi	8.2.5	Perform Field Evaluations and Long-term Maintenance and Monitoring of Best Management Practices	In year one (1), review the county's subdivision & zoning ordinance to determine if the county has the authority to inventory and require inspections and maintenance of private stormwater facilities (SWF) (detention basins,etc.) within its MS4 Boundary's zoned districts.	Storm water Quantity, Trash, Sediment & Paint, etc.	Hwy & P&Z	✓	🗀								
Part III-4avi	8.2.5	Perform Field Evaluations and Long-term Maintenance and Monitoring of Best Management Practices	If it is determined that the County has the authority to perform the inventory and maintenance of SWF , in years two (2) and three (3) within the county will create a inventory and inspection program that requires annual inspections of all public and private stormwater management facilities to evaluate performance and design	Storm water Quantity, Trash, Sediment & Paint, etc.	Hwy & P&Z	*	*								
Part III-4avi	8.2.5	Perform Field Evaluations and Long-term Maintenance and Monitoring of Best Management Practices	If it is determined that the County has the authority to perform the inventory and maintenance of SWF , for the remainder of the permit cycle years four (4)& five (5), within the County's MS4 boundary zoned districts, the County will implement the program and track all data in the annual report	Storm water Quantity, Trash, Sediment & Paint, etc.	Hwy & P&Z	*	*								
Part III-4aiii	8.2.7	Low Impact Development/Green Infrastructure (LID/GI)	During the permit cycle, provide at least one LID/GI training to the County's Planning Commission & staff	Storm Water Quantity	P&Z	1	🗀								
Part III-4aiii	8.2.7	Low Impact Development/Green Infrastructure (LID/GI)	During the permit cycle, sponsor or provide at least one LID/GI training (workshop) to developers, consultants and engineers	Storm Water Quantity	P&Z	1	🗀								
Part III-4b	8.4	Program Evaluation	Throughout the permit cycle, review the Post Construction minimum control measure strategies and goals achieved and prepare an annual report and update the SWMPP	Storm water Quantity, Trash, Sediment & Paint, etc.	P&Z	✓	✓								
	Hwy	**Highway**	**Total Goals**			**8**	**8**								
	P&Z	**Planning & Zoning**													
	*	**Not Proposed for Permit Year**													
	**	**Completed Prior to Proposed Year**													
	X	**Not Completed-Goal Not Met**													
	🗁	**Attachment Included in Report**													

9. Pollution Prevention / Good Housekeeping

9.1. Introduction

Pollution prevention / good housekeeping for municipal operations is a control measure designed to emphasize the operation and maintenance of the MS4 and proper training of County employees. Performing activities in a careful and proper manner prevents and/or reduces the potential of polluting storm water runoff. Operations specifically identified in the NPDES permit include the following:

- Park and open space;
- Fleet and building maintenance;
- New construction and land disturbances;
- Storm sewer system maintenance;
- Roads and highways;
- Municipal parking lots;
- Maintenance and storage yards;
- Waste transfer stations; and,
- Recycling centers.

9.2. Program Components

The pollution Prevention / Good Housekeeping Program is a key element to help the MS4 to reduce potential pollutants from entering storm water runoff. This control measure requires the County to evaluate existing facilities and operations to identify areas of improvement that will help ensure a reduction in the amount and type of potential pollutants.

9.2.1. County Facilities

The first step is to evaluate and assess the areas and facilities to determine which activities may currently have a negative impact on water quality and to find solutions for these activities. The simplest solution is to limit the number of activities that are performed outside and exposed to storm water.

9.2.1.1. Facility Inventory

The County has completed an inventory of County facilities and areas that have a potential to interact with storm water runoff. Baldwin County has two (2) public facilities located in Fairhope's MS4 area and two parks, a landfill and community center located in the County's MS4 area. The County will update the MS4 Facility inventory and map as new facilities are built.

9.2.1.2. Facility Assessment

A comprehensive facility assessment is necessary to identify the facilities most likely to contribute storm water pollutants and the facilities in need of storm water controls. The facility assessments shall involve a detailed site inspection to identify improperly stored materials, activities that should not be performed outside, and poor housekeeping practices. The assessment shall include a summary of any ADEM permitted activities such as Underground Fuel Storage Tanks (UST).

9.2.2. Structural Controls

The County maintains approximately 104.79 miles of paved roads, approximately 0.19 miles of unpaved roads and 11 bridges within the County's MS4 Area. The storm sewer system associated with these roads consist of box culverts, side drains, cross drains, and storm sewer systems. Box culverts, cross drains, and side drains are typically located along the roads to convey storm water either underneath the road or along the road. Storm sewer systems are typically located within residential developments.

9.2.2.1. Drainage Swales

The portion of the County within the MS4 boundary consists of flat to very mild sloping terrain with generally well-draining soils. These two features are important to determine the most applicable method of storm water collection. Flatter terrain can increase the time for storm water conveyance, reduce the amount of peak discharge at a given point, and reduce the probability of channel erosion. Well-draining subsurface soils allow infiltration of storm water, particularly if the drainage swales allow for increased time of storm water conveyance.

The majority of roads located within the County's MS4 Area have open grassed drainage swales that parallel both sides of the road. Based upon typical soils, size of swales, and relatively flat slopes, grass drainage swales allow for low flow

velocities, storm water storage, and some infiltration. The vegetation also prevents channel and side slope erosion, filters sediment, and provides some nutrient uptake.

9.2.2.2. Storm Sewer Systems

Storm sewer systems are typically located within residential developments and subdivisions. A summary of the storm sewer system components located within the County's MS4 area will be kept as a separate document (Appendix D). Any updates to the system will be reported in the annual report.

9.2.2.3. Data Management

The County has a dedicated GIS/CIMS manager responsible for obtaining, developing, and maintaining the County's Graphic Information System (GIS) data and system. The County's GIS data includes mapping layers for box culverts, storm sewer pipes, storm sewer inlets and cross drainpipes. Select attribute data for mapping layers used by the County include, but are not limited to, the following:

- Pipe shape;
- Material type;
- Number of barrels;
- Pipe size;
- Rip rap at inlet and/or outlet;
- Condition;
- Markers;
- Pipe length; and,
- Photographs.

The County has an on-going effort to update and maintain the information and data contained in the GIS system. To complement the GIS system, the County uses a Computer Information Management System (CIMS) to track time and activities associated with inspection and maintenance. County staff involved with maintenance will complete a Maintenance Activity Sheet on a daily basis that identifies where and what work was completed as well as who and the equipment used to complete the work. This information is entered into the CIMS database. The CIMS Program provides the County with the ability to create activity reports that summarize the work performed on each structure for a time period of interest. A list of Activity Codes and an example of the Maintenance Activity Sheet are provided in Appendix E.

- Federal and State storm water regulations;
- Storm water pollution prevention plan requirements;
- Significant materials and storage practices;
- Best Management Practices (BMPs);
- Non storm water discharges and evaluations;
- Site inspection and documentation protocols;
- Application of pesticides, herbicides, and fertilizers;
- Road maintenance BMPs; and,
- Facility specific standard operating guidance.

To minimize the cost and resources associated with training, the County anticipates utilizing training programs and materials that have already been developed by EPA, ADEM, local partners, and/or other readily available sources.

9.2.6. Flood Management

The NPDES permit requires the County to evaluate flood management projects for incorporation of additional water quality protection devices and practices to help improve water quality. If flood management projects are proposed within the County's MS4 area, the County will evaluate the projects for the potential incorporation of water quality features. The County's Building Official is the Flood Plain Manager.

9.2.6.1 Community Rating System (CRS)

The National Flood Insurance Program (NFIP) provides federally backed flood insurance that encourages communities to enact and enforce floodplain regulations. To be covered by a flood insurance policy, a property must be in a community that participates in the NFIP. Baldwin County has been participants since 1978 and currently holds a Class 6 Building Code Effectiveness Grading Schedule (BCEGS) grade for one and two-family dwellings and commercial & industrial buildings.

The Community Rating System (CRS) Program is a point-based system which provides incentives for communities to do more than simply regulate construction of new buildings to minimum national standards. Under CRS, flood insurance premiums are adjusted to reflect community activities which reduce flood damage to existing buildings, manage development in areas not mapped by the NFIP, protect new buildings beyond the minimum NFIP protection level, help insurance agents obtain flood data and help people obtain flood insurance.

The County uses several devices to aid in field data management. They include but are not limited to a Trimble GeoExplorer, iPhone, iPad, and field computers to assist with data collection during the inventory and inspection of structural controls. The Trimble field computer integrates a rich array of functionality, including a high-yield GPS receiver with 1-to-3-meter positioning accuracy. This allows field crews to augment their GPS information and photographs while performing GIS data collection and inspection activities.

The County has developed a data form that can be used by the Trimble field computers to collect specific data for each structural control. This not only provides the field crews with an efficient method for performing data collection; but also, provides a very efficient way to integrate field data into the County's GIS system.

9.2.2.4. Inspections

The County performs an inspection of all structural storm water conveyance structures on a biennial (two-year) basis. These inspections include, but are not limited to:

- Drainage elements such as ditches, erosion, pipe or drain condition, and any settlement occurring which may affect drainage watercourse;
- Shoulder roadside elements such as clearing, mowing, or encroachments maintenance; and,
- Percentage of overhead limbs on the roadway.

A scoring system is used to evaluate each of the components described above. Storm sewer system maintenance and repairs are prioritized based on the score of each structure. The higher the score, the higher priority the road will rank for maintenance or improvements. Results of the inspection are used in establishing budgets and schedule of proposed projects for the next year.

If problems are identified that require immediate attention, the inspector will complete a Problem Request and schedule the necessary repairs. The need for repairs will be identified as Urgent, Priority, or Routine and addressed as follows:

- Urgent – Schedule the repairs within the same day;
- Priority – Schedule the repairs within the next 3 days; and,
- Routine – Schedule the repairs within the next 5 days.

A copy of the Problem Request is provided in the Appendix H.

9.2.2.5. Maintenance and Repairs

Based on the priority level assigned by the inspectors, required maintenance is performed in a timely manner. Maintenance can include:

- Structure clean out of leaves, sediment, floatables, and other debris;
- Mowing, clearing, or overhead limb removal in order to prevent drain blockage or reduced storm water flow;
- Regrading of swales and ditches to allow for proper storm water flow;
- Grass seeding/planting to prevent erosion;
- Replacing or repairing any reflective markers at cross drains; and,
- Replacing storm water structures.

The County currently assigns work order codes for various maintenance activities and tracks time and money required for each activity. A copy of the activity listings is included in the Appendix E.

9.2.3. Roadways

Motor vehicles can generate runoff pollutants through emissions, deposition of exhaust, discharges of fluids and solid particles while traveling and breaking. Although the runoff constituents and concentration levels vary with highway type and location, the sources of roadway runoff pollutants typically fall into one of three basic categories:

1. Vehicle traffic;
2. Deicing activities; and,
3. Vegetation management.

Potential pollutant sources from roadways that can affect water quality include:

- Solids generated from pavement wear, tire wear, engine and brake wear can increase turbidity and transport other pollutants that adhere to the particle surfaces;

- Heavy metals from lubricating oil and grease, bearing wear, tire, wear, vehicle wear, break lining wear, and moving engine parts;

- Nutrients from roadside fertilizer application can expedite algae growth and lower dissolved oxygen levels in streams, rivers, and lakes; and,

- Polycyclic aromatic hydrocarbons (PAHs) such as petroleum and ethylene glycol, resulting from spills and leaks of oil, gas, antifreeze, and hydraulic fluids.

The County maintains approximately 104.79 miles of paved roads, approximately 0.19 miles of unpaved roads and 11 bridges within the County's MS4 Area. The majority of roads located within the County's MS4 Area have open grassed drainage swales that parallel both sides of the road. These swales provide a means of mitigating the negative impacts of various pollutants that can be carried off by rainfall and receiving waters.

9.2.3.1. GIS Data

The County has a dedicated GIS/CIMS manager responsible for obtaining, developing, and maintaining the County's GIS data and system. Select attribute data for mapping layers used to support the County's Roadways Program include, but are not limited to, the following:

Roadways

- Road Name
- Road District
- Length
- Surface Type
- MS4 Area

Bridges

- Bridge Name
- Road Name
- Sufficiency Rating
- Creek Name

The County has an on-going effort to update and maintain the information and data contained in the GIS system. To complement the GIS system, the County uses CIMS to track time and activities associated with roadway and bridge maintenance. County staff involved with roadway and/or bridge maintenance will complete a Maintenance Activity Sheet daily that identifies where and what work was completed as well as who and the equipment used to complete the work. This information is entered into the CIMS database. The CIMS Program provides the County with the ability to create activity reports that summarize the work performed on each road for a time of interest. A list of activity codes and an example of the Maintenance Activity Sheet are provided in Appendix H.

9.2.3.2. Planning and Design

The County utilizes a variety of environmental planning and design management practices to reduce the environmental impacts of roadways and bridges. Article 5 Development Standards of the County's Subdivision Regulations establishes

planning and design requirements for roadways and bridges. Section 5.5 of this Article specifies the minimum roadway design standards that are based on roadway type (i.e., collector, residential, other) and minimum lot size.

The County's roadway design requirements minimize the pavement width based on roadway type and land use. Curb and gutter are only required for Residential (Type 1) and Non-Residential (Type A) roadways. For all other roadway types, the typical roadway cross section utilizes open drainage swales to convey storm water runoff. Open drainage swales remove roadway pollutants by filtration and allowing storm water runoff to infiltrate into the ground.

9.2.3.3. License Agreement

If a landowner(s) want to perform some type of modification or work on a County right-of-way (ROW), the County has established a process where the landowner(s) will execute a License Agreement with the County. The License Agreement defines the work or modifications that will be performed and who is responsible for maintenance of the work or modifications. This mechanism prevents a landowner(s) from performing any work within a ROW without the prior written approval from the County's Highway Department. Types of work allowed under the License Agreement include the following:

- Drainage improvements;
- Road improvements; and,
- ROW clearing.

The License Agreement does allow for beautification projects within the landowner's portion of the ROW. A copy of the License Agreement is included in Appendix F.

9.2.3.4. Road Inspections

The County performs an inspection of all paved and unpaved County roads on a biennial (two-year) basis. These inspections include, but are not limited to:

- Surface treatment elements such as surface treatment type, patching, edge repairs, and leveling;
- Shoulder conditions;
- Drainage elements such as ditches, erosion, pipe or drain condition, and any settlement occurring which may affect drainage watercourse;
- Shoulder roadside elements such as clearing, mowing, or encroachments maintenance;

- Traffic control elements including signage and striping; and,
- Percentage of overhead limbs on the roadway.

A scoring system is used to evaluate each of the components described above. Road maintenance and repairs are prioritized based on the score of each road. The higher the score, the higher priority the road will rank for maintenance or improvements. Results of the inspection are used in establishing budgets and schedule of proposed projects for the next year.

If problems are identified that require immediate attention, the inspector will complete a Problem Request and schedule the necessary repairs. The need for repairs will be identified as Urgent, Priority, or Routine and addressed as follows:

- Urgent – Schedule the repairs within the same day;
- Priority – Schedule the repairs within the next 3 days; and,
- Routine – Schedule the repairs within the next 5 days.

9.2.3.5. Bridge Inspections

Bridges for County roads are typically inspected on a bi-annual basis in accordance with NBIS standards.

9.2.3.6. Mowing

The County has crews dedicated to roadway maintenance. Typically, County ROWs are mowed a minimum of three times per season (April 1st through September 30th). Roads with higher traffic volumes or major corridors may be mowed more frequently.

9.2.3.7. Litter Control

Roadside litter control BMPs implemented by a third party to address health and aesthetic concerns also improve the quality of storm water runoff by limiting trash in runoff conveyance systems. BMPs implemented by the County include:

- Regular litter, trash and debris removal and disposal;
- Sponsoring Adopt-a-Road program; and,
- Public education.

The County's Solid Waste Department has contracted out the pickup of roadside litter. The litter patrol supervisor produces daily, weekly, and annual reports summarizing the areas which were cleared of litter and tracks the amount of waste collected via spreadsheets and graphs.

The County supports the Adopt-a-Mile (ALPALS - Alabama People Against a Littered State) program in conjunction with the Alabama Department of Transportation (ALDOT) and People Against a Littered State (PALS). The County's website contains a link to redirect the user to the PALS website and Adopt-a-Mile registration. Currently, 6 miles of County roads within the MS4 Area are a part of the Adopt-a-Mile program.

9.2.3.8. Resurfacing

County roads with deteriorated paved surfaces are typically overlaid with new asphalt or milled, reclaimed, and replaced with new asphalt paving, depending on the deterioration cause. When roads are overlaid, there is usually no erosion protection required since no soil is disturbed. If roads require milling and replacing, however, an erosion control plan is implemented to prevent sediment transport from the exposed road base or any other disturbed areas.

9.2.3.9. Unpaved Roads

Unpaved roads are inspected with the same regularity as paved roads. Unpaved road inspections are documented on a spreadsheet which is updated annually. Inspections include documenting ditching, surface gravel condition, environmental concerns, and maintenance issues and difficulty.

There are currently 0.08 miles of unpaved (dirt) roads within the MS4 area. Paving unpaved roads is based on priority. In 2022, the County's EAC's Dirt Road Subcommittee updated , the 25 Most Environmentally Damaging Dirt Roads of Baldwin County (Appendix G). This document along with other criteria will be used to rank the stabilization/ paving status.

9.2.3.10. Deicing Activities

Based upon the County's location, winter weather is infrequent. The County spreads sand on roads with snow or ice cover. After winter weather has subsided, the County removes the sand using a small front-end loader and a street sweeper.

9.2.4. Pesticides, Herbicides and Fertilizers

Pesticides, herbicides, and fertilizers, when used properly, are helpful tools in maintaining grassed and landscaped areas. However, excess use can threaten natural ecosystems, particularly through runoff to streams and rivers or by infiltration to groundwater. Because of this concern for environmental health, the

NPDES Permit requires the County to evaluate the use of pesticides, herbicides, and fertilizers (PHF) to seek opportunities to reduce the use of these materials.

When all the land occupied by parks, right-of-way, easements, open space, and County facilities is added together, the County may own or control a significant portion of the land within a watershed. Maintenance of these areas frequently includes mowing, fertilization, pesticide application, herbicide application, and supplemental irrigation. Effective management and landscaping practices can significantly reduce the pollutants discharged in storm water runoff.

9.2.4.1. Facility Inventory

The County shall evaluate land under the control of the County to determine where pesticides, herbicides and/or fertilizers are being used. Areas of interest within the MS4 Area may include but are not limited the following:

- Public parks;
- Sports complexes;
- Green space around County facilities; and,
- County right-of-way.

The County areas have been identified. A map showing the location of County Areas with respect to local rivers, streams, and water bodies will be created.

9.2.4.2. Certification and Licensing

Commercial and non-commercial application of pesticides is regulated in the State of Alabama by the Department of Agriculture and Industries (DAI). In order to maintain a pest control license, applicators are required to obtain routine training that covers the following topics:

- Pests;
- Pests control and pesticides;
- Labels and labeling;
- The environment;
- Applicator safety;
- Laws and regulations;
- Pesticide storage and disposal;
- Record keeping;
- Application equipment and calibration; and,
- Weed control.

County staff and contractors involved with the application, storage and/or disposal of pesticides, herbicides, and fertilizers on County Areas shall maintain current certification and training as required by DAI. Applicators names, positions, certifications, and training documentation will be provided in the annual report.

9.2.4.3. Chemical Inventory

The County may use a variety of pesticides, herbicide and fertilizer chemicals on road right-of-way and County Areas. An inventory of pesticides, herbicides, and fertilizers being stored at each County facility shall be maintained by Maintenance.

Material Safety Data Sheets (MSDS) for pesticides, herbicides, and fertilizers used by County staff shall be maintained at each individual storage location. The MSDS will provide information about the chemical to include but not limited to the following:

- Chemical constituents;
- Product use;
- Dilution requirements;
- Mixing requirements;
- Storage instructions; and,
- Health and safety precautions.

Chemicals typically used by the County are summarized in Table 9-1.

Table 9-1
PHF Chemicals

Chemical Name	Type
Plateau	Herbicide
Milestone VM	Herbicide
Milestone VM Plus	Herbicide
Glyphosate	Herbicide
Ground Zero	Herbicide
Induce	Herbicide
Garlon 3A	Herbicide

9.2.4.4. Application, Storage and Disposal

Application, storage, and disposal of pesticides, herbicides, and fertilizers shall be performed in accordance with Federal and State regulations and in accordance with the manufacturer's recommendations. As Standard Operating Guidance (SOGs) is developed for application, storage, and disposal, they shall be included in Appendix H.

The County has one application truck equipped with a Legacy 6000 control system. The Legacy 6000 control systems provides the County with the capability to properly apply herbicides and fertilizers. Capabilities of this control system include:

- Fixed-rate or variable-rate application;
- Complete field mapping with hazard marking;
- Manual lightbar guidance with on-screen map display;
- Interface with automatic steering systems; and,
- Software to create detailed job reports.

9.2.5. Training

The County shall evaluate and develop a training program to educate County employees on how to incorporate pollution prevention / good housekeeping practices into County operations and facilities. Training topics may include the following:

The objective of the CRS program is to reward communities that are doing more than meeting the minimum NFIP requirements to help citizens prevent or reduce flood losses. The goal of the CRS program is to encourage, by the use of flood insurance premiums adjustments, community, and state activities beyond those required by the NFIP.

Baldwin County has voluntarily participated in the Community System Program since 1995.

The CRS program is broken down into 18 creditable activities as follows:

Public Information Activities

- Elevation Certificates
- Map Information Service
- Outreach Projects
- Hazard Disclosure
- Flood Protection Information
- Flood Protection Assistance

Mapping & Regulatory Activities

- Additional Flood Data
- Open Space Preservation
- Higher Regulatory Standards
- Flood Data Maintenance
- Storm water Management

Flood Damage Reduction Activities

- Floodplain Management Planning
- Acquisition and Relocation
- Flood Protection

- Drainage System Maintenance

Flood Preparedness Activities

- Flood Warning Program
- Levee Safety
- Dam Safety

Baldwin County provides public information to advise property owners, potential property owners, and visitors about hazards, ways to protect people and property from the hazards, and the natural beneficial functions of floodplains. Activities include flood determinations and technical assistances, public outreach, and education, and real estate disclosure Appendix H.

9.3. Program Goals

The County has developed realistic, achievable, and measurable goals and performance milestones to measure the progress in implementing a Pollution Prevention / Good Housekeeping Program. Program goals are summarized in Table 9-2.

9.4. Program Evaluation

The most basic measure to evaluate the program effectiveness is to evaluate whether the program goals are being met. At the end of the permit year, the County will evaluate the program goals and overall effectiveness of the Pollution Prevention / Good Housekeeping Program to help reduce pollutants in storm water runoff. Results of the program evaluation will be summarized in the Annual Report.

Table 9-2
Pollution Prevention / Good Housekeeping – Program Goals

Table 9-2 Baldwin County Phase II MS 4
MCM 5 Pollution Prevention/ Good Housekeeping Strategies and Goals

NPDES Permit Section	SWMPP Section	9-Pollution Prevention/ Good House Keeping	Goal	Pollution Targeted	Responsible Departments	2022 Proposed	2022 Achieved	2023 Proposed	2023 Achieved	2024 Proposed	2024 Achieved	2025 Proposed	2025 Achieved	2026 Proposed	2026 Achieved
Part III-5ai	9.2.1.1	County Owned Facilities	Throughout the permit cycle, within the County's MS4 boundary, update county facility inventory as needed.	All	Hwy & P&Z	✓	✓								
Part III-5ai	9.2.1.2	County Owned Facilities	Throughout the permit cycle, within the County's MS4 boundary, create and updated assessments and Standard Operating Guidance (SOG) for facilities as needed.	All	Hwy & P&Z	✓	🗀								
Part III-5aiii	9.2.1.2	ADEM permits	Throughout the permit cycle, within the County's MS4 boundary report county ADEM permits (UST, etc.)and compliance records in annual report.	Oil & Gas	P&Z	✓	🗀								
Part III-5aiii3	9.2.2	Structural Controls Roads & Bridges	Throughout the permit cycle, the county's stormwater management system (structural controls) inventory will be updated and controls will maintained. Track data in the annual report.	Trash & Sediment	Hwy	✓	✓								
Part III-5biv	9.2.2.4	Capital Stormwater Projects	Throughout the permit cycle, within the County's MS4 boundary zoned districts, inspect County projects for environmental compliance; track and report in annual report.	All	Hwy & P&Z	✓	✓								
Part III-5biv	9.2.3.5	Structural Controls Roads & Bridges	Throughout the permit cycle, within the County's MS4 boundary, inspect bridges twice during permit cycle.	Trash & Sediment	Hwy	✓	🗀								
Part III-5baii	9.2.3.7	Recycling Program	Through out the permit cycle, within the County's MS4 boundary, track volume of recycled materials and report data in the annual report.	Trash	Solid Waste	✓	✓								
Part III-5aii	9.2.3.7	Litter Patrol	Throughout the permit cycle, within the County's MS4 boundary, track volume of litter picked up from county right of-ways.	Litter & Floatables	Solid Waste	✓	🗀								
Part III-5av	9.2.5	Training	Throughout the permit cycle, employees with MS4 duties will be provided stormwater training in regards to the County's Stormwater Management Program.	All	P&Z	✓	🗀								
Part III-5av	9.2.5	Training	Provide additional stormwater training (including information regarding facility SOGs) twice during permit cycle to employees with program responsibilities such as, street, and mowing crews.	All	P&Z	*	*								
Part III-5aii	9.2.6.	Flood Management	Throughout the permit cycle, within the County's MS4 boundary, evaluate flood management projects and track data in annual report.	Storm Water	Building Inspections	✓	✓								
Part III-5aii	9.2.6.1	Community Rating System (CRS)	During the permit cycle, track CRS public outreach and education activities and provide a summary in the annual report.	Storm Water	P&Z	✓	🗀								
Part III-5d	9.4	Program Evaluation	Throughout the permit cycle, review the PP/Good Housekeeping minimum control measure strategies and goals achieved and prepare an annual report and update the SWMPP.	All	P&Z	✓	✓								
					Totals	12	12								
	*	**Not Proposed for Permit Year**													
	**	**Completed Prior to Proposed Year**													
	X	**Not Completed-Goal Not Met**													
	🗁	**Attachment Included in Report**													
	P&Z	**Planning & Zoning**													
	Hwy	**Highway**													

10. Monitoring Plan

10.1. Introduction

In December 2011, the County was re-designated from a Phase I MS4 to a Phase II MS4. In April 2012, the Census Bureau released updated Urbanized Areas based on the 2010 Census. As a result of the 2010 Census the Daphne-Fairhope Urban Cluster was changed to the Daphne-Fairhope Urbanized Area and its boundaries expanded along the I-10 corridor.

Baldwin County was granted a modification to its monitoring program, in 2014, due to the reasons stated below:

10.1.1. MS4 Area

Incorporated areas located within the Daphne-Fairhope Urbanized areas include the City of Daphne, City of Fairhope, and City of Spanish Fort. In accordance with 40 CFR 122.32, only unincorporated portions of the County that are located within an Urbanized Area are regulated as a small MS4 under the NPDES storm water program. Therefore, Baldwin County's MS4 area is fragmented and comingled with the adjacent municipalities. Areas of the County's MS4 adjacent to incorporated areas are typically undeveloped.

10.1.2. Existing Monitoring Requirements

Part V.A. of the permit requires Baldwin County to evaluate areas of the MS4 to determine if discharges contribute to the impairment of 303(d) listed waters or streams with an approved Total Maximum Daily Load (TMDL). Baldwin County has completed and evaluation of impaired streams within the MS4 area.

According to ADEM's 2021 approved TMDL list, there is one stream within the County's MS4 Area with an approved TMDL. In November of 2013, Fish River's (AL03160205-0204-112) TMDL was finalized. Below is the link to the TMDL: FinalFishRiverPathogensTMDL.pdf (alabama.gov).

According to ADEM's 303(d) list (Alabama Department of Environmental Management) dated April 2021, there are ten (10) streams located within the drainage basins of the MS4 Area which have been designated as impaired. An evaluation of each stream segment is summarized as follows:

- Bay Minette Creek is listed on the 303(d) list as impaired for metals (mercury). The source of this pollutant is identified as unknown. Due to the small area of Baldwin County's MS4 Area located within this watershed and the type of land uses, Baldwin County's MS4 is not a contributor to the impairment on Bay Minette Creek.

- Tiawasee Creek, Unnamed Tributary to Tiawasee Creek, D'Olive Creek and Unnamed Tributary to D'Olive Creek are listed on the 303(d) list as impaired for siltation and habitat alteration. The source of this impairment is attributed to land development. The entire drainage basin for Joes Branch is located within the corporate limits of Daphne and Spanish Fort and should be addressed in their MS4 Programs.

  Most of the drainage basin of Tiawasee Creek and its tributary are located within the corporate limits of Daphne. There are small pockets of the drainage basin located within the County's MS4 Area. The land use within these pockets primarily consists of forested or agricultural and limited amount of residential or commercial and should not be a significant contributor to the impairment.

  Most of the drainage basin of D'Olive Creek and its tributary are located within the corporate limits of Daphne and Spanish Fort. There is a small area located in the headwaters of the drainage basin that is located within the County's MS4 Area. The land use of this area is either forested or agricultural and should not be a significant contributor to the impairment of D'Olive Creek.

- Cowpen Creek is listed on the 303(d) list as impaired for metals (mercury). The source of this pollutant is identified as atmospheric. Due to the type of land uses located within this watershed, Baldwin County's MS4 is not a contributor to the impairment on Cowpen Creek.

- Fish River is listed on the 303(d) list as impaired for metals (mercury) and pathogens. The source of metals is identified as atmospheric. Due to the type of land uses located within this watershed, Baldwin County's MS4 is not a contributor to the impairment on Fish River.

- ADEM has included Turkey Branch on the 303(d) list as impaired for metals (mercury). The source of this pollutant is identified as atmospheric. Due to the type of land uses located within this watershed, Baldwin County's MS4 should not be a contributor to the impairment on Turkey Branch.

- ADEM has included Turkey Branch on the 303(d) list as impaired for pathogens. The source of this pollutant is identified as pasture grazing. Agriculture is not regulated. Therefore, the County has no authority over pasture grazing activities.

- ADEM has included Fly Creek on the 303(d) list as impaired for pathogens. The source of this pollutant is identified as pasture grazing. Agriculture is not regulated. Therefore, the County has no authority over pasture grazing activities.

Based on the County's evaluation of 303(d) listed waters and TMDL streams located within its MS4 Area, the County is not a contributor to the impairments of the streams located within its MS4 Area. Therefore, monitoring is not required on 303(d) listed waters or TMDL streams. However, the County will work with the local United States Department of Agriculture (USDA) and Natural Resource Conservation Service (NRCS) and other partners to implement an education outreach program to address livestock activities that contribute to the pathogen listings.

Appendix A

Public Education & Outreach Brochures

WHAT ARE WETLANDS?

The term wetland refers to lowlands covered by shallow and sometimes temporary intermittent waters. Wetlands are sometimes referred to as swamps, marshes, or bogs. Wetlands are transitional areas between terrestrial and aquatic ecosystems where the water table is typically at or near the surface. Three criteria must be present for an area to be categorized as a wetland.

1. Wetland Hydrology - is defined as inundation or saturation by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions.
2. Hydrophytic vegetation - "water-loving" plants that live in wetlands.
3. Hydric Soils - Often dark in color, these soils are formed when conditions of saturation, flooding, or ponding are present long enough to

WHY ARE WETLANDS IMPORTANT?

- They act as natural "sponges" that absorb flood waters.
- Wetlands also act as a filter for our drinking water.
- Wetlands are home to many fish and wildlife species.
- Wetlands serve as a "stop over" for migratory birds.
- Wetlands provide food and offer breeding/spawning grounds for many fish and wildlife species.
- Wetlands also provide numerous recreational opportunities.

HOW DO I KNOW IF I HAVE WETLANDS ON MY PROPERTY?

If you suspect you have wetlands on your property visit Baldwin County Revenue's Parcel Map at Baldwin County ISV3 (kcsgis.com) (https://isv.kcsgis.com/al.baldwin_revenue/) to determine if potential wetlands are present. If so, you may need a wetland delineation and federal, state and local wetland permits prior to any development.

Local wetland regulations can be found in the Zoning Ordinance and Subdivision Regulations of Baldwin County Planning & Zoning (baldwincountyal.gov) (https://baldwincountyal.gov/department/planning-zoning)

WETLAND FACTS

- *Baldwin County has an estimated 300,000 acres of wetlands - 260,000 acres are freshwater and 40,000 have saltwater influence.*
- *In the Southeast, 96% of the commercial catch and over 50% of the recreational seafood harvest are fish and shellfish that depend on the estuarine and coastal wetland system.*
- Wetlands provide habitats for many waterfowl game species and for endangered and threatened species, such as Alabama redbelly turtles, wood storks, and bald eagles.

- 1 acre of wetlands can store 1,000,000 to 1,500,000 gallons of floodwater. Nearly half of the wetlands in the U.S. are located in the Southeast.
- May is American Wetland Month.
- February is World Wetlands Month.

WETLAND REGULATORY CONTACTS

- Environmental Protection Agency (EPA) www.epa.gov/owow/wetlands
- U.S. Army Corps of Engineers Permits 251-690-2658
- AL Department of Environmental Management 251-450-3400
- Baldwin County Zoning & Subdivision Regulations 251-580-1655 Planning & Zoning (baldwincountyal.gov) (https://baldwincountyal.gov/department/planning-zoning)

CREATE A Clean Water FUTURE

VISIT CLEANWATERFUTURE.COM FOR STORMWATER MANAGEMENT RESOURCES.

Baldwin County Planning & Zoning

Natural Resource Planning

251-580-1655

planning@baldwincountyal.gov

WETLANDS

THE SEAL OF BALDWIN COUNTY ALABAMA
1809

Coastal Alabama receives five and a half feet of rain per year, which falls and runs across roofs, lawns, and driveways, picking up litter, fertilizer, pet waste, and chemicals along the way. Stormwater is not treated, and these contaminants are transported directly to local waterways. Installing a rain barrel is a practical way to reduce stormwater impacts. A one-inch rainfall over a 1,000 ft^2 roof yields 620 gallons of water; installing a rain barrel allows storage for future use and protects our natural resources.

What is a Rain Barrel?

A rain barrel is a system that collects and stores rainwater from your roof that would otherwise runoff into storm drains and streams. A rain barrel is typically made from a 55 gallon drum, a gutter down-spout, vinyl hose, PVC couplings, and a spigot. Rain barrels are simple, inexpensive and can sit under any gutter down spout.

