9J-5.013 CONSERVATION ELEMENT

WASHINGTON COUNTY, CARYVILLE, EBRO VERNON, AND WAUSAU
2020 COMPREHENSIVE PLAN

This data and analysis is support data and is not adopted with the Goals, Objectives and Policies.

Section E – Table of Contents

LIST OF TABLES FOR CONSERVATION ELEMENT
OF 2020 COMPREHENSIVE PLAN
Washington County, Florida

LIST OF FIGURES FOR CONSERVATION ELEMENT
OF 2020 COMPREHENSIVE PLAN
Washington County, Florida

CONSERVATION ELEMENT

WASHINGTON COUNTY, CARYVILLE, EBRO VERNON, AND WAUSAU

This data and analysis is support data and is not adopted with the Goals, Objectives and Policies.

Section E

I. PURPOSE

The purpose of the Conservation Element is to provide a guide for the conservation, use, and protection of natural resources located within the County. The intent of this element is to promote the protection of public health, safety, welfare, and the quality of the environment. In addition, the element establishes a plan and policy direction concerning the conservation of natural resources and provides a basis for decision-making by County officials and staff. As growth occurs in Washington County, the need for protection and management of the County's natural resources will increase. There is a single goal with 18 objectives, as well as a Subelement. The Subelement has two goals, the first goal has one objective and the second goal has four objectives.

II. INTRODUCTION

Chapter 163, Florida Statutes, and Chapter 9J-5, Florida Administrative Code, provides the requirements and general framework for the Washington County Comprehensive Plan. Section 9J-5.013 specifies the identification and analysis for that information included in the Conservation Element of the Comprehensive Plan. Conservation uses are activities within areas designated for conserving or protecting natural resources or environmental quality and within this plan include areas designated for such purposes as flood control, protection of quality or quantity of groundwater or surface water, floodplain management, or protection of vegetative communities or wildlife habitats above.

The Future Land Use Map Series addresses conservation future land use as defined above. The conservation future land use category shown on the Future Land Use Map identifies conservation areas, which consist of lands within the County, which is anticipated to have planned management of natural resources to prevent exploitation, destruction or neglect of those natural resources. At a minimum, Conservation Land Use is applied to lands owned by the State of Florida that have been purchased and/or set aside for habitat protection, resource management, recreation or other conservation uses. Major flood ways and connected wetlands are included in this land use designation on the Future Land Use Map.

III. DATA AND ANALYSIS

A. Washington County's Natural Landscape

The presence of natural resources in Washington County and its municipalities greatly influences land use patterns. Forestry related industries and agriculture are important components of the County's economic base. Natural amenities, such as rivers and lakes, state forests and parks, and canoe trails, are major recreational areas, which attract both county and out-of-county visitors.

The conservation land use category on identifies conservation areas as land anticipated to have planned management of natural resources. Management is designed to prevent exploitation, destruction, or neglect of natural resources. At a minimum, conservation use applies to land owned by the State of Florida purchased and/or set aside for habitat protection, resource management, recreation, or other conservation uses. Major flood ways and connected wetlands, are included in the land use designation on FLUM.

1. General Geology. Washington County lies within the East Gulf Coastal Plain, a subdivision of the Coastal Plain. Washington County has two physiographic regions consisting of the Marianna Lowlands and the Gulf Coast Lowlands. Washington County has a mostly well-defined branching or dendrite drainage system. The Choctawhatchee River flows to the south through the center of the County, and the larger creeks empty into it. The drainage system becomes karsts in the Sand Hills Lakes region.

    a. The Gulf Coastal Lowlands are a series of coast-parallel plains on terraces rising from the coast to successively levels in a landward direction. These terraces formed during the Pleistocene Epoch or "Great Ice Age," when worldwide fluctuations of sea level were associated with the growth and melting of ice caps. Rich red clay supports the growth of pine forest and hardwood hammocks. Vernon and Ebro are located in the Gulf Coast Lowlands, in the southern and western areas of the County.

    b. The Marianna Lowlands occupy most of central and eastern Washington County and result from steam erosion and solution activity. Limestone is near the surface of the ground and consequently, the area is one of karst development with many sinkholes. Many broad, shallow basins filled with water and formed lakes. The Marianna Lowlands cover most of the county where Chipley and Wausau are located. Peanuts and soybeans are the main cultivated crop.

    c. Drainage. Washington County has a mostly well-defined branching or dendrite drainage system. The Choctawhatchee River flows to the south through the center of the County, and the larger creeks empty into it. The drainage system becomes karst in the Sand Hills Lakes region.

2. Soils. Soils are one of the most important factors affecting development potential of land. Structures can only be constructed on soils with poor load-bearing capacity if costly methods are used to overcome the problem. Soils are also the main criterion for determining the value of cropland. Soils rich in nutrients make "good" farmland. Very good farmland (rated as "unique" or "prime" by the United States Soil Conservation Service) is composed of soils that produce the highest yields of food crops. Most soils in Washington County are good for growing crops but not rated as unique or prime.

Soil type also determines the applicability of septic tank usage for a given area. Soils with appropriate percolation characteristics not classified as hydria soils can often support septic tanks that wet soils cannot. The presence of wet soils is also indicative of the presence of wetland vegetative communities.

The United States Soil Conservation service classified the soils in Washington County into seven major soil associations. Table E-1 is critical for analyzing the development suitability of each soil type since it presents not only the general acceptability of soil types for absorption of wastewater but also for load bearing capacity for structural development as well as for the production of crops.

According to the Soil Survey of Washington County Florida (USDA May 1965), a number of soils in the county are considered vulnerable to expansion. These are known as shrinking and swelling or "expansive soils". Another way of describing expansive soils is the change of volume of a soil with a change of moisture content.

In Washington County, clayey sub-soils are generally responsible for the shrinking and swelling characteristics of these soils. This lends itself to low strength for building foundations. Steel reinforcing rods in foundations and a base of sand under a foundation reduce these limitations for buildings. These soils also have limitations for use as local roads and streets because of lack of strength to support roadways and traffic.

According to the Natural Resource Conservation Services publication, *Understanding Soils Risks and Hazards* structural damage can occur in expanding soils as clay takes up water. Losses can include severe structural damage, cracked driveways or sidewalks, heaving of roads and highway structures, condemnation of buildings and disruption of pipelines and sewer systems. Minimizing the fluctuations in soil water contents can minimize the potential for structural damage. Methods for minimizing the fluctuations include ensuring adequate drainage, certain landscaping techniques and water sprinkling practices.

The table shown below shows soils having moderate to high shrink swell potential in Washington County. This provides an indication of the probability or chance for future occurrence. Only those soils with an associated risk of "High" are included on this list.

Table E-1. Expansive Soils – Moderate to High Shrink Swell Potential

Soil Series	Shrink-Swell Potential
Angie loamy sand: 2% to 5% slopes	Moderate to High
Angie loamy sand: 5% to 8% slopes	Moderate to High
Bayboro soils	High
Bladen soils	High
Bowie loamy sand: 5% to 8% slopes	High
Cuthbert sandy clay loams	Moderate to High
Dunbar loamy sands: 2% to 5% slopes	Low to High
Este loamy sands: 0% to 5% slopes	Low to High

Eulogia loamy find sand: thick surface, 2% - 5% Slope	Moderate to High
Grady loam	High
Lynchburg loamy find sand: 2% to 5% slopes	Moderate to High
Marlboro loamy sand: 2% to 5% slopes, eroded	Moderate to High
Oktibbeha soils: 5% to 8% slopes	Moderate to High
Shubuta loamy sand: 5% to 8% slopes	Moderate to High

Source: Shrink/Swell Potential of Soils in Washington County. Soil Survey of Washington County, Florida; May 1965; Table No. 5

Soil erosion is the removal of material from the surface soil. The most common forces causing soil erosion are wind and water. Rain can dislodge soil particles and the resulting water flow can carry the soil down slopes. Erosion risks are high when rainstorms are frequent, intense or of long duration. Additionally winds can also dislodge soil particles and transport them elsewhere. Periods of drought increase the risk of erosion by wind. Generally, the soil erosion issues in the in the County are minimal. However, a number of soils are classified as 'Potential Highly Erodible" or 'Highly Erodible." This data is based upon the "1965 Soil Survey of Washington County." Section 5 of the LMS plan provides a listing of such soils (Table E-2).

