CITY OF MACCLENNY
2025 COMPREHENSIVE PLAN

CONSERVATION ELEMENT

Section E

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PLANNERS & ENGINEERS

CONTENTS

TABLES

FIGURES

CITY OF MACCLENNY
2025 COMPREHENSIVE PLAN

CONSERVATION ELEMENT

GOALS, OBJECTIVES AND POLICIES

GOAL 5 **THE CITY SHALL CONSERVE, UTILIZE AND PROTECT THE NATURAL RESOURCES OF THE AREA, INCLUIDNG AIR, WATER, WETLAND, WATERWELLS, WATERBODIES, SOILS, MINERALS, VEGETATIVE COMMUNITIES, WILDLIFE, WILDLIFE HABITAT ANDAND ENVIRONMENTAL RESOURCES TO ENSURE THAT RESOURCES ARE PROTECTED AND AVAILABLE FOR FUTURE GENERATIONS.**

Objective 5.01 **Groundwater. The City will develop and adopt a water conservation plan to ensure that it has adequate water supplies, of a quality and quantity, sufficient for its intended use to meet existing and projected future demands.**

Policies

5.01.01 The City will uphold and support the St. Johns River Water Management District's emergency water shortage and plans as may be issued by the District.

5.01.02 Future wellfields will be located in areas where they will be least impacted by development and contamination. Existing well heads shall be protected from hazardous materials by prohibiting commercial and industrial uses within a 200-foot buffer of wellfields.

5.01.03 Upon completion of the SJRWMD inventory of groundwater supplies, the City shall, in conjunction with the District, develop Policies and programs which will allow safe levels of water withdrawal.

5.01.04 The City shall continue to work with the Florida Department of Environmental Protection to correct water quality problems associated with the effluent from the City's wastewater treatment plant.

5.01.05 The City shall ensure that all future development and redevelopment activities obtain all necessary stormwater permits from the appropriate federal and state agencies prior to the issuance of building permits. Further, all development and redevelopment activities shall be required to meet or exceed the levels of service standards set forth in the Stormwater Management Subelement.

5.01.06 To ensure that new construction does not cause flooding, pollute waterways or harm wetlands, development requiring permits from DEP or the SJRWMD shall meet the requirements of Rules 40C-2 and 62-40, F.A.C. This will help ensure good quality, affordable water for all residents of the City.

5.01.07 The City shall implement a public education program on the proper disposal of potentially hazardous materials to reduce the amount of those materials entering the water supply.

5.01.08 Any comprehensive plan amendments must address the adequacy of planned water supply sources and facilities as described in the SJRWMD Water Supply Plan, the City's consumptive use permit, and any associated water supply reports.

5.01.09 In order to protect the City's groundwater resources, the installation of all wells shall comply with permits and/or rules and regulations of all local, State and Federal regulatory agencies.

5.01.10 The City shall cooperate with the SJRWMD Water Shortage Plan. Such cooperation may include, but not be limited to, conserving water resources and by assisting with the enforcement of water shortage declarations, orders and plans. Adherence shall not be necessary to any SJRWMD shortage declarations assigned to portions of the District that do not include the City and/or Baker County.

Objective 5.02 **Floodplains, Wetlands and Upland Communities. ~~Land Development Regulations~~ The City shall protect ecological systems which are sensitive to development impacts and provide important natural functions for maintenance of environmental quality and wildlife habitats.**

Policies

5.02.01 The City shall maintain a map which delineates conservation and preservation areas on the City's Future Land Use Plan for the purpose of identifying conservation areas.

5.02.02 The Land Development Regulations shall include guidelines and standards for the regulation of open space, tree protection and scenic corridors and wildlife habitat for use in development review and approval.

5.02.03 Illegal development in wetland areas shall be reported to the appropriate state agency(ies), including the DEP and SJRWMD. It will be required that these areas be restored and/or mitigated under these actions.

5.02.04 Conservation areas shall be protected from development and intended for uses such as natural drainage areas, passive recreation and open space.

5.02.05 Future land uses that are incompatible with the protection and conservation of wetlands and wetland functions shall be directed away from wetlands. Land use factors that will be considered when directing these incompatible land uses away from wetlands shall include:

(a) The type, intensity or density, extent, distribution and location of allowable land uses; and
(b) The types, values, functions, sizes, conditions and locations of wetlands.

All factors must be based on supporting data and analysis found sufficient by the applicable state and/or federal agencies.

5.02.06 Where incompatible land uses are allowed to occur, mitigation shall be considered as one means to compensate for loss of wetland functions.

5.02.07 Water-dependent and water-related uses that are consistent with the Future Land Use Map shall be given priority in the development/redevelopment of land within the City.

5.02.08 The Land Development Regulations shall be revised by January 1, 2012 to support the restriction or prohibition of development in wetlands along Turkey Creek and Wallingham Branch, specifically.

5.02.09 The City shall protect appropriate floodplain areas for the public benefit and restore degraded floodplain areas by:

(a) Land acquisition or conservation easement acquisition;
(b) Regulation, including setbacks, buffer zones, designated wildlife corridors, low density zoning, performance standards and open space requirements; and
(c) Incentives, including tax benefits and transfer of development rights.

5.02.10 All areas designated as Conservation on the Future Land Use Map shall be protected from adverse impacts from adjacent development by requiring native vegetative buffers of not less than twenty-five (25) feet between proposed development and the adjacent Conservation areas.