Benefits of Rain Barrels

- **Rain barrels provide a free water source** that can be used for watering gardens, washing cars, or bathing pets.
- Using water caught in a rain barrel to water flowerbeds and gardens can **reduce the cost of monthly water bills**.
- **Rain water is better for plants and soil** than tap water. Rainwater is free of salt, inorganic ions, and fluoride that accumulate in soil over time and harm plant roots. Using rainwater makes plants healthier and stronger.
- **Reduce runoff pollution.** When it rains, runoff picks up fertilizers, oil, pesticides and other contaminants and carries them into storm drains and streams. These pollutants can increase algae growth, alter the habitat for fish, and even make oceans dangerous for recreational activities. Collecting rain water helps prevent this damaging flow.

How to Maintain Your Rain Barrels

Tips to keep your rain barrels clean and functioning:

- Start at the gutter that feeds your rain barrel– clean the gutter of leaves and debris. Rinse this gutter with a hose to be sure it is draining properly.
- Inspect the overall condition- look for cracks in the barrel, clogged spigots, or debris on the bottom.
- Cleaning: empty all water, use a mixture of vinegar and water to scrub the inside and bottom of the barrel with a long handled brush. Rinse out and let dry.

Not for Consumption

Rain barrel water is not for human or pet consumption. As rain water flows over a roof, it picks up pollutants such as bacteria from animals and chemicals from roof materials.

Thank you for helping Create a Clean Water Future for generations to come!
For more information visit
www.cleanwaterfuture.com

What is...*Create a Clean Water Future?*

Create a Clean Water Future is a public service campaign to help residents of Alabama learn more about stormwater runoff and its impacts; increase demand for stormwater management programs; and provide tools that empower Alabama residents to reduce polluted runoff in our waterways.

The ***Create a Clean Water Future*** campaign has three easy ways ***you*** can become part of the solution:

Step up – Install rain barrels at **your** home or office.

Speak up – Let ***your*** voice be heard with local officials, policymakers, and the media to make sure stormwater runoff is on the agenda. Tell your friends about the problem and how you are helping address it by installing your rain barrel.

Follow up – Make sure **your** local government is offering stormwater education outreach opportunities such as rain barrel workshops.

Join the campaign visit

www.CleanWaterFuture.com

This project is made possible by:

If you or someone you know is interested in owning a rain barrel please contact

Baldwin County Planning & Zoning Natural Resource Planner

251-423-3632

ashley.campbell@baldwincountyal.gov

Rain Barrels

CREATE A Clean Water FUTURE

- **Materials Management:** Protect stockpiles of soil and paving materials from wind and water erosion. Have a spill prevention and control plan for hazardous materials such as fuel, paints, and solvents.

- **Seeding and Sodding:** Establish vegetative cover on disturbed areas to reduce erosion and provide soil stabilization.

- **Dust Control:** Control wind-borne particles during construction to minimize onsite and offsite damages and hazards.

- **Sediment Perimeter Protection:** Install silt fencing, straw rolls or a gravel bag barrier to prevent sediment discharges.

ADDITIONAL RESOURCES:

- The Alabama Department of Environmental Management (ADEM) offers information at its website.
http://www.adem.state.al.us

- The Alabama Soil and Water Conservation Committee published the Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas. It is available at:
http://swcc.state.al.us/erosion_handbook.htm

- The Environmental Protection Agency's (EPA) website on the National Pollutant Discharge Elimination System (NPDES) provides information on erosion and sediment control during construction.
http://cfpub.epa.gov/npdes

- International Stormwater Best Management Practices (BMP) Database:
http://www.bmpdatabase.org

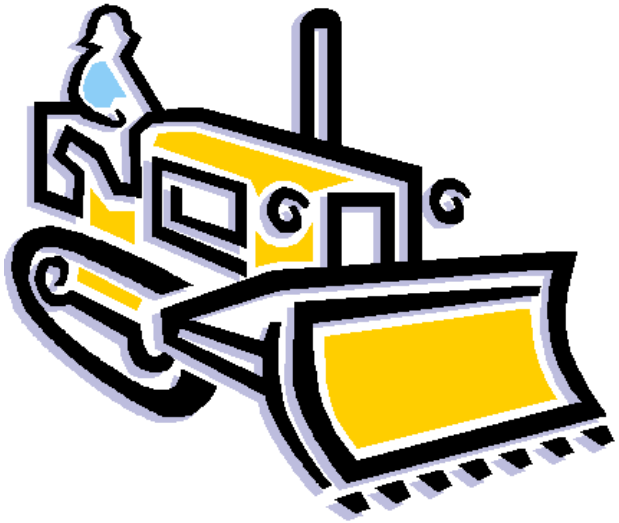
BALDWIN COUNTY PLANNING AND ZONING

www.planning.co.baldwin.al.us

Main Office Mailing Address
22251 Palmer St
Robertsdale, AL 36567

Main Office Physical Address
22070 Hwy 59
Robertsdale, AL 36567
Phone (251) 580-1655
Fax (251) 580-1656

STORMWATER BEST MANAGEMENT PRACTICES (BMPs)



A SUPPLEMENT FOR THE EROSION CONTROL ORDINANCE

BALDWIN COUNTY PLANNING AND ZONING

STORMWATER POLLUTION

If sedimentation or other pollutants from a construction site enters a watercourse, it can have negative effects on fish and aquatic life, their spawning grounds, and the overall turbidity, or clarity, of the watercourse. The Environmental Protection Agency (EPA) identifies the following as examples of pollutants: pesticides, petroleum products, construction chemicals, solvents, asphalts and acids.

BEST MANAGEMENT PRACTICES (BMPs)

In an effort to reduce or eliminate sediment and pollutant discharges into Baldwin County's watercourses, owners and operators in unincorporated and zoned areas of the county are required to submit an erosion control plan and implement best management practices (BMPs). BMPs are "structural or non-structural measures, practices, techniques or devices employed to avoid or minimize soil, sediment or pollutants carried in runoff to waters of the state."

PERMIT & REGULATORY REQUIREMENTS

The following permits and ordinances must be considered before construction activity commences:

- **Alabama Environmental Permit:** The Alabama Department of Environmental Management (ADEM) requires a notice of registration for all projects within the county which disturb 1 or more acres of land. Information on this process and applications are available at: www.adem.state.al.us
- **Land Use Certificate:** The Baldwin County Planning and Zoning Department requires that a land use certificate be obtained prior to any construction commencing in zoned areas of the county. An erosion control plan showing the type and location of BMPs to be used must be submitted with the application. For sites less than 1 acre, the plan may be prepared by a qualified credentialed professional (QCP); a qualified credentialed inspector (QCI); a certified erosion control specialist; a licensed home builder or a licensed contractor. A qualified credentialed professional (QCP) must prepare plans for sites that are greater than 1 acre in size or those that fall under ADEM's authority.
- **Right-of-Way and Access Permits:** A permit is needed when working in the public right-of-way. Contact the Maintenance Engineer with the Baldwin County Highway Department at (251) 972-8533.
- **Building Permits:** Contact the Building Department to determine what building permits may be needed at (251) 580-2548.

INSPECTION PROGRAM

County staff monitors construction sites for proper erosion and sediment controls. They will ensure that BMPs are in place and providing adequate protection. If sediment and erosion are not being adequately controlled, the owner or operator may be subject to a stop work order or fines until the problem is corrected.

POLLUTION PREVENTION PRINCIPLES

The Alabama Handbook for Erosion and Sediment Control published by the Alabama Soil and Water Conservation Committee provides information to assist with the development of plans and the design of best management practices.

Multiple BMPs may need to be implemented to provide adequate erosion and sediment control protection.

The following are brief examples of BMPs that can be implemented on project sites:

- **Planning and Scheduling:** Minimize land disturbance by clearing only the area to be worked, rather than the entire site.
- **Slope Stabilization:** Preserve existing vegetation and stabilize slopes with hydraulic mulch or erosion control blankets.

- **Sediment Tracking:** Construct a stabilized construction entrance and conduct frequent street sweeping to keep sediment off of roadways.

Recognizing Wetlands

An Informational Pamphlet

What is a Wetland?

The US Army Corps of Engineers(Corps) and the US Environmental Protection Agency define wetlands as follows:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wetlands are areas that are covered by water or have waterlogged soils for long periods during the growing season. Plants growing in wetlands are capable of living in saturated soil conditions for at least part of the growing season. Wetlands such as swamps and marshes are often obvious, but some wetlands are not easily recognized, often because they are dry during part of the year or "they just don't look very wet" from the roadside.

Some of these wetland types include, but are not limited to, many bottomland forests, pocosins, pine savannahs, bogs, wet meadows, potholes, and wet tundra. The information presented here usually will enable you to determine whether you might have a wetland. If you intend to place dredged or fill material in a wetland or in an area that might be a wetland, contact the local Corps District Office for assistance in determining if a permit is required.

Why is it necessary to consider whether an area is a wetland?

Section 404 of the Clean Water Act requires that anyone interested in depositing dredged or fill material into "waters of the United States, ***including wetlands,***" must receive authorization for such activities. The Corps has been assigned responsibility for administering the Section 404 permitting process. Activities in wetlands for which permits may be required include, but are not limited to:

- Placement of fill material.
- Ditching activities when the excavated material is sidecast.
- Levee and dike construction.
- Mechanized land clearing.
- Land leveling.
- Most road construction.
- Dam construction.

The final determination of whether an area is a wetland and whether the activity requires a permit must be made by the appropriate Corps District Office.

How can wetlands be recognized?

The Corps uses three characteristics of wetlands when making wetland determinations: **vegetation, soil, and hydrology.** Unless an area has been altered or is a rare natural situation, wetland indicators of all three characteristics must be present during some portion of the growing season for an area to be a wetland. Each characteristic is discussed below.

However, there are some general situations in which an area has a strong probability of being a wetland. If any of the following situations occur, you should ask the local Corps office to determine whether the area is a wetland:

- Area occurs in a floodplain or otherwise has low spots in which water stands at or above the soil surface during the growing season. ***Caution: Most wetlands lack both standing water and waterlogged soils during at least part of the growing season.***
- Area has plant communities that commonly occur in areas having standing water for part of the growing season (e.g., cypress-gum swamps, cordgrass marshes, cattail marshes, bulrush and tule marshes, and sphagnum bogs).
- Area has soils that are called peats or mucks.
- Area is periodically flooded by tides, even if only by strong, wind-driven, or spring tides.

Many wetlands can be readily identified by the general situation stated above. For the boundary of these areas and numerous other wetlands, however, it is unclear whether these situations occur.

In such cases, it is necessary to carefully examine the area for wetland indicators of the three major characteristics of wetlands: vegetation, soil, and hydrology. Wetland indicators of these characteristics, which may indicate that the area is a wetland, are described on the following pages.

Vegetation indicators

Nearly 5,000 plant types in the United States may occur in wetlands. These plants, known as ***hydrophytic vegetation,*** are listed in regional publications of the US Fish and Wildlife Service.

However, you can usually determine if wetland vegetation is present by knowing a relatively few plant types that commonly occur in your area. For example, cattails, bulrushes, cordgrass, sphagnum moss, bald cypress, willows, mangroves, sedges, rushes, arrowheads, and water plantains usually occur in wetlands.

Other indicators of plants growing in wetlands include trees having shallow root systems, swollen trunks (e.g., bald cypress, tupelo gum), or roots found growing from the plant stem or trunk above the soil surface. Several Corps offices have published pictorial guides of representative wetland plant types.

If you cannot determine whether the plant types in your area are those that commonly occur in wetlands, ask the local Corps District Office or a local botanist for assistance.

Soil indicators

There are approximately 2,000 named soils in the United States that may occur in wetlands. Such soils, called ***hydric soils***, have characteristics that indicate they were developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season. If the soil in your area is listed as hydric by the US Natural Resource Conservation Service (NRCS), the area might be a wetland.

If the name of the soil in your area is not known, an examination of the soil can determine the presence of any hydric soil indicators, including:

- Soil consists predominantly of decomposed plant material (peats or mucks).
- Soil has a thick layer of decomposing plant material on the surface.
- Soil has a bluish gray or gray color below the surface, or the major color of the soil at this depth is dark (brownish black or black) and dull.
- Soil has the odor of rotten eggs.
- Soil is sandy and has a layer of decomposing plant material at the soil surface.
- Soil is sandy and has dark stains or dark streaks of organic material in the upper layer below the soil surface. These streaks are decomposed plant material attached to the soil particles. When soil from these streaks is rubbed between the fingers, a dark stain is left on the fingers.

Hydrology indicators

Wetland hydrology refers to the presence of water at or above the soil surface for a sufficient period of the year to significantly influence the plant types and soils that occur in the area. Although the most reliable evidence of wetland hydrology may be provided by gaging station or groundwater well data, such information is limited for most areas and, when available, requires analysis by trained individuals. Thus, most hydrologic indicators are those that can be observed during field inspection. Most do not reveal either the frequency, timing, or duration of flooding or the soil saturation.

However, the following indicators provide some evidence of the periodic presence of flooding or soil saturation:

- Standing or flowing water is observed on the area during the growing season.
- Soil is waterlogged during the growing season.
- Water marks are present on trees or other erect object. Such marks indicate that water periodically covers the area to the depth shown on the objects.
- Drift lines, which are small piles of debris oriented in the direction of water movement through an area, are present. These often occur along contours and represent the approximate extent of flooding in an area.
- Debris is lodged in trees or piled against other object by water.
- Thin layers of sediments are deposited on leaves or other objects. Sometimes these become consolidated with small plant parts to form discernible crust on the soil surface.

Wetland determination

One or more indicators of wetland vegetation, hydric soil, and wetland hydrology must be present for an area to be a wetland. If you observe definite indicators of any of the three characteristics, you should seek assistance from either the local Corps District Office or someone who is an expert at making wetland determinations.

This brochure is not intended to be used to make a final wetland determination or delineation; it is intend, however, to provide some general information concerning wetlands identification.

What to do if your area has wetlands that you propose to alter?

Contact the Corps District Office that has responsibility for the Section 404 permitting process in your area. This office will assist you in defining the boundary of any wetlands on your property, and will provide instructions for applying for a Section 404 permit, if necessary.

Appendix B

Baldwin County MS4 Inventory Outfall

		OUTFALL INVENTORY			
DISCHARGE TYPE	DISCHARGE ID	LOCATION	BASIN	LATITUDE	LONGITUDE
PIPE	1	THREE MILE CREEK RD TURNS NORTH BEFORE I-10	MOBILE/FISH RIVER	30D 39M 9.164S	87D 47M 30.833S
BOX CULVERT	2	CR 64 - CORN BR. EAST OF HALL RD	MOBILE/CORN BRANCH	30D 47M 5.895S	87D 47M7.875S
PIPE	3	GREENO LN JUST EAST OF INGLESIDE AVE	MOBILE/COWPEN CREEK	30D 30M 39.672	87D 53M 24.951S
OPEN DITCH	4	WASP LN-WHERE IT DUMPS INTO POND	MOBILE/POINT CLEAR CREEK	30D 28M 26.261S	87D 54M 38.997S
PIPE	5	BOOTHE RD-BETWEEN LAKE VIEW & NORMAN LN	MOBILE/COWPEN CREEK	30D 30M 16.002S	87D 52M 39.695S
BRIDGE	7	SCENIC 98-ROCK CRK. SOUTH OF ECOR ROUGE LN	MOBILE/ROCK CREEK	30D 33M 27.932S	87D 53M 58.874S
BRIDGE	8	TURKEY BRANCH-TURKEY BRANCH DR	MOBILE/TURKEY BRANCH	30D 38M 33.83S	87D 50M 3.536S
BOX CULVERT	9	SCENIC 98-RED GULLY SOUTH OF N WINDING BROOK DR	MOBILE/RED GULLEY	30D 34M 42.480S	87D 54M 17.512S
BRIDGE	10	SCENIC 98-FLY CRK. SOUTH OF SEA CLIFF DR	MOBILE/FLY CREEK	30D 33M 4.416	87D 53M 55.041S
BOX CULVERT	11	CR 44-COWPEN CRK. WEST OF FAIRFIELD DR	MOBILE/COWPEN CREEK	30D 30M 6.374S	87D 52M 19.352S
BOX CULVERT	12	BR. OFF POINT CLEAR CR. WILLOWBRIDGE DR	MOBILE/POINT CLEAR CREEK	30D 28M 58.419S	87D 54M 29.019S
BRIDGE	13	CR 3 BAILEY CRK SOUTH OF COUNTY RD 32	MOBILE/BAILEY CREEK	30D 28M 14.797S	87D 54M 11.017S
BRIDGE	14	SCENIC 98-POINT CLEAR CRK. NORTH OF LAKEWOOD DR	MOBILE/POINT CLEAR CREEK	30D 29M 8.725S	87D 55M 56.413S
PIPE	15	COUNTY RD 66 EAST OF BOAZ RD E	MOBILE/CORN BRANCH	30D 37M 32.626S	87D 46M 56.187S
PIPE	16	COUNTY RD 66 EAST OF BOAZ RD E EAST OF DISCHARGE 15	MOBILE/CORN BRANCH	30D 37M 32.698S	87D 46M 48.239S
BOX CULVERT	17	BOARDWALK DR	MOBILE/MUDDY BRANCH	30D 42M 55.314S	87D 53M 40.18S
PIPE	18	MCFARLAND RD EAST OF JESSIE RD	MOBILE/BAY BRANCH	30D 40M 45.989S	87D 49M 20.674S
PIPE	20	MOSELEY RD EAST OF COUNTY RD 13	MOBILE/FLY CREEK	30D 32M 17.546S	87D 51M 47.752S
PIPE	21	COUNTY RD 48 WEST OF BLUEBERRY LN	MOBILE/FISH RIVER	30D 31M 25.095S	87D 50M 42.566S
BOX CULVERT	22	SCENIC HWY 98 SOUTH OF NELSON DR	MOBILE/TITI SWAMP	30D 30M 14.532S	87D 55M 18.894S

Baldwin County
Catch Basin and Outfall

Reconnaissance Inventory/Sample Collection Field Sheet

Section 1: Background Data

Sub watershed:		Outfall ID:03	Outfall not in inventory: ☐
Today's date:		Time:	
Investigators: Ashley Campbell		Form completed by: Ashley Campbell	
Temperature:	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitude:	Longitude:	GPS Unit:	Location as mapped: ☐
Camera: iPhone-AC		Photo #s:IMG_	

Land Use in Drainage Area (Check all that apply):

☐ Industrial ☐ Open Space

☐ Urban Residential ☐ Institutional

☐ Suburban Residential Other:

☐ Commercial Known Industries:

Notes (e.g., origin of outfall, if known): Erosion noted around pipe on west side of road

Maintenance Priority:

☐ Priority 1-High ☐ Priority 2-Medium

☐ Priority 3-Low

Notes:

Section 2: Outfall Description

Location	Material	Shape		
☒ Closed Pipe Diameter/Dimensions:	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other:	☐ Circular ☐ Elliptical ☐ Box ☐ Other:	☐ Single ☐Double ☐ Triple ☐ Other:	In water: ☒No ☐ Partially ☐ Fully With Sediment: ☐ No ☐Partially ☐ Fully
☐ Open drainage	☐ Concrete/Paved ☐Earthen ☐ rip-rap ☐ Other:	☐ Trapezoid ☐ Parabolic ☐ Other:		Depth: Top Width: Bottom Width:
☐ In-Stream-**NA**	(applicable when collecting samples)			
Flow Present?	☐ Yes ☒ No (If No, Skip to Section 5)			
Flow Description	☐ Trickle ☐ Moderate ☐ Substantial			

Section 3: Quantitative Characterization

Field Data For Flowing Outfalls				
Parameter		**Result**	**Unit**	**Equipment**
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	Stop watch
☐ Flow #2	Flow Depth		In	Tape measure
	Flow Width	_____’ _____”	Ft, In	Tape measure
	Measured length	_____’ _____”	Ft, In	Tape measure
	Time of travel		Sec	Stop watch

Catch Basin and Outfall

Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐Yes ☒No (If No, Skip to Section 5)

Indicator	Check if Present	Description	Relative Severity Index		
Odor	☐	☐Sewage ☐Rancid/Sour ☐Petroleum/Gas ☐Sulfide ☐Other:	☐1 – Faint	☐2 – Easily Detected	☐3 – Noticeable from a distance
Color	☐	☐Clear ☐Brown ☐Gray ☐Yellow ☐Green ☐Orange ☐Red ☐Other:	☐1 – Faint colors in sample bottle	☐2 – Clearly visible in sample bottle	☐3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐1 – Slight cloudiness	☐2 – Cloudy	☐3 – Opaque
Floatables - Does not Include Trash!!	☐	☐Sewage (Toilet Paper, etc.) ☐Suds ☐Petroleum (oil sheen) ☐Other:	☐1 – Few/slight: origin not obvious	☐2 – Some; indicators of origin (e.g., possible suds or oil sheen)	☐3 – Some; origin clear (e.g., obvious soil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐Yes ☒No

Indicator	Check if Present	Description	Comments
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐Corrosion	
Deposits/Stains	☐	☐ Oily ☐Flow line ☐Paint ☐Other:	
Abnormal Vegetation	☐	☐ Excessive ☐Inhibited ☐ Invasive Species	
Poor Pool Quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other	
Pipe Benthic Growth	☐	☐Brown ☐Orange ☐ Green ☐ Other:	
Animal Life	☐	☐ None/ little presence ☐ Average presence ☐High presence	

Section 6: Overall Outfall Characterization

☒ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Field Tests-NA

Test	Calibration Date And LOT#	Data
Ammonia		ppm
Chlorine		mg/L
Conductivity		µS/cm
Salinity		ppt
pH		

Test	Calibration Date And LOT#	Data
Temperature		°F
Nitrate		ppm
Nitrite		ppm
D.O.		mg/L

Section 8: Data Collection

Sample for the lab?	☐ Yes ☒ No
If yes, collected from:	☐ Flow ☐ Pool
If yes:	Chain of Custody Number:
☐ Surfactants	_____
☐ Aluminum	_____
☐ Iron	_____
☐ Phosphorous	_____
☐ E. Coli	_____

Section 9: Non-Illicit Discharge Concerns (eg. trash, repairs needed)

Notes:

MS4 Outfall Inspection Form

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours:	Last 48 hours:	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial
☐ Ultra-Urban Residential
☐ Suburban Residential
☐ Commercial
☐ Open Space
☐ Institutional
Other: _____
Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☐ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

MS4 Outfall Inspection Form

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1. Sample for the lab?	☐ Yes	☐ No	
2. If yes, collected from:	☐ Flow	☐ Pool	
3. Intermittent flow trap set?	☐ Yes	☐ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

BCHD GUIDELINES FOR OPERATIONS

Activity/Sub-Activity Description: Outfall Reconnaissance Inventory

Activity Code Number: 523

Administered by: Operations Section

Definition/Scope: This process is used by Baldwin County Highway Department employee(s) for Identifying & collecting at the Outfall Reconnaissance

Customer: The customers for this process are the County Commission, the County Engineer, Department Heads, Citizens, Environmental Agencies and Highway Department staff.

Objectives: Find Outfall Reconnaissance points and map locations

Implementation Plan: Follow this procedure for Outfall Reconnaissance points.

Follow-up Plan: Use maps as a guide for locations to take samples at Outfall Reconnaissance points.

Procedure to Accomplish: See below

- Use USGS maps to identify perennial and intermediate streams in the MS4 area
- Use the county GIS database to overlay the USGS map with the county maintained road system
- Identify the locations where the two intersect. These are your outfall locations
- Label the outfall locations numerically
- If more than one of their points intersects state waters at the same location, identify those additional location's with sub letters i.e. A,B,C,D
- Field verify all locations to ensure conditions are accurately captured
- Capture subwatershed, latitude, longitude, and fill out Outfall Inspection form
- Create a location map of each inspection point to attach to the Outfall Inventory Inspection form
- Inspect the outfall every 5 years

Appendix C

IDDE SOG & Forms

BCHD GUIDELINES FOR OPERATIONS

Activity/Sub-Activity Description: Illicit Discharge Detection and Elimination / Dry Weather Screening

Activity Code Number: 503

Administered by: Operations Section

Definition/Scope: This process is used by Baldwin County Highway Department employee(s) dry weather screening.

Customer: The customers for this process are the County Commission, the County Engineer, Department Heads, Citizens, Environmental Agencies and Highway Department staff.

Objectives:

- Conduct inspections during dry weather periods
- Characterize and record observations on basic sensory and physical indicators

Implementation Plan:

- If an illicit discharge is detected, please follow the Illicit Discharge Standard Operating Procedure

Follow-up Plan:

- Perform inspections of MS4 area at least once per permit cycle.
- If dry weather flow is present at the outfall, and the flow does not appear to be an obvious illicit discharge, attempt to identify the source of the flow then document the discharge for future comparison.
- Fill out MS4 Outfall Inspection Form
- Take photos for record.

Procedure to Accomplish:

Responsibilities Summary: The Baldwin County Highway Department employee responsible for performing dry weather screenings shall be responsible for implementing this SOP.

BCHD GUIDELINES FOR OPERATIONS

Activity/Sub-Activity Description: Illicit Discharge Detection and Elimination / Hazardous Materials

Activity Code Number: 503

Administered by: Operations Section

Definition/Scope: This process is used by Baldwin County Highway Department employee(s) for dealing with spills that may contain hazardous materials. Any dangerous good (solid, liquid or gas) that can harm people, other living organisms, property or the environment is considered a hazardous material.

Customer: The customers for this process are the County Commission, the County Engineer, Department Heads, Citizens, Environmental Agencies and Highway Department staff.

Objectives: **LIFE SAFETY FIRST – I'M SAFE, YOU'RE SAFE, WE'RE SAFE**

- If safe to do so, remove any victim(s) from the immediate vicinity of the spill, remembering that they are contaminated
- Consider evacuation

Please refer to the 1996 North American Emergency Response Guidebook

Implementation Plan: (for spills containing petroleum based products)

- Spill only – less than 25 gallons, not in water – notify supervisor, dyke product to prevent runoff and initiate clean up procedures
- Spill only in excess of 25 gallons or in water – notify 911 and request EMA, notify supervisor, notify ADEM, dyke product to prevent runoff, and notify hazmat contractor for clean up
- Spill with injury – call 911 and request EMS, Fire Department and EMA, notify supervisor to notify HR, dyke product to prevent runoff (quantities still apply)

Critical Information:

- On Scene Contact Name
- On Scene Contact Number
- Location –physical address, street, mile marker, direction (East, West etc.)
- City or County
- Road/Lane closures
- Type of material spilled

Please refer to the attached contractor contact list for cleanup contractors needed during spills.

Follow-up Plan: Actions shall be taken to minimize the spill location

Procedure to Accomplish:

Responsibilities Summary: The Baldwin County Highway Department shall take immediate precautionary measures to ensure the spill is contained and the appropriate authorities have been notified.

Baldwin County
ILLICIT DISCHARGE REPORTING FORM

Inspector Information

Name:	
Contact Phone Number:	Date and Time Discharge Discovered:

Discharge Information

PID Identification Number: ___ ___ (COUNTY) ___ ___ ___ ___ (SR) ___ ___ ___ ___ (SEGMENT) ___ ___ ___ ___ (OFFSET)

(1) Owner Name/Address:

City/Boro/Twp:	Nearest Intersection/Landmark:
GPS location, if known:	Lat: Long:

How Long since Last Rainfall: ☐ Raining Now ☐ 0-2 Days ☐ 3 or more Days	Nature of Discharge or Flow: ☐ Solid (Continuous) ☐ Intermittent (Occasional) ☐ Pulsing (Fluctuating) ☐ Transitory (Prior Spill)
If possible, identify the source of the discharge* ☐ Pipe Outfall ☐ Gutter ☐ Sanitary Wastewater ☐ Ditch ☐ Septic System ☐ Spill ☐ Storm Sewer ☐ Other: _____ * Add descriptions of discharge/source to Field Photograph Log Sheet	Potential for Discharge to enter into: ☐ Stream/Water Body ☐ Wetland ☐ Storm Drain ☐ Other: _____
Was water flow observed? ☐ Yes ☐ No Direct Connection to pipe/inlet? ☐ Yes ☐ No	Was a photo taken? ☐ Yes ☐ No If yes, attach photos.

(2) Describe Odor:
☐ None ☐ Musty ☐ Rotten Eggs (Sulphur) ☐ Rancid/Sour Milk
☐ Sewage ☐ Gas/Petroleum ☐ Cooking Oil ☐ Other: _____

(2) Describe Clarity:
☐ Clear ☐ Cloudy ☐ Opaque ☐ Sheen ☐ Gray

(2) Describe Color:
☐ Red ☐ Yellow ☐ Brown ☐ Green ☐ Gray ☐ White ☐ Other: _____

(2) Solids/Floatables:
☐ Garbage ☐ Sewage ☐ Tissue ☐ Oil Sheen ☐ Suds ☐ Scum ☐ Iron Sheen ☐ Unknown

Additional Information to assist in the Investigation (Vegetation Impacts?): _____
Describe Upstream/Source Origin/Land Use: ☐ Forest ☐ Ag ☐ Res ☐ Farmstd ☐ Com ☐ Ind ☐ Vac ☐ Inst ☐ Muni ☐ Mng

Send completed form to: planning@baldwincountyal.gov

Follow up Investigation (to be completed by Environmental Staff)
Outfall Location: _____ Within UA?: Y / N County _____
FIELD ANALYSIS:

	Odor:	Solids/Floatables:	Flow:
	Clarity:	Sheen/Scum:	Source Confirmed? Y / N
	Color:	Condition of Vegetation:	Direct Connection? Y / N
	Comments: (Immediate Environmental Concern? Y / N)		

DATE: _____ Inspection Name _____ Additional notes to file: _____
Follow-up with Complainant: _____ Send Confirmed ID Elimination/Removal Letter: _____

INSTRUCTIONS TO COMPLETE ILLICIT DISCHARGE (PID) REPORTING FORM

WHAT IS AN ILLICIT DISCHARGE:

An illicit discharge is any discharge into the highway storm sewer system that is not composed entirely of stormwater. Examples:

- Dry weather discharges of wastewater into the storm sewer system from illegal dumping; spills and other non-stormwater pollution sources
- Discharges of pollutants, contaminants or illicit materials into storm drainage/sewer systems (oil, grease, solvents, metals, nutrients, toxics, viruses, bacteria)
- Improper antifreeze, oil disposal from vehicle maintenance, service stations
- Vehicle washing wastewaters
- Autobody/repair facility waste waters
- Plating shop waste water
- Manufacturers waste water
- Private service agencies waste water
- Wholesale/retail est. waste water
- Sanitary wastewater/connections
- Mobile rug cleaning waste dumping
- Laundry waste waters
- Disposal of auto/household toxics
- Vehicular/accidental spills
- Dairy barn waste waters
- On-lot disposal system- sewage effluent.

WHAT IS NOT AN ILLICIT DISCHARGE:

The following non-stormwater discharges are not illicit discharges:

- Discharges from firefighting activities
- Potable water sources including dechlorinated waterline and fire hydrant flushings
- Irrigation drainage
- Lawn watering
- Water from individual residential car washing
- Dechlorinated swimming pool discharges
- Water from crawl space pumps
- Uncontaminated water from foundation or footing drains
- Routine external building wash down which does not use detergents or other compounds
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless spilled material has been removed) and where detergents are not use
- Air conditioning condensate
- Springs
- Uncontaminated groundwater

(1.) Property Owner Information:

Determine property owners name, if available, and street address of the discharge source in the event that follow-up action or elimination is required. If unable to determine owner, write in “undetermined”.

(**2.) Description of Discharge** for source identification/verification.

a. Odor: Determine which odors apply.

b. Clarity: How clear is the discharge?

c. Color: Discharge color and colors in swale, pipe, ditch, etc.(Document if red/green deficient)

d. Solids/Floatables: Identify indicators of source.

Description of Solids/Floatables: • Iron vs. Oil Sheens:

Iron leaches from soils forming a breakable sheen on stagnant water surfaces when poked with a stick. Oil sheens will conform around and coat the surface of the stick.

Illicit Discharge Inspection Form

Purpose: The purpose of this form is to document the observations made during an investigation of a potential non-storm water discharge into the County's MS4.

Inspection Information

Inspection Type: ☐ Initial ☐ Scheduled ☐ Follow-up ☐ Response to Complaint

Inspector Name: _____ Date: _____

Organization: _____ Time: _____

Phone: _____ E-mail: _____

Signature: _____

Name(s) of others accompanying inspector (if any):

Name: _____ Title: _____

Name: _____ Title: _____

Name: _____ Title: _____

Weather Conditions: ☐ Clear ☐ Cloudy ☐ Rain

Previous Rainfall: _____ in on _____ Source: _____

Incident Location

Stream: _____ Latitude: ° ' "

Address: _____ Longitude: ° ' "

Nearby Landmark: _____

Property Type: ☐ County ☐ Commercial ☐ Industrial ☐ Residential
☐ Other: _____

Primary Location: ☐ Stream ☐ Upland Area

Secondary Location: ☐ Outfall ☐ In-Stream Flow ☐ Near Storm Drain
☐ Along Bank ☐ Other: _____

Comments: _____

Observations

1. **Upland Problem Indicators**

☐ None ☐ Dumping ☐ Oil / Chemical ☐ Sewage
☐ Wash Water ☐ Suds ☐ Other: _____

Comments: _____

2. **Stream Corridor Problem Indicators**

Odor ☐ None ☐ Sewage ☐ Oil / Chemical ☐ Sour
☐ Sulfide ☐ Other: _____

Appearance ☐ Normal ☐ Cloudy ☐ Oil / Chemical ☐ Suds
☐ Turbid ☐ Other: _____

Floatables ☐ None ☐ Sewage ☐ Dead Fish ☐ Algae
☐ Other: _____

Comments: _____

3. **Field Screening Data**

Illicit Discharge Inspection Form

Sample Location: _____

Parameters		Results	Comments
1. Temperature	°C		
2. pH	s.u.		
3. Conductivity	µS/cm		
4. Total Dissolved Solids	mg/L		
5. Potassium	mg/L		
6. Ammonia	mg/L		
7. Chlorine	mg/L		
8. E Coli	mg/L		
9. Total Coliform	mg/L		
10. Fluoride	mg/L		
11. Surfactants	mg/L		
12. Detergents	mg/L		
13. Hardness	mg/L		

Comments: (These results will come from laboratory test)_____

_____

_____

4. Potential Source of Non Storm Water Discharge

☐ Sanitary Sewer ☐ Septic System ☐ Oil / Chemical Spill ☐ Vehicle Washing

☐ Construction Activity ☐ Industrial Activity ☐ Building Maintenance ☒ Drain Pipe

☐ Natural Source ☐ Other: _____

Suspect Violator

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Property Type: ☐ County ☐ Commercial ☐ Industrial ☐ Residential

☐ Other: _____

Follow-up Actions

☐ No follow-up actions are required.