Table E- 2. Washington County -- Potentially Highly Erodible Soils and High Erodible Lands

Soil Type	PHE Soils*	HE Soils"	Total Acreage	% Total Land Area
Angie (AnB)		X	531	0.1
Angie (AnC)		X	120	0.1
Blanton (BnC)	X		1,501	0.4
Borrow Pits (Bp)		X	262	0.1
Bowie (BoB)	X		3,141	0.8
Bowie (BoB2)	X		365	0.1
Bowie (BoC)		X	614	0.2
Bowie (BoC2)		X	322	0.1
Bowie Variant		X	146	0.1
Carnegie (CaB)	X		120	0.1
Carnegie (CaB2)	X		270	0.1
Carnegie (CaC2)		X	82	0.1
Cuthbert (QB3)		X	250	0.1
Cuthbert (QC3)		X	232	0.1
Cuthbert (CuB)	X		232	0.1
Cuthbert (CuB2)		X	2,060	0.5
Cuthbert (CuC)		X	476	0.1
Cuthberl (CuC2)		X	1,456	0.4
Cuthbert,Lakeland, Shubuta (CwD3)		X	609	0.2
Dunbar (DuB)	X		1,363	0.4
Esto (EaB)	X		83	0.1

Eulonia (EfB)	X		832	0.2
Eustis (EsC)	X		2,908	0.8
Eustis (EsD)		X	1,358	0.4
Eustis (EsE)		X	383	0.1
Eustis (EtC)	X		703	0.2
Faceville (FaB)	X		242	0.1
Faceville (FaB2)	X		748	0.2
Faceville (FaC2)		X	205	0.1
Goldsboro (GcC)		X	305	0.1
Goldsboro (GdB)	X		21,993	5.8
Goldsboro (GdC)		X	447	0.1
Gullied Land (Gu)		X	34	0.1
Klej (KgC)	X		1,566	0.4
Lakeland,Bonifay	X		19,293	5.0
Lakeland,Bonifay		X	7,367	1.9
Lakeland,Troup		X	4,111	1.1
Lakeland,Bonifay	X		1,570	0.4
Lakeland Var.	X		1,185	0.3
Lakeland,Cuthbert		X	11,303	3.0
Lakeland,Cuthbert		X	3,838	1.0
Lynchburg (LyB)	X		1,311	0.3
Marlboro (MaB)	X		640	0.2
Marlboro (MaB2)	X		399	0.1
Norfolk (NoB)	X		10,670	2.8
Norfolk (NoB2)		X	1,574	0.4
Norfolk (NoC)		X	801	0.2
Norfolk (NoC2)		X	634	0.2
Norfolk (NrC)		X	1,270	0.3
Oktibbeha (OkB)		X	220	0.1
Oktibbeha (OkC)		X	196	0.1
Ruston (RsB)	X		1,853	0.5
Ruston (RsB2)	X		711	0.2
Ruston (RsG)		X	522	0.1
Ruston (RsC2)		X	369	0.1
Shubuta (ShB)	X		2,032	0.5
Shubuta(ShB2)	X		1,601	0.4
Shubuta (ShC)		X	669	0.2
Shubuta (ShC2)		X	650	0.2
Tifton (TfB)	X		29,961	0.2
Tifton (TfB2)	X		1,510	0.4
Tifton (TfC2)		X	234	0.1
Totals	21.9%	12.1%	152,353	34%

Source: Washington County Soil Survey, Natural Resource Conservation Service, 1975.as it appears in the Washington County Local Mitigation Strategy 2005
* Potentially Highly Erodable Soils; Θ

Most erosion incidents are minor in nature and are corrected with terraces, hay bales, mulch, tilling practices, silt screens, water turnouts, or other features. The U.S. Department of Agriculture Natural Resources Conservation Service through the Orange Hill Soil and Water Conservation District, which covers Washington County, provides advice to private property owners on erosion issues. The Florida Division of Forestry can also assist

property owners when dealing with issues of erosion on silvicultural lands.

Professional services and consultation services available in the community generally lead to quick elimination or control of such erosion. Professional engineering services are often used to examine and eliminate erosion issues on public lands. Stormwater control through planning and design, engineering, and management can eliminate or reduce erosion, particularly within developments. Appropriate engineer reports on soil suitability and stormwater control are required during the development process.

Soil erosion due to water is dependent on certain factors such as the amount and intensity of rainfall as well as the surface cover (grass, crops, etc), the slope of the soil and the distance over which the slope spreads. Therefore, areas with less surface cover, on a sloping surface subject to intense rainfall are more vulnerable to soil erosion by water than in flatter areas, covered by grass or other vegetation.

There are over 500 miles of dirt roads in Washington County; each is subject to erosion to some degree. Overall, the community has a 34 percent probability of encountering soil erosion on unpaved roadways with a high chance of reoccurrence, but a "Low" vulnerability to erosion due to any population densities. This is likely to increase however, as development increases.

Erosion is located where topography increases in the Sand Hill Lakes region of the County and where slopes increase away from rivers. The steep topography of this area, combined with road and home site development, can cause sheet erosion, riling, and gulleys where sediment can empty into natural lakes, creeks, etc. Erosion areas in this area is being stabilized by WFWMD by the placement of containment curtains, sodding, staked hay bales, filter fence, or a suitable temporary erosion control barrier, and will be located within the footprint of the area. The area undergoes periodic inspections to determine the extent of any erosion problems.

The best available data concerning soil erosion potential is the 1965 Soil Survey of Washington County (Figure E-____. The information is not municipality-specific; however, 34 percent of the soils within Washington County possess characteristics of "Highly Erodible (HE)" or "Potentially Highly Erodible (PEH)" soil types. Agricultural operations are the most vulnerable to erosion. Erosion can expose foundations, undermine roadways and sidewalks and result in cracks, In addition, vulnerable structures include those situated on slopes, subject to high water runoff, and those on cleared lots with little surface vegetation.

Potential for Conservation, Use, and Protection

Figure E-1 presents the hydrologic units of Washington County, while Table E-3 presents data regarding soil erosion in each of these hydrologic units. Erosion conditions continue to improve, as the enforcement of the County's adopted Land Development Code, FDEP, and NWFWMD rules and regulations remains consistent. In addition, the Natural Resources Conservation Service has implemented programs, which have encouraged

planting of timber and the maintenance of Conservation Reserve acreage in highly erodible.

Table E-3 Average Annual Erosion by Hydrologic Units on Cropland and Pastureland

Hydrologic Unit	Crop & Pasture (acres)	Average Annual Erosion (tons)				Average Annual Erosion Rate (tons/acres)
		Sheet & Rill	Ephemeral Gully	Wind	Total	
03130012-063	2,387	12,048	3,841	2,321	18,210	8
03140101-010	44	41	19	0	60	1
03140101-040	1,373	301	11	0	312	1
03140203-030	172	556	175	0	730	4
03140203-070	6,372	27,561	9,179	3,639	40,380	6
03140203-140	1,127	3,232	1,017	889	5,138	5
03140203-150	8,087	29,597	9,348	7,258	46,203	6
03140203-160	24,765	119,701	37,554	11,802	169,057	7
03140203-170	10,148	40,006	11,528	4,484	56,078	6
03140203-180	14	15	5	0	20	1
03140203-190	465	190	56	79	326	1
03140203-200	208	54	13	5	72	1
Total	55,162	233,302	72,746	30,477	336,586	
% of Total		69%	21%	9%		

Source: Erosion Report, Washington County: Problems and Solutions, USDA Soil Conservation Service and Forest Service, 1984

Sand Hill Lakes Erosion Control. In 2003, WFWMD and the Orange Hill Soil and Water Conservation District completed erosion control and habitat restoration Hammock, Hamlin, and Rattlesnake lakes. This project also included water quality and vegetation monitoring and was finance by a $300,000 grant from the Environmental Protection's Section 319 Nonpoint Source Management Program. During the period, native vegetation was restored to 12 sites in the project area; soils were stabilized; the land was recontoured with earth moving equipment; and switchgrass was planted to provide stability during initial grow-in periods for longleaf pine and wiregrass. The effect of these restoration actions was to eliminate road footprints and reduce the number of unsuitable access roads to some of the lakes. The District also contracted with the Washington County Sheriff's Department to enforce vehicle exclusion and to prohibit dumping.

In addition, the District sampled surface water quality from five sites and found it to be good, except for the sediment deposits in lakes and shorelines, which the project was designed to address. Lake levels were monitored at Rattlesnake Lake and Lake 96, a significant measure since drought persisted during most of the project period and explained the need for replanting in some areas. Finally, plants were monitored using fixed transects and, despite drought, native Smooth bark St. John's wort and threadleaf sundew flourished in formerly barren roadways at Rattlesnake Pond.

3. Sinkholes. Two types of sinkhole districts exist in the County. The most obvious district includes the Sand Hills Lakes Region. This region is across a geological

formation called "Grand Ridge." Grand Ridge is located across the southern half of the County. The ridge consists of a large amount of sandy soils on top of limestone. This is the perfect combination for deep sinkhole structures. When underground limestone becomes so eroded by the movement of water it collapses, the sandy overburden collapses into a fallen cavern, creating a sinkhole. The Sand Hill Lakes region contains hundreds of isolated drainage basins formed by the karst activity. Some sinkholes fill with water, forming small and large lakes. Others are simply depressions in the landscape and others form swamps. Mature systems have developed drainage patterns where streams lead from lake to lake, and eventually to rivers. Development of sinkholes begins by drought, new construction, blasting, heavy ground loading, heavy rainfall, and heavy use of groundwater.