Objective 5.03 **Wastewater. Protect the water resources of the City from contamination by sewage disposal systems ensuring existing septic tanks meet state standards and eventually are connected to a central system.**

Policies

5.03.01 Inspection and maintenance of septic tanks and drainfields shall be encouraged through the development of a public education and awareness program.

5.03.02 Residents using septic tank systems shall be required to tie into public sewer systems serving residents once that system becomes available within 150 feet.

5.03.03 All new developments shall be required to connect with public or private central sewage system.

5.03.04 The City shall continue to identify and prioritize septic tank problem areas and shall revise, when appropriate, regulations governing the design, location and maintenance of septic systems.

Objective 5.04 **Stormwater. Land Development Regulations shall ensure the impacts of point and non-point pollution sources to surface waters within the City are minimized.**

Policies

5.04.01 Stormwater management systems in new developments shall be designed and constructed to provide maximum water quality and habitat benefits through appropriate side slopes, littoral zones and adjacent uplands components.

5.04.02 Stormwater management systems in new developments shall provide retention/detention of stormwater runoff to maintain surface water quality, to ensure percolation and reduce contamination to drainage canals, surface water and groundwater.

5.04.03 In conformance with state and federal regulations, commercial establishments which use, treat, store, generate or transport toxic or hazardous substances shall prepare a plan which identifies the materials and how these materials will be handled and disposed of to preclude invasion of stormwater systems.

5.04.04 Prohibit any development activity that would potentially endanger lives and/or harm property, water quality and quantity, or any other valued environmental system resulting from an alteration to existing drainage structures and natural drainage patterns.

5.04.05 The City shall reduce the potential for water quality degradation from stormwater runoff by implementing SJRWMD rule changes as set out in Chapter 40C-42, F.A.C., regarding more stringent treatment standards for stormwater facilities discharging to water quality limited streams.

5.04.06 By January 1, 2012 the City Commission will adopt a Master Stormwater Management Plan.

Objective 5.05 **Acquisition and Preservation. The City shall assist in the identification, acquisition and protection of unique natural habitats, and ecological systems by implementing programs in conjunction with other governmental and non-governmental entities toward this effort.**

Policies

5.05.01 The City should cooperate with the State and County in efforts to acquire and/or preserve environmentally sensitive land to assure their conservation and protect their availability for future generations.

5.05.02 The areas designated as Conservation on the Future Land Use Map shall be maintained as natural open space areas, natural drainage areas and passive recreation

5.05.03 The City will coordinate with Baker County in preserving areas of continuous and contiguous vegetative communities to ensure natural open space and wildlife corridors are protected from encroachment.

Policy	5.05.04	The City shall encourage innovative site planning techniques such as clustering of development to preserve unique natural site features.
Objective 5.06	**Threatened and Endangered Species. The City will protect significant habitats of viable populations of threatened or endangered species.**	
Policies	5.06.01	The City shall coordinate with the Florida Fish and Wildlife Conservation Commission, the U.S. Fish and Wildlife Service and the U.S. Department of Agriculture in effort to identify and map the presence of threatened, endangered or significant wildlife species located in the City.
	5.06.02	The City shall establish criteria to identify those areas in the City with a high probability of threatened or endangered species habitat. These criteria shall be utilized during the review process of development orders or permits to ensure the necessary for the support of an existing threatened species. Habitats identified as necessary for the support of an existing threatened or endangered species shall be preserved consistent with all relevant federal and state requirements.
	5.06.03	The City shall encourage landowners and developers to protect or preserve listed species, native plant communities, including viable tracts of native communities within developments.
Objective 5.07	**Air Quality. The City will continue efforts to maintain compliance with current or future National Ambient Air Quality Standards.**	
Policies	5.07.01	New point-source and renewal permits shall be fully evaluated at the developer's expense and mitigation systems shall be required as a prerequisite for approval.
	5.07.02	The City will coordinate with DEP and the EPA to ensure enforcement of air quality regulations.
	5.07.03	To help offset carbon emissions from the use of fossil fuels and other carbon-based fuels, the City shall preserve native vegetative communities by adhering to the policies of this Element.
	5.07.04	The City will encourage non-emission forms of transportation via a bicycle and pedestrian circulation system.
	5.07.05	The City shall work with Florida Department of Transportation and the North Florida Transportation Planning Organization in maintaining the adopted level of service standards to minimize the effects of non-point emission of pollution by reducing unnecessary idling.
Objective 5.08	**Energy. The City will set standards to reduce energy consumption both for the public and private sectors.**	
Policies	5.08.01	The City will cooperate with the public utility in the development of an educational program to inform the public on means of energy conservation in public and private buildings.
	5.08.02	New construction standards, particularly for public buildings, shall be developed and adopted which provide for more energy-efficient buildings.
	5.08.03	The City shall consider the use of incentives to encourage new development and redevelopment with site-produced renewable energy sources such as solar power. The City shall investigate methods to improve energy efficiency in building construction and development site design.
	5.08.04	The City shall promote and encourage the use of low impact development techniques by providing incentives for water-efficient developments such as those that implement the Florida Water Star[SM] program, a point-based, new home certification program.

Objective 5.09 **Environmental Conditions. Land Development Regulations shall include development standards for environmental conditions such as topography, soil conditions, native vegetative communities (including forests), natural drainage areas and wetlands.**

Policies

5.09.01 The City's Land Development Regulations shall incorporate the provisions of its Tree and Landscape Ordinance in an effort to continue the preservation of the City's native and significant vegetative communities.