☐ Notify Facility of Non-Storm Water Discharge ☐ Yes ☐ No Date : _____

☐ Conduct Follow-up Investigation ☐ Yes ☐ No Date: _____

☐ Refer to County Department

EMA (251) 972-6806 ☐ Yes ☐ No Date: _____

HWY (251) 937-0371 ☐ Yes ☐ No Date: _____

Health DP (251) 947-3557 ☐ Yes ☐ No Date: _____

☐ Non-Storm Water Discharge Eliminated ☐ Yes ☐ No Date: _____

☐ Notify ADEM ☐ Yes ☐ No Date: _____

☐ Other

Comments: _____

_____

_____

BCHD GUIDELINES FOR OPERATIONS

Activity/Sub-Activity Description: Illicit Discharge Detection and Elimination / Sewer Detection

Activity Code Number: 503

Administered by: Operations Section

Definition/Scope: This process is used by Baldwin County Highway Department employee(s) for dealing with detection of sewer leakage / spills.

Customer: The customers for this process are the County Commission, the County Engineer, Department Heads, Citizens, Environmental Agencies and Highway Department staff.

Objectives:

- County Employee performs routine site inspection
- The following parameters shall be looked for during the inspection:
  Grayish Turbidity, Odor, Floatables, Algae-growth and Bacterial growth.
- If any of the above are detected during the inspection, sanitary sewer or a failing septic system may be the root of the problem.
- The County shall immediately notify the Baldwin County Health Department at 251-947-3618.

Implementation Plan:

- In the event that sewer spill is detected, the following parties shall be notified:
  - Supervisor
  - Health Department
  - ADEM
  - Utility / Facility Owner (as applicable)

Please refer to the contractor contact list for cleanup contractors needed during spills.

Follow-up Plan:

Procedure to Accomplish:

Responsibilities Summary: The Baldwin County Highway Department employee responsible for performing inspection to determine if sewer spill has occurred.

Appendix D

Baldwin County Highway Inventory Map

Spanish Fort

Loxley

Daphne

Robertsdale

Fairhope

Legend

- MS4 Area in Baldwin County
- County Maintained Paved Roads in MS4
- County Maintained Unpaved Roads in MS4
- County Maintained Resurfaced Roads in MS4
- County Maintained Box Culverts Points in MS4
- County Maintained Bridge Points in MS4
- County Maintained Cross Drain Points in MS4
- County Maintained Adopt-A-Mile Signs in MS4
- County Maintained Stream Signs in MS4
- 911 Roads
- Water
- Stream Network

City Limits

- Daphne
- Fairhope
- Loxley
- Robertsdale
- Silverhill
- Spanish Fort
- Summerdale

N

W E

S

Baldwin County Highway Department

MS4 Reporting

0 0.5 1 2 3 4 5 Miles

Date: 5/12/2021
Time: 3:35:42 PM
M00457

Appendix E

Highway Activity Codes and Maintenance Sheet Example

Date	Activity Code	Rec Id	DJ ID	Employee/Equip/Material Desc.	Road ID	Road Name
4/1/2013	523	582309	181291	Balistere, Michael	200462	COUNTY RD 32
4/1/2013	551	582768	048910	Sharp, Michael	200462	COUNTY RD 32
4/1/2013	551	582768	39597	Pickup	200462	COUNTY RD 32
4/1/2013	616	582890	180372	McWatters Gabriel	202359	COUNTY RD 48
4/1/2013	616	582890	00501	Gradall	202359	COUNTY RD 48
4/1/2013	616	582891	095046	Collins Matthew	202359	COUNTY RD 48
4/1/2013	616	582891	03778	Dump Truck	202359	COUNTY RD 48
4/1/2013	616	582893	181278	Davis Forrest	202359	COUNTY RD 48
4/1/2013	690	582894	121671	Stallworth Kelvin T	202359	COUNTY RD 48
4/1/2013	690	582894	96074	Flat Bed	202359	COUNTY RD 48
4/1/2013	690	582897	181399	Jones Mark	202359	COUNTY RD 48
4/1/2013	690	582897	08897	Flat Bed	202359	COUNTY RD 48
4/2/2013	302	582977	008927	Parks, Jerry	202448	CADENA CREEK AV
4/2/2013	302	582977	63797	Flat Bed - Sign	202448	CADENA CREEK AV
4/2/2013	302	582977	70194	VS-1 CAP 90 DEGREE CROSS	202448	CADENA CREEK AV
4/2/2013	302	582978	180289	Barna, Zachary	202448	CADENA CREEK AV
4/2/2013	302	582979	008927	Parks, Jerry	202448	CADENA CREEK AV
4/2/2013	302	582979	63797	Flat Bed - Sign	202448	CADENA CREEK AV
4/2/2013	302	582979	70192-202448	EXT BLADES, HI, W/G, D/F, SNS	202448	CADENA CREEK AV
4/2/2013	302	582980	180289	Barna, Zachary	202448	CADENA CREEK AV
4/2/2013	523	585816	093981	Sedlack, John E	200486	COUNTY RD 64
4/3/2013	301	583202	008927	Parks, Jerry	200221	BOOTHE RD
4/3/2013	301	583202	63797	Flat Bed - Sign	200221	BOOTHE RD
4/3/2013	301	583203	180289	Barna, Zachary	200221	BOOTHE RD
4/3/2013	302	583200	008927	Parks, Jerry	201861	SCENIC HWY 98
4/3/2013	302	583200	63797	Flat Bed - Sign	201861	SCENIC HWY 98
4/3/2013	302	583200	70171	2# 10' U-C GALVANIZED POST	201861	SCENIC HWY 98
4/3/2013	302	583201	180289	Barna, Zachary	201861	SCENIC HWY 98
4/3/2013	302	583204	008927	Parks, Jerry	202288	TWIN BEECH RD
4/3/2013	302	583204	63797	Flat Bed - Sign	202288	TWIN BEECH RD
4/3/2013	302	583204	70173	2# 12' U-C GALVANIZED POST	202288	TWIN BEECH RD
4/3/2013	302	583205	180289	Barna, Zachary	202288	TWIN BEECH RD
4/3/2013	523	585823	093981	Sedlack, John E	200486	COUNTY RD 64
4/3/2013	538	583190	008927	Parks, Jerry	202359	COUNTY RD 48
4/3/2013	538	583190	63797	Flat Bed - Sign	202359	COUNTY RD 48
4/3/2013	538	583191	180289	Barna, Zachary	202359	COUNTY RD 48
4/3/2013	538	583198	008927	Parks, Jerry	201861	SCENIC HWY 98
4/3/2013	538	583198	63797	Flat Bed - Sign	201861	SCENIC HWY 98
4/3/2013	538	583199	180289	Barna, Zachary	201861	SCENIC HWY 98
4/3/2013	551	583219	048910	Sharp, Michael	200462	COUNTY RD 32

Baldwin County Highway Department
Activity Listing
Sequenced by Id

Id	Description
003	Holiday
004	Sick Leave
005	Annual Leave
006	Subsistence
007	Jury Duty
008	Military Leave
010	Other Pay
011	Personal Leave
013	Administrative Leave
020	LWOP
021	Workman's Comp
023	Disability LWOP
105	PE
110	CE&I County Projects
112	Grassing Hydroseeding
114	Geotechnical Engineering
115	Property Acquisition
116	Util Permit. Inspect & Coordin
117	Right-of-Way Research
118	Right-of-Way Acquisition
119	Survey Field Work
120	Bridge Inspection
121	ROW Monument Installation
222	Paving Dirt Road
250	Construction Preparation
300	SignReplace Stolen/Vandalized
301	Sign Maint - Routine Maint
302	Sign Install New
303	Traffic Signal Maint
304	Thermoplastic Markings/Legends
305	Thermoplastic Striping
311	Paint Markings Legends
420	Asphalt Patching
430	Resurfacing
436	Paint Striping
447	Bridge Repair
457	Pavement Markers
464	Strip Patching
465	Resurfacing Preparation-RRR
466	Side Drain Repair/Replacement
467	Cross Drain Repair Replace
468	Grading and Basing
469	Clearing and Grubbing
475	GPS Data Collection
480	Shoulder Improvements
481	Clip Shoulders
485	Sidewalk Maintenance
501	Cost Est Prep/County Roads
502	Cost Est Prep Other Agencies
503	Environmental Permit Process
504	Traff Control Device Inventory
505	AFM Program
506	Traffic Engineering
507	Emergency Disaster Work Mgt
508	Herbicide Spraying
509	Equipment Mgt Program
510	Pavement Mgt Program

Baldwin County Highway Department
Activity Listing
Sequenced by Id

Id	Description
511	Map Plan Review
512	Hydraulic Engineering
513	Install Emergency Signs
514	Sign Handling Preparation
515	Traff Control - Special Events
516	Kronos Time Mgt
517	E-mail Correspondence
518	Meetings Presentations
519	Personnel Mgt
520	Data Entry Reporting
521	Corresponding with Citizens
522	Agenda Item Preparation
523	Administrative Duties
524	Bids/Contract Prep & Maint
525	Project Management
526	Highway Mgt Plan
527	Billings-Invoices
528	Computer Program Operations
529	Adopt-a-Mile Program
530	Right-of-Way Vacations
531	Miscellaneous Permits
532	County Boat Launch Maintenance
533	County Building Maintenance
534	County Park Maintenance
535	County Water Access
536	County Walk/Bike Trail Maint
537	Equipment Repair Maintenance
538	Road/Sign Inspection
539	CAD Work
540	Roadway Engineering
541	Bridge Engineering
542	Traffic Engineering
543	Site Engineering
544	Deed Preparation
545	Property Management
546	Budget
547	Brush & Tree Cutting Hand
548	Full Depth Reclamation
549	Front Desk Duties
550	Highway Setback Appeals
551	CE&I Contract Projects
552	Logistics
606	Blade Road
613	Graveling Dirt Road
614	Add Materials to Dirt Road
615	Ditching Dirt Roads
616	Ditching W Shovel
617	Clean & Repair Drain Structure
619	Install New Cross Drain
623	Inmate Transfer
624	Landscaping
625	Mowing
627	Brush & Tree Cutting Boom Mow
628	Erosion Ctrl Grass Hydroseed
645	Bridge Maintenance Clearing
659	Traffic Operation Improvements
663	Wash Out Flood Damage Repair

Baldwin County Highway Department
Activity Listing
Sequenced by Id

Id	Description
666	Emergency Maintenance/Call Out
670	Install New Side Drain
671	Driveway Repairs
681	Equipment Transfer
682	Miscellaneous Shop Work
684	Training
688	County Functions
689	Overhead Support
690	Flagging/Traffic Control
691	Parks - Regular Maint
692	Material Handling
693	Transport Material
694	Litter Trash Pickup
695	Coordination w Gov't Agencies
696	Parks-Misc.
697	CIAP Construction Eng & Insp
801	Permit Division - Admin.
802	Subdivision Review & Permit
803	Subdivision Inspection
804	Indust.Commercial Permit Insp
805	Indust.Commercial Permit Revie
806	License Agreement Processing
807	Exemption Request
808	Rental Service
99	Debris Monitor

Appendix F

Baldwin County Highway License Agreement

LICENSE AGREEMENT

This LICENSE AGREEMENT (this "Agreement") between the Baldwin County Commission ("Licensor"), with an address at 312 Courthouse Square, Suite 12, Bay Minette, Alabama 36507, and _____ ("Licensee"), with an address at

WITNESSETH:

WHEREAS, Licensor is the owner of the real property described as _____ in Baldwin County, Alabama, and more particularly shown on the Site Map and Vicinity Map, which are attached hereto and included as if fully set forth herein (the "Property");

WHEREAS, Licensee desires to obtain access to the Property for the purpose of repairing the entrance way into the Oasis Travel Center with concrete and 3 feet from edge of pavement will be asphalt; and

WHEREAS, Licensor is willing to grant said access based upon the terms and conditions set forth herein.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Recitals. The above recitals and statements are incorporated as part of this Agreement as if fully set forth herein.

2. Grant of Revocable, Non-Exclusive and Temporary License. Subject to the terms and conditions set forth herein, Licensor hereby grants to Licensee,_____ , a revocable, non-exclusive and temporary license (the "License") to enter upon the Property as is reasonably required to_____. No further development or use of the Property is permitted or allowed without Licensor's prior written consent. Licensor retains the right to use the Property as it deems necessary. This License is granted to Licensee and is limited and specifically restricted to Licensee and its representatives ("Licensee Representatives"). Licensee shall have the Property surveyed and staked prior to performing any work thereon. All improvements constructed by Licensee shall be maintained by Licensee for any and all portions of the Property that are not County maintained.

3. Property. The real property subject hereto is limited to and sufficiently described as the in Baldwin County, Alabama, as shown on the Site Map and Vicinity Map attached hereto. Any exhibits referenced and attached hereto shall be incorporated herein as if fully set forth.

4. Term of License (Installation and Maintenance). The term of the License for Installation and/or Maintenance shall commence on the date of full execution of this Agreement. The term for installation, unless sooner terminated, shall automatically terminate and expire at 11:59 p.m. on . Maintenance shall be **indefinite** according to the terms of this Agreement, or until modified by written agreement with Licensor.

5. Condition of License Area: Assumption of Risk. Licensee accepts the Property in its "WHERE IS", "AS IS", condition and acknowledges that Licensor has made no representation or warranty to Licensee as to, and has no obligation for, the condition of the Property. Licensee assumes the risk of any latent or patent defects or problems that are or may be on the Property or the improvements thereon. Licensee agrees that Licensor shall not be liable for any personal or property damage, injury or loss on account of any such defects or problems. Licensee for itself and the Licensee Representatives waives and releases Licensor from any and all claims for injury to persons, including death, or damage to any property, whether real or personal, of Licensee or any Licensee Representatives in any way arising out of or related to the Property or Licensee's work contemplated by this Agreement.

6. Compliance. Licensee shall be responsible for obtaining any and all applicable Fish and Wildlife permits. Licensee and the Licensee Representatives shall comply, at Licensee's expense, with all applicable laws, regulations, rules and orders, whether federal, state or local, and any regulation of any governmental body having jurisdiction over the Property with respect to Licensee's work and activities thereon, regardless of when they become effective. Licensee, at its cost, shall obtain any applicable licenses or permits required by applicable laws and regulations for the use of the Property. Licensee shall not use, nor permit the use, of the Property for any purpose in violation of such laws, regulations, rules or orders. Licensee agrees not to use the Property in any fashion which may in any way damage or restrict the same for future use by the public in general as a public right-of-way. Furthermore, said usage as described herein, or the placement of said usage, shall not in any way alter the present or future rights of the Licensor to move, relocate, amend, or otherwise change said travel way to any other location whatsoever. Licensee shall comply with Licensor's safety and security policies deemed to be necessary by Licensor and with such reasonable rules and regulations as Licensor, or its agents, may impose from time to time by notice to Licensee.

7. Public Property. Licensee acknowledges and consents that the Property is public in nature and that the usage hereunder is permissive. Licensee shall not obstruct or otherwise interrupt any rights of the general public to the Property. Licensee makes no claim of private ownership or other possessory interest in the Property subject hereto, and any rights of the Licensee granted by this Agreement are limited to the same extent as that of the general public. Any work performed by Licensee, or any improvements made as a result of the Licensee's work, on the Property is considered to be a benefit to the general public, and the Licensee makes no claim that such work or improvements are privately owned and waives all rights to claims that such work or improvements are private in nature. Licensee further represents and warrants that Licensor, nor any persons using said public access in conjunction with this License, may claim any personal rights in the subject property or any rights of adverse possession.

8. Indemnification. Licensee shall indemnify, defend and hold Licensor and its Commissioners, affiliates, employees, agents, representatives, contractors, subcontractors, licensee and invitees (collectively, "Licensor Representatives") harmless from and against any and all claims, demands, liabilities, damages, losses, judgments, costs, and expenses including, without limitation, attorneys' fees and costs, for any and all personal injury (including death) and property damage of any kind or nature whatsoever, incurred by or imposed upon Licensor or any Licensor Representatives, as a result of any entry upon or activity conducted by Licensee or any Licensee

Representative, or any act or omission by Licensee or any Licensee Representative, or in any way arising out of or related to the Property or work contemplated by this Agreement. Licensee shall also assume the responsibility for any claims for damage done to any property due to the exercise, usage and/or presence of the resulting work as a result of this License.

9. No Alteration. Except as expressly permitted by this Agreement, Licensee shall not make nor permit any uses alterations or additions to the Property without Licensor's prior written consent.

10. Removal and Completion Upon Termination. Upon the expiration or termination of this License, Licensee shall (a) peaceably deliver to Licensor the full possession of the Property; (b) remove all materials, equipment, debris, waste, staged fill materials and improvements placed thereon by Licensee or Licensee Representatives or resulting from work under this Agreement; and (c) repair any damage to the Property and restore the Property to its condition on the date of this Agreement. Should Licensee fail, within thirty (30) days after the date of the termination of this License, to make such removal, repair and restoration, Licensor may, at its option, remove said materials, equipment and improvements and complete said repair and restoration at the sole cost of Licensee. Licensee shall reimburse Licensor for such costs within thirty (30) days after request by Licensor.

11. Damage to Property. Licensee agrees to pay for any damage which may arise to buildings, fences, machinery, or other property of Licensor or any third party on or near the Property resulting from Licensee's operations or presence on the Property. Licensee shall reimburse any and all costs related to any and all corrections, changes or improvements deemed to be necessary by Licensor as a result of work performed pursuant to this Agreement or as a result thereof.

12. Standard of Operation: Expenses. Licensee shall conduct all of its operations in a safe and workmanlike manner. All work and activities which Licensee or Licensee Representatives perform at the Property shall be at Licensee's sole risk, cost and expense. All portions of the work performed or improvements installed by Licensee or its representatives pursuant to this Agreement shall be located and performed so as to cause minimum interference with the proper use of the rights of way and with the rights and reasonable convenience of property owners who own or occupy adjacent properties. If during the course of the Licensee's construction, operation or maintenance of the project or improvements, there occurs a disturbance of the Property by Licensee or its representatives, Licensee shall, at Licensee's expense, replace and restore the same to a condition comparable to the condition it was in immediately prior to the disturbance to the satisfaction of Licensor and within the dates specified in any permits authorizing the work.

13. Insurance. Prior to occupying or using the Property, Licensee shall carry, with insurers satisfactory to Licensor, throughout the term hereof, Auto Liability Insurance, including owned, hired and non-owned vehicles, with limits of not less than $1,000,000, combined single limit, for both bodily injury liability and property damage liability for each occurrence. Commercial General Liability Insurance, including all contractual liability hereunder, with limits not less than $1,000,000, combined single limit, for both bodily injury liability and property damage liability for each occurrence; and Worker's Compensation Insurance, meeting the statutory limits of the

state where the Property is located and Employer's Liability Insurance fully covering all employees and supervisors participating in the work at the Property with limits not less than $1,000,000 each accident and $1,000,000 each employee disease. All liability insurance shall name Licensor as an additional insured. Prior to commencing operations hereunder, a Certificate of Insurance evidencing such coverage, satisfactory to Licensor, shall be furnished to Licensor, which shall specifically state that such insurance shall provide for at least ten (10) days' notice to Licensor in the event of cancellation, termination or any change in such insurance policies. The workers compensation certificate shall bear an endorsement clearly evidencing a waiver of the right of subrogation against Licensor and Licensor Representatives. Should Licensee fail to furnish current evidence upon demand of any insurance required hereunder, or in the event of cancellation, termination or change in any such insurance, Licensor may, at its option, suspend this Agreement until insurance is obtained or terminate this Agreement immediately without further action.

14. Responsibility. Licensee shall be responsible for compliance by Licensee Representatives with the terms of this Agreement and for all acts or omissions by Licensee Representatives on the Property.

15. No Assignment. Licensee shall not have the right to assign this Agreement or any rights or obligations hereunder without Licensor's prior written permission. Any attempted assignment shall be void. No assignment shall relieve Licensee of its liabilities and obligations herein.

16. Agency. It is neither the express nor the implied intent of Licensor or Licensee to create an agency relationship pursuant to this License; therefore, any actions of the parties shall not be considered or implied to create such agency.

17. No Waiver. The failure of Licensor or Licensee to insist upon a strict performance of any of the terms, conditions and covenants herein shall not be deemed a waiver of any subsequent breach or default in the terms, conditions and covenants herein contained.

18. Termination. It is understood and agreed that Licensor, in its absolute discretion, with or without cause or hearing, may terminate the License and permission herein granted to Licensee. Termination of the License and permission herein granted may be accomplished in writing, or orally. Once notice of termination is given by Licensor to Licensee, the permission herein granted shall immediately and automatically terminate, and Licensee shall have no further right, permission or authority to utilize the Property. All representations, assurances and indemnity obligations set forth in this Agreement shall survive termination or expiration of this Agreement.

19. Miscellaneous.

(a) This Agreement shall not be construed more strictly against one party than against the other merely by virtue of the fact that it may have been prepared by counsel for one of the parties. Both Licensor and Licensee have contributed substantially and materially to the preparation of this Agreement.

(b) This Agreement shall apply to and bind the successors and permitted assigns of the respective parties.

(c) This Agreement embodies the entire agreement and understanding of the parties, and there are no further or prior agreements or understandings, written or oral, in effect between the parties relating to the subject matter hereof.

(d) This Agreement may not be modified orally or in any manner other than by an agreement in writing signed by the parties or their respective successors or permitted assigns.

(e) The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

(f) This Agreement may be executed in any number or counterparts, each of which shall be an original, but all of which together shall constitute one and the same instrument. This agreement may be delivered by facsimile transmission.

(g) This Agreement shall be construed in accordance with and governed by the laws of the State of Alabama, with proper venue for any action arising hereunder lying in Baldwin County.

(h) Licensee's obligations under this Agreement shall survive expiration or termination of this Agreement.

20. Financial Terms/Conditions. Licensee shall incur and absorb all financial responsibility that arises to complete the project and/or work contemplated by this Agreement and shall remain responsible for the duration of the Agreement. The Licensor shall not incur any expense of the usage or maintenance described in this Agreement. These financial responsibilities shall lie solely with the Licensee.

21. Terms of Maintenance Agreement. Any damage to the existing Property caused by periodic maintenance to the Property shall be the sole responsibility of the Licensee to repair at the Licensee's expense.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date of full execution by Licensor below.

LICENSEE:

_____

BY:_____/_____
/Date

State of Alabama)

County of Baldwin)

I,_____, a Notary Public in and for said County, in said State, hereby certify that _____, is the individual whose name is signed to the foregoing instrument, and who is known to me, acknowledged before me on this day that, being informed of the contents of the instrument, he/she executed the same with full authority to do so voluntarily and personally on the day the same bears date.

Given under my hand and official seal, this the ___ day of _____, 2020.

_____
Notary Public

My Commission Expires:_____

License Agreement # _____

LICENSOR:

BALDWIN COUNTY, ALABAMA

_____/_____
Joey Nunnally /Date
County Engineer

State of Alabama)

County of Baldwin)

I,_____, a Notary Public in and for said County, in said State, hereby certify that Joey Nunnally, as Baldwin County Engineer, and whose name is signed to the foregoing instrument, and who is known to me, acknowledged before me on this day that, being informed of the contents of the instrument, he executed the same with full authority to do so voluntarily on the day the same bears date.

Given under my hand and official seal, this the ___ day of _____, 2020.

_____
Notary Public

My Commission Expires:_____

COMMISSION POLICY

POLICY #9.11

SUBJECT: License Agreement Between Baldwin County and Citizens/Corporations for Work on County Right-of-Ways

DATE ADOPTED	**AGENDA ITEM**
April 1, 2014	BG1

OBSOLETE VERSIONS ***(Can be found in the Inactive Policy Book.)***

February 19, 2008 Page 26

GENERAL PURPOSE & INTENT

This policy provides the procedure and guidelines for the submittal and processing of a license agreement between Baldwin County and an individual or corporation so they may perform work on a county right-of-way. The County Engineer will approve/deny all license agreements for work located on county right-of-way maintained by the county. License agreements for work on county right-of-way not maintained by the county must have the approval of the County Commission.

PROCEDURAL REQUIREMENT

In order to carry out this policy, the following steps must be taken:

1. An individual needing to perform work on a county right-of-way should first contact the Baldwin County Highway Department to discuss the proposed work before making a submittal.

2. The County Engineer or his/her designee will determine what supplemental information must be submitted by the applicant along with the request for a license.

3. The applicant must complete the License Agreement form and submit to the Baldwin County Highway Department for consideration along with a certificate of insurance as noted in Item 14 of the "License Agreement – Standard Format". The License Agreement should be signed by the applicant and notarized.

4. The County Engineer or his/her designee will make a file and review all information submitted.

5. For all county right-of-way maintained by the county, the County Engineer will review and approve/deny the License agreement. For all county right-of-way not maintained

by the County, the County Engineer or his/her designee will prepare a Commission Agenda Item and submit for workshop. Once reviewed in workshop, and if all information is provided, the Commission Agenda Item will be placed on the Commission Meeting Agenda for approval/denial. For cases that involve clearing unopened right-of-way or upon direction of County Engineer, Staff will send notices to adjacent property owners by certified mail a minimum of 14 days prior to the Commission Meeting informing them of the requested agreement.

6. If approved by the County Engineer and/or County Commission, the County Engineer or his/her designee will send the approved License Agreement with all exhibits to the applicant along with a cover letter stating that the License Agreement was approved by the County Engineer and/or County Commission.

7. The original License Agreement will be signed by the County Engineer or Commission Chairman and the County Administrator.

8. The County Engineer and/or County Commission may reduce, waive or increase the insurance requirements as noted in Item 14 of the "License Agreement – Standard Format".

9. Typically the License Agreement shall be valid for not more than a 6 month period. However, the County Engineer and/or County Commission may approve longer periods as recommended by the County Engineer or his/her designee.

FORMS/ATTACHMENTS/EXHIBITS

License Agreement – Standard Format – County Engineer Approval
License Agreement – Standard Format – County Commission Approval

Appendix G

EAC 25 Most Environmental Impacting Dirt Roads Study

The 25 Most Environmentally Damaging Dirt Roads 3rd Publication

Holly Grove Road, Bay Minette

2022
Baldwin County Environmental Advisory Committee

Executive Summary

Listed below, and in **Table 3** of the full report are, in the opinion of the Baldwin County Environmental Advisory Committee Dirt Road Subcommittee, the 25 most environmentally damaging County maintained dirt roads in Baldwin County. Maps displaying the 25 roads in each Highway Maintenance Area are attached at the end of the report.

- **Bay Road East**
- **Brady/Old Brady Road**
- **Hartung Road**
- **Hinote Glass Road**
- **Holly Creek Road**
- **Holly Grove Road**
- **Hughen St @Kendrick**
- **Kings Landing Road**
- **Kleinschmidt Road**
- **Lehman Road**
- **Malkoskie Road**
- **Mannich Lane**
- **Newman Road**
- **Norris Lane**
- **Paul Cleverdon Road**
- **Peter Morris Road**
- **River Road West CR 68 (Flat Creek)**
- **River Road N (Bon Secour River)**
- **Scranage Road**
- **Sonnie Lynn Lane**
- **Still Road**
- **TJ Earl Road**
- **Truck Route (Trail) 17**
- **Woerner Road**
- **Wolf Field Road**

With the exception of Holly Creek Road, Holly Grove Road, River Road (CR68) and Truck (Route) Trail 17 which standout above any of the other segments, the roads are listed in no particular order and no "ranking" is implied.

Due to plans for future paving, Lipscomb Road is not included in this study.

Table 1 - The 25 Most Damaging Dirt Roads in Baldwin County Studies

Study - 1998	Study - 2010	Study - 2022
Beasley Road	Barrineau Park Road	Bay Road East
Blakeley River Road	**Brady Road**	**Brady Road**
Blakeley Road	Bretz Lane	Hartung Road (connects Norris)
Bromley Road	County Road 26	Hinote Glass Road
Buck Phillips Road	Ewing Farm Road	**Holly Creek Road**
Crawford Road	Goat Cooper Road	Holly Grove Road
Duck Lane	Griggers Road	Hughen St @ Kendrick
Durbin Fork Road	Hagendorfer Road	Kings Landing Road Seminole
Dyas Road	**Holly Creek Road**	Kleinschmidt Road
Grigger Road	Kilcrease Road	Lehman Road
Holly Creek Road	Linholm Road	**Malkoskie Road**
John Bloch Road	**Lipscomb Road**	**Mannich Lane S4**
Langford Road	**Malkoskie Road**	Newman Road
Lajune (Old Styx River) Road	Mannich Lane S2	**Norris Lane**
Linholm Road	**Mannich Lane S4**	**Paul Cleverdon Road**
Miller Pit Road	Nolte Creek Drive	**Peter Morris Road**
Newberry Bluff Road	**Norris Lane**	River Road North
Old Battles Road	**Paul Cleverdon Road**	**River Road CR 68 to end**
River Road CR 68 to end	**Peter Morris Road**	**Scranage Road**
Scranage Road	**River Road CR 68 to end**	Sonnie Lynn Lane
Sherwood Highland Road	Sawmill Road	**Still Road**
Still Road	Sherman Road	**T.J. Earl Road**
T. J. Earl Road	Spring Creek Drive	**Truck Route (Trail) 17**
Truck Route (Trail) 17	**Truck Route (Trail) 17**	Woerner Road
Vaughn Road	**Wolf Field Road**	**Wolf Field Road**

Paved	**Listed in Two Studies**
Scheduled To Be Paved	**Listed in All Three Studies**

Introduction

This report was prepared by members of a subcommittee appointed by the Baldwin County Environmental Advisory Committee (BCEAC). This is the third (3rd) Dirt Road Report (1998, 2010 and 2022). **Table 1** lists the top 25 dirt roads from each study and details which roads have been paved.

The Committee would like to recognize the Highway Department for the great strides it has made in stabilizing the road listed in the previous reports. There is no doubt that these improvements have improved water quality and quality of life in Baldwin County.

The report was submitted to the full BCEAC during its October 4, 2022, meeting and is intended solely for use by the Baldwin County Commission (BCC) and Baldwin County Highway Department (BCHD). The intent of the effort was to update the latest BCEAC report entitled The 25 Most Environmentally Damaging Dirt Roads in Baldwin County prepared by the BCEAC (March 2010), although the process of elimination utilized in the latest report was modified as described below. Utilizing the 2010 report's list of the 25 most environmentally damaging dirt roads, the County was able to focus Highway Department resources to implement improvements and reduce impacts to wetlands and waterways. Sixteen of the twenty-five dirt roads listed in the 2010 report have received some level of treatment. Those roads that only received a partial treatment were again included in this review. Holly Creek Road, River Road (CR68 to End) and Truck Route (Trail) 17 were listed on all three (3) reports, but each has received partial treatment to minimize environmental impacts.

It is intended that this report be utilized, along with the various other socio-economic factors, by the County to target its existing and future Highway Department resources to achieve the most public good and environmental benefit.

Background

Baldwin County is blessed with an abundance of natural resources, particularly wetland and water resources, and abundant rainfall (50-60 inches per year). However, it is also located in an area of the country with one of the highest "rainfall factors" (>600). This rainfall factor is a numeric expression of the amount of kinetic energy in the rainfall (e.g., rainfall intensity) and the higher the number the more erosive the rainfall events can be to exposed soil. Baldwin County soils are also fairly conducive to erosion, being generally low in clay and gravel content. This particular combination of natural environmental conditions means exposed surface soils are highly susceptible to erosion, which results in significant quantities of sediment being delivered to area wetlands and waterways. As noted in the original report: "the soils of Baldwin County are consistently erosive and even slight grades cause the velocity of runoff water to exceed the critical velocity of soil particles."

The potential environmental and socio-economic impacts associated with excessive sedimentation in wetlands and waterways are well documented and include loss of habitat, channel modification, flooding, and various water quality issues (turbidity, swimability, etc.). Several stream segments in Baldwin County have been placed on Alabama's 303(d)0F list by the Alabama Department of Environmental Management (ADEM) due to impacts associated with sediment loading.

The public road system in Baldwin County currently includes two hundred and thirteen (213) named dirt road segments totaling about one hundred and seventy (170) linear miles compared to the 2010 Report which had three hundred and sixty-nine (369) named dirt road segments totaling about two hundred and seventy (270) linear miles. The average County dirt road segment length is approximately one (1) mile with a range of 0.01 miles to 7.44 miles (note that segment length is often defined by maintenance area or commission district line. For example, Brady Road is actually 13.43 miles but is listed in three segments). Only about 29% (69) of these roads are greater than one mile in length. Each mile of dirt road translates into roughly 3.5 acres of exposed soils that can easily be eroded and washed into nearby wetlands and streams. (Road data derived from ARC GIS tables.)

It should be noted that there are likely just as many private dirt roads within the County that are currently not under County maintenance and were not part of this review. Undoubtedly, some of these private dirt roads are having environmental impacts similar to, or greater than, those reviewed in this report.

Review Process

Since some degree of environmental impact is associated with any dirt road, the process of determining the "25 most environmentally damaging" is essentially a process of elimination. Focusing primarily on sediment impacts to wetlands and waterways, there are a number of physical factors that influence sediment delivery from dirt roads, such as proximity to the wetland or waterway, surface soil type of the road, slope steepness and length, vegetative cover, and drainage.

The evaluation included the two most relevant factors for this effort: "Environmental Concerns (EC)" (primary sort criteria with 2/3 of the evaluation score) and "Maintenance Difficulty (MD)" (secondary sort criteria with 1/3 of the evaluation score). The Environmental Concern rankings were based on the opinion of the BCEAC Dirt Road Subcommittee to the respective areas considering similar environmental factors used in the original reports (e.g., stream crossing, wetlands, etc.). The Maintenance Difficulty (MD) ranking, on a scale of 1 (best) to 10 (worst), was based on the opinion of the BCHD staff assigned to the respective areas considering similar factors used in the original reports (e.g., costs, frequency of maintenance, discharges to waterways, etc.).

The BCEAC Dirt Road Subcommittee was made up of five BCEAC members. Two of the members also served on the 2010 dirt road evaluation team.

Observations and Findings

Of Baldwin County's two hundred and thirteen (213) dirt roads, eighty-three (83) dirt roads (**Table 2**) were evaluated in the field during this study. Summaries of the field observations for each of the top 25 listed segments follow this narrative. In lieu of a "ranking" that implies a defensible rationale for placing one road segment ahead of another, the authors have developed this list with no particular relative rankings, with one or two worthy exceptions as noted. For each of the 25 road segments there is a general description, listing and location of problem areas, and general discussion. One or more representative photographs are usually included with each description.