A second, more mature or even old age sinkhole district lies in the northern half of the County. This area is characterized by a more defined (but broad) drainage pattern. Over time, older sinkholes filled with sediments and now contain palustrine (marsh) swamps. Locally, these swamps are known bay heads. Springs can occur in either of these districts with limestone formations often visible at the surface near the springs.

The likelihood of active sinkholes developing in the County is moderate or low. The best available data from the Florida Geological Survey Sinkhole Database indicates that only a few small sinkholes have occurred (usually ten to twenty feet in width). It also indicates that there are no recent active sinkholes in the County. According to supporting data, some roadways have been impacted from sinkholes, but no homes have been affected. Despite this, in January 2005, an active collapse sinkhole approximately 25 feet in diameter and 20 to 22 feet deep opened up within fifty feet of a residence near Hwy 79 close to the Town of Ebro. One has also become active in the Crystal Lake area. There is speculation however, that the installation of a water well nearby and the subsequent draining of water, may have contributed to the sinkhole collapse.

Washington County relies primarily on individual water wells as opposed to public central water systems. The drilling activities associated with installing these individual water wells may serve to increase the occurrence of sinkholes in Washington County, and the vulnerability of the nearby structures. Currently, the danger from a sinkhole is accentuated only when it develop near a structure on or a roadway.

Falling Waters State Park in Washington County is the home of one of the most famous sinkholes in Florida. The unique geological feature is 100 feet deep, 20 feet wide and houses Florida's tallest waterfall (73-foot waterfall). The water that can range from a trickle to a torrent depending on the time of year falls into a large cavern. There are other small sinkholes located on the park site. The park is part of the Florida State Parks system.

Potential for Conservation, Use, and Protection

No area in Florida or Washington County is safe from the risk of sinkholes. The Florida Expansive clay layers in the earth may shrink upon drying; buried organic material, poorly compacted soil after excavation work, buried trash or logs and broken pipes all

may all cause depressions to form at the ground surface. Warning signals of potential sinkholes are cracks appearing in the walls or floors, wilting vegetation sites, small ponds appear suddenly and fence posts sag or fall over. If settling is affecting a dwelling, further testing by a licensed engineer with professional geologist on staff may be required. Property insurance may pay for testing, but in many cases, insurance may not cover damage from settling due to causes other than sinkholes.

Groundwater is affected by anything buried in the sinkhole, therefore, only clean sand or soil, or concrete, with a broken limestone riprap or concrete should be used as a basis for a stable foundation for the fill. Clayey sand can be used to form a barrier that will help to prevent water from seeping downward through the hole and enlarging it further. Upon completion of filling, landscaping should be completed with sand and top soil to blend into the surrounding areas is desirable.

Falling Waters State Recreational Area continues to be subject to development pressures during the planning period. Its location in the general vicinity of Chipley makes future adjacent development more likely to occur. The imposition of buffers in the adopted Land Development Code should serve to protect this area from future incompatible development pressures. Given the anticipated slow growth in the County, it is unlikely other major managed areas will be subject to pressures from development through the planning period.

4. Ecological Communities. Washington County has several different ecological communities as defined by the data from the Florida Natural Areas Inventory. These ecological communities are comprised of flora and fauna, which provide a number of ecological functions and benefits. The wetland communities have important hydrologic functions, which affect water quality and quantity. They serve as noise barriers, reduce pollutants, modify temperature extremes, provide habitat for wildlife and provide resources for recreation and scientific research. In Washington County, there are several different ecological communities as defined in 26 Ecological Communities of Florida (July 1989), by the Soil Conservation Society of America.

   a. Xeric Uplands. The type Xeric Uplands found in Washington County is the Sand Hills community. The community is characterized by deep, well-drained sandy soils identified by the typical longleaf pine/turkey oak vegetative association with wiregrass understory. In general, due to the harsh conditions imposed by poor soil quality, low moisture, and high fire potential, the community has a low diversity of tree types. It possesses a low understory composed of herbaceous plants, such as wiregrass and yellow foxglove.

      Sand Hills Xeric Uplands are used for timber production. Sand pine is often planted as it is better adapted than slash pine. The community has value for wildlife if proper management techniques are used. These areas are used for improved pastures and pine plantations. Soil conditions are very favorable for urban development. The xeric uplands are more vulnerable to development than wetlands communities are. These communities do not have the special protection status that given to wetlands by federal and state laws. The Sand Hills Xeric Uplands community is an open forest community influenced by fire, heat, and drought. Since fires occur frequently, the natural vegetation has adapted to withstand their effects. Fires prevent

hardwoods from regenerating, allowing the longleaf pine, which cannot tolerate hardwood competition, to remain dominant. Grasses, especially wiregrass, cover large areas of this community and provide fuel for the fires. Water moves rapidly through the sandy soil to the aquifer, with little runoff, and minimal evaporation.

Fauna. Many of the animals found in these communities are burrowers due to high temperatures and absence of water. Species such as eastern indigo snakes, gopher tortoises, ground doves, quail, Sherman's fox squirrels, are associated with this community. The rare red-cockaded woodpecker, listed as an endangered species by the US Fish and Wildlife Service, is known to occur in mature communities.

b. Mesic Uplands. The Mesic Uplands community group is of the slope forest, upland hardwood forest, and upland pine forest community types. This community occurs in the northern portion of the County on dry to moist sandy soils with varying amounts of clay, silt, or organic material. There is a diverse mixture of broad-leaved and needle-leaved temperate woody species. Hardwood and pine communities are important for flood control and watershed. The fine textured soils have a relatively low permeability, which results in a limited aquifer recharge and some surface runoff. The community is a good producer of timber, especially slash and loblolly pine. The areas are usually well drained and have few limitations to urban development; however, water erosion is often a problem on the steeper slopes. Unlike most communities, the mixed hardwood and pine does not have a dominant stress factor. This community is a good producer of timber. The mesic uplands are more likely to become vulnerable to development than wetlands communities are. These communities do not have the special protection status given to wetlands by federal and state laws.

Fauna. Animals found in this community group include chipmunks and bobwhite quail in areas of young growth. More mature stands attract black bears, woodpeckers, moles, woodcocks, gopher frogs, and Cooper's hawk.

c. Seepage Wetlands- Bay Gall. The moisture regime is probably the most significant factor in maintaining the seepage wetlands baygall community. The key to its perpetuation is the seasonal flooding and receding of water, while depression areas within the alluvial floodplain retain some water and support the associated community of swamp forests. Luxurious growth during the summer months and a deciduous forest during the winter season characterize the appearance of this community. The community has a high potential for commercial woodland production in areas with adequate surface drainage. Bays and/or dahoon holly, red maple, and mixed hardwoods are species suitable for these areas. This community is subject to periodic flooding and has severe limitations for urban development. Vegetation is extremely diverse with vines, shrubs, grasses, and herbaceous plants growing profusely where sunlight penetrates the canopy. The Seepage Wetlands community is important because it receives floodwaters, sediments, pollutants, and nutrients and assimilates them into the system through redistribution. The associated riverine system is part of the dynamics of this community and acts as a transport mechanism of organic detritus to receiving estuaries. These communities are valuable recreation and scenic systems with high aesthetic quality.

Fauna. Wildlife includes weasels, Florida black bear, gray bat, squirrel, and otter, raccoon, and swamp rabbit. Hawks, owls, songbirds, turkey, and woodpeckers are the community's birds. Alligator, canebrake, eastern diamond rattlesnakes, and water moccasin are found in this community.

d. Longleaf Pine-Turkey Oak Hills. These areas are used for improved pastures, pine plantations, and some more intensive farming operations. Soil conditions are favorable for urban development. This community has no special protection status that is given to wetlands by federal and state laws.

Fauna: Animals: Florida panther, Florida mouse, southeastern American kestrel, red-cockaded woodpecker, blue-tailed skink, eastern indigo snake, short-tailed snake, gopher tortoise.

e. Mixed Hardwood and Pine. These areas are important for flood control and watersheds, timber production, with little limitation to urban development. This community has no special protection status that given to wetlands by federal and state laws.

Fauna: Typical animals appearing in this community are skink, rate snake, king snake, owls, red-bellied woodpecker, downy woodpecker, pileated woodpecker, gray squirrel, opossum, bobcat, and white-tailed deer.

f. Bottomland Hardwoods. These areas are usually wetlands and perpetuation is due to the seasonal flooding. The area has high potential for timber production and is not conducive to urban-type development. The Bottomland Hardwoods community is important because it receives floodwaters, sediments, pollutants and nutrients and assimilates them into the system through redistribution. The associated riverine system is part of the dynamics of this community and acts as a transport mechanism of organic grains to receiving estuaries. These communities are valuable recreation and scenic systems with high aesthetic quality and have special protection status that given to wetlands by federal and state laws.