5.09.02 The City shall continue to enforce its Floodplain Ordinance for the regulation of land use and development in floodprone areas.

5.09.03 Land Development Regulations shall ensure all proposed development activities and uses are consistent with the type and nature of the soils and that Best Management Practices of the Soil Conservation Service are utilized before and after construction activities.

5.09.04 The City shall require all commercial/industrial hazardous waste generators to prepare and be capable of implementing a spill prevention control and countermeasure plan.

5.09.05 The City shall maintain a hazardous waste management program for the proper storage, recycling, collection, transfer and disposal of hazardous wastes.

Objective 5.10 **The City shall protect and conserve the natural functions of its existing wetlands.**

Policies

5.10.01 In determining whether an encroachment in the wetland and that no practicable on-site alternative exists, the City shall evaluate the following prior to the issuance of a final development order:

(a) The land use category according to the Future Land Use Map and existing zoning of the site and surrounding parcels; and

(b) Alternative designs which could accomplish the purposes of the development including the encroachment on the wetland of such alternative designs; and

(c) The wetland functions being served by the area proposed to the encroached upon.

5.10.02 The City shall consider wetland mitigation proposals on a case-by-case basis. Mitigation can consist of wetland preservation, enhancement, restoration or creation, or in certain circumstances, may include placement of conservation easements on wetlands or contiguous upland areas. The City may consider the preservation of upland habitat, adjacent to preserved or enhanced wetlands, as mitigation where the uplands serve environmental functions associated with wetlands for species which do not spend their entire life cycle in the wetland habitat. Wetland creation means the construction of a functional wetland in what was an upland area.

5.10.03 The City shall require that wetland mitigation restore the type of functions lost due to the construction in wetlands. Generally, the preferred mitigation is preservation, enhancement, restoration or creation of the same type of wetland and/or preservation of uplands which provide habitat associated with the type of wetland impacted. There may be situations where it is appropriate to mitigate a different type of wetland to improve the local or regional environment. The City may consider such proposals when the application has clearly demonstrated the benefit to the local or regional ecosystem.

Policies

5.10.04 Development within wetland areas may be permitted if the following criteria are met:

(a) Encroachment in the wetland is the least damaging to the wetland and that no practicable on-site alternative exists;

(b) Development is designed and located in such a manner that there is no net loss to the wetland functions including, but not limited to:

i. The habitat of fish, wildlife and threatened or endangered species

ii. The abundance and diversity of fish, wildlife and threatened or endangered species

iii. The food sources of fish, wildlife including those which are threatened or endangered

iv. The water quality of the wetland

v. The flood storage and flood conveyance capabilities of the wetland

(c) Buildings are built at an elevation of sufficient height to meet the designated flood zone standards as set forth by the Federal Emergency Management Agency. The design must be in accordance with the Land Development Regulations floodplain protection requirements;

(d) Stormwater runoff shall be subjected to best management practices prior to discharging into natural or created mitigation wetlands. Best management practices shall mean a practice, or combination of practices determined by the Building and Zoning Coordinator to be the most effective, practical means of preventing or reducing the amount of pollution generated by the development to a level compatible with Florida Surface Water Quality Standards found in Chapters 17-301 and 17-302, F.A.C;

(e) No site alteration shall result in violation of State and local water quality standards or pollution of downstream wetlands, or reduce the natural retention of filtering capability of wetlands;

(f) No site alteration shall allow water to become a health hazard or contribute to the breeding of mosquitoes;

(g) All site alteration activity shall provide for such water retention, filtration and settling structures, and flow attenuation devices as may be necessary to ensure that the foregoing standards and requirements are met;

(h) Regular monitoring and maintenance program on an annual basis for the performance of stromwater treatment systems;

(i) Where certain types of isolated wetlands are considered for integration into stormwater management systems, hydroperiods and stage elevations shall match the appropriate wetland community, and provide for first flush diversions; and

(j) The design of any fill shall include measures to maintain the wetlands hydrology on the site.