1 The 303(d) list is a listing of waterbodies, promulgated by ADEM and EPA pursuant to section 303(d) of the Clean Water Act-Federal Water Pollution Control Act, that are not meeting applicable state water quality standards.

Table 2 - Dirt Roads Evaluated

Area 100	Area 200	Area 300
Holly Grove Road	River Road CR 68 to End	Norris Lane
Brady Road	Truck Route (Trail) 17	Lehman Road
Holly Creek Road	Hughen St @Kendrick	Mannich Lane
Still Road	Sonnie Lynn Lane	Bishop Trace
Scranage Road	Hinote Glass Road	Malkoski Road
TJ Earle Road	Peter Morris Road	Hartung Road
Union Town Road	Kings Landing Road Seminole	Paul Cleverdon Road
Ralph Gantt Road	River Road N Area 300	Bay Road East
Buck Phillips Road	Timber Company Road	Kleinschmidt Road
Couglan Road	Archie Minchew Road	Woerner Road
Dan Hadley Road	King Road Robertsdale	Newman Road
Clubhouse Road	Pursley Road	Wolf Field Road
Pat Haywood Road	River Road @ Myrtle Street	Grantham Road
Whidbee Road	Harms Road	Specs Lane
Southfield Road	Monsanto Road	Lipscomb Road
Catrett Road	County Road 55	Sherman Road
County Road 47 North	Giles Lane	Etta Smith Road
Dairy Cut Off Road	Griggers Road	John Bauer Road
Earl Phillips Road	King Road Barnwell	Rosalia Avenue
H L Meyers Road	Tew Lane	Fell Road
James Lane	Harris Lane	River Road South
Ray Road	Hubbard Road	Annie Cooper Lane S
Ronald Sanks Road	Jackson Lane	Guys Burns Road
Wash Branch Road		Hillcrest Drive
Jones Road Ext.		Pilgrim Road
Silas Ganey Road		Quail Lane
Carney Road		Seibert Rd
		Wynn Road
		Third Street
		River Road North
		Joe Norris Lane
		Roy Waters Road
		Weeks Road

Summary and Recommendations

Table 3 lists the final 25 dirt road segments considered by the authors to be the most environmentally damaging. Obviously, based on the subjective nature of the review, other reviewers could logically and defensibly derive a different list. Undoubtedly, as noted in the original report, there are road segments in the County other than those listed that are causing, or contributing to, significant environmental impacts. This review represents the authors' best effort given the data and resources available.

The Baldwin County Commission and Baldwin County Highway Department have made significant progress in reducing, minimizing, or eliminating the environmental impacts related to erosion and sedimentation from County maintained dirt roads over the past twelve (12) years. During the course of the review, the authors visited several of the road treatments implemented since the original review. These treatments, with some exceptions, appear to have been effective, but were often in need of maintenance.

The 25 road segments highlighted in this report total 63.5 miles in length and are distributed throughout the County as follows:

Maintenance Area 100	**6 Segments**	**33.2 miles**
Maintenance Area 200	**7 Segments**	**13.8 miles**
Maintenance Area 300	**12 Segments**	**16.6 miles**

Similar to the 2010 Report, County maintained dirt roads are fairly evenly distributed over two of the three Maintenance Areas (MA) 100 and 200: but, nearly 50% of all segments are located in MA 300. Likewise, segments with environmental concerns in MA 300 were notably higher, representing ~50% of the 25, but having the fewest actual miles. (Road data derived from ARC GIS tables.)

Based on this review, the authors make the following general recommendations:

- The County should not accept for maintenance dirt roads unless there is a clear public benefit, including the opportunity to correct a significant environmental problem. It is recommended that the Environmental Advisory Dirt Road Subcommittee review and comment on the roads submitted for adoption.

- "Turn outs" should be located in areas that will not discharge directly to a wetland or stream, where possible, and be designed and installed with a sediment trap which should be periodically maintained with the removal of accumulated sediments particularly where they discharge near wetlands or steams. Where turnouts currently discharge into wetlands and stream, consider relocating the turnout.

- The County should avoid the use of "staining" fill material in proximity to wetlands and waterways. These areas should be graveled.

- Outlet (and in some cases, inlet) protection should be provided at stream crossings to provide roadway and culvert protection and energy dissipation to reduce erosion downstream.

- The County should consider using GOMESA or other grant funding to conduct environmental restoration work in areas where significant stream and/or wetland impacts have occurred, especially along Holly Creek, Holy Grove Road, River Road west of CR 68 and Truck Route (Trail) 17.

- The County should consider abandonment and restoration of certain road segments where the environmental impacts are significant and there is little or no use by the travelling public or where alternate routes are readily available.

A number of the "General Observations" stated in the original report (Knaebel, 1998) are still applicable today. The treatment measures to control erosion and sedimentation associated with dirt roads are as varied as the causes of the problems. However, one thing has been demonstrated, only treating one aspect of the problem instead of all contributing factors is sure to fail. Although asphalt is often considered the ultimate answer, it comes with its own environmental price – increased runoff volumes and velocities, additional "non-sediment" pollutant loading (oils, tire wear particles, etc.), and increased development. To minimize urban sprawl into rural areas, the EAC recommends that the County continue to explore treatment alternatives other than asphalt where appropriate.

Some general recommendations have been made here and additional recommendations may appear within the individual segment reviews, but precise prescriptions will require additional focused study and engineering on each segment which are beyond the scope of this review.

Table 3 - 25 Most Environmentally Damaging Dirt Roads of Baldwin County

Road Name	BCHD Maintenance Area
Bay Road East	300
Brady Road	100
Hartung Road (connects Norris)	300
Hinote Glass Road	200
Holly Creek Road	100
Holly Grove Road	100
Hughen St @ Kendrick	200
Kings Landing Road Seminole	200
Kleinschmidt Road	300
Lehman Road	300
Malkoskie Road	300
Mannich Lane	300
Newman Road	300
Norris Lane	300
Paul Cleverdon Road	300
Peter Morris Road	200
River Road CR 68 to End	200
River Road North	300
Scranage Road	100
Sonnie Lynn Lane	200
Still Road	100
TJ Earle Road	100
Truck Route (Trail) 17	200
Woerner Road	300
Wolf Field Road	300

Dirt Road Evaluations

Road Name: Bay Road East **Length:** 2.1 miles **Maintenance Area:** 300
Area: Foley **Planning District:** 21-Zoned
Watershed: Nolte Creek & Weeks Creek - Magnolia River-Weeks Bay Watershed
Stream Crossings: 2 **Wetland Crossings:** 3
Photo(s):

Sediment in Creek

Bay Road East at Creek Crossing

General Description: The unpaved section of Bay Road East runs east from Vernant Park Road to Magnolia Springs Highway (County Road 49). It crosses two (2) streams and three (3) wetlands. It is located in the Magnolia River Watershed which is a sub-watershed of Weeks Bay. The improvement of the road is listed in the Weeks Bay Watershed Management plan as a management measure to improve water quality. The primary use for the road is access to residential homes and agriculture fields.

Observation: The road is relatively flat but does discharge to Nolte and Weeks Creeks and its wetlands and tributaries. Sediment impacts were noted in the creek. During the evaluation, it was noted that new red clay was recently placed along the road near the creek. It was also noted that there were minimal vegetated buffers between the farm fields and the road right-of-way.

Recommendation: The BCEAC Dirt Road Sub-committee recommends the following:

1. Contact the NRCS regarding recommendations or incentives for the farmers to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Due to its location and the multi road connectivity, the road be paved.

3. If paving is not feasible, stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Brandy Road **Length:** 12.2 miles **Maintenance Area:** 100
Area: Bay Minette **Planning District:** 12-Zoned, 5-Unzoned, 7 Un-Zoned
Watershed: Flat Creek-Reedy Creek-Styx River- Perdido River Watershed
Stream Crossings: 1 **Wetland Crossings:** 6 (*Crossing Derived from GIS Data)
Photo(s):

Stormwater Turnout Directed to Wetland

Sediment Noted in Wetland

General Description: Brady Road runs from County Road 68 Extension to Truck Route (Trail) 17, thence northward, crossing Truck Route (Trail) 17, to Old Brady Road. The road is covered by red sandy clay and has numerous wetland crossings. There are three segments of Brady Road listed by the County. The first is in Maintenance Area 200 and is 2.16 miles in length. There were no significant environmental problems observed on this first segment and it is not included in the review. The second segment is in Maintenance Area 100 and is 6.75 miles in length. The third segment is in Maintenance Area 100 and is 3.3 miles in length. The BCHD demarcation between the second and third segment is the Commission district line which was unclear in the field so the two were combined for this report. The sections of Brady Road that were reviewed for this study run along a ridge between Flat Creek and Reedy Creek crossing many wetland bottoms. This road is located in the Styx River Sub watershed which discharges to the Perdido River Watershed. Currently, there is not a watershed management plan for Perdido River. The primary use for the road is access to hunting and silviculture (forestry) land.

Observation: Since, the 2010 Report, the BCHD has graveled large portions of Brady Road which has helped minimize sediment impacts along the wetlands and stream crossing. Impacts were noted to several wetlands, associated with sediment discharges from turnouts.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

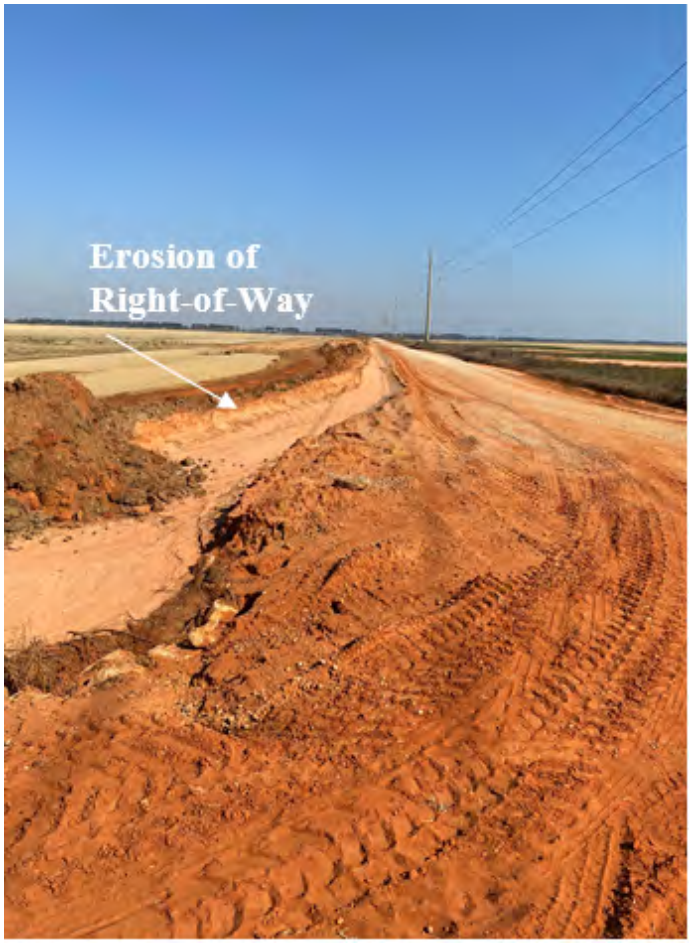
1. Contact the Alabama Forestry Commission regarding recommendations or incentives for the foresters to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts be relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

When the Baldwin Beach Express Phase II expansion follows this route, most of the problems will be eliminated or addressed.

Road Name: Hartung Road **Length:** 1.5 miles **Maintenance Area:** 300
Area: Foley **Planning District:** 21-Zoned
Watershed: Weeks Creek-Magnolia River-Weeks Bay Watershed
Stream Crossings: 1 **Wetland Crossings:** 3
Photo(s):



Erosion noted along Right-of-Way

Sediment in Weeks Creek

General Description: Hartung Road begins west of Grantham Road in Foley and continues to run west southwest to Norris Lane. The road accesses three homes and numerous farm fields. The road is located in the Weeks Bay Watershed and discharges to Weeks Creek. The improvement of the road is listed as a management measure to improve water quality in the Watershed Management Plan. The primary use for the road is access to residential homes and agriculture fields.

Observation: Hartung Road has been heavily impacted by farming activities. The headwaters of an un-named Tributary to Weeks Creek is no longer a creek. It is an eroding ditch.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the NRCS regarding recommendations or incentives for the farmers to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited, to sediment traps, additional upland turn outs, etc.

Road Name: Hinote Glass Road **Length:** 1.3 miles **Maintenance Area:** 200
Area: Loxley **Planning District:** 12-Zoned & 31-Zoned
Watershed: Blackwater River-Perdido River
Stream Crossings: 1 **Wetland Crossings:** 1
Photo(s):

Erosion Near Road Culvert Flows to Wetlands and Stream

Road Culvert Discharges to Down Stream Wetlands and Stream

General Description: The paved portion of Hinote Glass Road starts on the east side of Hwy 59 and continues to run east to Cabinet Shop Road where it transitions to gravel. Once it crosses over Monsanto Road it continues to County Road 65. Between CR 65 and Monsanto, the road has two culverts that appear to over-top during rain events. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed. The primary use for the road is access to residential homes and agriculture fields.

Observation: Erosion was noted at each culvert and sediment was noted in the Un-named Tributary to Blackwater River.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the NRCS regarding recommendations or incentives for the farmers to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Holly Creek Road **Length:** 5.1 miles **Maintenance Area:** 200
Area: Stockton **Planning District:** 21-Zoned
Watershed: Holly Creek-Alabama River-Upper Tensaw Watershed
Stream Crossings: 1 **Wetland Crossings:** Majority of Road Crosses Wetlands
Photo(s):

Sediment Impacts to Wetlands

General Description: Holly Creek Road travels from Hwy 59 to the end of pavement. The surface is sandy clay with gravel mix. It is relatively flat. From Hwy 59, Holly Creek parallels the road for 2 ½ miles. The road crosses Holly Creek and its tributaries in eleven locations. Holly Creek Road has great potential for environmental impacts due to the numerous stream and wetland crossings. The road is located in the Upper Tensaw Watershed. The Mobile Bay National Estuary Program is in the process of developing the watershed management plan. The primary use for the road is access to residential homes, silviculture (forestry) and hunting land.

Observation: The road is a major dumping ground. Erosion was noted along the length of the road leading to wetland impacts, especially at turnouts and near culvert outfalls.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the Alabama Forestry Commission regarding recommendations or incentives for the foresters to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

4. Baldwin County EAC & HD work with the County Solid Waste Department to address illegal dumping.

Road Name: Holly Grove Road **Length:** 3.5 miles **Maintenance Area:** 100
Area: Bay Minette **Planning District:** 5-Unzoned
Watershed: Dreddin Branch-Perdido River Watershed
Stream Crossings: 2 **Wetland Crossings:** 6
Photo(s):

General Description: Holly Grove Road starts on the east side of County Road 112 and continues to Perdido River. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido river Watershed. The primary use for the road is access to silviculture (forestry) land. It crossed six wetlands and two streams that flow to the Perdido River.

Observation: Portions of the road have been graveled. The road is impacting numerous wetlands and two stream. The USDA NRCS has conservation easements along the road.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the Alabama Forestry Commission regarding recommendations or incentives for the foresters to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

4. The USDA NRCS and The Nature Conservancy (TNC) be contacted regarding a partnership to reduce the environmental impact from the road.

Road Name: Hughen Street **Length:** .25 miles **Maintenance Area:** 200
Area: Robertsdale **Planning District:** 5-Unzoned
Watershed: Rock Creek-Blackwater River-Perdido River Watershed
Stream Crossings: 0-Discharges to Rock Creek **Wetland Crossings:** 1
Photo(s):

Roadside Right-of-Way Erosion-Flows to Channel

Sediment Noted in Wetland Ditch That Flows to Rock Creek

General Description: Hughen Street is north of Hwy 90. It lies between Robertsdale's City Limits and County Planning District 31. Hughen Street meets Kendrick Road in a 90-degree curve which is adjacent to a wetland along Rock Creek. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed. The primary use for the road is access to residential homes and agriculture fields.

Observation: The dirt section of Hughen and Kendrick Road is experiencing severe right-of-way erosion resulting in impacts to a unnamed tributary to Rock Creek and its wetlands.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Due to its location and the multi-road connectivity, the road be paved.

2. If not feasible, stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Kings Landing Road **Length:** 1.09 miles **Maintenance Area:** 200
Area: Seminole **Planning District:** 13-Un-zoned
Watershed: Blackwater River-Perdido River Watershed
Stream Crossings: 0-Discharges to River **Wetland Crossings:** 1 - Large Wetland
Photo(s):

Sediment in Ditch Flows to Blackwater River

Sediment Noted in Ditch Outfall Discharges to Blackwater River

General Description: Kings Landing Road is located in Seminole west of Three Rivers Road. The road crosses a large wetland complex and terminates in the flood zone of Blackwater River. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed. The primary use for the road is access to residential homes.

Observation: Kings Landing Road has been partially graveled and appears to be in good shape. However, over the years, the natural drainage of the road has been altered by private landowners. Instead of the stormwater from the north flowing south, it has been forced to flow in a small ditch to the west. The ditch cannot handle the stormwater from large rain events. The ditch is overwhelmed and has resulted in the road being washout into the river several times.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. The EAC seek grant funds to purchase the property or land donations to allow the offsite drainage to be routed back to the original flow pattern. The land could be placed in a conservation easement and given to a local land trust.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Kleinschmidt Road **Length:** 1.0 miles **Maintenance Area:** 300
Area: Elberta **Planning District:** 22-Zoned
Watershed: Miflin Creek-Wolf Bay Watershed
Stream Crossings: 1 **Wetland Crossings:** 1
Photo(s):

Sediment in Wetlands at Road Culvert

General Description: Kleinschmidt Road begins at County Road 83 and continues west to County Road 87. The road crosses over Miflin Creek which is part of the Wolf Bay Watershed. The improvement of the road is listed in the watershed management plan as a management measure to improve waters quality. The primary use is access for agriculture fields.

Observation: The road crosses Miflin Creek which is a headwater of Wolf Bay Watershed. Substantial sediment was noted in the wetland adjacent to the stream.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the NRCS regarding recommendations or incentives for the farmers to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Lehman Road **Length:** .48 miles **Maintenance Area:** 300
Area: Summerdale **Planning District:** 13-Unzoned
Watershed: Negro Creek-Blackwater River-Perdido River Watershed
Stream Crossings: 1 **Wetland Crossings:** 1
Photo(s):

Damage of Culvert System During Hurricane Sally

General Description: Lehman Road starts at Harms Road and runs west to the Baldwin County Beach Express. The road culvert system received extension damage during Hurricane Sally. The culvert replacement is scheduled for 2022. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed. The primary use for the road is access to residential homes and agriculture fields.

Observation: Lehman Road crosses over an un-named Tributary to Negro Creek. The County recently repaired the culvert wash out and covered the road at the culverts with gravel for a distance to the east and west.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the NRCS regarding recommendations or incentives for the farmers to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Malkoskie Road **Length:** 2.0 miles **Maintenance Area:** 300
Area: Elberta **Planning District:** 22-Zoned
Watershed: Narrow Gap Creek-Blackwater River-Perdido River Watershed
Stream Crossings: 2 **Wetland Crossings:** 5 (Derived from GIS Data)
Photo(s):

Malkoskie Road Creek Crossing

General Description: Malkoskie Road runs from County Road 95 east to its terminus. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed. It primary use is access to residential homes and agricultural fields.

Observation: The road surface is red clay. It crosses an unnamed tributary to Three-mile Creek and an unnamed tributary to Narrow Gap Creek. There are also numerous wetland crossings.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

> Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Mannich Lane **Length:** 1.5 miles **Maintenance Area:** 300
Area: Foley **Planning District:** 11-Unzoned
Watershed: Eslava Branch-Magnolia River-Weeks Bay Watershed
Stream Crossings: 1 **Wetland Crossings:** 3
Photo(s):

Sediment and Trash in Headwaters of Eslava Branch

Red Clay Base Road

General Description: This segment of Mannich Lane is between Lipscomb Road and County Road 9 (Woodhaven Road). The road's primary use is access to residential homes and agriculture fields. The road is located in the Magnolia River Watershed and its improvement is listed in the Watershed Management Plan as a management measure to improve water quality.

Observation: The surface is primarily red sandy material with some gravel surface treatment. The road is a major dumping ground. Erosion was noted along the length of the road leading to impacts to Eslava Branch and its wetlands.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Due to its location and road connectivity, pave the road.

2. If not feasible, stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

3. It is recommended that the BCEAC & BCHD work with the County Solid Waste Department to address illegal dumping.

Road Name: Newman Road **Length:** .39 miles **Maintenance Area:** 300
Area: Summerdale **Planning District:** 21-Zoned
Watershed: Baker Branch-Pole Cat Creek-Fish River-Weeks Bay Watershed
Stream Crossings: 0 **Wetland Crossings: 2**
Photo(s):

Sediment Impacts to Wetlands Adjacent to Baker Branch

General Description: Newman Road runs from County Road 55 to a single-family residence. The primary use for the road is access to residential homes and agriculture fields. Newman Road is in the Weeks Bay Watershed and stabilizing this road is listed in the Watershed Management Plan as a management measure to improve water quality in watershed.

Observation: Newman Road has some gravel for stabilization but continues to erode into the wetland area that discharges to Baker Branch.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

> Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Norris Lane **Length:** 2.2 miles **Maintenance Area:** 300
Area: Foley **Planning District:** 21-Zoned
Watershed: Weeks Creek-Magnolia River-Weeks Bay Watershed
Stream Crossings: 1 **Wetland Crossings:** 4 (Derived from GIS Data)
Photo(s):

Trash and Sediment Noted in Headwaters of Weeks Creek

Trash and Sediment Noted in Headwaters of Weeks Creek

General Description: The segment of Norris Road that was evaluated for this study was the section Norris Lane that starts at Laurant Road and runs to County Road 12. The road continues south to County Road 16. The primary use for this road is access to residential homes and agricultural fields. The road is located in the Weeks Bay Watershed and stabilizing this road is listed in the Watershed Management Plan as a management measure to improve water quality in the watershed.

Observation: Significant amounts of sediment were present in the stream crossings including Weeks Creek. This road segment appears to require constant maintenance to the roadway and ditches, resulting in continued impacts to the streams. Sediment and trash were noted in the stream channel and wetlands.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Turnouts relocated such that they discharge to upland areas where possible.

2. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

3. It is recommended that the BCHD work with the County Solid Waste Department to address illegal dumping

Road Name: Paul Cleverdon Road **Length:** 1.5 miles **Maintenance Area:** 300
Area: Summerdale **Planning District:** 18-Unzoned
Watershed: Baker Branch-Pole Cat Creek-Fish River-Weeks Bay Watershed
Stream Crossings: 1 **Wetland Crossings:** 1
Photo(s):

General Description: Paul Cleverdon Road starts at County Road 34 (Hoffman Road) and runs south terminating at CR 32, for a distance of 1.5 miles. The surface material is sandy clay with reddish sandy clay being used for fill and repair. The road primarily serves agricultural land (sod farms) and some residential. The road is located in the Weeks Bay Watershed and stabilizing this road is listed in the Watershed Management Plan as a management measure to improve water quality in the watershed.

Observation: This segment has two stream crossings (tributaries to Baker Branch) and one large wetland crossing. Erosion was present at the culvert crossing and sediment plumes were observed downstream. No significant impacts to wetlands were identified.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Due to its location and road connectivity, the road be paved.

2. If not feasible, stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Peter Morris Road **Length:** 3.1 miles **Maintenance Area:** 200
Area: Robertsdale **Planning District:** 13-Unzoned
Watershed: Dry Branch-Elam Creek-Styx River-Perdido River Watershed
Stream Crossings: 0 **Wetland Crossings:** 6-Adjaent-Wetlands Parallel Road
Photo(s):

Road Eroding into Wetland Bottom

General Description: Peter Morris Road runs north from Linholm Road to Arlie Minchew Road and primarily provides access to timberlands. The road is mostly imported red clay with several wetland drainage crossings. As usual, the primary concerns are where the roadway crosses or is adjacent to wetland areas. The road runs between Dry Branch and Elam Creek which flow to Styx River. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed.

Observation: Erosion was noted along the length of the road leading to wetland impacts, especially at turnouts and near culvert outfalls.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the Alabama Forestry Commission regarding recommendations or incentives for the foresters to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: River Road CR 68 **Length:** 1.5 miles **Maintenance Area:** 200
Area: Robertsdale **Planning District:** 12-Zoned
Watershed: Reedy Creek-Styx River-Perdido River Watershed
Stream Crossings: 1 **Wetland Crossings:** 1
Photo(s):

Erosion Noted at Reedy Creek Culvert

General Description: River Road runs west paralleling Styx River from its intersection with County Road 68 Extension to its terminus. The road crosses Flat Creek just south of where it joins Reedy Creek. The first 0.5-0.75 miles of the road lies within the floodplain of Styx River and appears to be frequently inundated. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed. The primary use is access to residential homes and Styx River.

Observation: The road covering is a sandy-clay material and gravel. The road essentially serves as a channel for stormwater runoff from the area, delivering sediment to the stream and river. Water diversions discharge (terminate) directly to, or in close proximity to, the stream or river. River Road ranked high in the previous studies.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Relocation of the road to higher ground or significant engineering (fill, drainage, stabilization) will be required to eliminate the environmental concerns.

2. Temporary measures to reduce impacts could include removal of accumulated sediment, vegetative stabilization of exposed soils in the area surrounding the stream crossing.

3. Remove excess sediment located in turnouts which are located on each side of the stream crossing.

Road Name: River Road North **Length:** .50 miles **Maintenance Area:** 300
Area: Foley **Planning District:** 35-Zoned
Watershed: Reedy Creek-Styx River-Perdido River Watershed
Stream Crossings: 0 **Wetland Crossings:** 1-Adjacent
Photo(s):

Trash Noted on River Road North

General Description: The paved section of River Road North begins at County Road 12 and continues south to where it becomes a dirt road. This red base dirt road is located between two tributaries of Bon Secour River. The road is a frequent trash dump site. The road is located in the Bon Secour Watershed.

Observation: Sediment was noted in the wetland adjacent to River Road North which discharges to a tributary of Bon Secour River.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Due to its location and road connectivity, the road be paved.

2. If not feasible, stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

3. It is recommended that the BC EAC & BCHD work with the County Solid Waste Department to address illegal dumping.

Road Name: Scranage Road **Length:** 6.4 miles **Maintenance Area:** 100
Area: Little River **Planning District:** 1-Unzoned
Watershed: Little River-Upper Tensaw River Watershed
Stream Crossings: 0 **Wetland Crossings:** 4 (Derived from GIS Data)
Photo(s):

Turnout Discharges to Wetlands

Road Adjacent to Wetlands

Illegal Dump on Road

General Description: Scranage Road is located in Little River and begins on State Hwy 59 and runs east 6.4 miles to where it becomes asphalt just east of Hill Road. The road runs between wetlands for the majority of its length.

Observation: Erosion was noted along the road leading to wetland impacts, especially at turnouts and near culvert outfalls.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the Alabama Forestry Commission regarding recommendations or incentives for the foresters to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts, may include but are not limited to, sediment traps, additional upland turn outs, etc.

4. It is recommended that the BCHD work with the County Solid Waste Department to address illegal dumping

Road Name: Sonnie Lynn Lane **Length:** .88 miles **Maintenance Area:** 200
Area: Robertsdale **Planning District:** 13-Unzoned
Watershed: Cowpen Creek-Styx River-Perdido River Watershed
Stream Crossings: 0 **Wetland Crossings:** 3
Photo(s):

Sonnie Lynn Lane

General Description: Sonnie Lynn runs north from U.S. Hwy 90 to a dead-end road. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed. The primary use for the road is access to residential homes, silviculture, and hunting properties.

Observation: The road crosses three wetlands. Sediment was noted in wetlands.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts, may include but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Still Road
Length: 2.1 miles
Maintenance Area: 100
Area: Bay Minette
Planning District: 5-Unzoned
Watershed: Hollinger Creek-Styx River-Perdido River Watershed
Stream Crossings: 1
Wetland Crossings: 1
Photo(s):

Road Turn Out Directed to Wetlands Adjacent to Hollinger Creek

Sediment in Wetlands Adjacent to Hollingers Creek

General Description: Still Road begins at Old Brady Road and runs towards County Road 112. The road crosses Hollinger Creek which flows to the Styx River which is part of the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed. The roads primary use is access to silviculture (forestry) properties.

Observation: The section of road near County Road 112 is steep resulting in erosion issues. Erosion was noted along the roadside ditches. The turnouts were directed to the wetlands. The wetlands along Hollinger Creek are heavily impacted by sediment.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the Alabama Forestry Commission regarding recommendations or incentives for the foresters to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts, may include but are not limited to, sediment traps, additional upland turn outs, etc.

When the Baldwin Beach Express Phase II is extended through this route, most of the problems can be eliminated or addressed.

Road Name: TJ Earl Road **Length:** 3.9 miles **Maintenance Area:** 100
Area: Little River **Planning District:** 1-Unzoned
Watershed: Brickyard Creek, Flat Branch, Holly Creek, & Turkey Creek-Upper Tensaw Watershed
Stream Crossings: 4 **Wetland Crossings:** Multiple Crossings and Adjacent Wetlands
Photo(s):

Erosion at Culvert to Creek

General Description: TJ Earl Road begins at Highway 59 and runs north to Dixie Landing Road. A large portion of the road is within a flood zone. The road crosses four (4) creeks and numerous wetlands. The primary use of this road is access to hunting land and silviculture activities.

Observation: TJ Earl Road crosses four streams and numerous wetlands.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the Alabama Forestry Commission regarding recommendations or incentives for the foresters to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Truck Route (Trail) 17 **Length:** 5.6 miles **Maintenance Area:** 200
Area: Loxley-Robertsdale **Planning District:** 12-Zoned
Watershed: Flat Creek, Eight Mile Creek, Hollinger Creek-Styx River-Perdido River Watershed
Stream Crossings: 2 **Wetland Crossings:** 5 (Derived from GIS Data)
Photo(s):

Sediment Noted in Wetlands

Sediment Noted on Bridge

General Description: Truck Route (Trail) 17 consists of 2.74 miles of paved surface (from County Road 49 eastward to Steelwood) and 5.6 miles of County maintained unimproved surface. The road serves timber lands, hunting, agricultural, and a few residential properties on the east end. The road surface is primarily sandy clay with gravel treatment in several areas. The road crosses streams in at least eight locations including Styx River, Reedy Creek, Flat Creek, Hollinger Creek, and Eightmile Creek. It also crosses numerous wetlands in other locations. Truck Route (Trail) 17 scored high in previous reports. It was the #1 environmentally damaging road in the 2010 report. The road is located in the Perdido River Watershed. Currently, there is not a watershed management plan for the Perdido River Watershed.

Observation: The Truck Route (Trail) 17 covering is a sandy-red clay material. Erosion was noted along the road and ditches. Impacts were noted in the creek and wetlands.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the Alabama Forestry Commission regarding recommendations or incentives for the foresters to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including roadway and ditch with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings five hundred feet or a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Woerner Road **Length:** 2.3 miles **Maintenance Area:** 300
Area: Elberta **Planning District:** 22-Zoned
Watershed: Miflin Creek-Gulf Frontal Watershed & Three Mile-Black-Water-Perdido Bay Watershed
Stream Crossings: 2 **Wetland Crossings:** 4
Photo(s):

Sediment Noted in Creek

Sediment in Wetlands

General Description: Woerner Road begins at County Road 87 and runs west crossing County Road 83 passing Haber Road then turns north and dead ends. The road crosses Miflin and Three Mile Creek and their wetlands. The roads primary use is for access to residential homes and sod farms.

Observation: Woerner Road has been graveled at the intersections of CR 87 & 83. This helps prevent tracking onto the paved roads. However, the creek and wetland crossing have a clay surface. Erosion was noted along the ditches, and sediment was noted in wetlands and the creek.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

1. Contact the NRCS regarding recommendations or incentives for the farmers to allow for additional vegetated buffers along the right-of-way especially near creeks and wetlands.

2. Turnouts relocated such that they discharge to upland areas where possible.

3. Stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts may include, but are not limited to, sediment traps, additional upland turn outs, etc.

Road Name: Wolf Field Road **Length:** 1.0 miles **Maintenance Area:** 300
Area: Elberta **Planning District:** 32-Zoned
Watershed: Spring Branch-Perdido Bay Watershed
Stream Crossings: 2 **Wetland Crossings:** 2
Photo(s):

Coastal Wetlands Adjacent to Road

General Description: Wolf Field Road stretches from Josephine Drive north to its terminus. The road surface is covered by red clay with some gravel treatment. It serves residential and vacant properties. At its northern end it crosses Spring Branch. There is also a crossing of an unnamed tributary of Roberts Bayou with adjacent wetlands. The southern end of the road drains directly into Roberts Bayou.

Observation: Wolf Field Road is relatively flat. The BCHD has placed gravel along the northern and southern portion of the roads which has reduced impacts to paved connector roads, the creek and wetlands. However, sediment was noted in the adjacent wetlands.

Recommendation: The BCEAC Dirt Road Subcommittee recommends the following:

Due to the close proximity to coastal wetlands and streams, stabilize the entire right-of-way including the roadway and ditches, with appropriately sized rock. If not feasible, stabilize the rights-of-way on each side of the stream and wetland crossings for a distance to be determined by engineering analysis. Possible solutions to be considered to minimize stream and wetland impacts, may include but are not limited to, sediment traps, additional upland turn outs, etc.

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Acronyms

ADEM	Alabama Department of Environmental Management
ALDOT	Alabama Department of Transportation
BCC	Baldwin County Commission
BCEAC	Baldwin County Environmental Advisory Committee
BCHD	Baldwin County Highway Department
BMP	Best Management Practice
CEA	Certified Environmental Auditor
CPESC	Certified Professional in Erosion and Sediment Control
CIAP	Coastal Impact Assistance Program
CWA	Clean Water Act - aka - Federal Water Pollution Control Act
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information System
NRCS	Natural Resources and Conservation Service
QCI	Qualified Credentialed Inspector (an ADEM designation)
REPA	Registered Environmental Property Assessor
NPDES	National Pollutant Discharge Elimination System
USDA	United States Department of Agriculture

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The 25 Most Environmentally Damaging Dirt Roads of Baldwin County, Alabama

A Report by the Baldwin County Environmental Advisory Board

March 2010

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Executive Summary

Listed below, and in **Table 1** of the full report are, in the opinion of the Baldwin County Environmental Advisory Board Subcommittee, the 25 most environmentally damaging County maintained dirt roads in Baldwin County.