Fauna. There is a wide variety of wildlife within this community -- a wide variety of birds, ducks, deer, beaver, rabbit, coyote, turkey, boar, and fox, to name a few. Sportsmen hunt some types during the appropriate hunting seasons, while others are the subject of photography and admiration. Birdwatchers find these areas particularly appealing for practice of the passive sport of bird watching. Falling Waters State Park is included in the Panhandle Section of the Great Florida Birding Trail, a collection of 445 sites throughout Florida selected for their excellent bird watching and education opportunity. The Choctawhatchee River swamps located within Washington County has been named as perhaps the last bastion of the ivory-billed woodpecker Avian (Campephilus principalis), long believed to be extinct.

At the end of this element is Table E-4, *The Florida Natural Areas Inventory (FNAI) State and Federal Threatened, Endangered, and other Species of Concern for Washington County*. This list identifies primary locations of species of special concern. This inventory is consulted in accordance with the adopted Land Development Code when development review warrants scrutiny.

Potential for Conservation, Use, and Protection

The Longleaf Pine-Turkey Oak Hills, and Mixed Hardwood and Pine, are more likely to become vulnerable to development than wetlands communities are. These communities do not have the special protection status that is given to wetlands by federal and state laws. Drought and the threat of wildfires is a constant danger. Recent rainfall has been greater in during 2009 but there are years when it is periodically below. This stresses on the vegetative growth and ongoing development heightens the danger of wildfire as dry conditions continue.

There has been an increasing problem throughout the State of Florida of the spread of exotic or invasive plants. Many of these species were introduced because of their beauty and ornamental appearance. Because they are not native, they often have no natural checks or balances. Some of these plants are prohibited and are now illegal to plant according to Florida law. In the Washington County area, some of the exotic plants to be avoided include kudzu, Old World climbing fern, Brazillian pepper, Melaleuca, tropical soda apple, water hyacinth, Australian pine, wild taro, hydrilla, and Chinese tallow (or popcorn) tree. As an example of the harm these plants can do, cogon grass is one of the top ten worst weeds in the world and affects pine productivity, habitat, recreations, native plants, wildlife habitate, fire behavior, site management costs. It spreads rapidly and in time may significantly impact productivity of pines.

The County should encourage the Xeriscaping, which will not only preserve water sources but discourages the planting of noxious plants, discourages the use of fertilizers and pesticides. The rules as set forth by WFWMD is simple – *Plan the Soil, Plants, Grass, Mulch, and Water to Maintain.*

B. Water Sources within the County

The water resources found in Washington Count is best described as outstanding. They are clean, pristine, and serve as the attraction for tourist, residential, and recreational development. The groundwater serves as an important source for drinking water and agriculture irrigation. Clean surface waters are important for recreational purposes and contribute to a desirable and healthy environment. Due to concerns regarding the quality of groundwater, care must be exercised to afford protection of groundwater, surface waters, and wetlands, as development remains the main contributor toward the deterioration of groundwater quality.

1. Florida Aquifer. All of Washington County's water resources come from groundwater found in the Floridan aquifer system, which is one of the most productive aquifers in the world. This is a sediment/rock formation capable of holding and releasing water. It covers an area of about 100,000 square miles and generally provides water for cities as far north as Savannah, Georgia and as far

south as Miami, Florida. Several aquifers may be present below one surface location, separated by confining layers of materials that are impermeable or semi-permeable to water. The Floridan aquifer system is divided into an upper and lower aquifer separated by a unit of lower permeability. The upper Floridan aquifer is the principal source of water supply in Washington County and is the source of many of springs located in the County. The source of water in aquifers is rainfall. Under the force of gravity, rainfall percolates downward through porous surface soils to enter the aquifer strata. Because of the variable permeability of different soil types, the rate of aquifer recharge from rainfall may vary from one location to another. The areas of highest recharge potential are referred to as prime recharge areas. The presence of overlying confining beds also determines which surface areas will be effective recharge areas for a given aquifer, and is another factor in identifying prime recharge areas for the aquifer. Since aquifer recharge areas are surface features, they are subject to alteration by development.

The Florida Aquifer is near the surface in Washington County. The water quality in the recharge area is of prime concern because of its direct connection to the Florida Aquifer. If the surface waters become contaminated with pollutants and there is, a quick and rapid downward water movement (which can be as much as hundreds of feet a day) that quickly pollutes ground water provided by the aquifer.

This groundwater found in the aquifer is Washington County's sole source of water for consumption. In recent years, this source has come under stress due to increasing population, depletion of water resources, and bad management practices

Potential for Conservation, Use, and Protection

NWFWMD serves as the water planner for Northwest Florida and as such monitors the developmental impacts and water quality of the Aquifer for seven water districts in the region. The goal of the District is to cooperate with the counties, public utilities, and communities and efficiently manage water sources. Region IV, of which Washington County belongs, has a sufficient amount of groundwater from the aquifer as reported by the District. Development demands within the capacity of the Floridan Aquifer. WFWMD has projected that Washington County's overall water use will increase 23 percent from 4.18 million gallons per day in 2000 to 5.20 million gallons per day in 2020.

Year	Population	Mgal/d	% Increase
2000	20,973	4.18	-
2010	23,900	4.67	11.72 %
2020	26,700	5.20	11.35 %

The County and municipalities will ensure that high-quality water is available to meet existing and future demand of the municipalities of Caryville, Ebro, Vernon, Wausau, and Unincorporated Washington County. The County will monitor projected demands for potable water to maintain adequate levels of service for these facilities. Growth will be encouraged toward those areas that have available central water and central sewage systems. Withdrawal from and placement of wastewater facilities and septic tanks will be evaluated for its adverse impact on aquifer recharge and discharge areas, and their vulnerability to contamination shall be assessed before any development is permitted. The

County shall include recommendations for the use of water efficient landscaping in new development projects in Washington County in the Land Development Code.

Currently, there is no requirement to produce other methods of furnishing water to expanding development. Permitting and construction of water wells to ensure that the water supply of the aquifer is protected is the responsibility of WFWMD. The main concern of the aquifer at the current time is for the protection. Washington County will continue to support the permitting program currently in place for filling wetlands, stormwater discharges, off-site flooding and construction activities affecting wetlands and other surface waters including isolated wetlands.

Major concerns regarding the conservation of the aquifer is covering recharge areas with impervious surfaces, such as roads, parking lots and buildings thereby reducing the area available for rainfall percolation, altering the total rate and volume of recharge in that area. Increasing the rate at which stormwater drains from recharge area surfaces also decreases recharge potential.

Another development related concern within aquifer recharge areas is the potential for contamination of ground water within the aquifer. Pollutants picked up by runoff that enter an aquifer can degrade the quality of the ground water. Since water flows within an aquifer in a manner similar to surface water flow, downstream portions of the ground water may be polluted over time. This becomes particularly significant when the aquifer is tapped as a potable water supply downstream.

Consistent with level of service standards for drainage, nonstructural approaches to stormwater management is permitted in new development to allow for aquifer recharge. This type of approach shall include but not be limited to grassed swales and waterways, earthen retention facilities, berms, etc. Such systems shall meet federal, state, and local regulations, as applicable. Policy 3-2c and Policy 6-11 of the Land Use Element states moderate to high recharge zones of the Floridan Aquifer shall be conserved and protected from contamination and restricted recharge by:

a. Limiting impervious surfaces constructed within such areas to 50 percent of the total area of a given parcel

b. Allowing only residential, public/semi-public, commercial and/or light industrial uses

c. Requiring all industrial, public/semi-public, and/or commercial uses where the use involves the generation, handling, storage, and/or use of hazardous materials in its operation be serviced by central water and sewer service

d. Managing stormwater flow on roadways and development sites so as to eliminate sedimentation and non-point pollution in the surrounding wetlands and recharge zone

e. Requiring the use of package wastewater treatment facilities for commercial, industrial, and/or semi-public development (i.e. not utilizing hazardous materials) in accordance with FDER guidelines in areas where central water and wastewater

treatment facilities are not available.

f. Limiting residential densities in areas not serviced by sanitary sewer and potable water

g. Moderate to high recharge zones of the Floridan Aquifer shall be conserved and protected from contamination and restricted recharge through the implementation of Policy 6-11 contained in the Future Land Use Element.

h. Upon completion of the Groundwater Basin Recharge Resource Availability Inventory (GWBRAI) and any Surface Improvement Water Management (SWIM) program projects related to Washington County, the County and municipalities shall coordinate with the NWFWMD to ensure that recommended amendments to this Plan and the LDR's are incorporated in future revisions.

i. Update of the Land Development Code is required be amended to include provisions for plugging of abandoned wells prior to issuance of development orders or permits. The County may only offer assistance as provided for in existing County policies and all Florida Department of Environmental Protection permitting requirements.