CITY OF MACCLENNY
2025 COMPREHENSIVE PLAN

CONSERVATION ELEMENT

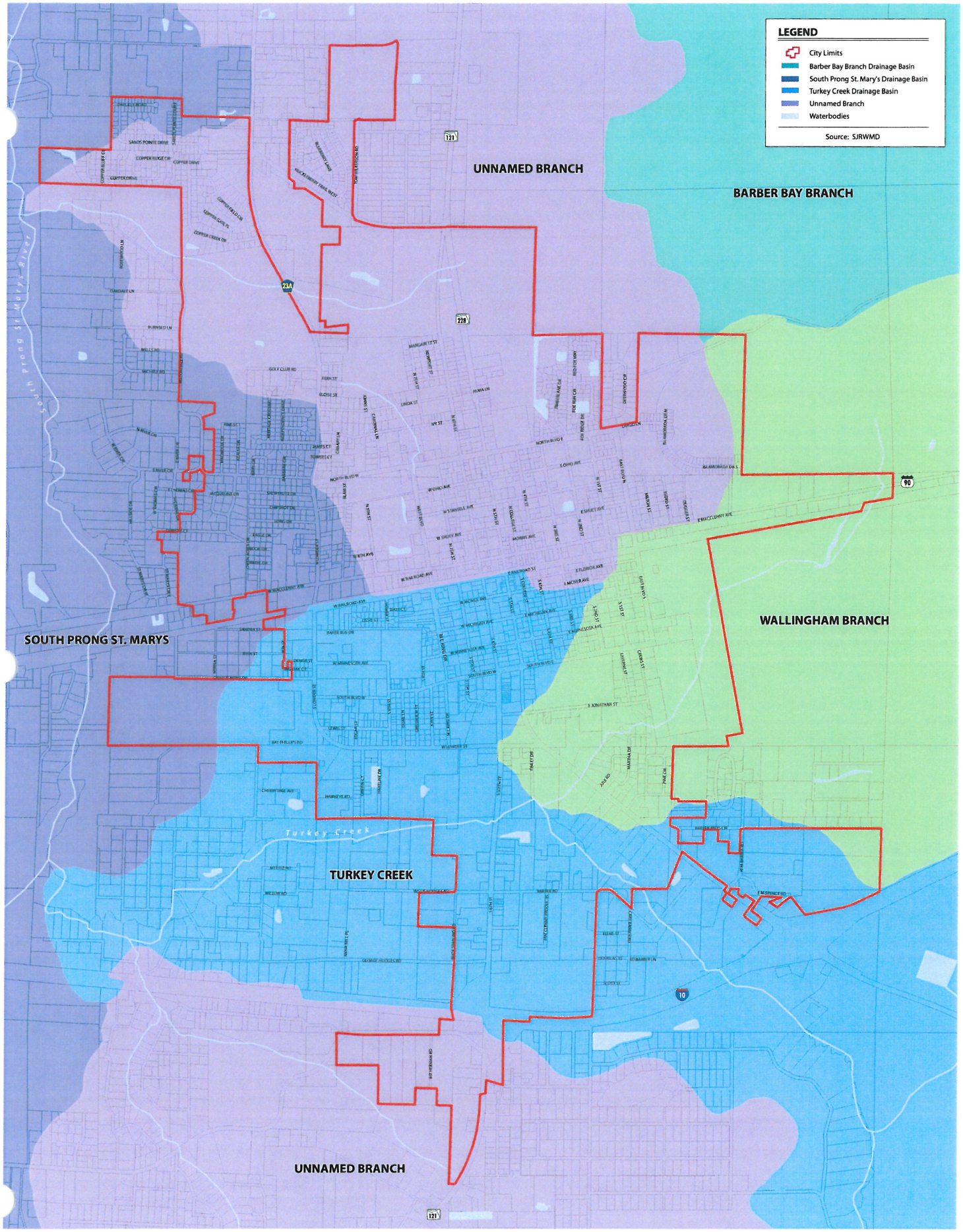
DATA AND ANALYSIS

The purpose of the *Conservation Element* is to provide a guide for the conservation, use and protection of the natural resources located within the City. The *Conservation Element* is intended to protect and enhance the public health, safety, welfare and the quality of the environment. In addition, the Element establishes a plan and policy direction concerning conservation of natural resources and will provide a basis for decision-making by the City. As growth occurs in Macclenny, the need for protection and management of the City's natural resources will increase.

The *Conservation Element* recognizes the importance of conserving the natural open space. General areas for conservation are the floodplains and wetlands. For the most part, the 2025 Comprehensive Plan uses those lands below the 115-foot contour as established by the U.S. Geological Survey as conservation areas, but in some areas, this is expanded to higher ground. These areas of conservation are natural habitats for various plants and animals that should be preserved. These areas should also be preserved in order to maintain a good drainage system with water holding capacity.

The City lies within the St. Marys River drainage basin of northeast Florida. The City is bordered to the west by the South Prong of the St. Mary's River and to the north by a branch draining into the South Prong. Wallingham Branch wraps around the eastern edge of the City and joins with Turkey Creek to the south. Located northeast of the City is Barber Bay, a large area of bottomland swamp. Illustration E.1 shows these major water features and the topography in the Macclenny area.

The summers are long, hot and humid. Winters, although punctuated with occasional cold fronts that drop temperatures below freezing, are mild due to the southern latitude and the short distance from the warm ocean waters. The mean annual precipitation is about 58 inches.



NORTH

0 600 1,200 Feet

April 13, 2010

City of Macclenny

Illustration E.1 Major Water Features Map

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E.1 Identification of Natural Resources

Rule 9J-5.013(1)(a), F.A.C.

There are no lakes, bays, estuarine marshes, commercially valuable minerals, fisheries or marine habitats within the city limits.

Rivers

The surface waters found in Macclenny include the South Prong of the St. Marys River, Turkey Creek and Wallinghman Branch. All of these waters are found within the St. Marys River Basin. The St. Marys River is the northeast border between Florida and Georgia. It is formed by the convergence of the North and South Prong and flows first north and then east into the Atlantic Ocean. The North Prong originates in the Okeefenokee Swamp in Georgia. The entire basin encompasses 1,610 square miles with 216 river reach miles in Florida. The principal inflow of water to the system is groundwater and the average flow of the river is about 1,200 cfs. The lower portion of the St. Marys River is tidally influenced and reverse flows occur daily.

The St. Marys River with its extensive marsh system generally has excellent water quality. Low pH occurs naturally in the upper reaches of the basin, especially the North Prong, due to swampy drainage conditions. There are three areas of concern in the basin: the South Prong (part of which flows through the City), Little St. Marys and the Amelia River.

The water quality of the City's surface waters should continue to be monitored especially near the wastewater treatment plant's outfall into Turkey Creek. The City's wastewater treatment plant meets all existing DEP regulations for wastewater outfalls into streams to ensure its waters are safe for not only recreation, but for wildlife habitat.