- Truck Trail 17
- Brady Road
- Linholm Road
- River Road
- Griggers Road
- Goat Cooper Road
- Peter Morris Road
- Barrineau Park Road
- Bretz Lane
- Malkoskie Road
- Hagendorfer Road
- Wolf Field Road
- County Road 26
- Spring Creek Drive
- Lipscomb Road
- Norris Lane
- Mannich Lane (S2)
- Mannich Lane (S4)
- Paul Cleverdon Road
- Sherman Road
- Nolte Creek Drive
- Kilcrease Road
- Holley Creek Road
- Sawmill Road
- Ewing Farm Road

With the exception of Truck Trail 17 and Brady Road, which standout above any of the other segments, the roads are listed in no particular order and no "ranking" is implied.

Introduction

This report was prepared by members of a sub-committee appointed by the Baldwin County Environmental Advisory Board (BCEAB) during its regularly scheduled meeting of August 19, 2009. The report was submitted to the full BCEAB during its March 23, 2010 meeting and is intended solely for use by the Baldwin County Commission (BCC) and Baldwin County Highway Department (BCHD). The intent of the effort was to update the original BCEAB report entitled *The 25 Most Environmentally Damaging Dirt Roads in Baldwin County* prepared by Jerome B. Knaebel (December 1998), although the process of elimination utilized in the original report was modified as described below. Utilizing the original report's listing of the 25 most environmentally damaging dirt roads, the County was able to focus Highway Department resources to implement improvements and reduce impacts to wetlands and waterways. Nineteen of the original 25 dirt roads have received some level of treatment. Those roads that only received a partial treatment were again included in this review.

It is intended that this report be utilized by the County, along with the various other socio-economic factors, to target its existing and future Highway Department resources to achieve the most public good and environmental benefit.

Background

Baldwin County is blessed with an abundance of natural resources, particularly wetland and water resources, and abundant rainfall (50-60 inches per year). However, it is also located in an area of the country with one of the highest "rainfall factors" (>600). This rainfall factor is a numeric expression of the amount of kinetic energy in the rainfall (e.g. rainfall intensity) and the higher the number the more erosive the rainfall events can be to exposed soil. Baldwin County soils are also fairly conducive to erosion, being generally low in clay and gravel content. This particular combination of natural environmental conditions means that exposed surface soils are highly susceptible to erosion, which results in significant quantities of sediment being delivered to area wetlands and waterways. As noted in the original report: "the soils of Baldwin County are consistently erosive and even slight grades cause the velocity of runoff water to exceed the critical velocity of soil particles".

The potential environmental and socio-economic impacts associated with excessive sedimentation in wetlands and waterways are well documented and include loss of habitat, channel modification, flooding, and various water quality issues (turbidity, swimability, etc.). Several stream segments in Baldwin County have been placed on Alabama's 303(d)[1] list by the Alabama Department of Environmental Management (ADEM) due to impacts associated with sediment loading.

The public road system in Baldwin County currently includes 369 named dirt road segments totaling about 270 linear miles. The average County dirt road segment length is approximately ¾ of a mile with a range of 0.04 miles to 6.78 miles (note that segment length is often defined by maintenance area or commission district line, for example Brady Road is actually 10.18 miles but is listed in two segments). Only about 16% (60) of theses roads are greater than one mile in length. Each mile of dirt road translates into roughly 3.5 acres of exposed soils that can easily be eroded and washed into nearby wetlands and streams. At the time of this survey, the County maintained dirt roads were distributed over the county as follows:

[1] The 303(d) list is a listing of waterbodies, promulgated by ADEM and EPA pursuant to section 303(d) of the Federal Water Pollution Control Act, that are not meeting applicable state water quality standards.

Maintenance Area 100	**103 road segments**	**83.30 miles**
Maintenance Area 200	**92 road segments**	**75.95 miles**
Maintenance Area 300	**174 road segments**	**110.49 miles**

It should be noted that there are likely just as many private dirt roads within the County that are currently not under County maintenance and were not part of this review. Undoubtedly, some of these private dirt roads are having environmental impacts similar to or greater than those reviewed in this report.

Review Process

Since some degree of environmental impact is associated with any dirt road, the process of determining the "25 most environmentally damaging" is essentially a process of elimination. Focusing primarily on sediment impacts to wetlands and waterways, there are a number of physical factors that influence sediment delivery from dirt roads, such as proximity to the wetland or waterway, surface soil type of the road, slope steepness and length, vegetative cover, and drainage. During the preparation of the original report, Mr. Knaebel manually retrieved approximately 26 months worth of various data from the BCHD maintenance files. Information on the number of times the road segment was bladed, the number of cubic yards of dirt placed on the road, and the average annual cost per mile for maintenance and repair work were all tallied. Arbitrary limits were applied to the data set and the list narrowed to a manageable number (69 segments) for site visits. The final list and ranking of the 25 dirt roads was then based on Mr. Knaebel's on-site observations and professional experience. Although this approach was sound, due to the difficulty in obtaining the same information, lack of documentation of the original "criteria" applied, changes in the County's road identification system, and the availability of the County Geographic Information System (GIS) the authors modified the process of elimination and ranking methodology.

It was learned that the BCHD staff had previously undertaken an effort within each of the three designated Maintenance Areas (MA) to "rank" dirt roads based on several socio-economic factors including among others, "Number of Houses", "Drainage", "Surface Gravel Element", "Environmental Concerns" and "Maintenance Difficulty". Since this information was available in electronic format and easily manipulated, the authors requested that the information be sorted by the two most relevant factors for this effort: "Environmental Concerns" (primary sort criteria) and "Maintenance Difficulty" (secondary sort criteria). These two rankings, on a scale of 1 (best) to 10 (worst) were based on the opinion of the BCHD staff assigned to the respective areas considering similar factors used in the original report (e.g. costs, frequency of maintenance, discharges to waterways, etc.). The BCHD adheres to a County Policy to abide by all ADEM and Federal environmental regulations. Area Maintenance Supervisors maintain certification as an ADEM Qualified Credentialed Inspector (QCI) through ALDOT or Thompson Engineering QCI Courses. Also, the Engineering Field Staff are certified as QCIs.

The **first step** of the elimination process was to review the sorted BCHD ranking information. There were a total of 34 road segments with an "Environmental Concern" (EC) rank of 5 or higher, 55 road segments with a rank of 4 or higher, and 89 road segments with a rank of 3 or higher. Overall, no road segments were ranked as 9 or 10 for EC and ~69% were rated as 1. Reviewing the Maintenance Difficulty (MD) rankings it was found that only 3 road segments rated higher than 7 and only 12 were rated as 1. In order to mitigate for the inherent variability among the BCHD staff that provided the rankings, and account for the obvious skew of the EC ranking data, the authors

decided to use the sum of the EC and MD rankings, presuming that "maintenance difficulty" is primarily related to drainage and/or erosion issues. In order for a segment with a low (2) EC rating to be considered for further evaluation, the MD would have to be 3 or higher. Likewise, for a segment with a moderate EC rating (3) to be eliminated, the MD rating would have to be very low (1). In fact, there was good general correlation between the EC and MD rankings and only 10 segments with an EC ranking of 3 or 4 were omitted using an EC+MD cut-off of five. This was due to the lack of a MD ranking (presumed as 0); therefore these 10 segments were added back to the list so that all segments with EC rankings of 3 or greater were included. Using this methodology resulted in an initial "short list" of 209 road segments covering just over 206 miles.

The **second step** in the process was to review the eleven road segments from the original report that had received no treatment or only partial treatment (that were not on the initial list from step 1). This resulted in the addition of no new road segments to the "short list".

The **third step** in the process involved the elimination of road segments already scheduled for improvements in the County Paving Plan (2009-2011) and/or proposed for Coastal Impact Assistance Program (CIAP) in the 2007-2008 funding cycle. Road segment improvements proposed for the 2009-2010 CIAP funding cycle were left on or added to the review list. This step resulted in the elimination of 23 road segments covering approximately 28 miles and the addition of no road segments. This step brought the "short list" to 186 road segments totaling approximately 177 miles. It was noted that of the 29 road segments included in the County Paving Program for 2009-2011, only 11 have a BCHD "Environmental Concern" rank of 3 or higher. The 186 dirt road segments on this "short-list" are distributed over the county as follows:

Maintenance Area 100	56 road segments	63.44 miles
Maintenance Area 200	64 road segments	60.65 miles
Maintenance Area 300	66 road segments	53.64 miles

The **fourth step** was to utilize the County's existing Geographic Information Systems (GIS) mapping technology to overlay the 186 "short listed" road segments in relation to the wetlands, waterways, soils, land cover (aerial photography) and topography. The committee utilized Arcview© version 9.0 GIS to assess potential impacts to wetlands and streams that could occur, or have occurred, due to stormwater runoff from county maintained dirt roads. Factors significantly influencing erosion of dirt roads (i.e. slope length and steepness of road), drainage area, topography, soil types and proximity of potential stormwater discharges to streams and wetlands were the primary factors considered in this step. The data used in the evaluation process included the Baldwin County Soil Survey (1963), United States Geological Survey 7.5 minute survey Quadrangle Maps, Baldwin County LIDAR (2004), Natural Resource Conservation Service Aerial Photography (Dated: 2001 and 2007) Baldwin County Commission Aerial Photography (2009) and The Baldwin County Wetland Assessment (2003). During the GIS review the authors overlaid data layers to assess the potential for impacts and completed data forms for each segment. From these data layers the committee could take a "virtual aerial tour" of the road segment and evaluate the potential for environmental impacts. In some cases environmental impacts were actually discernable from the high resolution aerial photography. Each road segment was evaluated for the number of stream crossings, wetland crossings and proximity to wetlands and streams. A distance of 500 feet from the roadway to a wetland or stream and/or evidence of existing environmental impacts were used as the threshold for eliminating or retaining road segments for further evaluation. The committee performed the GIS evaluation on all 186 roadway segments on the "short-list" and sixty (60) roadway segments were retained for field evaluation.

The **fifth step** was to perform a field evaluation of each "short-listed" road segment (**Table 2** lists all 60 segments that were visited). Individual road segments were visited by the authors (usually all three of the subcommittee members) and evaluated for actual or potential environmental impacts. Areas of concern were logged on a "mile post" basis (using vehicle odometer) from a referenced starting point. Field investigations were conducted on 6 February 2010, 20 February 2010 and 12 March 2010. Included in this field evaluation were observations that could not be readily made from the existing GIS layers, such factors as: relative grade or steepness of the roadway; drainage discharge location(s); actual number of stream or wetland crossings; condition of cross-drains; sediment discharges impacting wetlands or waterways; and effectiveness of any previous or existing treatments. Field observations were noted for each segment and representative photographs were taken on segments that were candidates for the final list of 25. Road segments were then given a subjective relative rating of between 1 and 5 only as a means to keep track of the worst segments. This rating was based on each evaluator's opinion of the potential or actual environmental impacts (frequency and/or severity), and resulted in the final list of 25.

In addition to the 60 candidate segments, 11 segments that had been previously eliminated were visited as a quality control measure to verify the elimination process. Although a couple of the segments previously eliminated were found to have some environmental impact, most had little or none, and no segments would have reached the top 25, validating the elimination process.

Observations and Findings

Overall, the authors were pleasantly surprised by the lack of significant environmental impacts associated with most road segments visited. As expected, most impacted areas were where road segments actually cross streams or wetlands, or where "turn-outs" discharge directly to streams or wetland areas. A few road segments were so severely incised that they were actually no more than a large ditch or gulley that one could drive through, delivering stormwater runoff and significant (but unquantified) volumes of sediment down slope, often to wetlands or streams. Two of the field trips (February 6, 2010 and March 12, 2010) were conducted following significant rainfall where flooding conditions were observed on several low-lying road segments. The authors were encouraged by the noted absence of turbidity downstream of these flooded areas when undisturbed by traffic. This was probably related to low traffic and the materials that comprise the road surface. It was also noted that the County efforts to stabilize critical areas and provide surface treatment on several road segments were, for the most part, highly successful.

Photo 1: Example of previous ditch line treatment.

Photo 2: Example of previous road surface treatment.

The authors were less encouraged by the frequency of failed “turn-outs”, the number of “turn-outs” discharging directly to streams and wetlands, ineffective cross drains (filled, submerged or complete absence), the vegetative clearing and placement of fill material without the use of temporary BMPs or permanent stabilization practices (although not required by regulation).

Photo 3: Example of failed “turn-out”.

Photo 4: Example of fill placement without BMPs.

Photo 5: Lack of adequate outlet protection.

Photo 6: Wetland impacts due to sediment discharge.

Photo 7: Turbidity impacts.

Photo 8: Typical staining associated with turbid runoff.

Many culverts lacked adequate outlet protection on the down flow side to prevent scour and have contributed to the formation of gullies. Although there were few locations where elevated turbidity

was actually observed in adjacent waterways, in a number of locations there was a distinct discoloration or "staining" of vegetation in areas receiving runoff from the roadway. This is due to the nature (color) of the material used for road construction or repair and a typical indication that the stormwater runoff is excessively turbid during periods of discharge. The authors also noted a prevalence of non-native invasive species, particularly cogon grass and privet. Where significant growth of cogon grass occurred along the shoulder, sediment delivery was notably retarded, however this should not be considered a preferred erosion and sediment control management practice.

Summaries of the field observations for each of the 25 listed segments follow this narrative. In lieu of a "ranking" that implies a defensible rationale for placing one road segment ahead of another, the authors have developed this list with no particular relative rankings, with one or two worthy exceptions as noted. For each of the 25 road segments there is a general description, listing and location of problem areas, and general discussion. One or more representative photographs are usually included with each description.

Summary and Recommendations

Table 1 lists the final 25 road segments considered by the authors to be the most environmentally damaging. Obviously, based on the subjective nature of the review, other reviewers could logically and defensibly derive a different list. Undoubtedly, as noted in the original report, there are road segments in the County other than those listed that are causing, or contributing to, significant environmental impacts. This review represents the authors' best effort given the data and resources available.

The Baldwin County Commission and Baldwin County Highway Department have made significant progress in reducing, minimizing or eliminating the environmental impacts related to erosion and sedimentation from County maintained dirt roads over the past 10 years. During the course of the review, the authors visited several of the road treatments implemented since the original review. These treatments, with some exceptions, appear to have been effective but were often in need of maintenance.

The 25 road segments highlighted in this report total 55.56 miles in total length and are distributed throughout the County as follows:

Maintenance Area 100	**5 segments**	**19.4 miles**
Maintenance Area 200	**7 segments**	**21.1 miles**
Maintenance Area 300	**13 segments**	**15.1 miles**

Overall, County maintained dirt roads are fairly evenly distributed over two of three Maintenance Areas (100 and 200) but nearly 50% of all segments are located in MA 300. Likewise, segments with environmental concerns in MA 300 were notably higher, representing ~50% of the 25, but having the fewest actual miles. It is also evident that the County Highway Department's internal rating system may not always capture road segments causing or contributing to significant environmental impact. Although using the EC+MD score of 10 or higher would capture about 64% of the segments, the range was from 3 to 16 (out of a possible total of 20) and the road that rated the highest on the County list (Barrineau Park Road), although worthy, was not the worst segment in the opinion of the authors.

Based on this review, the authors make the following general recommendations:

- The County should not accept for maintenance dirt roads unless there is a clear public benefit, including the opportunity to correct a significant environmental problem.
- The County should be more diligent with the application of temporary or permanent best management practices (BMPs) during road repair.
- "Turn outs" should be located in areas that will not discharge directly to a wetland or stream, where possible, and maintenance of "turn-outs" should include the periodic removal of accumulated sediments particularly where they discharge near wetlands or steams.
- The County should avoid the use of "staining" fill material in proximity to wetlands and waterways.
- Outlet (and in some cases inlet) protection should be provided at stream crossings to provide roadway and culvert protection and energy dissipation to reduce erosion downstream.
- The County should consider using CIAP or other funding funding to conduct environmental restoration work in areas where significant stream and/or wetland impacts have occurred.
- The County should consider abandonment and restoration of certain road segments where the environmental impacts are significant and there is little or no use by the travelling public or where alternate routes are readily available.
- The County should reevaluate paving policy to allow low traffic roads to be paved that may not meet all current requirements for ROW width, existing culverts, etc.

A number of the "General Observations" stated in the original report (Knaebel, 1998) are still applicable today. The treatment measures to control erosion and sedimentation associated with dirt roads are as varied as the causes of the problems. However, one thing has been demonstrated, only treating one aspect of the problem instead of all contributing factors is sure to fail. Although asphalt is often considered the ultimate answer, it comes with its own environmental price – increased runoff volumes and velocities, additional "non-sediment" pollutant loading (oils, tire wear particles, etc.), and increased development – and the County should continue to explore treatment alternatives other than asphalt where appropriate. Environmental problems caused by dirt roads are not limited to Baldwin County and several entities across the country are developing innovative and economically feasible ways to address them (other than asphalt). Several technical publications from Penn State's Center for Dirt and Gravel Road Studies should be reviewed as examples.

Some general recommendations have been made here and additional recommendations may appear within the individual segment reviews, but precise prescriptions will require additional focused study and engineering on each segment which are beyond the scope of this review.

Table 1. 25 MOST ENVIRONMENTALLY DAMAGING DIRT ROADS

Road Segment Name	MA	Mileage	EC + MD Score
Truck Trail 17	200	5.6 miles	12
Brady Road (2 segments)	100	10.18 miles	13
Kilcrease Road	100	2.84 miles	6
Ewing Farm Road	100	0.5 miles	5
Sawmill Road	100	0.8 miles	5
Holly Creek Road	100	5.08 miles	10
River Road	200	1.5 miles	12
Linholm Road	200	3.93 miles	12
Griggers Road	200	2.42 miles	11
Peter Morris Road	200	3.45 miles	9
Barrineau Park Road	200	2.8 miles	16
Goat Cooper Road	200	1.4 miles	9
Bretz Lane	300	0.65 miles	14
Malkoskie Road	300	2.0 miles	9
Hagendorfer Road	300	1.75 miles	12
Wolf Field Road	300	1.0 mile	12
County Road 26	300	1.0 mile	7
Spring Creek Drive	300	0.57 miles	11
Lipscomb Road	300	0.87 miles	10
Norris Lane	300	2.02 miles	3
Mannich Lane (S4)	300	1.5 miles	12
Mannich Lane (S2)	300	0.5 miles	11
Paul Cleverdon Road	300	1.5 miles	8
Sherman Road	300	1.0 mile	11
Nolte Creek Drive	300	0.7 miles	12

NOTE: with the exception of Truck Trail 17 and Brady Road, which standout above any of the other segments, the roads are listed in no particular order and no “ranking” is implied.

Table 2. ALL 60 ROADS FIELD REVIEWED

Maintenance Area 100

1. Bryants Landing Road – 0.72 mi
2. Brady Road – 6.78 mi
3. Brady Road – 3.4 mi
4. Scranage Road – 4.75 mi
5. Holly Creek Road – 5.08 mi
6. Old Brady Road – 1.05 mi
7. M M Earle Lane – 0.64 mi
8. D'Olive Road – 1.28
9. Burnt Car Road – 1.81
10. T J Earle Road – 3.87 mi
11. Southfield Road – 0.72 mi
12. Couglan Road – 1.65 mi
13. Kilcrease Road – 2.84 mi
14. Ralph Gantt Road – 1.8 mi
15. Pat Haywood Road – 0.6 mi
16. Ewing Farm Road – 0.5 mi
17. Sawmill Road – 0.8 mi

Maintenance Area 200

1. Kingway Road – 0.23 mi
2. Barrineau Park Road – 2.8 mi
3. River Road – 1.5 mi
4. Fox Branch Road Ext – 0.52 mi
5. Linholm Road – 3.93 mi
6. Truck Trail 17 – 5.6 mi
7. Griggers Road – 2.42 mi
8. Goat Cooper Road – 1.4 mi
9. Three Mile Creek Road – 1.2 mi
10. Hinote Glass Road – 1.28 mi
11. JA Racine Road – 0.33 mi
12. Peter Morris Road – 3.45
13. Vaughn Road – 0.48 mi
14. Kendrick Road – 0.5 mi
15. Whispering Pines South – 0.35 mi
16. Cabinet Shop Road – 0.53 mi
17. Barnhill Farm Road – 0.47 mi
18. Dick Higbee Road – 2.5 mi

Maintenance Area 300

1. Baudin Lane – 0.76 mi
2. Bretz Lane – 0.65 mi
3. Nolte Creek Drive – 0.7 mi
4. John Bloch Road – 1.23 mi
5. James Road – 0.49 mi
6. Hagendorfer Road – 1.75 mi
7. Wolf Field Road – 1.0 mi
8. Mannich Lane – 1.5 mi
9. Spring Creek Drive – 0.57 mi
10. Sherman Road – 1.0 mi
11. Mannich Lane – 0.5 mi
12. Lipscomb Road – 0.87 mi
13. Woodhaven Dairy Road West – 0.8 mi
14. Malksokie Road – 2.0 mi
15. Etta Smith Road – 0.19 mi
16. South Rolling Green Drive – 0.53 mi
17. Paul Cleverdon Road – 1.5 mi
18. Miller Lane – 0.48 mi
19. County Road 26 – 1.0 mi
20. Russian Road – 1.53 mi
21. Beck Road – 1.23 mi
22. Hemmert Lane – 0.5 mi
23. Bayou Drive – 0.87 mi
24. Norris Lane – 2.02 mi
25. Newman Road – 0.36 mi

Road Name: Truck Trail 17 **Length:** 8.6 miles **Maintenance Area:** 200
EC + MD Score: 12 **Field Inspection Date:** February 6, 2010

General Description: Truck Trail 17 consists of 2.74 miles of paved surface (from County Road 49 eastward to Steelwood) and 8.6 miles of unimproved surface east of Steelwood to County Road 64 Extension. The road serves timber lands, agricultural, and a few residential properties on the east end. The road surface is primarily sandy clay with gravel treatment in several areas. Bridges are closed (out-of-service) over Reedy Creek and Hollinger Creek. The road crosses streams at least eight locations including Styx River, Reedy Creek, Flat Creek, Hollinger Creek, and Eightmile Creek. It also crosses numerous wetlands in various other locations. During the evaluation two sections of the road were impassible and could not be accessed.

Location of Problem Areas: (MP measured from end of pavement near Steelwood travelling east toward County Road 64 Extension. Since Truck Trail had to be accessed from 3 different directions, MP are approximate)

- MP 0.3 – Styx River crossing - turnouts funneling sediment into wetlands
- MP 0.9 – Wetland crossing with sediment channeled into wetlands
- MP 1.0 – UT Reedy Creek crossing with significant sediment in wetlands and turnouts funneling sediment into stream
- MP 1.4 – UT Reedy Creek crossing - sediment in stream at culvert, road washed into stream
- MP 1.8 and MP 3.0 – Wetland crossing with sediment impacts (ROAD IMPASSIBLE
- MP 3.2 – Reedy Creek crossing; BRIDGE OUT; turnouts, roadbed and ditches funneling sediment to stream
- MP 4.2 – Flat Creek crossing (3 culverts); significant sediment in wetlands & stream
- MP 4.7 and 5.4 - Wetland crossing with sediment plume in wetlands
- MP 5.5 – Hollinger Creek crossing; BRIDGE OUT; severe erosion at approaches
- MP 5.5 to 7.2 – ROAD NOT EVALUATED DUE TO IMPASSIBLE CONDITIONS
- MP 7.4 – Road surface eroded and deeply incised with ditch banks 4 to 6 foot high
- MP 7.7 – Wetland crossing with sediment impacts


Truck Trail 17 near MP 3.2 (06 February 2010).


Truck Trail 17 near MP 5.5 (06 February 2010).

Truck Trail 17 near MP 1.0 (06 February 2010).

Truck Trail 17 Styx River bridge MP 1.4 (06 February 2010).

Truck Trail 17 near MP 5.5 (06 February 2010).

Truck Trail 17 near MP 5.5 (06 February 2010).

Truck Trail 17 was the #1 environmentally damaging road in the earlier report, and conditions do not appear to have improved. The impacts from this one road are likely greater than the cumulative impacts from half the list of 25 road segments. Approximately 2 miles essentially appear to have been abandoned, significant gully erosion is occurring both in the roadway ditch lines at several locations. The inaccessible portion is probably as bad or worse. Suggestions would include closure to traffic, installation of long-term stormwater treatment, and restoration/vegetation from the end of pavement at Steelewood to Brady Road and from Brady Road east to approximately MP 7.6. Areas of significant sedimentation should be removed from streams and wetlands to prevent further migration downstream. Culverts need stabilization and energy dissipation at both ends to minimize road erosion and in downstream scour. The remnants of bridges are a potential safety hazard and are acting as a dam for debris within the streams. Slope approaches to the bridges are eroding considerably. Suggestions are abandonment of the roadway from the top of each slope. These areas would benefit from stabilization measures such as seeding and erosion control matting. On the eastern end of the roadway the agricultural areas have kept the road in fairly good condition. Regularly traveled areas that cross wetlands and streams would benefit from a surface treatment.

Road Name: River Road **Length:** 1.5 miles **Maintenance Area:** 200
EC + MD Score: 12 **Field Inspection Date:** February 6, 2010

General Description: The River Road runs west paralleling Styx River from its intersection with County Road 68 Extension to its terminus. The first 0.5-0.75 miles of the road lies within the floodplain of Styx River and appears to be frequently inundated. The road covering is a sandy-clay material.

Location of Problem Areas:

- Mile Post 0.2: The road crosses a stream (convergence of Flat and Reedy Creeks) where stormwater runoff discharges and significant sediment deposits were observed
- Mile Post 0.3: A large sediment pile, believed to be the result of grading activity, is located adjacent to the stream and the river with evidence of severe erosion

River Road facing east near MP 0.3 (6 February 2010).

The road essentially serves as a channel for stormwater runoff from the area, delivering sediment to the stream and river. Water diversions discharge (terminate) directly to, or in close proximity to, the stream or river. This segment was ranked #2 in the earlier survey and conditions have not improved. Either relocation of the road to higher ground or significant engineering (fill, drainage, stabilization) will be required to eliminate the environmental concerns. Temporary measures to reduce impacts could include removal of accumulated sediment, vegetative stabilization of area surrounding the stream crossing and surface treatment of the road surface with rock.

Road Name: Linholm Road **Length:** 3.93 miles **Maintenance Area:** 200
EC + MD Score: 12 **Field Inspection Date:** February 6, 2010

General Description: Linholm Road runs from County Road 64 to County Road 87. The road has red sandy-clay covering most of the length with gravel treatment in certain areas. It serves several residences on both ends but primarily forest lands in the middle area. There are stream crossings for Eight Mile Creek, Dry Branch, Elam Creek and several wetland crossings.

Location of Problem Areas: (MP measured heading east from County Road 64)

- MP 0.8 – Eight Mile Creek crossing with gravel – Sediment & turbid water in wetlands
- MP 1.2 – Dry Branch crossing with gravel – Minor erosion at culvert
- MP 2.7 – Elam Creek crossing – Sediment in stream from turnouts
- MP 2.9 – Elam Creek crossing – stream flows in north side of ditch for 0.2 miles, submerged cross drain with fish observed in ditch, turnouts have blown out from sediment overload

Linholm Road MP 2.9 (6 February 2010).

Linholm Road was ranked #10 in the earlier survey and the road has received a surface gravel/rock treatment in several areas and at least one ditch line was found lined with rip-rap. Turn-outs generally discharge to upland areas for much of the road; however several were noted as failing (filled with sediment with runoff directed back to roadway. Near MP 2.9 Dry Branch now flows within the ditch line apparently due to an inadequate cross drain and ditch construction. Surface treatment appears to have been effective in areas where it was applied but was in need of "freshening".

Road Name: Griggers Road **Length:** 2.42 miles **Maintenance Area:** 200
EC + MD Score: 11 **Field Inspection Date:** February 6, 2010

General Description: Griggers Road runs from Peter Morris Road to County Road 64 Extension and serves as access to timberland. The road generally has a red clay covering; with evidence of previous surface treatment in some areas. There is a stream crossing for Eight Mile Creek.

Location of Problem Areas: (MP measured from Peter Morris Road)

- MP 1.3 to MP 1.7 – gravel treatment
- MP 1.8 – Gully erosion in road draining sediment to wetland bottom
- MP 1.9 – Eight Mile Creek crossing – Wetland filled with large plume of sediment

Griggers Road near MP 1.8 (6 February 2010).

Griggers Road appears in the earlier survey with a ranking of #21. The primary area of concern is the portion just past MP 1.7 (portion that has been treated). Although there is some evidence of previous surface treatment, heavy ditch line erosion near MP 1.8 is delivering significant quantities of sediment downgrade to a wetland bottom and stream crossing at MP 1.9. Diversion of surface runoff and ditch stabilization should be performed, followed by surface treatment.

Road Name: Peter Morris Road **Length:** 3.45 miles **Maintenance Area**: 200
EC + MD Score: 9 **Field Inspection Date:** February 6, 2010

General Description: Peter Morris Road runs north from Linholm Road to Griggers Road and primarily provides access to timberlands. The road is mostly imported red clay with several wetland drainage crossings.

Location of Problem Areas: (MP measured heading north from Linholm Road)

- MP 0.9 – Wetland crossing with sediment and turbid water in wetlands
- MP 1.5 – Wetland crossing with sediment in wetlands
- MP 1.7 – Wetland crossing with sediment in wetlands
- MP 2.0 – Turnouts to wetlands with sediment in wetlands
- MP 3.1 – Wetland crossing with sediment in wetlands and fresh clay covering

Peter Morris Road near MP 1.5 (6 February 2010).

As usual, the primary concerns are where the roadway crosses wetland areas. In several of these areas, repair and maintenance activities have included clearing a portion of the right-of-way and placement of fill without the benefit of best management practices (BMPs) to control erosion and sedimentation. Temporary BMPs should be employed in these critical areas until disturbed right-of-way is restabilized. Surface treatment should be considered to prevent the erosion of imported fill material. Peter Morris Road was not included in the earlier survey.

Road Name: Goat Cooper Road **Length:** 1.4 miles **Maintenance Area:** 200
EC + MD Score: 9 **Field Inspection Date:** February 6, 2010

General Description: Goat Cooper Road runs east and west of Goat Cooper Road North at its end. The road is mostly covered by red clay. The east section is ~0.7 miles in length, a stream crossing at MP 0.1, and at MP 0.3 there are no signs of recent or routine County maintenance – the shoulders and mid-portion being vegetated. The west section is ~0.5 miles in length, narrow, with red clay and a dry culvert crossing at ~MP 0.1. Some gravel treatment exists on the last 0.2 miles.

Location of Problem Areas: (MP measured heading south from end of Goat Cooper Road North)

- MP 0.1 on east section – Dry Branch crossing with severe channel erosion and turnouts of sediment into stream

Goat Cooper Road near MP 0.1 (east) (15 March 2010).

The only portion of Goat Cooper Road that is of significant environmental concern is the discharge from the first 0.1 miles to Dry Branch. Historical discharges apparently enlarged the "turnout" into a gully which has been treated with rip-rap and is vegetated with cogon grass. A new turnout is now located just past the gully. The imported red fill material has caused vegetative staining, an indication that stormwater discharges are highly turbid. This discharge location also receives stormwater runoff from the last 0.1 miles of Goat Cooper Road North (where residences begin). Runoff from the north should be diverted into the wooded area along its western ROW. Alternative fill materials or treatments should be considered to reduce turbid discharges.

Road Name: Barrineau Park Road **Length:** 2.8 miles **Maintenance Area:** 200
EC + MD Score: 16 **Field Inspection Date:** February 6, 2010

General Description: Barrineau Park Road runs from Hwy 112 in a northeasterly direction to the Perdido River at the Florida State Line. The road serves only timberlands and is red sandy-clay with two wetland crossings and a direct discharge to Perdido River on the eastern terminus.

Location of Problem Areas: (MP measured heading east from Hwy 112)

- MP 0.3 – Wetland crossing with sediment and turbid water in the wetland area
- MP 2.0 – Wetland crossing with sediment and turbid water in the wetland area
- MP 2.2 – Springs in road bed to wetland area
- MP 2.3-2.8 – gully erosion in ditches discharging to Perdido River

Barrineau Park Road wetland crossing MP 2.2 (6 February 2010).

Barrineau Park Road was included on the earlier survey (as Duck Road) with a ranking of 17, the primary concern being the direct discharge from the ditches to Perdido River at the bridge. During the field inspection of 6 February 2010 the road was impassable at the wetland crossing located near MP 2.2. Where possible water diversions (turn-outs) should be located such that they discharge away from wetlands and into upland areas. The portion of the road that crosses wetlands (MP 0.3 and 2.0-2.2) should be repaired and stabilized and the wetlands restored. The eastern ~0.5 miles drain directly to the Perdido River and significant gully erosion is occurring along both ditch lines. Routine maintenance past MP 2.2 was not evident. Repair and treatment for ditches leading to Perdido River (MP 2.3-2.8) is necessary to reduce sediment discharges.

Road Name: Brady Road **Length:** 10.18 miles **Maintenance Area:** 100 & 200
EC + MD Score: 13, 13 **Field Inspection Date:** February 6, 2010

General Description: Brady Road runs from County Road 68 Extension to Truck Trail 17, thence northward, crossing Truck Trail 17, to Old Brady Road. The road is covered by red sandy clay and has numerous wetland crossings. There are three segments of Brady Road listed by the County. The first (BCHD designation SEG 4) is in maintenance area 200 and is 2.15 miles in length. There were no significant environmental problems observed on this first segment and it is not included in the review. The second segment is in maintenance area 100 and is 6.78 miles in length (BCHD designation SEG 1). The third segment is in maintenance area 100 and is 3.4 miles in length (BCHD designation SEG 2). The BCHD demarcation between the second and third segment is the Commission district line which was unclear in the field so the two were combined for this report.

Location of Problem Areas: (MP measured heading north from Truck Trail 17)

- MP 0; MP 0.2; MP 0.7; MP 1.0; MP 1.7; MP 1.9; MP 2.4; MP 3.5; MP 4.7; MP 5.6; MP 6.0; MP 6.6; MP 7.1; MP 7.3; MP 7.8; MP 8.1; MP 8.5; MP 8.8; MP 9.2; MP 9.4; MP 10.3; MP 10.6; MP 10.9 – Wetland cross drains with sediment impacts
- MP 4.1; 5.0; 7.6 – Grady pond crossing with turbidity and/or sediment impacts

Brady Road near MP 5.0, sediment from turnout impacting Grady pond (6 February 2010).

Although Brady Road follows the ridge top along much of its route, there are 23 cross drains at wetland areas within the first 11 miles of the second segment, each with sediment impacts noted. Significant impacts to Grady ponds, associated with sediment discharges from turnouts, were noted at three locations. Sediment should be removed from turnouts located close to wetlands; turnouts relocated such that they discharge to upland areas (where possible), and impacted wetlands restored. If the I-10 – I-65 connector follows this route, most of the problems can be eliminated or addressed.