2. Surface Waters. All of the approximately 23,040 acres of the County's area are surface waters are geologically and hydrologically significant to Washington and Bay counties. These areas include the Choctawhatchee River forming the western border of the County, along with other smaller streams that include Holmes Creek, Pine Log, and Econfina Creek. In addition to these streams, many lakes within the County also add to the overall attractiveness of the County. These water sources also serve as the habitat of numerous plants and animals threatened as the result of development. Surface water makes its way into the ground to reach the aquifer systems, which becomes the water supply for all uses in Washington County. As surface water is a direct link to the Florida Aquifer, not only is prevention of contamination vital to ensure pure drinking water needs for current needs are met, but to ensure adequate supply for the future. Table E-5 is a partial listing of the number of fresh water streams and demonstrates the vast amount of streams considered environmentally and hydrologically significant to the groundwater resources of the County.

Table E-5. Washington County Rivers, Lakes, Ponds and Freshwater Streams		
Alligator Creek	Fanning Branch	Mitchell Mill Creek
Bear Bay Creek	Flat Creek	Open Creek
Boggy Branch	Gap Branch	Palmer Branch
Bonnet Pond	Gin Branch	Piney Branch
Botheration Creek	Godwin Branch	Pine Log Creek
Broad Branch	Graveyard Creek	Pippin Mill Creek
Brock Mill Branch	Greenhead Branch	Poley Creek
Carlisle Lake	Gully Branch	Pond Creek
Carter Branch	Gully Creek	Potter Branch
Chalk Hill Branch	Gum Creek	Red Head Branch
Chapel Branch	Hard Labor Creek	Reedy Branch
Choctawhatcee River	Harrell Branch	Reedy Creek
Cypress Creek	Helm Branch Holmes Creek	Sand Mountain Branch
Cypress Slough	Hudson Branch	Shaky Joe Branch
Daniels Branch	Jones Rice	Smutty Sweet
Davis Branch	Mill Branch	Gum Creek
Dead River	Kersey Branch	Spence Branch
Dip Vat Branch	Little Dram Branch	Street Branch
Ditch Branch	Little Hard Labor Creek	Ten mile Creek
Double Branch	Little Reedy Branch	Thorny Head Branch
Double Pond Branch	Long Branch Mill Branch	Wells Mill Creek
Dram Branch	Mill Creek	White Oak Creek
Econfina Creek	Mitchell Branch	Williams Branch
		Yates Mill Creek

a. Econfina Creek. The Econfina Creek is located in the southeastern corner of Washington County and is north of SR 20. NWFWMD purchased 29,603 acres in Washington and Bay counties to protect the Class I potable water supply body. This is a critical area of concern for Washington County, but especially for Bay County as well. The acquisition is one of the largest negotiated by NWFWMD since the inception of the Preservation 2000 or Save Our Rivers land acquisition programs.

A geologically and hydrologically significant area adjacent to Econfina Creek in Bay and Washington counties totaling approximately 29,603 acres was purchased by NWFWMD to protect northwest Florida's only Class I potable water supply water body. The land contains several unique habitats of rare, threatened, and endemic plant and animal species. The acquired area lies within a major recharge area of the Floridan Aquifer system. In a recharge area, sandy soil and underlying limestone deposits near the surface of the land allow rainfall to enter into (or recharge) the aquifer.

Approximately 300 million gallons of water per day flow down Econfina Creek to Deer Point Lake that supplies nearly 45 million gallons of water per day to various public supply and industrial water systems in Bay County. The Floridan Aquifer is the source of much of this flow. Springs discharging into Econfina

Creek from the aquifer contribute roughly 200 million gallons per day to the creek's flow. Most of the acreage consists of nonnative slash and sand pine plantations. Gradually, they will convert to naturally occurring, long leaf pine and wiregrass habitat. Known as the Sand Hill Lakes area, the property acquired by the district consists of uplands and pine plantations interspersed with lakes, sinks and sinkhole lakes, depressions, and swamps. At least 10 lakes and their drainage systems, which are more than 160 acres in size, occur on the property and numerous smaller lakes and ponds dot the area.

Containing very high flora and fauna species diversity, this water management area hosts several rare, threatened, endangered, or endemic plants including Ashe and pyramid magnolia, Florida anise and St. John's wort, district officials said. Other unique plants include oak leaf hydrangea, maidenhair fern, and toothed savory. Unique animal species include the Summer tanager, endemic snails, and a very large warbler population.

b. Holmes Creek. Holmes Creek begins in Alabama and flows through areas with high sandy banks and beautiful swamps and confluences with the Choctawhatchee River. The stream has high limestone walls, sand bluffs, and lush vegetation and serves a habitat for a wide range of animal species. Pollution received by the creek in the form of wastewater treatment plants (WWTP) from Bonifay, Graceville, and Chipley. The Town of Vernon has successfully corrected a long-standing pollution problem by upgrading of the wastewater treatment plant and the installation spray fields resulting in the elimination wastewater overflow into Holmes Creek. The Chipley WWTP's upgrade and spray field construction has been engineered and funded. It is expected that this upgrade and spray field will be completed in 2009 with no future direction of water into Holmes Creek. There are not other wastewater systems in the County that pose a threat to these surface waters.

c. Choctawhatchee River. With its headwaters in Alabama, the river flows 96 miles from the Alabama state line into the Choctawhatchee Bay, and forms the border between Walton and Washington counties. See Figure E-_____ for depiction of the watershed. Florida shares the Lower Choctawhatchee Watershed with Alabama. In Florida, it includes parts of Holmes, Washington, Bay, Walton, and Jackson counties. The watershed encompasses almost 988,000 acres. The majority of the basin, about 77 percent, lies in Florida with the remaining 23 percent, occurring in Alabama. The system terminates into Choctawhatchee Bay and the Gulf of Mexico and encompasses freshwater and brackish, estuarine and marine habitats. The Choctawhatchee River crosses the Alabama/Florida state line just south of the city of Geneva, Alabama, where the river's largest tributary, the Pea River converges.

Holmes Creek in Washington County and Wrights Creek in Holmes County are major tributaries of the river as is a portion of the Sand Hill Lakes in Washington County including a recharge area from the Floridan Aquifer springs discharging into Holmes Creek. As described in the 1996 Choctawhatchee River and Bay SWIM plan (updated 2002), the Choctawhatchee River and Bay watershed

supports a wide array of aquatic and wetland resources and provides numerous benefits for the human community. Among the environmental resources are a variety of aquatic and wetland habitats, extensive forests, Floridan Aquifer springs, steephead streams, and many species of flora and fauna. Human benefits include commercial and recreational fisheries, marine transportation, military uses, outdoor recreation, tourism, aesthetic qualities, and other economic benefits associated with these. While the Choctawhatchee River and Bay watershed continue to support outstanding resources, it has also experienced many of the impacts that are common to Florida estuaries. These include urban stormwater runoff and other nonpoint sources of pollution, widespread sedimentation, domestic and industrial wastewater discharges, and habitat loss and degradation. Cumulatively, these impacts have degraded the productivity of the river and bay system and diminished the benefits it provides.

d. Lakes and Ponds. The County has many large and beautiful lakes with pristine qualities that are endangered as population grows and development continues along their shores (Table E-6). This threat is from septic tanks and the clearing of vegetation from the banks that allow erosion into the lakes, making the development along the lake shorelines is a major concern. *Shoreline Protection and Restoration - A Northwest Florida Homeowner's Guide, is* a publication of the NWWMD and serves as a comprehensive guide to protecting the shoreline and restoring natural waterfronts.

Table E-6. Major Lakes in Washington County

Lake	Area in Sq Acres
Porter Lake	788
Big Blue Lake	504
Gap Lake	482
Lucas Lake	402
Hicks	365
Deadening	332
Pate	225
Dunford	220

e. Farm Ponds. Maintaining good water quality is critical to pond management. Proper levels of ponds are required to sustain fish population, which supports wildlife. Poor water quality is the most common cause for poorly maintained ponds. When constructing ponds all Florida Department of Environmental Protection and Northwest Florida Water Management rules must be followed. Recommended steps to construction of ponds are in IFAS Bulletin 257, *Farm Ponds in Florida Irrigation Systems* and Florida Fish and Wildlife Conservation Commission bulletin, *Guidelines for Designing and Managing Florida Ponds for Recreation*.

While the County does not regulate the construction of fish or agriculture ponds, it does restrict the use of the excess soil that results from the excavation. The soil may be spread and utilized on the property, but may not be removed from the property to be sold or given away unless the Type V Special Exception to Allow a

mining operation application process is complete. Once a pond is completed, it becomes subject to the same rules for effective environmental protection as any surface waters in the County.