Uses in and around the creeks and streams in the City should not be allowed to further degrade the quality or quantity of the surface waters. Land development regulations specify which uses shall be allowed near these areas in order to better conserve and preserve the natural resources.

Floodplains

Floodplains are valuable resource areas which provide a rich diversity of vegetation and wildlife. These areas are sources for groundwater recharge that filters through soils during high water levels. The City's land development regulations establish special flood hazard districts and standards for reducing flood hazards in these districts. It is the purpose of these regulations is to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

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

Wetlands

According to the St. Johns River Water Management District land use cover data, there is approximately 280 acres of wetlands within the City. A major portion of these wetlands are associated with Turkey Creek and Wallingham Branch.

The wetland communities located within the City are predominantly bottomland swamp and stream hardwoods. These communities are usually found in river, creek and lake floodplains and overflow areas, but not necessarily confined to

these areas. Vegetation is diverse. Plants commonly found in this community are American Elm, water hickory, water oak, willow oak, sweetgum, cypress and various types of pines. Other wetlands within the community contain hardwoods and conifers but are dominated by hardwoods. Plants that characterize this community are bald cypress, red maple, water tupelo, buttonbush and various types of ferns.

Wetlands are as diverse in wildlife as they are in vegetation. The swamps are highly suited for bobcat, deer, flying squirrel, gray fox, grey squirrel, mink, opossum, otter, raccoon and the swamp rabbit. Reptiles include the alligator, rattlesnake and water moccasin. Hawks, owls, songbirds, turkey and woodpeckers also reside in the community.

The City endeavors to conserve the wetlands associated with Turkey Creek and Wallingham Branch. These wetlands have potential for wildlife habitat and flood control. The City's land development regulations restrict or prohibit development upon wetlands along Turkey Creek and Wallingham Branch.

Soils

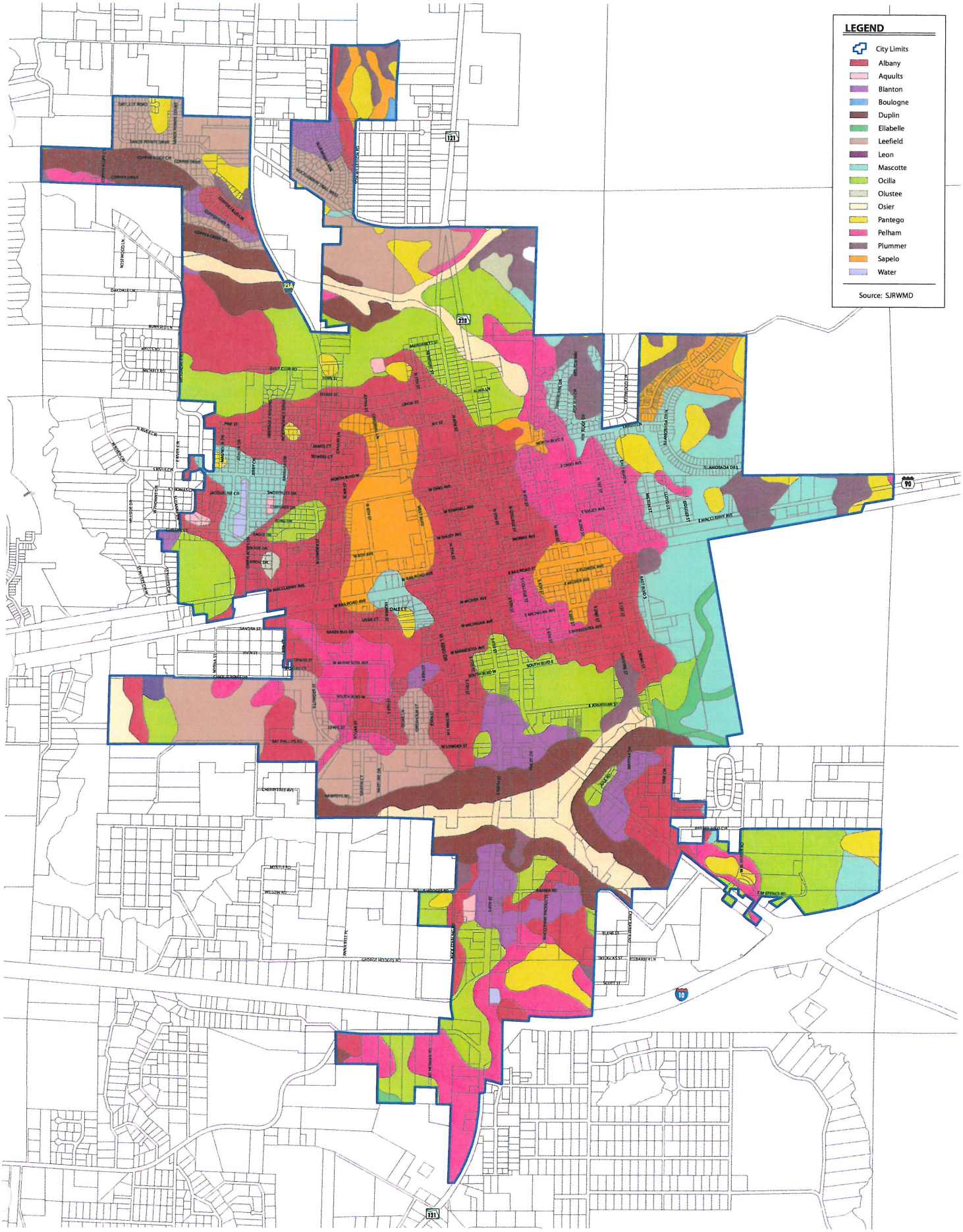
The type of soil is an important factor in urban development. Soils influence kinds and amounts of water available and in this way, indirectly influences the kinds of wildlife that inhabit that area. These surveys contain much information useful in land use planning. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations and the impact that selected land uses will have on the environment. Illustration E.2 on the following page identifies the locations of the various soil types found in the City. Descriptions of each ascribed soil type can be found in the *Future Land Use Element*.