Road Name: Bretz Lane **Length:** 0.65 miles **Maintenance Area:** 300
EC + MD Score: 14 **Field Inspection Date:** February 20, 2010

General Description: Bretz Lane runs from County Road 83 west to its terminus. It serves residential and agricultural properties. The road surface is red clay with gravel treatment in most areas. Miflin Creek is located just north of the intersection of County Road 83 and Bretz Lane.

Location of Problem Areas:

- Intersection of County Road 83 & Bretz Lane – Sediment plumes located in Miflin Creek from turnouts funneling sediment into creek
- MP 0.1 – Large ditches with slope funneling sediment to creek; Unnamed tributary flows within road side ditch to cross drain (~ 100 feet west of CR 83) into Miflin Creek
- MP 0.3 – Downhill approach to Miflin Creek

Bretz Lane discharge to Miflin Creek MP 0.0 (20 February 2010)

The ditches along this road channel stormwater runoff and sediment directly into Miflin Creek. There is evidence of sedimentation in Miflin Creek and adjacent wetlands. The incised ditches continue to erode sediment. There are rip rap lined ditches along the steepest slope and gravel treatment on portions of the road surface; however these BMPs are not adequate for the conditions of the road. Recommendations include filling the ditches, crowning the road and paving the length.

Road Name: Malkoskie Road **Length:** 2.0 miles **Maintenance Area:** 300
EC + MD Score: 9 **Field Inspection Date:** February 20, 2010

General Description: Malkoskie Road runs from County Road 95 east to its terminus. It serves residential and agricultural properties. The road surface is red clay. It crosses an unnamed tributary to Threemile Creek and an unnamed tributary to Narrow Gap Creek. There are also numerous wetland crossings.

Location of Problem Areas:

- MP 0.3 – UT Threemile Creek crossing with minor erosion and sediment in the stream
- MP 0.6 – UT Threemile Creek & wetland crossing with sediment impacts & turbid water; turnouts funneling sediment into wetland (aquatic vegetation noted in stream)
- MP 1.2 – Wetland crossing with extremely turbid water; Sediment deposited at cross drain and cross drain completely filled with sediment
- MP 1.4 – Wetland crossing with sediment plume and deep road side ditches
- MP 1.9 – UT Narrow Gap Creek crossing with sediment plumes and clay staining in wetlands

Malkoskie Road near MP 0.6 (20 February 2010)

Portions of the road are within Grady ponds and headwater wetlands. Each crossing has evidence of sedimentation and turbidity impacts. Cross drains are clogged with sediment and water flow has been impeded. Recommendations would include maintenance of cross drains and sediment removal from wetlands and streams. Wetland and stream crossings would benefit from gravel treatment.

Road Name: Hagendorfer Road **Length:** 1.75 miles **Maintenance Area:** 300
EC + MD Score: 12 **Field Inspection Date:** February 20, 2010

General Description: Hagendorfer Road stretches from County Road 97 to County Road 91. The road serves agricultural (row crop and sod) and residential properties. The road surface is red clay with small areas of fresh gravel treatment where recent repairs were conducted. An unnamed tributary of Soldier Creek crosses the road. There are also adjacent wetlands to the stream crossing.

Location of Problem Areas: (MP measured from County Road 97 east to County Road 91)

- MP 0.1 – UT Soldier Creek crossing with recently placed red clay and small area of gravel treatment of crossing; heavy sedimentation observed in stream; wetlands and stream have sedimentation and turbidity impacts

Hagendorfer Road near MP 0.1 (20 February 2010)

The western ¾ mile of the road is the most environmentally damaging due to its drainage point at the stream and wetlands. The gravel treatment at the crossing may lessen the sediment loss; however the additional red clay application will likely erode into the stream. Recommendations for improvements would include paving the western ¾ mile of the road and removing the sedimentation from the stream and wetlands. The ditches should be treated and the road crowned and treated.

Road Name: Wolf Field Road **Length:** 1 mile **Maintenance Area:** 300
EC + MD Score: 12 **Field Inspection Date:** February 20, 2010

General Description: Wolf Field Road stretches from Josephine Drive north to its terminus. The road surface is covered by red clay with some gravel treatment. It serves residential and vacant properties. At its northern end it crosses Spring Branch. There is also a crossing of an unnamed tributary of Roberts Bayou with adjacent wetlands. The southern end of the road drains directly into Roberts Bayou.

Location of Problem Areas: (MP measured from Josephine Road north)

- MP 0 – Erosion evident at end of road with sediment in UT of Roberts Bayou
- MP 0.25 – Lack of cross drain for wetland area; Major sediment loss into wetland area; Red staining on vegetation up to 4 feet in height
- MP 0.5 – Lack of cross drain for UT Roberts Bayou with erosion of road and major sedimentation in UT Roberts Bayou and adjacent wetlands

Wolf Field Road near MP 0.25 (20 February 2010)

The lack of drainage from the wetland areas to the streams is causing considerable erosion. The sedimentation and turbid water impacts are evident on both sides of the road at the ½ mile mark. The south end of the road routinely erodes into Roberts Bayou and has recently eroded a channel from Josephine Road northern right-of-way to the stream. Recommendations include installation of cross drains at wetland and stream crossings as well as paving, or otherwise treating with non-staining materials, the length of the road.

Road Name: County Road 26 **Length:** 1 mile **Maintenance Area:** 300
EC + MD Score: 7 **Field Inspection Date:** February 20, 2010

General Description: The dirt road portion of County Road 26 travels between Breman Road and County Road 95. The road surface is red clay with partial gravel treatment. The headwaters of Hammock Creek cross the road at the half mile mark. There are also several wetland crossings along the road. The road serves largely residential and wooded properties.

Location of Problem Areas: (MP measured from Breman Road east to County Road 95)

- MP 0 – Wetland cross drain at intersection with Breman Rd is submerged
- MP 0.1 – Wetland crossing with sedimentation impacts from turnouts
- MP 0.2 – Gravel surface treatment for ~0.3 miles
- MP 0.3 – Wetland crossing with minor sedimentation in wetland ; head cut at outlet
- MP 0.5 – Hammock Creek crossing with sediment in stream and wetlands
- MP 0.7 – Turnouts funneling sediment into wetlands

County Road 26 near MP 0.7 (20 February 2010)

Gravel treatment had minimized turbidity impacts in the stream; however erosion of road has heavy sedimentation in the stream and wetlands. Cross drains require maintenance. The stream crossing culvert needs outlet protection to prevent further erosion. Turnouts need to be directed to upland areas to limit sedimentation impacts to wetlands. Turnout maintenance should include the removal of accumulated sediment.

Road Name: Spring Creek Drive **Length:** 0.57 miles **Maintenance Area:** 300
EC + MD Score: 11 **Field Inspection Date:** February 20, 2010

General Description: Spring Creek Drive runs west from Ted Lysek Road for a distance of approximately 0.6 miles until it terminates at a cul-de sac. It serves a number of residences and agricultural properties along its length. Surface material is primarily sandy with red sandy clay having been imported for fill and repair. Near MP 0.3 the road turns south and the last ~0.3 miles slopes toward Baker Branch. The terminus of this segment is approximately 200 feet from Baker Branch.

Location of Problem Areas: (MP measured from Ted Lysek Road)

- MP 0.3 – erosion at culvert crossing discharging sediment
- MP 0.6 – erosion of road and ditches discharging from terminus

Spring Creek Drive near terminus (20 February 2010).

The terminus of the road is substantially scoured with gullies forming in the ditches and red clay staining and sediment is present off the ROW. Sediment accumulation was present in uplands and encroaching on the floodplain and wetlands adjacent to Baker Branch. Surface treatment and creative water diversions are suggested.

Road Name: Lipscomb Road **Length:** 0.87 miles **Maintenance Area:** 300
EC + MD Score: 10 **Field Inspection Date:** February 20, 2010

General Description: The first approximately 0.5 mile of Lipscomb Road south of Mannich Lane has been paved. Pavement stops at the hill top leaving the slopes largely untreated. The surface is primarily a sandy material. The road serves residential and agricultural properties. Some historical evidence of treatment with gravel and diversion swales was present.

Location of Problem Areas: (MP measured from end of pavement off Mannich Lane)

- MP 0.2 – wetland crossing with evidence of sediment impacts, turnouts directing sediment to wetlands

Lipscomb Road near MP 0.2 (20 February 2010).

Swales have been blown out resulting in runoff being discharged directly to an unnamed tributary of Eslava Creek. Significant erosion was occurring and sediment plumes were present in adjacent wetlands.

Road Name: Norris Lane **Length:** 2.02 miles **Maintenance Area:** 300
EC + MD Score: 3 **Field Inspection Date:** February 20, 2010

General Description: Norris Lane begins at Laurant Road and runs south for a distance of approximately 2.02 miles terminating at CR 12. The surface is primarily a sandy material with significant amounts of imported reddish sandy clay, The road primarily serves agricultural land (sod farms) and a few residences. This segment is relatively flat and crosses three unnamed tributaries of Weeks Creek at MP 0.4, MP 0.8 and MP 0.9. Significant work has been done by the county to manage stormwater including realignment of a drainage ditch.

Location of Problem Areas: (MP measured from Laurent Road heading south)

- MP 0.4 – stream crossing with sediment impacts evident
- MP 0.8 – stream crossing with sediment impacts and erosion of side-cast stockpile
- MP 0.9 – watercourse crossing at power line sediment impacts and staining evident
- MP 1.0 – stream crossing with sediment impacts and inadequate culvert protection

Side-cast stockpile at stream crossing on Norris Lane near MP 0.8 (20 February 2010).

New red clay fill was evident in some areas where culverts had previously blown out. Significant amounts of sediment were present in all three stream crossings and impacts were observed in Weeks Creek as far downstream as Sherman Road. Some effort to protect the culvert outlet were evident at MP 1.0, however scour erosion was still evident. Staining of vegetation along stream banks and ditch lines, due to the red color of the fill material, was evident. A large pile of reddish sandy-clay, apparently form side-casting during ditch maintenance, was noted along the ditch line near MP 0.8. This road segment appears to require constant maintenance to the roadway and ditches resulting in continued impacts to the streams.

Culvert outlet scour Norris Lane near MP 0.9 (20 February 2010).

Sediment impacts to Weeks Creek downstream of Norris Lane
(photo taken upstream of Sherman Rd) (20 February 2010).

Road Name: Mannich Lane (S2)* **Length:** 0.5 miles **Maintenance Area:** 300
EC + MD Score: 11 **Field Inspection Date:** February 20, 2010

General Description: Mannich Lane from Norris Lane heading west to CR 49 North (BCHD designation SEG 2) crosses the headwaters of Spring Branch. The surface is primarily sandy material with little clay or gravel. The road services residential, agricultural and undeveloped property.

Location of Problem Areas: (MP measured from Norris Lane westward)

- MP 0.3 – Spring Branch Crossing, sediment in wetlands and channel

Mannich Lane (S2) near MP 0.3 (20 February 2010).

A significant amount of sediment deposition was present in wetlands and the braided stream channel. Spring Branch collects all runoff from this portion of Mannich Lane. Mannich Lane crosses Spring Branch at MP 0.3 significant erosion is occurring on the outfall side of the culvert due to lack of protection. Agriculture and residential development near Mannich lane appear to be sources of sediment to Spring Branch, however, Mannich Lane appears to be the significant contributor.

Road Name: Paul Cleverdon Road **Length:** 1.5 miles **Maintenance Area:** 300
EC + MD Score: 8 **Field Inspection Date:** February 20, 2010

General Description: This segment begins at CR 34 and runs south terminating at CR 32, for a distance of 1.5 miles. The surface material is sandy clay with reddish sandy clay being used for fill and repair. The road primarily serves agricultural land (sod farms) and some residential. This segment has two stream crossings (tributaries to Baker Branch) and one large wetland crossing.

Location of Problem Areas: (MP measured from CR34)

- MP 0.1 – stream crossing with erosion around culvert and sediment in stream
- MP 0.3 – stream crossing with minor amount of sediment noted in stream

Paul Cleverdon Road sediment impacts at stream crossing (20 February 2010).

The first stream crossing occurs at MP 0.1 where major erosion was present at the culvert crossing and sediment plumes were observed downstream. At MP 0.3 the second stream crossing occurs with minor traces of sediment present. No significant impacts to wetlands were identified. Protection around stream culverts and surface treatment near stream crossings would reduce erosion and sediment delivery to the streams.

Road Name: Mannich Lane (S4)* **Length:** 1.5 miles **Maintenance Area:** 300
EC + MD Score: 11 **Field Inspection Date:** February 20, 2010

General Description: This segment of Mannich Lane (BCHD designation SEG 4) is between Lipscomb Road and County Road 9. The surface is primarily sandy material with been some gravel surface treatment, however, very little of the treatment presently remains. The road services residential and unimproved properties.

Location of Problem Areas: (MP measured from Lipscomb Road westward)

- MP 0.5 – culvert crossing with sediment plume
- MP 0.9 – culvert crossing with sediment plume

Mannich Lane (S4) near MP 0.9 (20 February 2010)

Significant sediment plumes occur at MP 0.5, MP 0.7 and MP 0.9. Gully erosion is occurring in the ditches with the ROW being a large contributor of sediment to the headwaters of Eslava Creek.

Road Name: Sherman Road **Length:** 1.0 miles **Maintenance Area:** 300
EC + MD Score: 11 **Field Inspection Date:** February 20, 2010

General Description: Traveling north from County Road 16 to Weeks Road this segment crosses Weeks Creek. The segment from County Road 16 to County Road 12 is paved. The portion from County Road 12 north to Weeks Road is red clay with previous surface treatment near its terminus. The road primarily serves agricultural and residential areas.

Location of Problem Areas: (MP measured from CR 12 westward)

- MP 0.4 – cross drain with significant sediment discharging off ROW

Sherman Road near MP 0.4 (16 March 2010).

Red staining is present on the vegetation in ditches and in adjacent sod fields where stormwater backs up from the road. The stormwater eventually drains to Weeks Creek. Sediment plumes were evident downstream of cross drains.

Road Name: Nolte Creek Drive **Length:** 0.7 miles **Maintenance Area:** 300
EC + MD Score: 12 **Field Inspection Date:** February 20, 2010

General Description: Nolte Creek Drive begins at Nelson Road and runs generally in a southwesterly direction for a distance of approximately 0.7 miles where it terminates approximately 300 feet east of Nolte Creek. The road serves a number of residences and some agricultural property. Surface material is primarily sandy clay. At MP 0.2 a tributary of Nolte Creek is crossed.

Location of Problem Areas: (MP measured from Nelson Road)

- MP 0.2 – stream crossing with sediment impacts evident
- MP 0.3 – erosion gullies perpendicular to road

Nolte Creek Drive near MP 0.2 (20 February 2010).

At the MP 0.2 stream crossing red staining of vegetation was observed and diversion swales are cut to direct sediment laden runoff to the flood plain and tributary. There was also strong evidence that this portion of the road is frequently inundated by stormwater and erosion gullies were observed perpendicular to the roadway near MP 0.3.

Road Name: Kilcrease Road **Length:** 2.84 miles **Maintenance Area:** 100
EC + MD Score: 6 **Field Inspection Date:** March 12, 2010

General Description: Kilcrease Road begins at Highway 225 and runs east to Old Stockton Road. The road is wide with a sandy clay surface, shallow ditches and is relatively flat. It serves primarily wooded hunting and timber lands with some residential properties. There are two crossings of unnamed tributaries to Martin Branch.

Location of Problem Areas: (MP measured from Hwy 225 eastward)

- MP 0 – Road discharges south at Hwy 225 to wetland area with turbidity impacts
- MP 1.1 – Red clay surface with high shoulders, steep slope and incised ditches
- MP 1.5 – Past gravel treatment observed
- MP 1.8 – UT Martin Branch crossing with sediment impacts; head cutting at culvert due to no outlet protection; turnouts funneling sediment into stream
- MP 2.0 – Past gravel treatment and old asphalt treatment
- MP 2.3 – UT Martin Branch crossing with sediment impacts; culvert ¾ full of sediment; north side of road has beaver pond; sediment observed downstream causing channel to be braided
- MP 2.4 – Turnouts funneling sediment into wetlands

Kilcrease Road near MP 1.8 (12 March 2010).

Kilcrease Road has two major areas of concern at the stream crossings. The sediment should be removed from the stream. Turnouts need maintenance by removal of sediment. Culverts do not have outlet protection downstream which would help minimize erosion. Culverts also need maintenance when impeded by sediment.

Road Name: Ewing Farm Road **Length:** 0.5 miles **Maintenance Area:** 100
EC + MD Score: 5 **Field Inspection Date:** March 12, 2010

General Description: Ewing Farm Road travels east from County Road 61 to the Florida state line. It serves residential and agricultural properties. The surface is sandy clay with high gravel content, and the terrain is hilly. The road has a crossing over Hurricane Creek.

Location of Problem Areas: (MP measured from CR 61 east)

- MP 0.2 – Hurricane Creek crossing with sediment impacts; sediment impacts from road upstream at Grady pond; turnouts funneling sediment into stream and wetlands

Ewing Farm Road near MP 0.2 (12 March 2010).

Ewing Farm Road has the entire length draining into Hurricane Creek. The recommendation would be asphalt treatment. Sediment removal from Hurricane Creek and floodplain wetlands should be considered.

Road Name: Sawmill Road **Length:** 0.8 miles **Maintenance Area:** 100
EC + MD Score: 5 **Field Inspection Date:** March 12, 2010

General Description: Sawmill Road travels from Dixie Landing Road from the end of pavement to the end of pavement. It serves mainly timber land with a few residential properties. The surface is a sandy clay mix with gravel. The road parallels the floodplain of Little River to the north.

Location of Problem Areas: (MP measured from Dixie Landing Road east from pavement)

- MP 0.1 – Ditch drain to floodplain
- MP 0.2 – Fresh red clay fill with gravel mix
- MP 0.4 – Cross drain with sediment impacts in wetland area down gradient

NO PHOTO AVAILABLE

Sawmill Road follows a ridge along the floodplain of Little River. Impacts observed were minimal, but there is a great potential for impacts due to the close proximity of the road to state waters and the steepness of the shoulder sloping toward the water. Recommendation would be to provide a surface treatment the length of the roadway and direct runoff away from surface waters.

Road Name: Holly Creek Road **Length:** 5.08 miles **Maintenance Area:** 100
EC + MD Score: 10 **Field Inspection Date:** March 12, 2010

General Description: Holly Creek Road travels from Hwy 59 to the end of pavement. It serves residential properties and hunting clubs. The surface is sandy clay with gravel mix. It is relatively flat. From Hwy 59, Holly Creek parallels the road for 2 ½ miles. The road crosses Holly Creek and its tributaries in eleven locations.

Location of Problem Areas: (MP measured from Hwy 59 heading west to EOP)

- MP 1.0 turnouts discharging sediment to stream
- MP 1.9 – Holly Creek crossing; rip rap headwall with asphalt overlay on road; turnouts funneling sediment and gravel into stream
- MP 2.0 – Holly Creek crossing – ditch erosion; garbage and sediment in stream
- MP 2.4 – Cross drain – no impacts
- MP 3.2 – UT Holly Creek crossing – scour on downstream side of culvert
- MP 3.4 and MP 3.7 – Wetland crossing – no impacts
- MP 4.7 – UT Holly Creek crossing – turnouts from slope to stream - minimal sediment

Holly Creek Road sediment impacts to stream and wetland (12 March 2010).

Holly Creek Road near MP 0.9 depicting garbage in stream (12 March 2010).

At the time of field investigation, there were minimal impacts noted at most of the stream crossings (i.e. MP 0.5, 1.3, 1.5, 2.9, 3.0, 3.9, 4.4). Holly Creek Road has great potential for environmental impacts due to the numerous stream crossings. The road has become a major dumping ground near MP 0.9. Turnouts require maintenance when filled with sediment and culverts in some areas need outlet protection to minimize erosion. It is recommended that a surface treatment be applied to the road surface particularly on sections at or near stream crossings and the BCHD work with the County Solid Waste Department to address illegal dumping.

Acknowledgements

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Neil T. Stuart
Frank Lundy

Volkert, Inc.
Jay Dickson

Acronyms

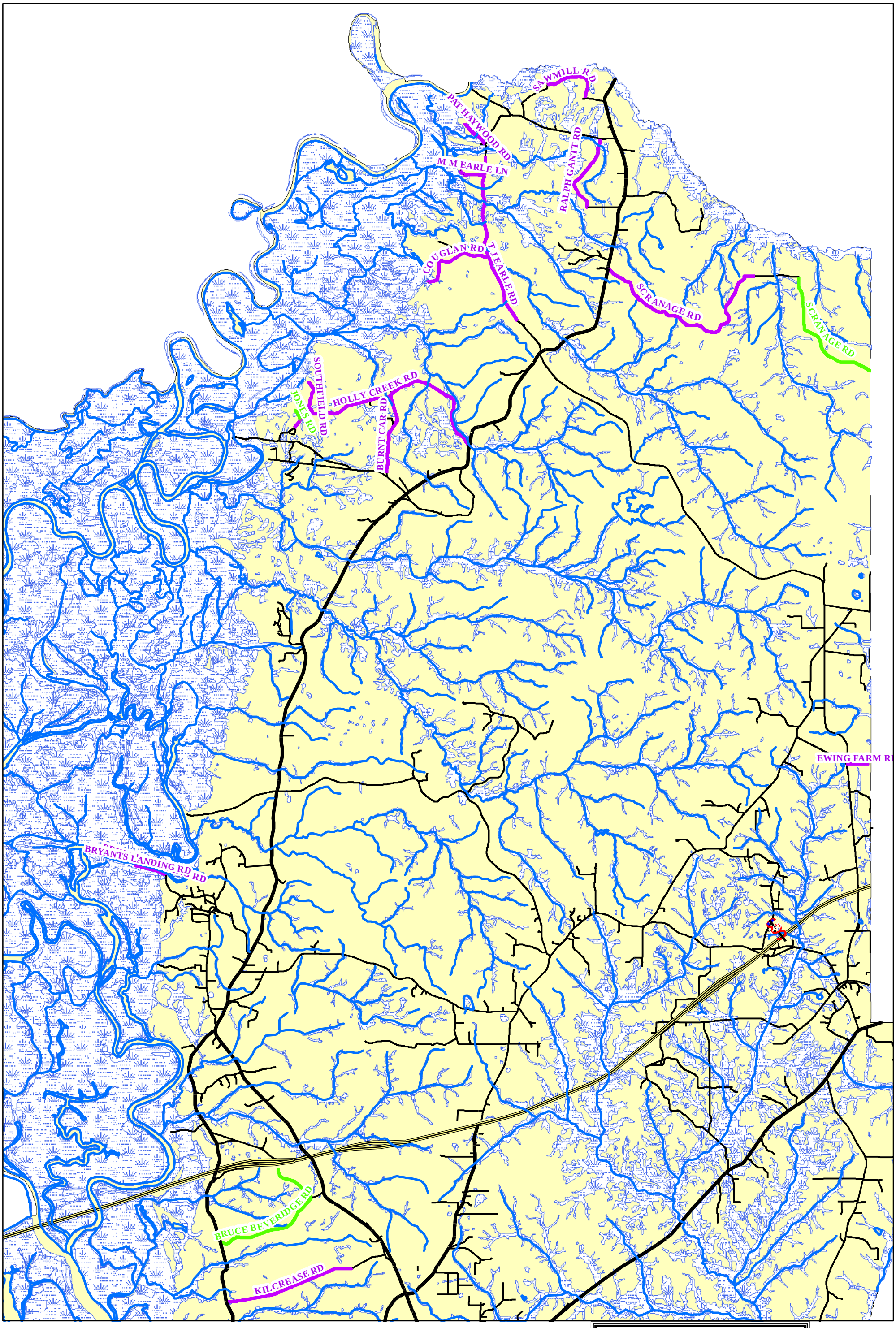
ADEM	Alabama Department of Environmental Management
ALDOT	Alabama Department of Transportation
BCC	Baldwin County Commission
BCEAB	Baldwin County Environmental Advisory Board
BCHD	Baldwin County Highway Department
BMP	Best Management Practice
CEA	Certified Environmental Auditor
CPESC	Certified Professional in Erosion and Sediment Control
CIAP	Coastal Impact Assistance Program
CWA	Clean Water Act - aka - Federal Water Pollution Control Act
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information System
QCI	Qualified Credentialed Inspector (an ADEM designation)
REPA	Registered Environmental Property Assessor
NPDES	National Pollutant Discharge Elimination System

Biographical Information of Sub-Committee Members

John Carlton, C.P.E.S.C. Mr. Carlton moved to Baldwin County in 1962 and currently resides in Spanish Fort. He graduated from Fairhope High School and attended college at the University of South Alabama, graduating with a B.S. degree in Biology in 1979. He was employed by the Alabama Department of Environmental Management from 1979 until his retirement in 2004. During this time he served as Chief of the Mobile Branch Office, responsible for water quality monitoring, NPDES permit inspection, air quality monitoring, underground storage tank inspection and spill response in southwest Alabama and coastal management permitting for Mobile and Baldwin Counties. He obtained his designation as a Certified Professional in Erosion and Sediment Control in 2005 and currently works as an independent environmental consultant.

Brett Gaar, R.E.P.A., C.E.A.. Mr. Gaar is a sixth generation Baldwin County resident and currently lives in Magnolia Springs. He graduated from Foley High School and attended Auburn University receiving his B.S. in Geography. Upon graduation from Auburn, Mr. Gaar began his career as an environmental scientist with Volkert Environmental Group, Inc. He also attended the graduate program at the University of South Alabama in Biological Science and has been with Volkert for 18 years. He serves on the Board of Directors of Volkert Environmental Group and was elected to the Magnolia Springs Town Council in 2008 where he serves as the Environmental Protection Committee Chairman. Mr. Gaar has gained experience in the NPDES program throughout his career and specifically on roadway projects in the southeastern states. Mr. Gaar is a Registered Environmental Property Assessor and a Certified Environmental Auditor.

Leslie Lassitter, C.P.E.S.C. Ms. Lassitter is a native of South Baldwin County, growing up and currently residing on Wolf Bay. Upon graduation from Foley High School, she attended the University of South Alabama, obtaining a B.S. degree in Marine Biology in 1999. Beginning a career with the Alabama Department of Environmental Management in Mobile, she gained experience in the NPDES construction stormwater program for five years. In 2006, she began working as the environmental manager for the City of Foley. She manages enforcement of ordinances, NPDES permitting and inspections and environmental programs. Ms. Lassitter is a Certified Professional in Erosion and Sediment Control and serves on the Wolf Bay Watershed Watch, the Elberta Planning Commission and the Baldwin County Watershed Coalition.



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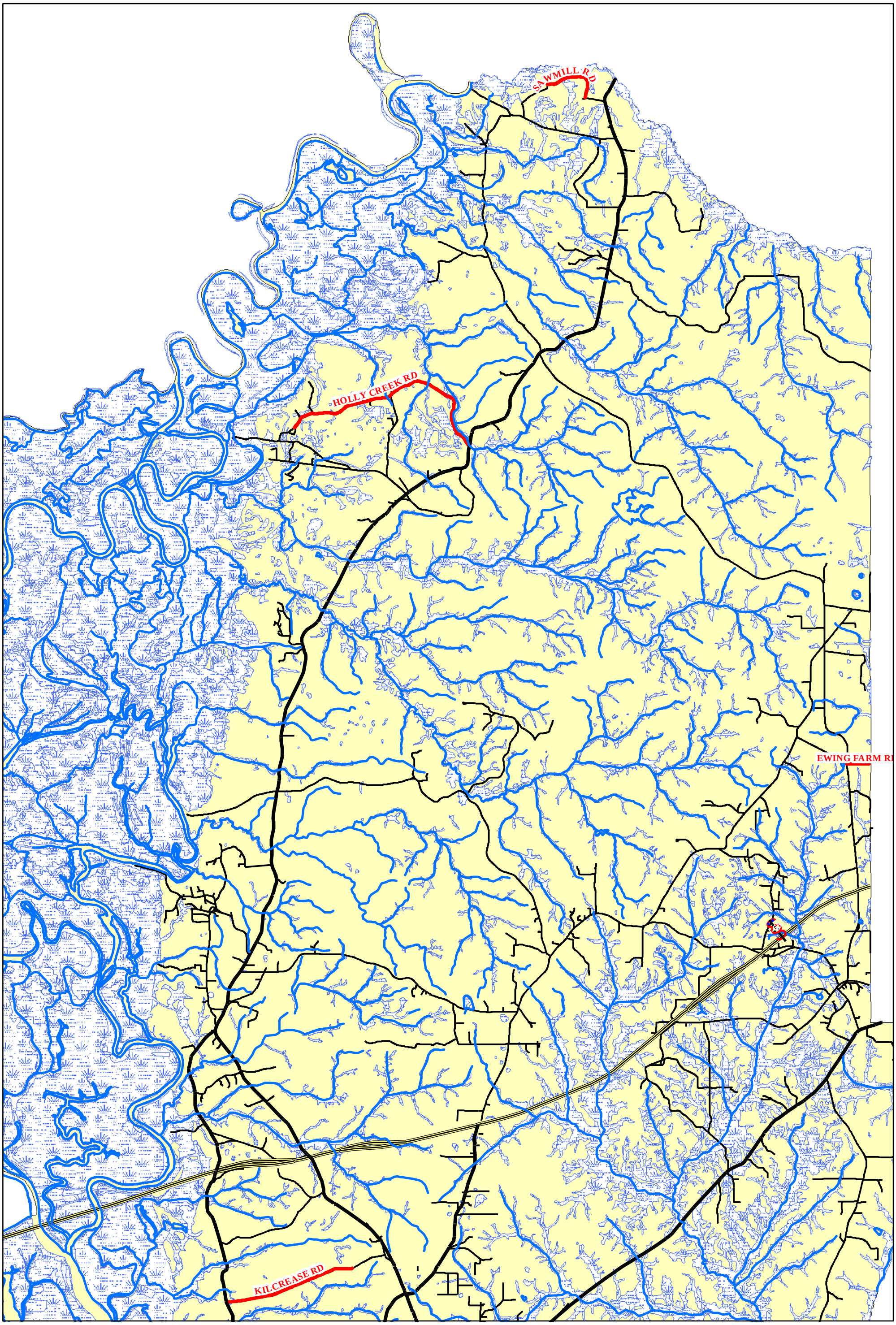
AREA 100 NORTH FIELD REVIEW & QUALITY CONTROL

Legend

- Area 100 Quality Control Segments
- Field Review Area 100
- County_Maintained_Roads



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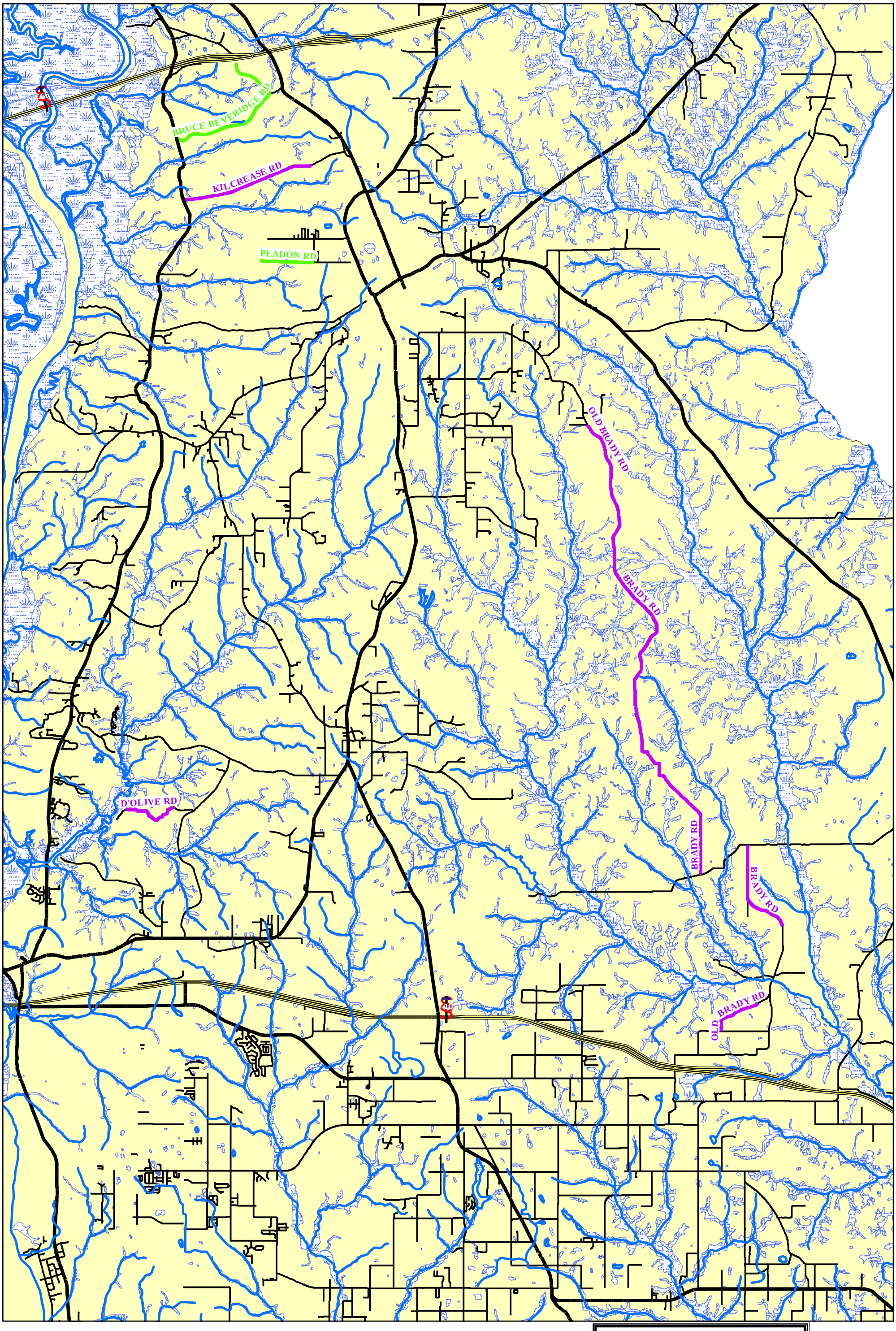
AREA 100 NORTH
TOP ENVIRONMENTALLY DAMAGING DIRT ROADS

Legend

- Top 25 Environmentally Damaging Dirt Roads Area 100
- County_Maintained_Roads



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AREA 100 SOUTH FIELD REVIEW & QUALITY CONTROL

Legend

- Area 100 Quality Control Segments
- Field Review Area 100
- County_Maintained_Roads