Potential for Conservation, Use, and Protection.

Vegetative buffers, adequate setbacks of septic tanks and development on the surface waters as discussed in the infrastructure element will serve as the best means of conservation, use, and protection of the surface waters in the County.

3. Wetlands. Wetlands provide a multitude of ecological, economic, and social benefits. They provide habitat for fish, wildlife, and a variety of plants. Wetlands are nurseries for many saltwater and freshwater fishes and shellfish of commercial and recreational importance. Wetlands are also important landscape features because they hold and slowly release floodwater and snow melt, recharge groundwater, act as filters to cleanse water of impurities, recycle nutrients, and provide recreation and wildlife viewing opportunities for millions of people. The County has an extensive inventory of public access wetland as described below and has historically protected environmentally sensitive lands as defined in rule 9J-5.003(41) Florida Administrative Code.

a. Choctawhatchee River and Holmes Creek Water Management Area. The Choctawhatchee River and Holmes Creek Water Management Area extends for some 41 miles along the Choctawhatchee River in Bay, Holmes, Walton, and Washington counties, and includes approximately nine miles on Holmes Creek, south of Vernon. The water management area begins at the eastern end of Choctawhatchee Bay and runs north to State Road 2 near the Alabama state border. The 51,189 acres of river floodplain that make up the Choctawhatchee River and Holmes Creek Water Management Area were purchased to protect and preserve the water quality of the Choctawhatchee River and Bay and its ecosystems. The Choctawhatchee River provides habitats for numerous native species of plants and animals and contains several unique relic dune formations that have evolved into xeric dry hammock habitats. Seasonal hunting, bank and river fishing, canoeing, primitive camping, hiking, bird watching and ecological study areas are available on the tract. Holmes Creek is a state designated canoe trail with liveries available in the area.

The unique geological features**:** large alluvial floodplain, relic dune formations, isolated upland islands, springs, and rolling uplands. Predominate plants are pyramid magnolia, needle palm, a yellow (flame) wild azalea. Wildlife found in the area is white ibis, Mississippi kite, and green sturgeon.

b. Pine Log State Forest. Pine Log State Forest, purchased in 1936, is Florida's first state forest. The Florida Department of Agriculture and Consumer Services, Division of Forestry is the lead management responsibility for the Pine Log State Forest. Using an ecosystem management approach, the Division of Forestry provides for multiple-use of the forest resources, which include timber management, wildlife management, outdoor recreation, and ecological restoration. Pine Log State Forest is located in northwestern Bay County and

southwestern Washington County with most of the forest within the city limits of Ebro.

Pine Log State Forest is home to a diverse mixture of animal and plant species. The animals and plants currently listed as endangered or species of special concern, which have been sighted on the forest, include Flatwoods salamander, gopher tortoise, southern milkweed, white-top pitcher plant, and Chapman's crownbeard. There are various natural communities found on the forest. They include sand hills, flatwoods, cypress ponds, and titi swamps. Pine Log State Forest has three named streams (Pine Log Creek, Little Crooked Creek, and Ditch Branch) as well as several small lakes and ponds.

c. Sand Hills Recharge Area and Econfina Creek. This area creates a most unique and special habitat in Florida. Econfina Creek is largely spring fed and is well known for its cold, clear water, superb natural vegetation, bird life and many geological and hydrolic features. As a canoe trail, it features numerous rapids, springs and rock outcrops along the route. The Water Management District began buying property along Econfina Creek in 1992 specially to protect water resources and the primary source of drinking water for Panama City and neighboring communities. During drought conditions, some 80 percent of the water flowing into the Deer Point Lake reservoir comes from the many springs along Econfina Creek. The Sand Hills portion of the property includes mile after mile of rolling hills comprised of loose sands that are often hundreds of feet deep. Intermixed are dozens of shallow, sand-bottom lakes that commonly have extremely clear water. A few examples of the native longleaf pine / wiregrass vegetation are found in the uplands, but most of the area is planted in sand pines that will gradually be harvested and replaced with natural species and communities. Many of the lakes contain plant species found nowhere else in the world, such as the imperiled smooth-barked St. John's wort. Preservation or reestablishment of the native communities is a major consideration in the management of this tract, and sometimes portions of the property must be closed so that young vegetation can become established.

Important portions of these sand hills were acquired by NWFWMD specifically because they are the "recharge" area for the springs. Almost all the rainfall occurring in this zone sinks into the sands and move rapidly toward Econfina Creek where it boils up as pure and clean spring water. Public ownership is the most effective and cost efficient way to protect a water supply watershed like this one. The unique geological features in this watershed are springs and spring-run streams, solution holes, sinkhole lakes, limestone bluffs, bluffs, steep head ravines Predominate plants are ashe magnolia, oak-leaf hydrangea, liverworts, St. John's wort. Wildlife in the area is gopher tortoise, summer tanager, endemic snail, fox squirrel, alligator, and snapping turtle.

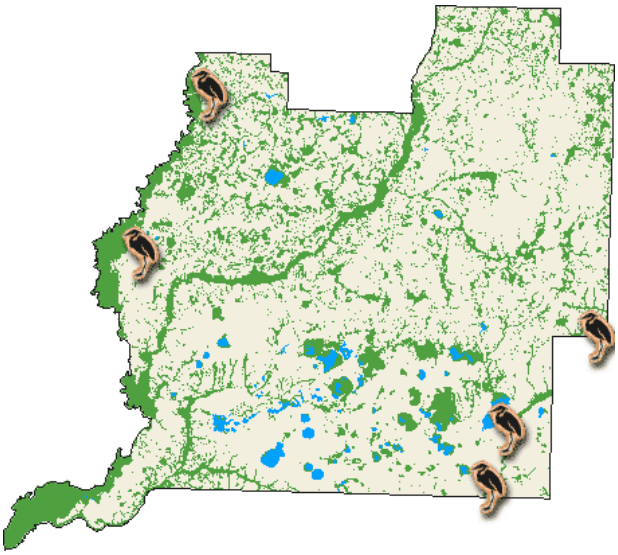
Conservation - Use and Protection

Econfina Creek Water Management Area. Development around the lakes and timber harvesting within this recharge area has increased the vulnerability of the springs supplying water to the Econfina Creek which flows into Deer Point Lake Reservoir furnishing Bay County's drinking water. The Surface Water Improvement and Management (SWIM) Act has served to reduce pollution and to protect and restore surface waters. Protecting surface waters and their watershed also helps conserve water supply, natural beauty, recreation, wildlife and economic resources. The District has purchased more than 41,000 acres to create the Econfina Creek Water Management Area, and is working to restore habitats and protect water resources, natural systems, and listed species. The SWIM plan calls for stormwater treatment, habitat conservation and restoration and other water resource protection activities.

4. Floodplains. Flooding is the primary emergency concern along the Choctawhatchee River, Holmes Creek, and associated tributaries, sloughs, river oxbow lakes, sinkhole lakes, and isolated swamps, locally called bays. Serious flooding occurred in 1928, 1929, 1960, 1975, 1990, 1994, and most recently in 2009, with 2 floods in 1998. Urban runoff also causes flooding in the County. Excessive rains occurring to the north in Alabama contributes to the flood conditions in Washington County. Chipley experiences this problem the most. Urban development on former wetlands, combined with the storm water runoff from homes, streets and commercial districts, has caused some destruction to homes and businesses in Chipley.

   Along with the flood ordinance adopted in 2005, the rules of the Land Development Code discourage development within the floodplains within both the municipalities and the unincorporated areas of Washington County. When the possibility of the existence of flood plains are identified using the Flood Insurance Rate Maps (FIRM) as published by FEMA, the developer is required to submit an elevation certificate prior to the issuance of a permit. Septic, electrical, and well systems must then be elevated along with the structure to prevent damage from flooding. Many times, this serves to discourage development due to the additional costs being prohibitive. Most of the flood zones are in swampy areas and are not suitable for urban type development. During periods of extreme drought, the land is appealing to potential buyers; it has served the County well to stress that the property is in a flood zone and caution used when purchasing land that is not suitable for development. While negligible development occurs in the floodplains, timber cutting and clearing of vegetation allows further erosion.

Washington County Wetland Map



The following summarizes flooding issues in the municipalities and the unincorporated areas of the County.

a. Caryville. Caryville flooding results from excessive rainfall events occurring within the Choctawhatchee River basin. Nearly 80 percent of the municipality is prone to flooding according to FEMA Flood Insurance Rate Maps. Historical data shows Caryville has experienced frequent flooding from the river and that there is high chance of reoccurrence. In 1990, the river rose to approximately 21.21 feet, which is well above the river flood stage of 12 feet. In the 1994 flood, it rose to 27 feet level. In March 1998 flood, the river rose to 19.65 feet and 17.50 feet in the October 1998 flood. Recognizing the impact of the Caryville flooding and the high vulnerability of the community to rising water, officials set about initiating one of the largest buyouts in Washington County's history.