Air Resources

The air quality monitoring program of the State of Florida provides the general public as well as the local, state and federal governments with measurements of pollutant concentration levels in the ambient air. Air is generally defined as that portion of the atmosphere near ground level and external to buildings or other structures. Legal limitations on pollutant concentration levels allowed to occur in the ambient air, or ambient air quality standards, have been established by the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (DEP) for six pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter and sulfur dioxide. As health-based criteria have been used to establish these standards, these six pollutants are referred to as "criteria air pollutants."

An essential component of air quality management in the State is the identification of (1) areas where the ambient air quality standards are being violated and plans are needed to reach attainment and (2) areas where the ambient standards are being met but plans are needed to ensure maintenance of acceptable levels of air quality in the face of anticipated population or industrial growth.

Florida's Air Quality System for continuous monitoring comprises 57 ozone (O_3) and 13 particulate pollution monitors in 31 counties. DEP's Baker County Air Monitor Site (AIRS No. B003-0002) is located near the westernmost limits of the County south of Interstate 10 within the Osceola National Forest. The DEP ozone report for Baker County used an eight-hour standard and there was no excedance of ozone in the entire County. DEP took a three year average of the fourth highest season. The County was allowed an ozone count of up to 85 and they did not reach anything approaching that level. The City was not cited as having air quality problems nor is there a lot of heavy traffic running through the City that would cause air quality problems. In all six categories of criteria air pollutants, Baker County did not exceed the DEP air quality standards.



NORTH

0 600 1,200 Feet

April 13, 2010

City of Macclenny

Illustration E.2 Soils Map

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Groundwater

Groundwater is derived from precipitation and surface water from streams, swamps and ponds. This water filters into the ground where the soil is permeable or through openings or passages in rock formations to reach the aquifer systems. The Floridan Aquifer underlies all of Florida and southeast Georgia and is the major source of water supply for the City. The water facilities in the City meet all of the requirements of the DEP and the EPA.

Two wells, located at West Boulevard and Ohio Avenue, serve the City. Each well has the capacity of 1,000 gallons per minute or 2.88 million gallons per day (mgd) from an artersian well supply. The City also has a 360,000 gallon ground storage reservoir and three elevated tanks. One of the tanks, with a 60,000 gallon holding capacity, is out of service. The other two are 100,000 gallon tanks, with one being located at the plant. There are three service pumps rate at 300, 500 and 700 gallons per minute.

The City expanded water service to several areas around its corporate limits, including two public schools.

The St. Johns River Water Management District is responsible for managing water supplies to meet existing and future demands. Regulation of consumptive use is achieved through a permitting system, through which water resources are allocated among the permitted consumers. Chapter 373, F.S. authorizes extensive regulation of water use by the SJRWMD. The District has implemented a consumptive use permitting (CUP) program, for the withdrawal of water for consumptive use.

The District has the authority to declare water shortages through orders and to issue emergency orders when necessary. The City can further these restrictions by requiring all new developments to provide water-saving devices in homes as well as businesses. Another means of conserving water is for the City to continue adherence to landscape regulations that encourage all applicable developments to use native, drought resistant vegetation.

E.2 Recreational and Commercial Uses

Rule 9J-5.013(1)(b), F.A.C.

The City's primary natural resources include Turkey Creek, Wallingham Branch and North Branch as well as the wetlands associated with these streams. These resources cut through the northern tip of the City (North Branch) and through the City's southern panhandle and extend from there in a northwesterly fashion (Turkey Creek and Wallingham Branch). These wetlands also occur somewhat simultaneously with the floodplains. The primary existing uses of these resources is open space, except where the Seaboard Coast Railroad line runs east-west through the City. Residential uses, primarily single family and mobile homes, can be found upland of these natural resources.

The Eastern indigo snake is listed as Threatened in the State of Florida as established by the Florida Fish and Wildlife Conservation Commission. The indigo snake is closely associated with the gopher tortoise because of its dependence on the tortoise's burrows. The burrows provide shelter from the winter cold. The single most important factor is the decline of the indigo snake has been the loss of habitat to urbanization and agricultural development. Where large tracts of otherwise suitable habitat remain, their suitability for indigo snakes has often been diminished by declines in population of gopher tortoises.

The Wood stork is listed as Endangered on both the state and federal lists. The reason for the Wood stork's endangered status is due to the U.S. breeding population. The U.S. breeding population of the wood stork declined from an estimated 20,000 pairs in the 1930s to about 10,000 pairs by 1960. Since 1978, fewer than 5,000 pairs have bred each year. The decline is believed to be due primarily to the loss of suitable feeding habitat. Loss of nesting habitat (primarily cypress swamps) may be affecting wood storks in central Florida, where nesting in non-native trees and in manmade impoundments has been occurring recently. Less significant factors known to affect nesting success include prolonged drought and flooding, raccoon predation on nests, and human disturbance of rookeries.