KILCREASE RD

BRADY RD

BRADY RD

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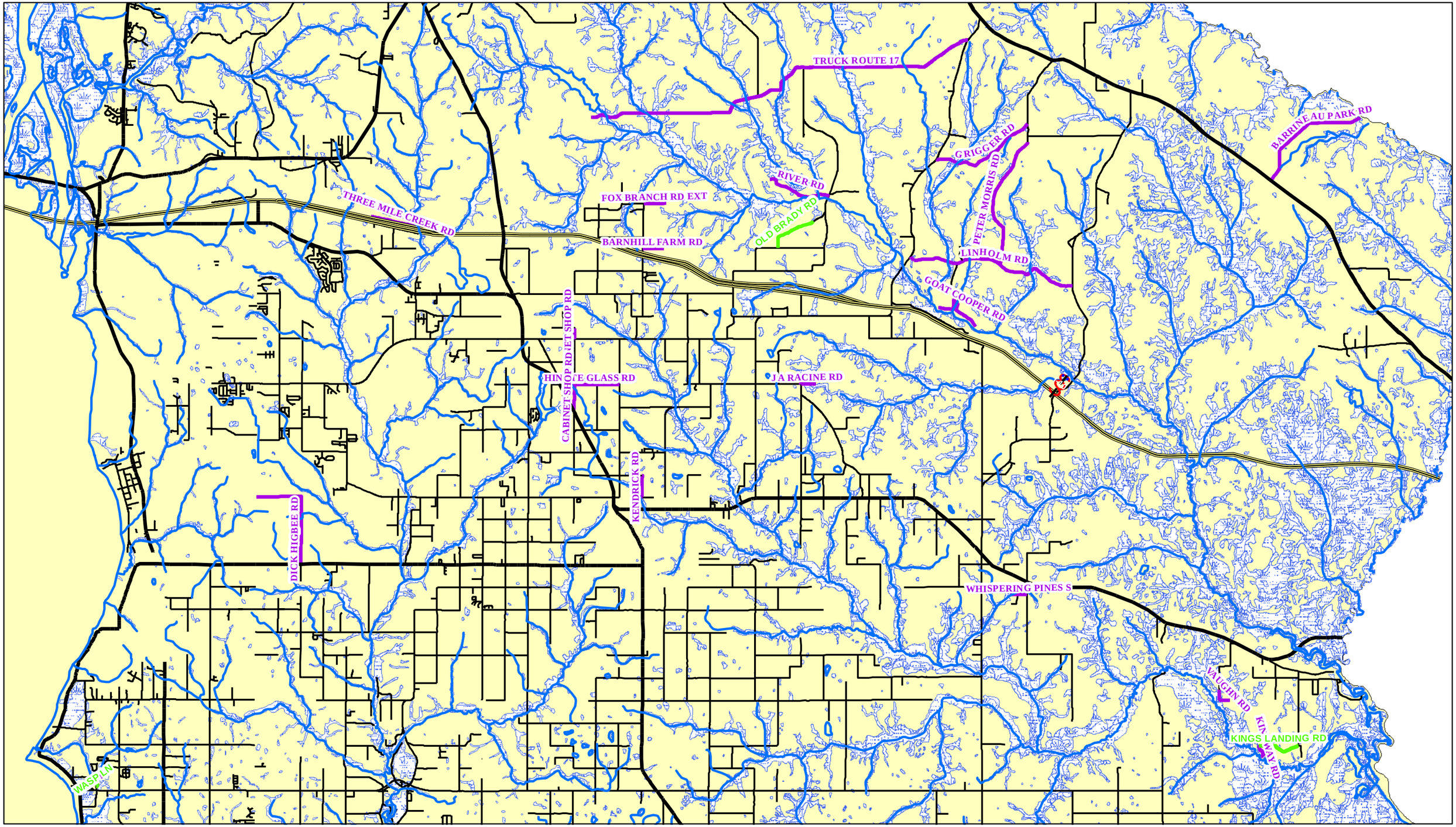
AREA 100 SOUTH
TOP ENVIRONMENTALLY DAMAGING DIRT ROADS

Legend

- Top 25 Environmentally Damaging Dirt Roads Area 100
- County_Maintained_Roads



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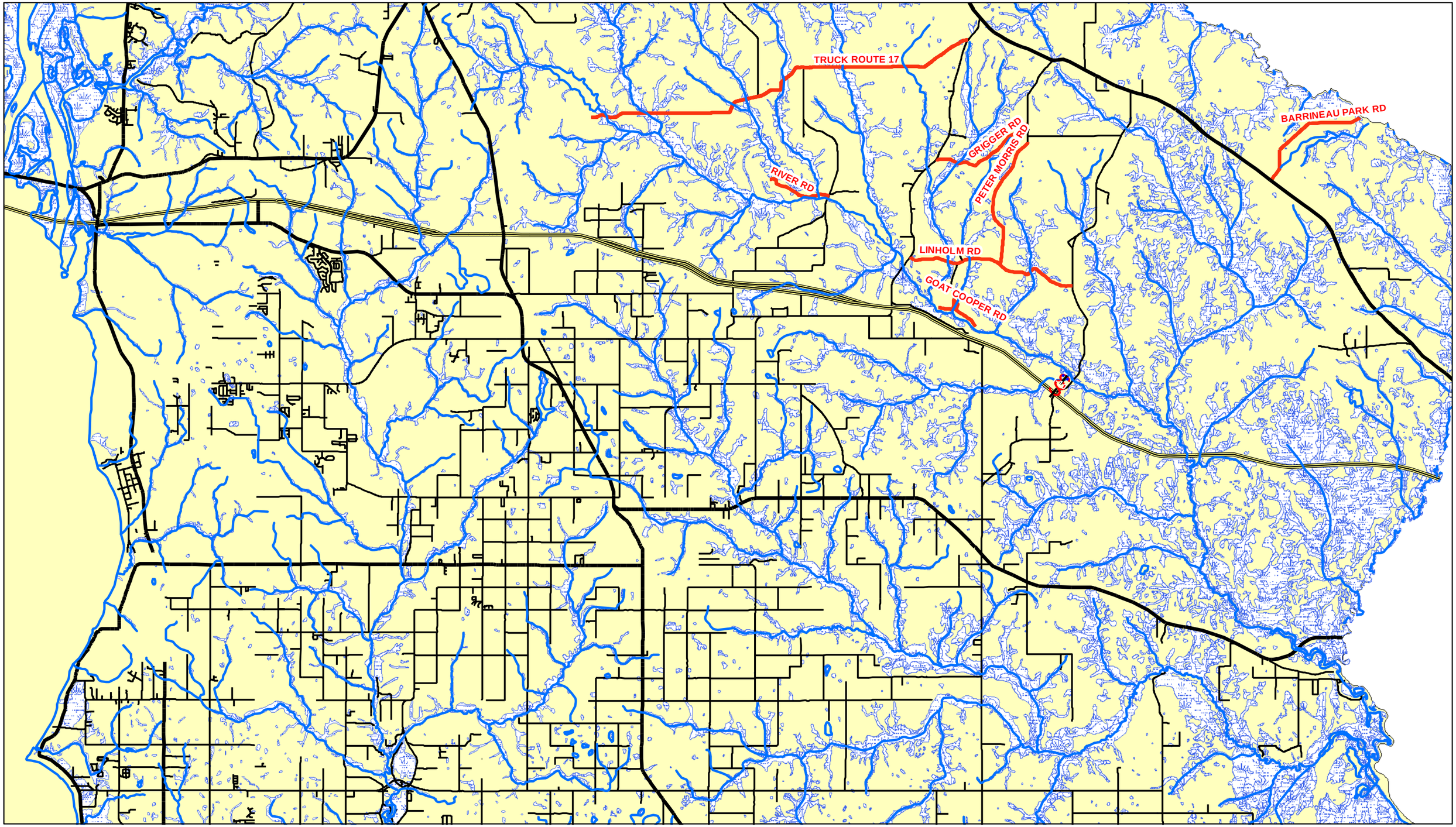
AREA 200
FIELD REVIEW &
QUALITY CONTROL

Legend

- Area 200 Quality Control Segments
- Field Review Area 200
- County_Maintained_Roads



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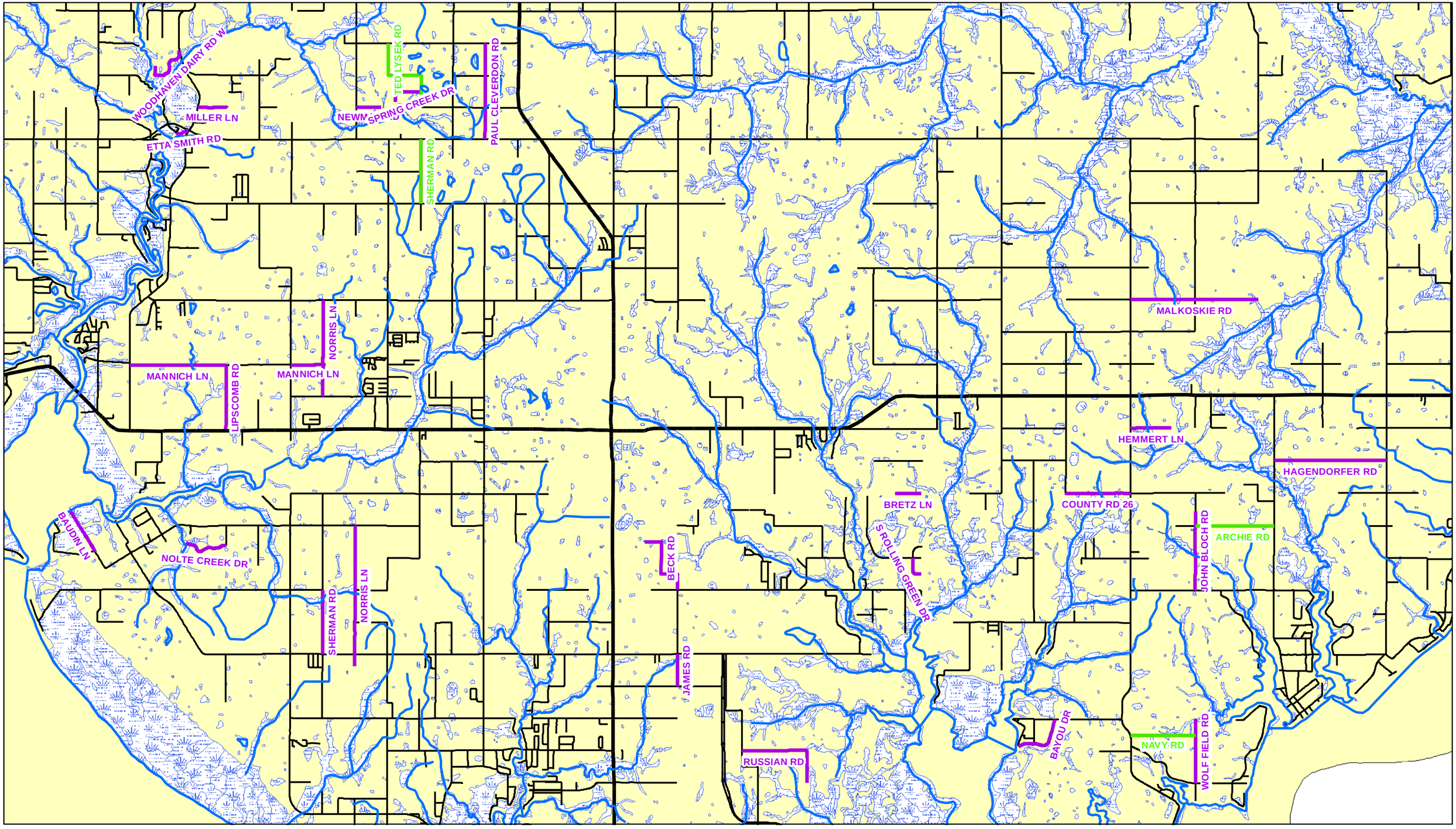
AREA 200
TOP ENVIRONMENTALLY DAMAGING DIRT ROADS

Legend

- Top 25 Environmentally Damaging Dirt Roads Area 200
- County_Maintained_Roads



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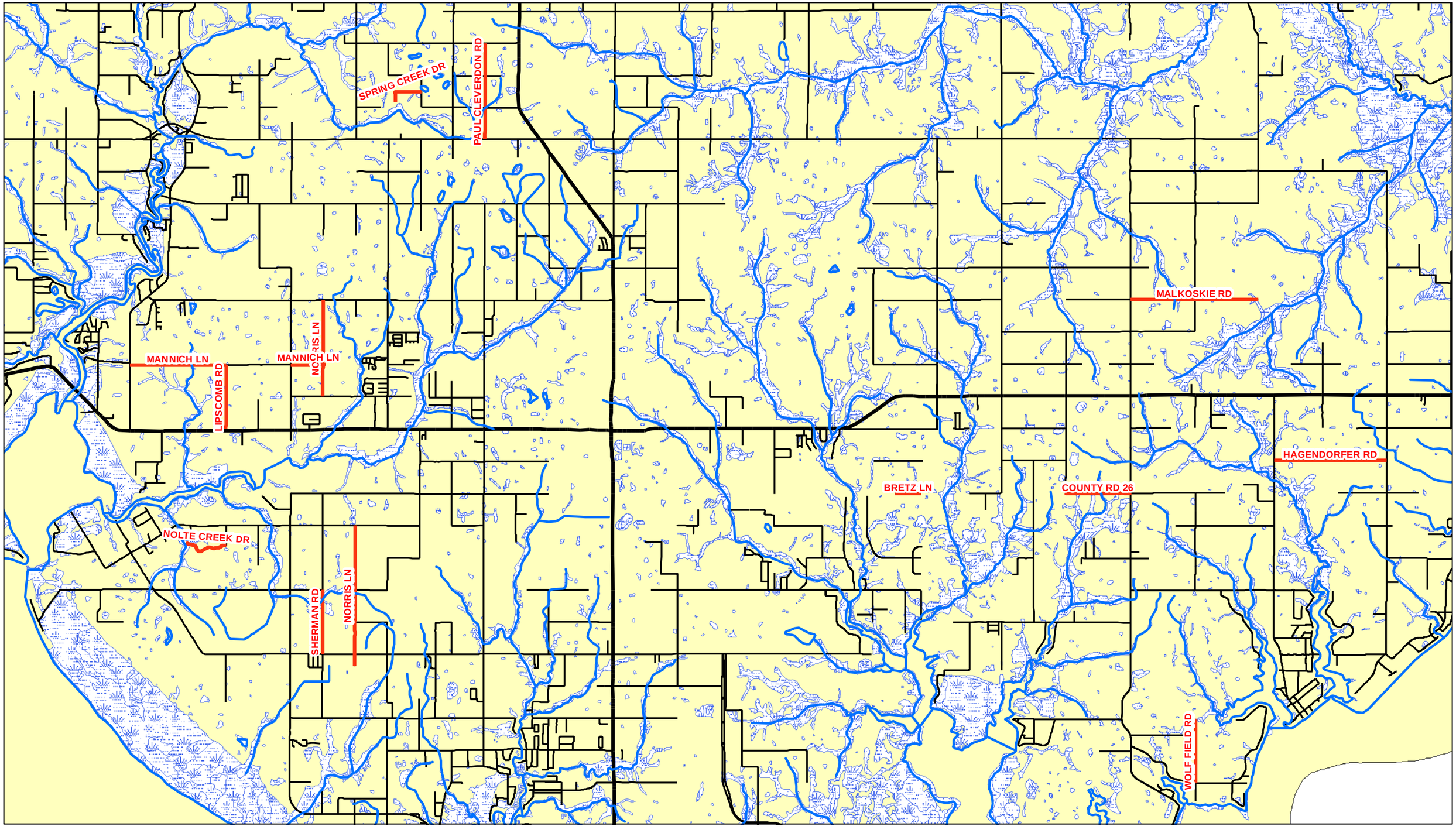
AREA 300
FIELD REVIEW &
QUALITY CONTROL

Legend

- Area 300 Quality Control Segments
- Field Review Area 300
- County_Maintained_Roads



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AREA 300
TOP ENVIRONMENTALLY DAMAGING DIRT ROADS

Legend

- Top 25 Environmentally Damaging Dirt Roads Area 300
- County_Maintained_Roads

Appendix H

Community Rating System Documents

Community Rating System (CRS) Program

Baldwin County began its participation in the NFIP, Community Rating System Program in 1994. The CRS Program was developed by the Federal Insurance Administration to provide incentives for the NFIP communities to implement more stringent floodplain standards that the minimum NFIP requirements. The CRS rewards these efforts with discounts on flood insurance premiums.

Baldwin County has been successful in achieving the Class 6 rating, reducing flood insurance premiums by 20% resulting in a savings to the citizens of the unincorporated areas of Baldwin County. A 10% discount is provided for non-SFHAs. Instead of paying higher premiums, the money saved hopefully stays in the community.

As of 2011 Baldwin County had 9,783 flood insurance policies in force which estimates to $2,126,335,400 respectively. Since inception into the NFIP, there have been 6,985 losses paid totaling approximately $204,410,128.

For more information about flood insurance, property owners and potential buyers should contact their local insurance agent or call the toll-free information line for the National Flood Insurance Program at 1-800-427-4661.

Baldwin County Commission

Community Rating System (CRS) Program

Administered by the

Baldwin County Planning & Zoning Department
Foley Satellite Courthouse
201 East Section Street
Foley, Alabama 36535
Telephone: 251.972.8523
Fax: 251.972.8520
www.planning.co.baldwin.al.us

Direct Contact:
dhart@baldwincountyal.us

in conjunction with the

Baldwin County Highway Department
22070 Highway 59
Robertsdale AL 36567
Telephone: 251.937.0278

Emergency Management Agency
23100 McAuliffe Drive
Robertsdale AL 36567
Telephone: 251.972.6807

Building Inspection Department
201 East Section Street
Foley, Alabama 36535
Telephone: 251.972.6837

For Additional Information visit FEMA's website at:

http://www.fema.gov

Baldwin County Commission

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For Real Estate Agents, Mortgage Companies, Insurance Agencies, Potential Buyers, Sellers, Property Owners and the General Public

April 2015

Floodplain Regulations and Local Flood Hazard Area & Flood Insurance Rate Maps

Baldwin County regulates construction and development in the floodplain to ensure that buildings will be protected from flood damage. Filling and similar projects are prohibited in certain areas. Houses substantially damaged by fire, flood, or any other cause must be elevated to or above the flood level when they are repaired.

***Check for the Flood Hazard*: Before you commit yourself to buying property, do the following:**

- **Ask the local building, zoning, or engineering department if the property is in a floodplain; if it has ever been flooded; what the flood depth, velocity, and warning time are; if it is subject to any other hazards; and what building and zoning regulations are in effect.**
- **Ask the real estate agent if the property is in a floodplain; if it has ever been flooded and if it is subject to any hazards, such as sewer backup or subsidence.**
- **Ask the seller and the neighbors if the property is in a floodplain, how long they have lived there, if the property has ever been flooded, and if it is subject to any other hazards.**

The Baldwin County Inspection Department maintains FIRM maps. These maps are available for public inspection during normal business hours. They may also be viewed at your local library, also.

Upon written request, you may obtain a map of your property as it relates to a local flood hazard area. Contact the Baldwin County Planning & Zoning Department or visit their website at www.planning.co.baldwin.al.us.

Hurricane season officially begins on June 1. Property owners and renters are encouraged to purchase flood insurance policies as soon as possible to provide financial protection from floodwaters and storm surge.

The National Flood Insurance Program, administered by FEMA makes federally backed flood insurance available in communities that adopt and enforce floodplain management ordinances to reduce future flood losses. Flood damage, unlike wind damage, is not covered by a homeowner's policies. This coverage must be purchased separately and is available only in communities that participate in the NFIP.

Since Baldwin County is an NFIP community, federally backed flood insurance is available, with the exception of Coastal Barrier Resources Act (COBRA) areas along the Fort Morgan peninsula.

There is a 30-day waiting period before a new flood insurance policy becomes effective. There are two exceptions to the 30-day waiting period. First, there is no waiting period following the initial purchase of flood insurance when that purchase is in connection with making, increasing, extending or renewing a mortgage or construction loan; the policy will become effective upon loan closing. Secondly, there is no waiting period if the initial purchase occurs during the 13-month period following the revision or updating of a flood insurance rate map and in this case, the policy will go into effect at 12:01 a.m. the day after purchase.

All properties secured by a federally backed mortgage (FHA, VA, FNMA, etc.) must carry flood insurance. Within the COBRA area, the use of direct or indirect federal funding sources is prohibited. Private flood insurance may be available.

Flood Protection: A building can be protected from most flood hazards, sometimes at a relatively low cost. New buildings and additions can be elevated above flood levels. Existing buildings can be protected from shallow floodwaters by regarding, berms, or floodwalls. There are other retrofitting techniques that can protect a building from surface or subsurface water.

SAVE DOLLARS

$$$$$$$$$$$$$$$$$

BE SURE TO PURCHASE A FLOOD INSURANCE POLICY

Many people think they don't need flood insurance because the federal disaster assistance will bail them out. HOWEVER, floods are not always declared a federal disaster area. Even when they are, aid is usually in the form of a loan, which must be paid back with interest.

Flood insurance on the other hand, pays for all covered losses, and unlike loans, that money doesn't have to be paid back.

You can cover your home's structure for up to $250,000, and its contents for up to $100,000. For businesses, structural coverage is available up to $500,000 and up to $500,000 for contents.

For Local Weather Information

Area Television Stations

Channel **3** (ABC) WEAR TV
Channel **5** (CBS) WKRG TV
Channel **10** (NBC) WALA TV
Channel **15** (FOX) WPMI TV
Channel **44** WJTC TV

Area Radio Stations

WABB AM/FM (1480)
WABF AM (1220)
WAVH FM (106.5)
WBCA AM (1110)
WBHY AM (840)
WBHY FM (88.5)
WBLX FM (92.5)
WBUB FM (104.1)
WDLT FM (98.3)
WDLT AM (600)
WGOK AM (900)
WHEP AM (1310)
WHIL FM (91.3)
WJLQ FM (100.7)
WKSJ FM (94.9)
WMXC FM (99.9)
WMOB AM (1360)
WNTM AM (710)
WNSP FM (105.5)
WPCS FM (89.3)
WQUA FM (102.1)
WRKH FM (96.1)
WTKK FM (TK-101)
WUWF FM (91)
WXBM FM (102.5)
WXWY AM (100)
WZEW FM (92.1)

Survive Severe Storms!

A Weather Radio Can Be a Good Investment

Protect yourself and your family from disasters! During or after an emergency, it might be several days before vital services are restored. NOAA emergency alert weather radios activate to provide you with immediate information about life threatening events, giving you extra time to prepare and evacuate if necessary.

Important Contact Information

Baldwin County Building Inspection
(251) 972-6837

Baldwin County Planning and Zoning
www.planning.baldwincountyal.gov
(251) 580-1655

Baldwin County Highway Department
(251) 937-0371

Baldwin County Highway – Permitting (Subdivision) Division
(251) 937-0278

Baldwin County Emergency Management

Central Region	(251) 972-6807
North Region	(251) 937-0317
Eastern Shore	(251) 990-4605

Community Rating System Program (CRS) Coordinator
(251) 580-1655 ext. 7230

Baldwin County Planning & Zoning Department

www.planning.baldwincountyalgov

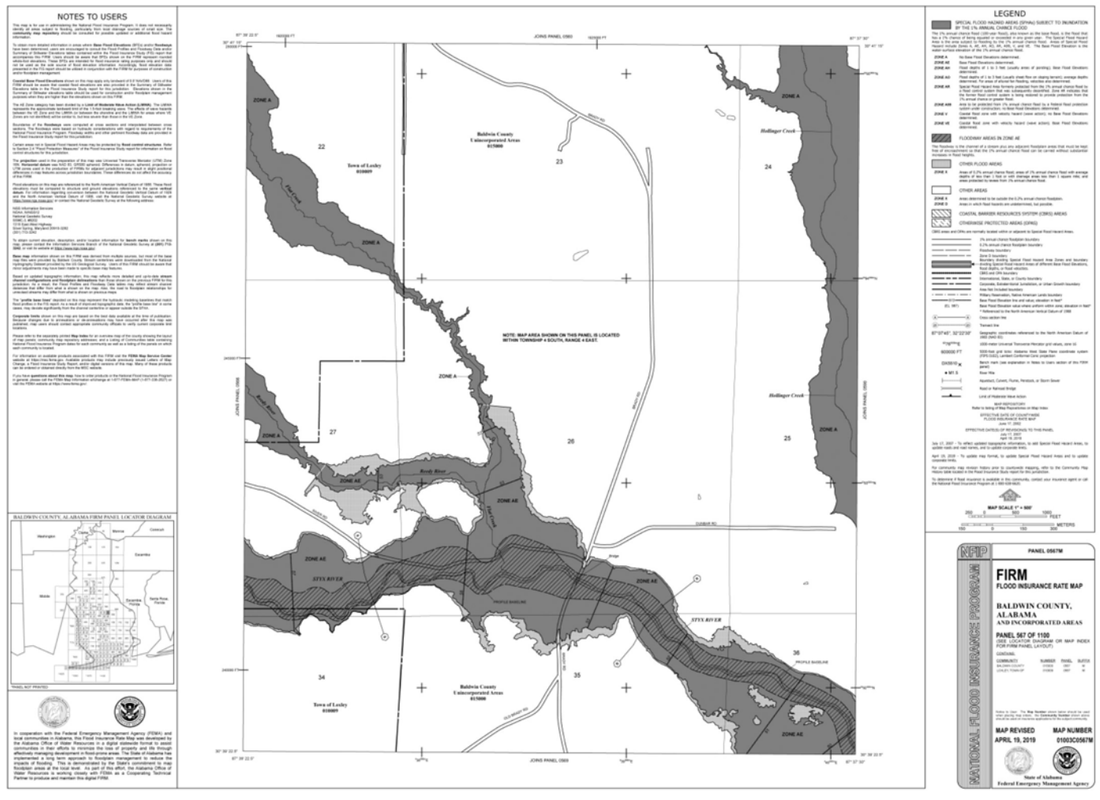
Main Office – Mailing
22251 Palmer Street
Robertsdale, Al. 36567
Main Office—Physical
22070 Highway 59
Robertsdale, AL 36567
(251)580-1655
Foley Satellite Office
201 East Section St.
Foley, AL 36535
(251) 972-8523

If you would like to be notified of other information on zoning and development in your area and throughout Baldwin County, please sign up to receive our "Get Notified" emails. Once subscribed you will receive via email our quarterly newsletter, agendas for upcoming meetings, action reports and other news and information. To subscribe, visit https//open.baldwincountyal.gov/pandzsubscribe. The service is free and users will be able to subscribe or unsubscribe the list at will.

Baldwin County Commission Planning and Zoning Department

Flood Hazard Protection Newsletter

April 2020



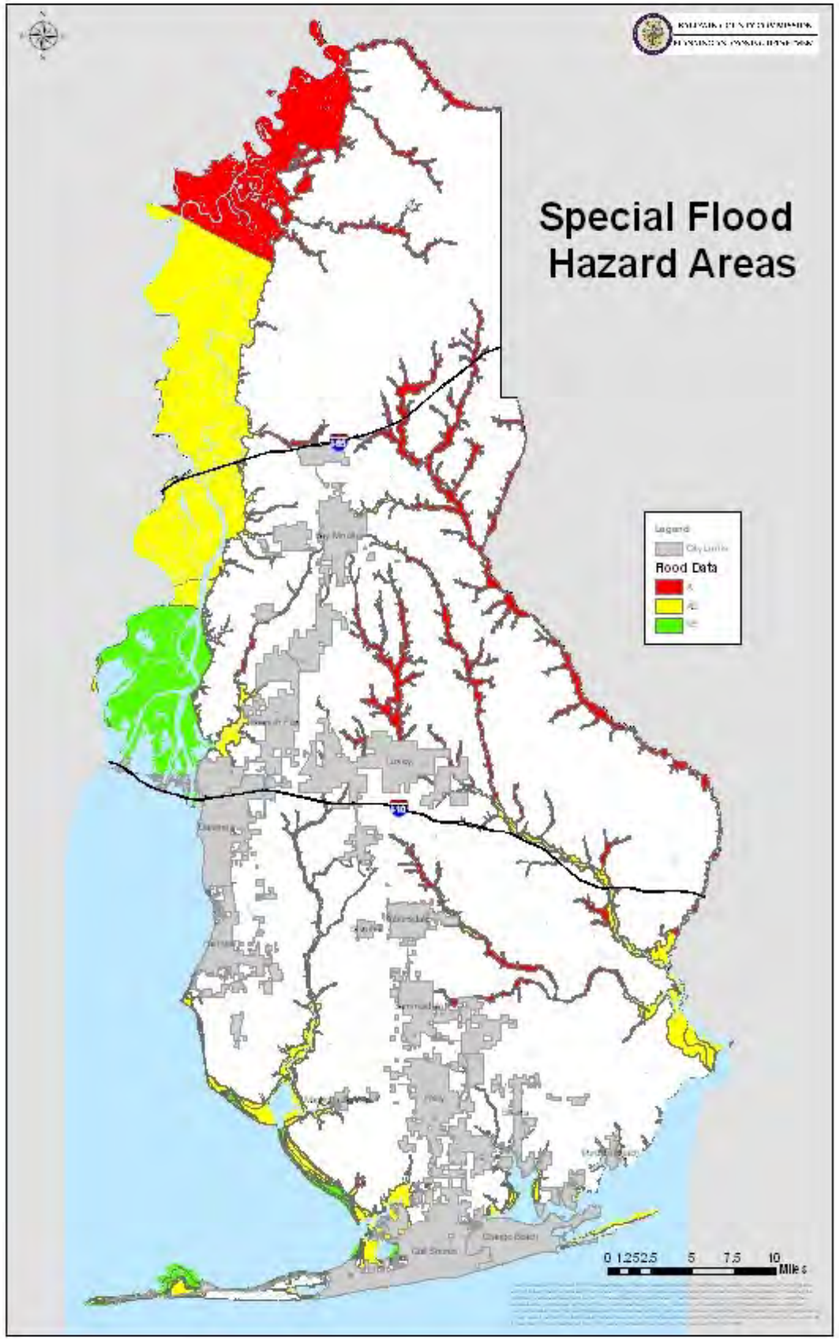
New flood maps for Baldwin County were approved in April 2019. All property owners should check with the Baldwin County Building Department to see if the flood zone on their property has changed. Many parcels were included in the New maps and will now require flood insurance.. ***Baldwin Co. Bldg. Dept. 251-972-6837 / 251-990-4641 / 251-580-1886***

Baldwin County Special Flood Hazard Areas Map

Baldwin County is comprised of approximately 1,596.3 square miles (1,067,231 acres) of which 188,628 acres is in the A, AE and VE flood zones.
The Baldwin County Inspection Department maintains FIRM maps. These maps are available for public inspection during normal business hours. They may also be viewed at your local library. Elevation Certificates for the past few years may also be obtained at the Baldwin County Inspection Department. Staff is available to assist you with the following information:

* Whether a property is located within an NFIP or County mapped flood zone.
* FEMA flood zone and regulatory base flood elevation.
* FEMA Elevation Certificate, if available. The Elevation Certificate is an essential tool used to accurately rate flood insurance policies.
* Information on mandatory flood insurance purchase requirements.
* Regulatory provisions that may apply to your property.
* If available, whether or not the property has ever suffered any flood damage.

Upon written request, you may obtain a map of your property as it relates to a local flood hazard area. Contact the Baldwin County Planning & Zoning Department or visit their website at www.planning.baldwincountyal.gov.



Photos courtesy of AL.com and Alabama Media Group

Photos courtesy of AL.com and Alabama Media Group

Baldwin County is an active participant in the National Flood Insurance Program (NFIP), which provides federally backed flood insurance in communities that enact and enforce floodplain regulations. Since its inception in 1968, the program has been successful in helping flood victims get back on their feet. This is important since property owners who hold a federally backed mortgage must purchase flood insurance if the property is located within a Special Flood Hazard Area (SFHA).

Baldwin County began its participation in the NFIP Community Rating System (CRS) Program in 1994. The CRS Program was developed by the Federal Insurance Administration to provide incentives for NFIP communities to implement more stringent floodplain standards than the minimum NFIP requirements. The CRS rewards these efforts with discounts on flood insurance premiums. The CRS uses a rating system to determine the amount of discount - the better the rating, the more the discount will be. Baldwin County currently holds a Class 7 CRS rating, which equates to a 15% discount on new or renewing flood insurance policies for all SFHA properties.

Since flooding is the most common natural disaster, it is important that you obtain the maximum protection. You can purchase flood insurance irrespective of where you reside in high, moderate, or low risk areas, and there is no exclusion as to what type of ownership you represent (i.e. homeowner, renter or business owner).

To help protect property and reduce potential losses due to flooding, please refer to this fact sheet in the event of an impending hurricane, tropical storm or notification of projected heavy rainfall. During extended periods of heavy rainfall, low-lying areas within the County are at risk for flooding. Visit the FEMA website (www.fema.gov) for more information on the National Flood Insurance Program (NFIP).

Baldwin County's Storm Ready Flood Warning System

Baldwin County has been designated as a StormReady Community by the National Weather Service. StormReady communities are better prepared to save lives from the onslaught of severe weather through advanced planning, education and awareness. No community is storm proof, but StormReady can help communities save lives.

Baldwin County's Emergency Management Agency uses several warning devices to warn residents and visitors of storms and potential rising water hazards.

A REVERSE 911 system was purchased in 2004 and allows Emergency Management to link its E911 telephone databases and existing GIS Mapping Systems to target a precise geographic area and quickly notify individuals in the event of a disaster or threat. Reverse 911 messages are prerecorded messages sent to home phones that are nonrestrictive and cell phones that are registered with the Emergency 911 Agency. The system has the capability to send messages via text and TTY/TDD calling for the hearing impaired.

Flood warnings are disseminated by the Emergency Alert System through local radio and television stations and by NOAA Weather Radio at 162.400 or 162.550 MHz depending on your location.

In the event of flood hazards, tune into local Radio and TV Stations for information. (*See back page for complete listing of local station identification numbers)*

The County provides real-time information regarding high water, road closures, and evacuation routes through Changeable Message Signs. Warnings may also be issued to affected businesses and residences by mobile public address systems on emergency vehicles. When you hear these messages you should follow the instructions and tune to your radio and TV stations for more information.

For additional information regarding Baldwin County's flood warning program, contact Baldwin County Emergency Management Agency at 251.972.6807.