An $11 million mitigation program provided by the U.S. Department of Housing and Urban Development in 1995 permanently solved many of the structural flooding problems in Caryville. The funding became available because of the Tropical Storm Alberto flood disaster of 1994 (a 131-year event). Essentially, the majority of the Town's residents accepted a voluntary buyout offer and moved from the primary core of the community (along U.S. 90 and CR 279) to other locations outside of the Choctawhatchee floodplain. Some residents elected not to accept buyout funds. Properties purchased under the buyout program are now designated as open space. Several businesses, including a convenience store, the post office, a state prison work camp, and Town Hall itself remain in the core of

the floodplain. Properties acquired under the buyout program are to remain as open space in perpetuity by the local governing agency and never sold or developed.

For the most part, the FIRM accurately shows flood-prone locations, but some map revisions will be made during the FIRM update scheduled for completion 2010.

b. Ebro. Flooding within Ebro is the result of excessive rainfall events occurring within the town or in environs closely surrounding the town. The floodplain of the Choctawhatchee River also covers one quarter of a square mile of the northwest corner of Ebro. The floodplain of Pine Log Creek flows through Pine Log State Forest and the northern boundary line of the forest form the southern boundary of the town. All of Pine Log Creek's floodplain is located within Pine Log State Forest. Development is limited to recreational uses by the State of Florida in this area. Ebro is vulnerable to flooding in areas where swamps or sinkholes are present or were historically present before development. Additionally, urban runoff can increase the likelihood of flooding in locations not otherwise prone to flooding. For the most part, the FIRM accurately shows flood-prone locations, but some revisions may be necessary during the FIRM update scheduled for completion 2010.

Ten (10) structures in Ebro are within the 100-year floodplain, Zero (0) structures are within the 500-year floodplain. Of the ten structures, two (2) are businesses.

c. Vernon. Flooding in Vernon is the result of excessive rainfall events occurring within the town or in environs closely surrounding the town. Vernon is also vulnerable to flooding due to its close proximity of Holmes Creek. The floodplain and floodway of Holmes Creek covers the entire northern boundary of the town. Smaller tributaries to Holmes Creek are also located within the town. Homes west of the downtown area and along Spool Mill Road, Lazy Bone Drive, and other side streets are vulnerable. Additionally, urban runoff can increase the likelihood of flooding in locations not otherwise prone to flooding. For the most part, the FIRM accurately shows flood-prone locations, but some revisions may be necessary during the FIRM update scheduled for completion 2010.

Several homes purchased in the buyout programs were through Hazard Mitigation Grant Program funds. This includes structures purchased in neighborhoods named in the above paragraph and converted to open space. This has removed many of the most vulnerable structures in in the Vernon floodplain. Many of the buildings remaining were mitigated for flooding by structural elevation at the time of construction.

Because of the low intensity of urban development, stormwater runoff (parking lots, rooftops, cleared land/fill, etc.) is generally a minor problem relative to flooding. Some street flooding can occur during thunderstorms or extended rainy events (flooding unrelated to rising water in Holmes Creek).

One hundred five (105) structures in Vernon are documented within the 100-year floodplain Twelve (12) structures are within the 500-year floodplain. Of the 105

total structures, ten (10) are businesses.

d. Wausau. Flooding in Wausau is caused by excessive rainfall events occurring within the town or in environs closely surrounding the town. No major river flows through the community. Reedy Creek is the largest water body (flowing from south to north just east of SR 77). Wausau is vulnerable to flooding resulting from the presence of Reedy Creek and another tributary of Hard Labor Creek to the west of SR 77. Structures vulnerable to flooding are generally located too close to these two creek systems. For the most part, FIRM accurately shows flood-prone locations, although revisions may be needed in some areas during the scheduled update of the FIRM in 2010. Because of the low intensity of urban development, stormwater runoff (parking lots, rooftops, cleared land/fill, etc.) is generally a minor problem with flooding. Some street flooding can occur during thunderstorms or extended rainy events (flooding unrelated to rising water in Holmes Creek).

Fourteen (14) structures in Wausau are documented within the 100-year floodplain, including one (1) business (according to comparisons of FEMA Q3 flood data with County 911 addressing overlays). Zero (0) structures are within the 500 year floodplain.

e. Chipley. Flooding in Chipley results from excessive rainfall events occurring within the city or in environs closely surrounding the city. No major river flows through the community. Approximately 233 acres (10 percent of the total land) in the city are subject to flooding. These areas occur mostly around the small, intermittent streams in the city. Most are not developed, as the soils are not suitable for construction in this location. Some watercourses in the floodplains are channeled to facilitate drainage to nearby creeks after rainfall.

Some form of flooding occurs at least once per year in Chipley. Chipley is vulnerable to flooding in areas where swamps are present or were historically present prior to development. Additional flood-prone areas include portions of the City of Chipley near various drainage system ditches. Additionally, urban runoff can increase the likelihood of flooding in locations not otherwise prone to flooding. Stormwater runoff and water runoff from homes, streets, and commercial districts

Development in filled wetlands and storm water runoff from homes, streets, and commercial districts, have caused devastation to homes and a few businesses in Chipley. Mitigation purchases of properties as well as ditch cleaning efforts have solved some of these problems, but some homes continue to be susceptible to flooding. In the mid-1990's, funding was secured by the city to correct some of the flooding problems. The city purchased some homes as a mitigation project. Flooding continues to be an occasional, but persistent issue in other areas. In Chipley, urban runoff is more prevalent than in other municipalities in Washington County and is to the cubic foot volume received by low-lying areas. This is particularly a concern in the 7th Street basin between South Boulevard and US 90.

Located on the edge of a known floodplain, Alligator Creek makes the city's wastewater system vulnerable to flood damage. Flooding at the city's wastewater

treatment plant or lift stations can result in wastewater backing up into homes or businesses. The scheduled update of the system over the next two to three years should alleviate some of these problems.

For the most part, FIRM'S accurately show flood-prone locations, although revisions are needed in some locations, especially near 7th Avenue between South Boulevard and US 90. The following locations are notable for flooding in Chipley: 7th Avenue (between US 90 and South Boulevard; 4th Street near South Boulevard; and South Boulevard (about 1/3 mile west of the County office complexes).One hundred seventeen (117) existing structures in Chipley are documented within the 100-year floodplain according to comparisons of FEMA 3M flood data with County 911 addressing overlays. The County does not make any policies for the City of Chipley.

Of the one hundred seventeen structures, eleven (11) are businesses. Zero (0) structures are within the 500-year floodplain. These figures may be higher or lower when the FIRM update is complete in 2010.

f. Unincorporated County. Washington County's greatest vulnerability is from flooding. Major river courses and floodplains (including the Choctawhatchee River, Holmes Creek, thousands of swamps, and tributaries to these rivers and creeks) creates a myriad of possibilities for structural and infrastructure flooding and associated damages. Flooding near and around numerous lakes and sloughs is a possibility.

There 1,323 documented structures in the County within the 100-year floodplain, including ninety-two (92) businesses (according to comparisons of FEMA Q3 flood data with County 9-1-1 addressing overlays). Forty-three (43) structures are within the 500-year floodplain. Of the 1,323 total structures, ninety-two (92) are businesses.

The County is vulnerable to flooding primarily resulting from:

- Construction that has occurred within or too close to rivers swamps, or lakes.
- Construction that has occurred on fill that was once wetland
- Urbanization of rural areas, resulting in increased and unmanaged stormwater in localized situations.
- Rural flooding along unpaved (and sometimes paved) County roads and bridges.

The unknown factor relating to potential damages is the number of structures that have been constructed with mitigation in mind. For example, structures built before the adoption of the NFIP were allowed to build near ground level. With the adoption of the NFIP, structures must now build to at least the base flood elevation. The permit-tracking program utilized by the County Building

Department tracks the flood elevation certificates that are required.

Mitigation of stormwater situations and urban flooding has proved to be successful through the requirement for construction of stormwater retention ponds. This has reduced the overall amount of unmanaged stormwater in urbanizing areas. Construction occurring before stormwater regulations were in effect contributes to stormwater management problems whose cost is often borne by the County. Opportunities for mitigation exist for stormwater management issues. It is incumbent on the County to ensure that stormwater management problems and the costs associated must be borne by the developers.

The County also faces flooding vulnerability along County maintained roadways. Unpaved roads are especially vulnerable to developing gullies and damages. High or excessive waters can also damage paved roads and bridges. Following wet seasons or tropical weather events, damage can cause the County to fall weeks or months behind in maintenance. Often, residents are stranded at or away from homes until road crews are able to repair roadways.