The Red-cockaded woodpecker is listed as Endangered on the Federal Register and as Threatened on the official state list. This species is presently found in scattered locations throughout the southeast. Its decline is thought to be attributed primarily to the reduction of pine forest with trees sixty years old and older. Living pines in this age group

infected with red-heart disease generally provide the nesting sites that these woodpeckers require. There are no known critical habitats for this species.

These three species are the only ones likely to occur within the vicinity of Macclenny. No plants or vegetation were listed as having a protected status. The City's vegetative cover is presented in the Table E.1 below according to the Florida Land Use, Cover and Forms Classification System (FLUCFCS).

Upland forest

In Macclenny, this category includes pine flatwoods and mixed hardwoods. The pine forests are common throughout much of northern Florida. Longleaf pines are common on drier sites while slash pines (less fire-resistant) are common to moist sites. However, fire control and artificial reforestation have extended the range of slash pine into former longleaf sites. The pine flatwoods class is dominated by either slash pine, longleaf pine or both. The common flatwoods understory species include saw palmetto, wax myrtle, gallberry and other herbs and brush. The flatwoods are suitable for deer, quail, turkey, bobcat, skunks, opossums, raccoons, rabbits and grey fox.

Table E.1
Major Vegetative Cover

FLUCFCS	Name
411	Pine Flatwoods
438	Mixed Hardwoods
524	Lakes
615	River and Lake Swamp
630	Wetland Forest Mixed

Endangered species that may occur in flatwoods are the Florida Panther, Kirtland's warbler and the Florida grasshopper sparrow. Threatened species include the Big Cypress (mangrove) fox squirrel, Southeastern American kestrel, Florida scrub-jay, and the Eastern indigo snake. Sherman's fox squirrel, Florida mouse, Red-cockaded woodpecker, and the Gopher frog are all listed as Species of Special Concern. Since the 2010 planning period, the re-cockaded woodpecker has been reclassified from Threatened to Species of Special Concern. Also, the bald eagle and arctic peregrine falcon are no longer listed species.

The mixed hardwoods consist of shortleaf and loblolly pine, beech, magnolia, oaks, hickory, white ash, spruce pine, dogwood, redbud and sweetgum. Younger woodlands are pine dominated but over time hardwoods usually dominate. Hardwoods make good habitat for deer, turkey, squirrel and several birds. This community may provide habitat for several listed species including the Florida panther, Ivory-billed woodpecker, Kirtland's warbler, Southeastern American kestrel, Red-cockaded woodpecker and the Eastern indigo snake.

Wetland forest

Wetland forest includes stream and lakes swamps and mixed wetland forest communities. These communities are found bordering rivers, submerged or as submerged part of the year and subject to periodic flooding. The hardwoods are characterized by Bald cypress, blackgum, water tupelo, pop ash, red maple, water oak sweetgum and water hickory.

This community provides habitat for the bobcat, deer, gray squirrel, mink, river otter, raccoon, hawks, horned and barred owls, pileated woodpecker, turkey, wood duck and various song birds. Listed animal species that may occur in these communities include the Florida panther, Wood stork, Ivory-billed woodpecker, Everglades mink, Eastern indigo snake, Homosassa shrew, Limpkin, Barbour's map turtle, Pine Barrens treefrog and Bachman's warbler.

Table E.2
Listed Animal Species Potentially within Macclenny

Common Name	Scientific Name	Status
Amphibians		
Gopher frog	*Rano capito*	Species of Special Concern
Pine Barrens treefrog	*Hyla andersonii*	Species of Special Concern
Reptiles		
Eastern indigo snake	*Drymarchon corais couperi*	Threatened
Barbour's map turtle	*Graptemys barbouri*	Species of Special Concern
Birds		
Florida grasshopper sparrow	*Ammodramus savannarum floridanus*	Endangered
Florida scrub-jay	*Aphelocoma coerulescens*	Threatened
Ivory-billed woodpecker	*Campephilus principalis*	Endangered
Kirtland's warbler	*Dendroica kirtlandii*	Endangered
Southeastern American kestrel	*Falco sparverius paulus*	Threatened
Wood stork	*Mycteria americana*	Endangered
Limpkin	*Aramus guarauna*	Species of Special Concern
Bachman's warbler	*Vermivora bachmanii*	Endangered
Red-cockaded woodpecker	*Picoides borealis*	Species of Special Concern
Mammals		
Everglades mink	*Mustela vison evergladensis*	Threatened
Homosassa shrew	*Sorex longirostris eionis*	Species of Special Concern
Florida panther	*Felis concolor coryi*	Endangered
Florida mouse	*Podomys floridanus*	Species of Special Concern
Big Cypress fox squirrel	*Sciurus niger avicennia*	Threatened
Sherman's fox squirrel	*Sciurus niger shermani*	Species of Special Concern

Source: *Florida's Endangered Species, Threatened Species and Species of Special Concern*, Florida Fish and Wildlife Conservation Commission, July 2009

E.3 Known Pollution Problems

Rule 9J-5.013(1)(b), F.A.C.

The major pollution problem identified in the City has been the City's wastewater treatment plant. The plant has had problems in the past in meeting effluent discharge requirements to the South Prong of the St. Marys River and met with DEP to address the problem.