Flood Monitoring Stations Aid in Early Detection of Rising Waters

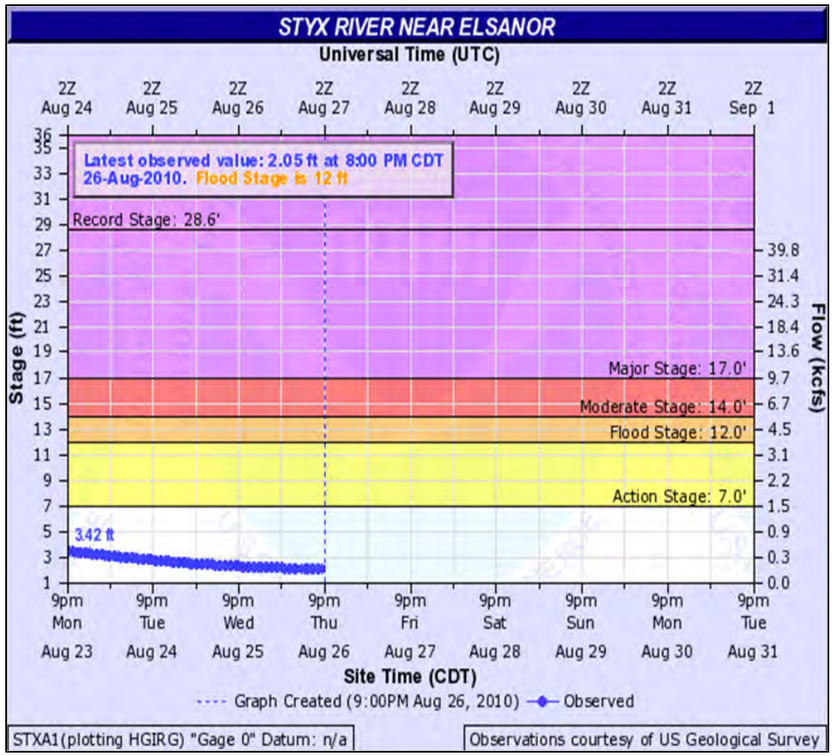
Flood monitoring stations are located on the Fish, Magnolia, Styx, Mobile and Perdido Rivers. These stations are monitored by the National Weather Service and Baldwin County Emergency Management Agency. This information is used to monitor stream flow and stream height for early detection of rising water. This monitoring allows emergency personnel to make better decisions about warning people in flood prone areas.

You can access forecasts online as well as weather discussions, radar information, and satellite photos through the National Weather Service flood forecast site which can be viewed at:

http://www.srh.noaa.gov/mob/?n=rivers

Additional USGS stream gages are located on the Fish River near Silverhill; the Magnolia River at US Highway 98; Wolf Creek below Foley; and the Styx River near Loxley. Data from these sites can be found on the USGS website at

http://waterwatch.usgs.gov/



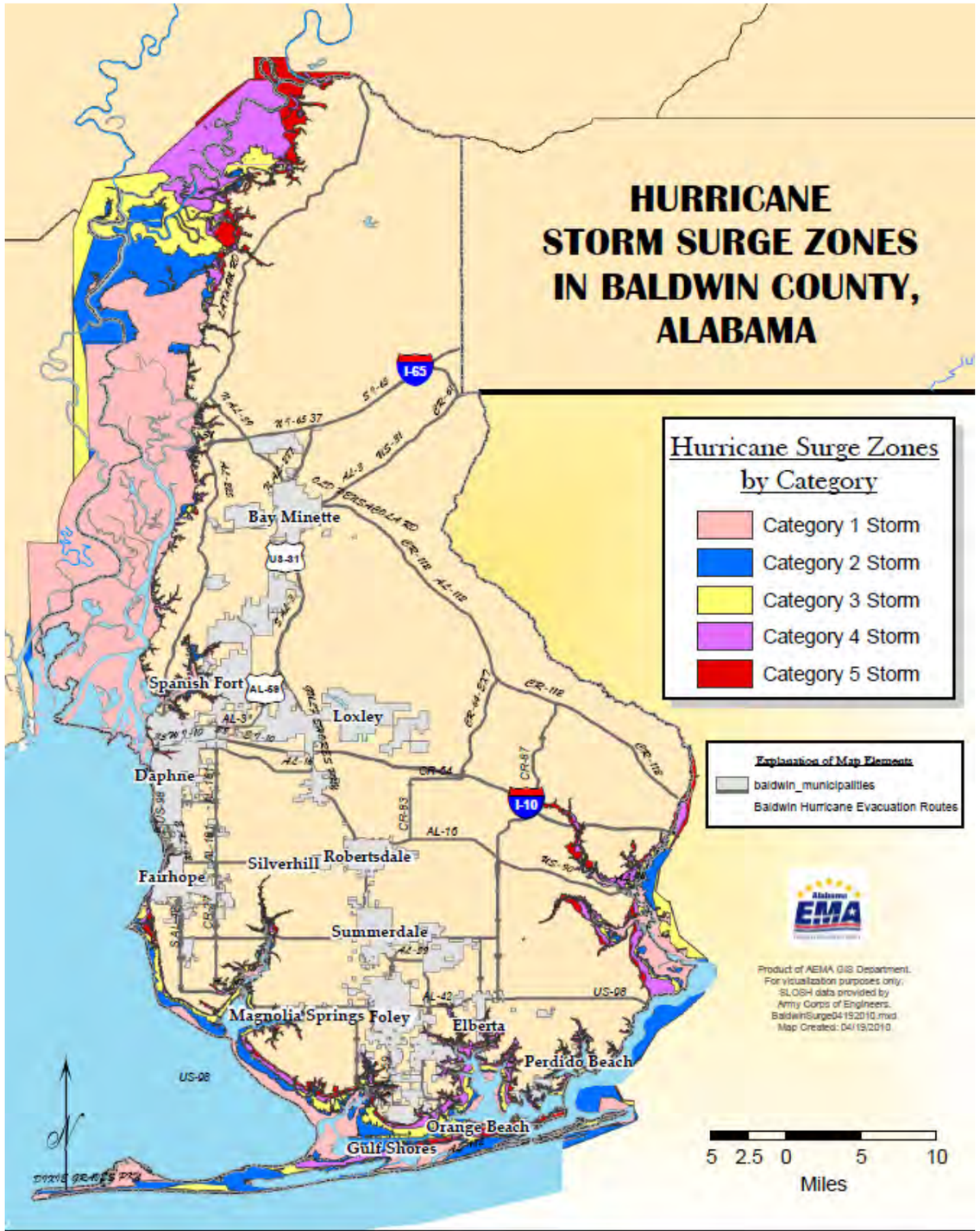
Flood Terms to Know!

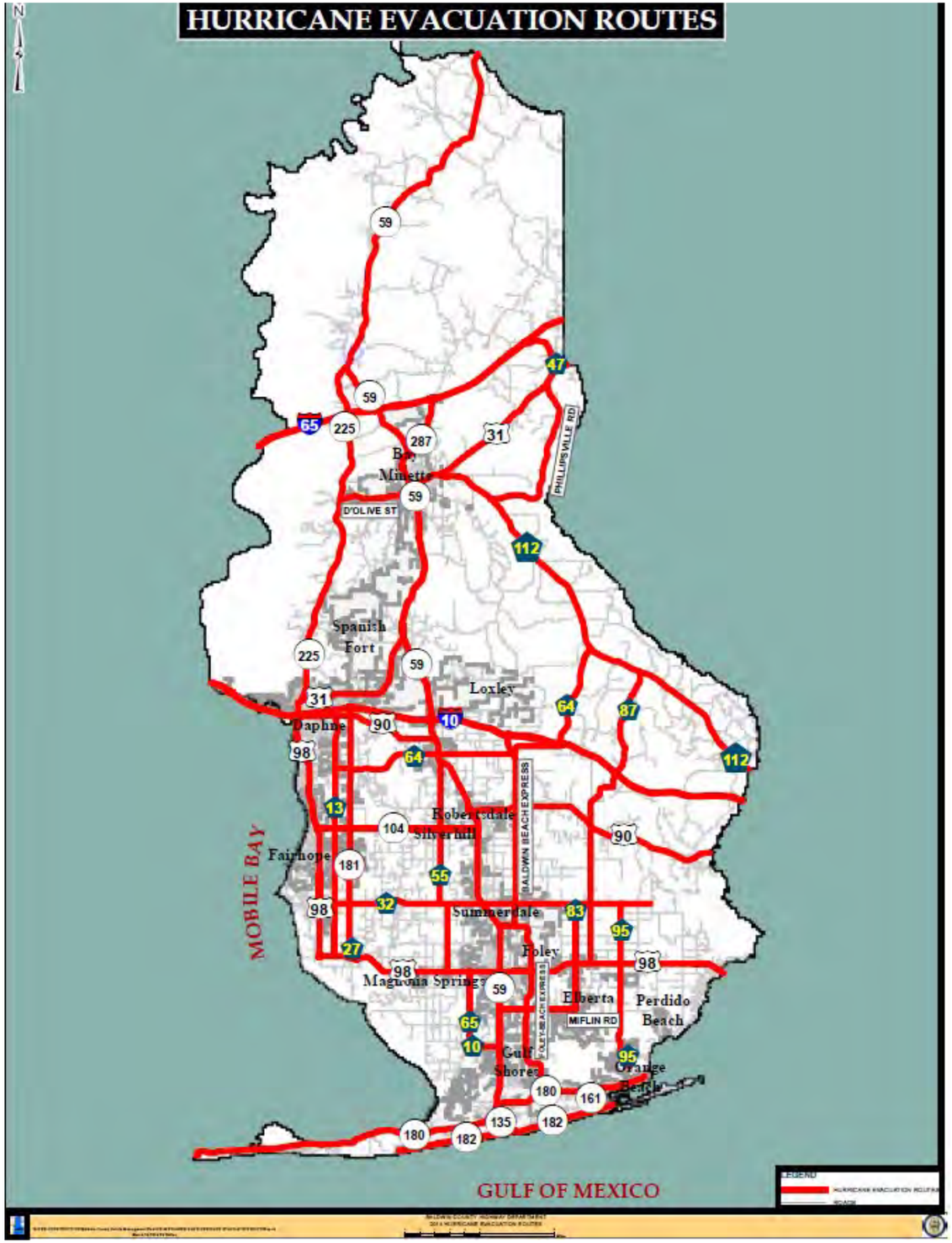
FLOOD WATCH: Flash flooding is possible within the watch area.

FLASH FLOOD WARNING: Flash flooding is imminent or has been reported in the warning area and evacuation is advisable.

* A flash flood is caused by excessive rainfall in a short period of time, generally less than 6 hours.

* When a flash flood warning is issued you may have 30 minutes or less to act. Therefore, you should preplan the actions you will take when a flood warning is issued.





Baldwin County Flood Hazard Facts

Baldwin County is located in southwestern Alabama on the Gulf of Mexico. The county encompasses an area of approximately 1,596.35 square miles and is bordered to the northwest by Washington County, to the north by Clarke and Monroe Counties, to the east by Escambia County, Florida, to the south by the Gulf of Mexico, and to the west by Mobile County. The County seat is in the City of Bay Minette which is located in the north central part of the county. A majority of Baldwin County is entirely surrounded by water, except for a 17– mile stretch along the northeastern border.

- It is surrounded by Mobile Bay, the Tensaw River, and Mobile River to the west; Little River to the north; Perdido River and Perdido Bay to the east; and the Gulf of Mexico to the south.
- There are approximately 1800 miles of streams and rivers in Baldwin County identified in the United States Census Bureau (USCB) TIGER files.

Some of the more prominent water bodies internal to the county include: Bay Minette Creek, Styx River, Blackwater River, Fish River, Magnolia River, Weeks Bay, Bon Secour River, the Gulf Intracoastal Waterway, Oyster Bay, Wolf Bay, Soldier's Creek and Palmetto Creek. Approximately 22 percent of the land in Baldwin County is considered wetland.

Baldwin County has suffered from numerous major flood events brought on by intense or prolonged rainfall and resulting in loss of life and millions of dollars in property damage. Based on historical information, the county can expect an average of 2.5 flood events per year.

Most flooding occurs along the Fish River located in the southwestern portion of the county and Styx River in the central eastern portion of the county. Other rivers and creeks in the county include the Mobile River, Perdido River, Bay Minette Creek, Hollinger Creek and their tributaries. The cities of Gulf Shores and Orange Beach and the Fort Morgan Peninsula are at the greatest risk for coastal flooding.

Hurricane & Tropical Depression Events that have affected Baldwin County since 2004

Hurricane Ivan -2004
Hurricane Katrina -2005
Hurricane Gustav-2008
Tropical Storm Ida-2009
Heavy Rains-March 26-27-2009
Historic Flooding-April 29-30, 2014

Flood Insurance Is For Your Financial Protection

It's Never Too Early to Purchase A Flood Insurance Policy

Being prepared for a flood includes having flood insurance. With floods, there is usually some resulting loss or damage of property. Unfortunately, homeowners' insurance policies do not cover flood damage. However, flood insurance coverage is available under the NFIP for participating communities with the exception of the Coastal Barrier Resources Act (COBRA) areas along the Fort Morgan Peninsula. In these areas, private flood insurance may be available.

Many people think they don't need flood insurance because federal disaster assistance will bail them out. But floods are not always declared a federal disaster area. Even when they are, aid is usually in the form of a loan, which must be paid back with interest. Flood insurance on the other hand, pays for all covered losses, and unlike loans, that money doesn't have to be paid back. You can cover your home's structure for up to $250,000, and its contents for up to $100,000. For businesses, structural coverage is available up to $500,000, and up to $500,000 for contents.

As a result of participating in the Community Rating System Program (CRS), Baldwin County has successfully reduced flood insurance premiums by 20% resulting in a savings to the citizens of Baldwin County. A 10% discount is provided for non-SHFAs. Instead of paying higher premiums, the money saved hopefully stays in the community.

Currently Baldwin County has 9,783 flood insurance policies in force which estimates to $2,126,335,400 respectively. Since inception into the NFIP, there have been 6,985 losses paid totaling approximately $204,410,128.

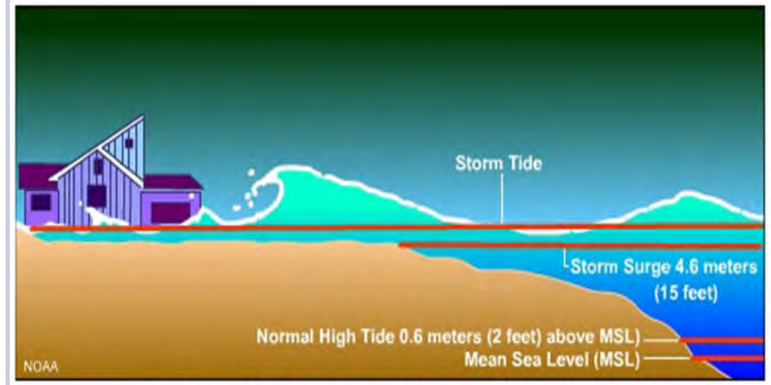
There are 6,080 policies in force in the SFHA, with an average premium (after 15% discount) of $621 which is a savings of $110 and a savings to the citizens of Baldwin County of $666,617. There are 1929 policies in force in the Non-SFHA, with an average premium (after 5% discount) of $334 which is a savings of $33,948.

For more information about flood insurance, property owners and potential buyers should contact their local insurance agent or call the toll-free information line for the National Flood Insurance Program (NFIP) at 1-800-427-4661.

Storm Surge Can Cause Sweeping Damage

Wave and current action associated with the tide cause extensive damage. Water weighs approximately 1,700 pounds per cubic yard; extended pounding by frequent waves can demolish any structure not specifically designed to withstand such forces.

The current created by the tide combine with the action of the waves to severely erode beaches and coastal highways. Many buildings withstand hurricane force winds until their foundations, undermined by erosion, are weakened and fall.



Storm surge is a large dome of water, often 50 to 100 miles wide, that sweeps across the coastline where a hurricane makes landfall. The storm tide is the combination of the storm surge and the astronomical tide.

The level of surge in a particular area is also determined by the slope of the continental shelf. A shallow slope off the coast will allow a greater surge to inundate coastal communities. Communities with a steeper continental shelf will not see as much surge inundation although large breaking waves can still present major problems. Storm tides, waves, and currents in confined harbors severely damage ships, marinas, and pleasure boats.

In general, the more intense the storm, and the closer a community is to the right-front quadrant, the larger the area that must evacuate. The problem is always the uncertainty about how intense the storm will be when it finally makes landfall. Emergency managers and local officials balance the uncertainty with the human and economic risks to their community. This is why a rule of thumb for emergency managers is to plan for a storm one category higher than what is forecast. This is a reasonable precaution to help minimize the loss of life from hurricanes.

Top 10 Facts Everyone Should Know About The National Flood Insurance Program (NFIP)

1. Everyone Lives in a Flood Zone

You don't need to live near water to be flooded. Floods are caused by storms, melting snow, hurricanes and water backup due to inadequate or overloaded drainage systems, dam or levee failure etc.

2. Flood Damage Is Not Covered by Homeowner's Policies

You can protect your home, business, and belongings with flood insurance from the National Flood Insurance Program. You can insure your home with flood insurance for up to $250,000 for the building and $100,000 for your contents.

3. You Can Buy Flood Insurance No Matter If Your Flood Risk Is High, Medium or Low

It doesn't matter whether your flood risk is high, medium or low, you can buy flood insurance as long as your community participates in the National Flood Insurance Program. And, it is a good idea to buy for low or moderate risks— almost 25 percent of all flood insurance claims come from low and moderate risk areas.

4. Flood Insurance Is Easy To Get

The average flood insurance policy costs a little more than $300 a year for about $100,000 of coverage. In comparison, a disaster home loan can cost you more than $300 a month for $50,000 over 20 years.

5. Contents Coverage Is Separate, So Renters Can Insure Their Belongings Too

Up to $100,000 contents coverage is available for homeowners and renters. Whether you rent or own your home or business, make sure to ask your insurance agent about contents coverage since it is not automatically included with building coverage policies.

Flood Insurance Is Affordable

6.

The average flood insurance policy costs a little more than $300 a year for about $100,000 of coverage. In comparison, a disaster home loan can cost you more than $300 a month for $50,000 over 20 years.

There Is a Low-Cost 7. Policy for Homes in Low to Moderate Risk Areas

The Preferred Risk Policy is available for just over $100 a year. You can buy up to $250,000 of coverage for your home and $60,000 of coverage for your contents.

8. There is Usually a 30-Day Waiting Period Before Coverage Is Effective

Plan ahead so you're not caught without flood insurance when a flood threatens your home or business.

Federal Disaster Assistance is Not the Answer

9.

Federal disaster assistance is only available if the President of the United States declares a disaster. More than 90 percent of all disasters in the United States are not presidentially declared. Flood insurance pays even if a disaster is not declared.

10. Up To $1 Million of Flood Insurance Coverage Is Available for Non-Residential Buildings and The Contents

Up to $500,000 of coverage is available for non-residential buildings and up to $500,000 of coverage is available for the contents of non-residential buildings.

For more information about flood insurance, property owners should contact their local insurance agent or call the toll-free information line for the National Flood Insurance Program (NFIP) at: 1-800-427-4661.

The Four Stages of Flood Safety

Flood safety protection measures should be taken in four stages: Preparatory Flood Warning, Flood Warning, During the Flood and After the Flood.

Preparatory Flood Warning

- Have a stock of food that requires no cooking.
- Have a first aid kit available.
- Have your vehicle fueled.
- Consider purchasing flood insurance for your home and belongings. Homeowner's insurance does *NOT* cover flooding.
- Tune in to a radio, television or NOAA Weather Radio for flood warnings.
- Obey warnings from officials - evacuate when a notice is issued.
- Know your evacuation zone and route to a place of safety.
- Know what supplies to take with you.
- Be cautious and avoid flood-prone areas when leaving.
- Steps should be taken to reduce property losses:
  - Move outdoor furniture and carry downstairs furniture to upper floors or higher locations.
  - Sandbags can help slow down floodwaters to keep them from reaching your possessions.
  - Know what your current insurance policy does and does not cover. By retrofitting, you can minimize loss prior to floods by building floodwalls, elevating a structure, etc.

Flood Warning

- Store drinking water in sterile, covered containers.
- Move valuable objects higher. Place them on shelves, tables and countertops.
- Shut off electricity, gas and water to your home prior to leaving.
- Leave early enough to avoid traffic congestion.

During the Flood

- Stay on higher ground.
- Do not drive on a flooded road - more people drown in their cars than anywhere else. Do not drive around road barriers; the road or bridge may be washed out.
- If your vehicle stalls, abandon it immediately and seek higher ground.
- Do not attempt to wade across a flowing stream that is above your knees. Drowning is the number one cause of flood deaths, mostly during flash floods. Currents can be deceptive; if you walk in standing water, use a pole or stick to ensure that the ground is still there.
- Stay away from power lines and electrical wires. Electrical current can travel through water.
- Look out for Animals. Consider shelters where animals are allowed.

After the Flood

- Do not eat food that has come into contact with floodwater.
- Drink only bottled water or previously stored water.
- Look before you step. The grounds and floors may be covered with debris including broken bottles and nails. Floors and stairs that have been covered with mud can be slippery.
- Stay away from disaster areas. You may hamper rescue or recovery operations.
- Do not handle live electrical equipment.
- Do not allow children to play in standing water. It may be contaminated with chemicals or sewage.
- Use a flashlight to inspect for damage. Don't smoke or use candles, lanterns or open flames unless you know the gas has been turned off and the area has been ventilated.
- Report downed power lines to the local power company, Emergency Management Agency or local law enforcement authorities.
- Keep tuned in to local radio and television stations for instructions on how to obtain medical care and emergency assistance, such as water, food, clothing, shelter and further weather reports and conditions.

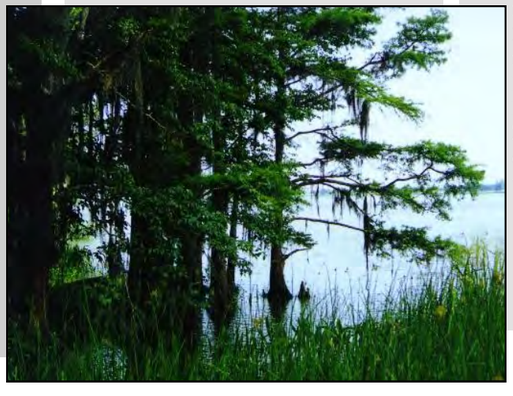
The Natural & Beneficial Functions of Wetlands and Storm water Management

The wetlands within Baldwin County are indispensable and fragile natural resources with significant development constraints due to flooding, erosion and soil limitations. When portions of floodplains are preserved or restored to their natural state, they provide many benefits to both human and natural systems. Open space resource areas adjacent to floodplain areas increase aesthetics and recreational opportunities; reduce the number and severity of floods, help handle storm water run-off, and minimize non-point water pollution.

Protecting freshwater and coastal wetlands is a critical goal of Baldwin County. Not only do wetlands add significant fish and wildlife habitat to the shore land area, but wetlands play an essential role in preserving water quality by functioning as a buffer for associated water bodies. According to the Southeast Watershed Forum, one acre of fresh water wetlands are valued at $630 each year for water quality, $594 for flood retention, $539 for recreational fishing and $1,832 for bird watching. Baldwin County has a wetland protection overlay district in all zoned areas that covers approximately 280,831 acres. The purpose of the wetland protection overlay district is to promote wetland protection, while taking into account varying ecological, economic development, recreational and aesthetic values.

Wetlands also mitigate flood damage by serving as flood storage areas, minimizing erosion damage to shorelines by slowing the velocity of runoff and replenishing groundwater supplies. American Rivers, a non-profit conservation organization, found that one wetland acre saturated to a depth of one foot holds 333,000 gallons of water, which can flood thirteen average homes thigh-deep. This wetland function protects downstream property owners from flood damage. The velocity of floodwaters decreases when met with resistance from the wetland vegetation, this decrease reduces the water's erosive potential and results in smaller, less severe flooding events.

Wetlands within Baldwin County are indispensable and fragile natural resources with significant development constraints due to flooding, erosion and soil limitations. In their natural state, wetlands serve man and nature. They provide habitat areas for fish, wildlife and vegetation; water quality maintenance and pollution control; flood control; erosion control; natural resource education; and many other causes. Damaging or destroying wetlands threatens public safety and the general welfare. It is therefore necessary for Baldwin County to ensure maximum protection for wetlands by discouraging development activities that may adversely affect wetlands.



Baldwin County regulates Storm water Management policies through the Subdivision Regulations for all new developments. Developments that increase storm water runoff are required to construct storm water management facilities. Baldwin County has provisions that impose requirements for land disturbing activities that require planning and implementation of effective sedimentation controls for individual lots and subdivision development sites. For more information on Erosion, Sedimentation or Storm water Management requirements for new developments, contact the Baldwin County Planning & Zoning Department at 251.580.1655 or the Subdivision Permitting Department at 251.937.0278. Both the Baldwin County Subdivision Regulations and Baldwin County Zoning Ordinances are available online at www.planning.baldwincountyal.gov

Help Reduce Your Risk Of Damage

County Inspection Departments and local libraries. To learn more about property protection measures, visit FEMA's website at HTTP://www.fema.gov/rebuild/mitigation.shtm and Baldwin County's website under www.planning.baldwincountyal.gov

FEMA provides grants, in certain situations, for property protection measures that reduce disaster losses and protect life and property from future disaster damages. Projects must provide a long-term solution to a problem. These grants are made to the state or local government rather than to the homeowner directly and often have a cost-share requirement. To learn more about these programs, contact the Baldwin County Inspection Department or visit FEMA's website at http://www.fema.gov/government/grant/hma/index.shtm

A new 3-foot concrete slab foundation was poured before elevating this house on cinder block piers to mitigate against flooding.

Flood Safety Measures Every Family Needs to Know

To reduce your risk of injury during a flood:

- Do not attempt to cross a fast flowing stream where water is above your ankles.
- Keep children away from rivers, ditches, culverts and storm drains.
- Do not travel on flooded roads or through dip sections.
- Never drive past a "Road Closed" barrier.
- If your home will be affected by flood waters, turn off all electric circuits at the fuse panel or disconnect switch
- Evacuate the flood hazard area in times of impending flood or when advised to do so by the Sheriff, Police or Fire Departments.
- Prepare a family plan that covers activities before, during and after flood emergencies.

Flood Protection Measures Can

New Construction MUST be elevated to Base Flood Elevation. A finished elevation certificate must be provided prior to final inspection.

When elevating a structure to mitigate against flooding, it is important to elevate all outdoor appliances as well, like water heaters and this air conditioning unit.

Every year, flooding causes more property damage in the United States than any other type of natural disaster. While construction practices and regulations have made new homes less prone to flooding, many existing structures remain susceptible. You can protect your property through a variety of measures that can vary in complexity and cost. Raising a house above the flood level is the best property protection method short of moving the building entirely out of the floodplain. If a building cannot be removed from harm's way, it can be protected on site. In areas of low flood threat, such as infrequent shallow flooding, barriers, and dry and wet flood proofing, can be effective approaches. Other property protection measures you can take include:

*Annually inspect your hurricane straps for corrosion and replace them if necessary.

*Annually inspect your pilings and floor system for splitting, rotting, termite damage, or rusted connecting bolts if your home is on pilings.

*Raise your furnace, water heater, and electric panel to higher floors or the attic if they are in areas of your home that may be flooded. Raising this equipment will prevent damage. An undamaged water heater may be your best source of fresh water after a flood.

*Avoid backflow of sewer lines by closing off all sewer line entries into the house. As a last resort, when floods threaten, use large corks or stoppers to plug showers, tubs, or basins.

*Seal walls in basement with waterproofing compounds to avoid seepage through cracks.

*Move furniture and any other valuables to higher floors.

*Keep materials like sandbags, plywood, plastic sheeting, and lumber handy for emergency waterproofing.

*Keep insurance policies, documents, and other valuables in a safe-deposit box.

*Keep watercourses free of fill/debris. Many people fail to recognize how regarding their yard, filling a wetland, or discarding debris in a watercourse can cause a problem to themselves and others.

There are publications and assistance in property protection available at the offices of the Baldwin

Floodplain Regulations Help Protect Property & Encourage Responsible Development

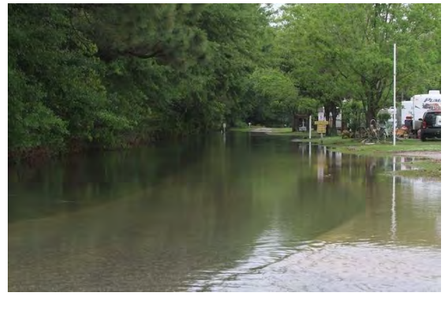
The unique natural water resources that distinguish Baldwin County as a top choice for living,
recreation and employment, also require unique land use measures to protect and maintain them for future generations. Baldwin County's floodplain regulations are intended to protect private and public property, protect the environment, encourage responsible development and prevent the degradation and deterioration that results from unrestricted use and development.

Always check with the County Planning and Building Inspection Departments before you build, fill, alter, or grade on your property. All new developments, or any alterations, additions, or modifications to your building or land require a permit. Before you begin construction find out which permits and building standards apply by contacting the Baldwin County Building Inspection Department, Planning and Zoning Department, or the Highway Department to determine if you will be required to obtain a permit or to report any possible unauthorized development within the floodplain.

In addition to regular building permits, special regulations apply to construction in the floodplain and in floodways. No construction, including filling, is allowed in the mapped floodway without an engineering analysis that shows the project will not increase flood damage elsewhere. Any activity outside the floodplain but within a natural or man-made watercourse also requires a permit.

Elevation or flood-proofing may be required if you plan to substantially improve your existing structure located within a FEMA flood zone (the cost of the improvement or addition is 50 percent of the value of the existing structure). If your property is substantially damaged, Federal regulations may require you to elevate or flood-proof as you rebuild. The document titled – "Answers to Questions about Substantially Damage Buildings" (FEMA-213, May 1991) will help answer questions on this topic and can be obtained free by calling 1-800-480-2520 or by online access at http://www.fema.gov/library.

If you suspect suspicious activity on whether or not a site obtained a permit, or was required to obtain a permit, contact the Baldwin County Planning & Zoning Department, Building Inspection Office or the Highway Department.



Photos courtesy of AL.com and Alabama Media Group

Increased Cost of Compliance (ICC) Coverage an Important Part

After a flood event, flood insurance policyholders are assured their claim will be paid and They will have additional options to fund rebuilding.

Flood insurance policyholders also may be eligible for Increased Cost of Compliance (ICC) coverage benefits. ICC coverage is an important part of most flood insurance policies. .ICC coverage provides:

* Up to $30,000 to help property owners who have been substantially damaged to reduce the risk of damage from future floods by elevating, flood proofing (for nonresidential structures), demolishing or relocating their building or home
* ICC coverage in addition to the building coverage for the repair of the actual physical damages from flooding; however, the total payout on a policy may not exceed $250,000 for residential buildings and $500,000 for nonresidential buildings.

A FEMA/State Disaster recovery center set up in Bay Minette

To be eligible for ICC funds, a building must be insured under the National Flood Insurance Program (NFIP) and must also either (1) be determined by a local building official TO BE substantially damaged or (2) qualify as a repetitive loss structure.

Substantial damage is flood-related damage that equals or exceeds 50 percent of the value of the building. When repaired, the structure must comply with local floodplain management ordinances. If the total damage from flooding is less than 50 percent of the market value of the building, ICC coverage is not available under the substantial damage provision.

Repetitive loss is flood-related damage that occurs twice over a period of 10 years, with the cost of each repair averaging 25 percent or more of the preflood market value of the building. Because the 25 percent cost is an average, it need not be equally distributed.

For example, if the damage was 35 percent of the value of the building in the first event and 15 percent of the value in the second event, the policyholder would qualify for ICC coverage. A flood insurance claim must have been paid in both cases, and it applies only if the community has adopted a repetitive loss

* provision in its floodplain management ordinance.

ICC coverage can help pay for four different types of mitigation activities to bring a building into compliance with the community's floodplain management regulations. These activities include elevation, flood proofing, relocation and demolition.

Elevation is the most common means of reducing a building's flood risk. The process consists of raising the building to or above the Base Flood Elevation (BFE). While NFIP policy requires only the lowest floor of the building to be raised to the BFE, some states and communities enforce a "freeboard" requirement, which mandates that the building be raised above the BFE to meet the community's flood protection level.

* For example, if the BFE for a structure is 4 feet, and the community adopts a 3-foot freeboard requirement, ICC coverage would help pay the cost of elevating the building to meet the 7 foot requirement.

Flood proofing applies only to nonresidential buildings. For a building to be certified as flood proof, it must be watertight to a level 1 foot above the BFE, or to the level of the freeboard requirement (if the community enforces one). Flood proof means that the walls must be substantially impermeable to water and designed to resist the stresses imposed by floods. Flood proofing techniques include installation of watertight shields for doors and windows, drainage collection systems, sump pumps

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Drainage System Maintenance Crucial To Reduce Flooding and Protect Road Systems

Baldwin County's drainage system is used to carry water away from homes and businesses into rivers and streams. It is important to consistently maintain this system so it can be used to full capacity. Proper drainage helps to reduce the risk of flooding and maintain the integrity of the road system. Baldwin County maintains all drainage ways and structures located on the County rights of way and County owned property.

Baldwin County prohibits any dumping of trash or yard debris in these areas, which could result in increased flooding or damages in areas that would otherwise be protected. Owners whose property is located within an identified flood area must ensure that their drainage infrastructure is kept in working order and free from any obstruction that could impede the free flow of water. If you experience problems in any of the County rights of way or wish to report any violations, you are encouraged to contact the County Engineering Department at 251.972.6897; 251.937.0371 or 251.990.4635.

Please help Baldwin County to ensure the capacity of this system. Keep streams and other conveyances that carry rainfall runoff through your property free of obstructions and debris such as trees, tall bushes, and trash.

Drainage systems obstructed with trash or other debris can cause an increased risk of flooding since the floodwaters have no place to drain. The increased flooding caused by those obstructed drains can severely undermine the local roadway infrastructure structure, leading to potential health and safety hazards.

Never dump or throw anything into the streets or storm drainage system. To do so is a violation of the Baldwin County Storm Water Quality Management Ordinance. If you see trash or debris in the storm drainage system, contact the Baldwin County Engineering Department immediately.

ICC Coverage

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and check valves; reinforcement of walls to withstand floodwater pressures; use of sealants to reduce seepage through and around walls; and anchoring the building to resist flotation, collapse and lateral movement.

Relocation involves moving the entire building to another location on the same lot or to another lot, usually outside the floodplain.

Relocation can offer the greatest protection from future flooding; however, if the new location is still within the Special Flood Hazard Area, the building must still be NFIP-compliant, meaning it must be elevated or flood proofed (if nonresidential).

Demolition may be necessary in cases where damage is too severe to warrant elevation, flood proofing or relocation; or the building is in such a poor condition that it is not worth the investment to undertake a combination of the above activities.

* All applicable permits must be obtained prior to demolishing the building.
* The property may be redeveloped after demolition is complete, subject to all applicable federal, state and community laws and requirements.