Other potential pollution problems can result due to improper channelization and drainage of wetlands. Wetland forests are natural storage areas for floodwater and serve to slow the flow of water thereby allowing polluted water to be treated prior to entering streams and rivers. These forests also serve as natural habitat for many plant and animal species. Pollution from pesticides, automobile oils, and agricultural fertilizers can be found in stormwater runoff and could destroy these natural habitats over a substantial period of time.

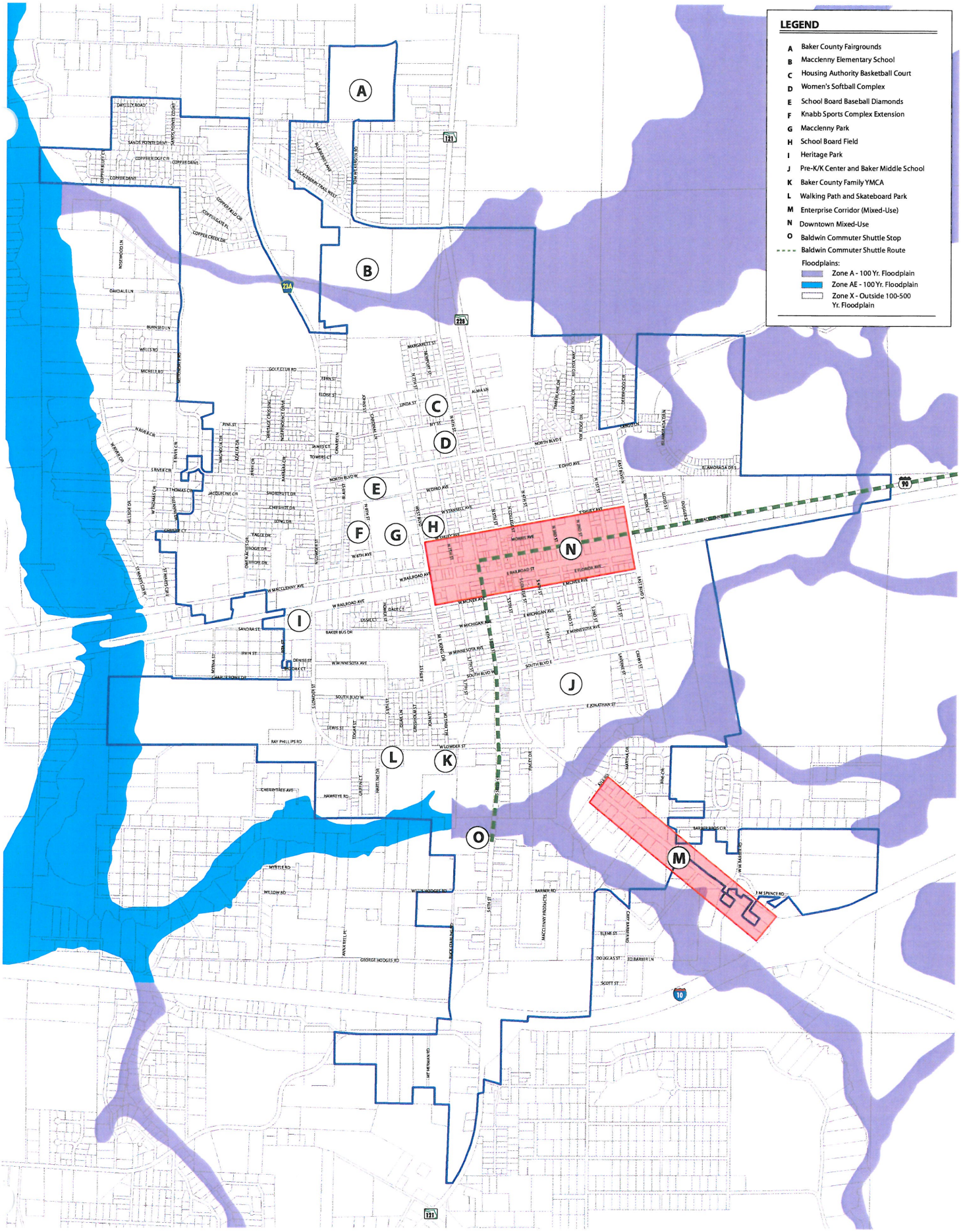
There is no information available from DEP regarding the quality or known pollution problems in the wetlands of the City. DEP only checks for pollution problems when a potential hazard is brought to their attention; therefore, no record of testing or monitoring is available.

E.4 Current and Projected Water Needs and Sources

Rule 9J-5.013(1)(c), F.A.C.

Total water use in Macclenny is low due to its relationship to Baker County. The City is one of two small urban areas in Baker County which has a high proportion of land cover constitutes the Osceola National Forest, which does not require supplemental irrigation. Other factors that prevent a sharp increase in the need for water in the City is the small proportion of industry, lack of any agricultural uses, and a low population increase projected for the 2025 planning period.

Currently, projected ground water withdrawals will probably not result in regionally significant harm to ground water resources in the City. However, the lack of rainfall during the 2010 planning period led to the implementation of water conservation measures. The City enhances the protection of its groundwater resources by establishing wellhead protection zones for a 200-foot radius around both of the City's potable water wells. Land uses with a high potential for groundwater contamination such as industrial land uses, underground fuel storage tanks and hazardous waste generators are not allowed within the wellhead protection zone.



NORTH

0 600 1,200 Feet

April 13, 2010

City of Macclenny

Illustration E.3 Energy Conservation Map

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