Vulnerability to flooding of residential *properties* (as opposed to structures, which are required to be elevated to base flood elevation) is increasing. This is due to development around lakes and near rivers and other water bodies. This development is the result caused by desires of locals, but especially out-of-town residents to purchase and live on waterfront property. Washington County's Sand Hills Lakes region south of Wausau is a prime example of a location where development on lakefront property is occurring.

Participation in the NFIP and purchase of floodplain property has reduced flood damages. The Washington County Parks and Recreation Department continues to identify potential land for purchase to provide public access to waters. These parks are on both lakes and rivers. Additionally, the Northwest Florida Water Management District has purchased thousands of acres of floodplains, lakefront, and riverfront properties in the County. Large sections of the Choctawhatchee River floodplain, Holmes Creek floodplain below Vernon, lakes, and riverfront lands in the southeastern portions of the County (associated with the Econfina Creek and upland aquifer recharge areas that supplies Bay County with potable surface waters) were purchased by Water Management District. These lands cannot be used for any purpose other than recreational purposes allowed under the recreational use of the Future Land Use Map, thus mitigating flood vulnerability in these areas.

The County continues to prohibit fill or other development activities having significant long-term impacts on the ecological or hydrological function of the floodplain except in cases of clear public interest. Developers are required to reserve wetland portions of sites in the 100-year floodplain as conservation easements through the site review and platting process; density is limited to one unit per ten acres. The County encourages new developments to demonstrate clustered development to achieve open space to protect floodplains. Density in the floodplain will not exceed 3.57 units per acre with either a central water

system or wastewater treatment plant installed. The County does not consider variances from the required flood elevations.

g. Flood Insurance Rate Maps (FIRMs). In support of the National Flood Insurance Program (NFIP), FEMA and Northwest Florida Water Management District has undertaken updating FIRMs for Washington County. The County's flood maps are over 30 years old; many are outdated and may not realistically depict the existing flood risk in isolated cases. These maps reflect the base flood event, defined as the flood having a 1 percent chance of being equal to, or exceeded in any given year (also referred to as the 100-year flood). FEMA's Map Modernization will provide flood maps and data for all of Washington County to include all municipalities; these maps will be more accurate, easier to use, and readily available.

Potential for Conservation - Use and Protection

The provisions of the County Flood Ordinance have been incorporated into the Land Development Code to preserve and enhance the natural environment and floodplain management by controlling and prohibiting alteration of natural watercourses and floodways, and by establishing buffers, setbacks, and elevation requirements around wetlands and floodplains.

5. Springs and Springs Protection. Many beautiful springs exist in Washington County, but they have the potential to be adversely impacted by human activities. They are probably the most unique and defining quality of the county and must be protected at all costs. Financially, the County has not been in the position to purchase them nor have grants been made available to acquire springs when available. Some springs, treated carelessly over the years, have become the resting place for litter and debris. However, as the importance of these springs is accentuated, responsible landowners have taken the initiative to clean them up and protect them from further human intrusions. Springs are vulnerable to the activities that occur on the land around them as well as the increased use of their waters. The State has made it a priority to protect Florida's springs by funding research, monitoring of water quality, education, and springs restoration. The County is committed to protecting the unique aspect of its natural springs. Springs protection will be discussed in a new element for the Comp Plan. NWFWMD has identified 82 springs within Washington County (See Table). The majority of these springs a located in close proximity to the Counties major river and creeks.

8596	304027085386000	UNNAMED-304027085385	629445.125	3394276.500	Other Springs	Washington
8597	304029085386000	UNNAMED-304029085385	629337.563	3394347.250	Other Springs	Washington
8598	304029085386000	UNNAMED-304029085385	629323.063	3394337.250	Other Springs	Washington
8599	304027085390000	UNNAMED-304027085380	629275.375	3394291.250	Other Springs	Washington
8600	304025085391000	UNNAMED-304025085391	629026.375	3394205.250	Other Springs	Washington
8601	304023085391000	UNNAMED-304023085391	629043.125	3394150.000	Other Springs	Washington
8602	304015085392000	UNNAMED-304015085391	628867.750	3393901.750	Other Springs	Washington
8603	304001085395000	Burnt Sock Spring	628045.500	3393458.000	Other Springs	Washington
8604	303956085395000	UNNAMED-303956085394	628062.750	3393295.750	Other Springs	Washington
8605	304002085395000	UNNAMED-304002085394	628038.625	3393483.000	Other Springs	Washington
8606	304002085395000	UNNAMED-304002085395	628001.375	3393479.750	Other Springs	Washington
8607	303959085395000	UNNAMED-303959085395	627917.000	3393379.000	Other Springs	Washington
8609	303953085400000	UNNAMED-303953085400	627678.438	3393213.500	Other Springs	Washington
8611	303950085401000	UNNAMED-303950085400	627493.188	3393116.250	Other Springs	Washington
8613	303949085402000	UNNAMED-303949085401	627294.688	3393086.500	Other Springs	Washington
8614	303956085401000	UNNAMED-303956085401	627467.813	3393285.750	Other Springs	Washington
8615	303946085402000	UNNAMED-303946085401	627227.125	3392989.000	Other Springs	Washington
8616	303941085402000	UNNAMED-303941085401	627242.250	3392821.250	Other Springs	Washington
8617	303935085403000	UNNAMED-303935085402	626969.500	3392638.250	Other Springs	Washington
8618	303940085404000	UNNAMED-303940085404	626676.875	3392777.750	Other Springs	Washington
8619	303938085404000	UNNAMED-303938085404	626592.000	3392725.000	Other Springs	Washington
8620	303913085412000	UNNAMED-303913085411	625714.875	3391956.250	Other Springs	Washington
8625	303440085502000	UNNAMED - 3034400855	611299.688	3383397.750	Other Springs	Washington
8626	303441085502000	IBIS SPRING	611428.813	3383431.500	Other Springs	Washington
8627	303432085504000	SKIPPER SPRING	610888.313	3383131.250	Other Springs	Washington
8681	302621085326000	WILLIFORD RUN #7	639375.563	3368336.250	Second Magnitude Group	Washington
8682	302621085325000	WILLIFORD RUN #6	639385.688	3368349.750	Second Magnitude Group	Washington
8683	303934085403000	UNNAMED-303934085403	626833.125	3392608.000	Other Springs	Washington
8684	303942085402000	UNNAMED-303942085402	627093.500	3392851.000	Other Springs	Washington
8685	303938085402000	UNNAMED-303938085401	627267.500	3392728.750	Other Springs	Washington
8686	303939085402000	UNNAMED-303939085401	627242.063	3392773.750	Other Springs	Washington
8687	303937085404000	UNNAMED-303937085404	626689.688	3392684.250	Other Springs	Washington
8688	302621085325000	WILLIFORD RUN #5	639385.688	3368349.750	Second Magnitude Group	Washington
8689	303937085403000	UNNAMED-303937085402	626981.375	3392687.000	Other Springs	Washington
8690	303939085403000	UNNAMED-303939085402	627087.875	3392769.750	Other Springs	Washington
8691	302622085325000	WILLIFORD RUN #4	639393.438	3368375.500	Second Magnitude Group	Washington
8692	303941085402000	UNNAMED-303941085401	627287.438	3392833.750	Other Springs	Washington
8693	302622085325000	WILLIFORD RUN #3	639411.688	3368377.250	Second Magnitude Group	Washington
8694	302622085325000	WILLIFORD RUN #2	639439.375	3368390.500	Second Magnitude Group	Washington
8695	303949085402000	UNNAMED-303949085401	627274.188	3393086.500	Other Springs	Washington
8696	303955085401000	UNNAMED-303955085401	627464.563	3393249.000	Other Springs	Washington
8697	302622085325000	WILLIFORD RUN #1	639439.375	3368390.500	Second Magnitude Group	Washington
8728	302711085315000	ECONFINA BLUE SPRING #2	641017.188	3369910.500	Second Magnitude Group	Washington
8729	302706085315000	ECONFINA BLUE SPRING #3	641027.500	3369737.750	Second Magnitude Group	Washington
8735	302629085324000	STRICKLAND SPRING #1	639798.063	3368592.500	Third Magnitude Group	Washington
8736	302627085324000	STRICKLAND SPRING #2	639724.188	3368523.000	Third Magnitude Group	Washington
8738	302722085316000	BATHTUB SPRING	640849.500	3370237.750	Third Magnitude	Washington
8739	302722085316000	GLOWING SPRING	640920.438	3370250.750	Second Magnitude	Washington
8786	302659085315000	BARKING SPRING	640985.375	3369537.250	Fourth Magnitude	Washington
8886	302616085326000	BLUFF SPRING	639377.438	3368193.500	Fourth Magnitude	Washington
8904	304025085390000	UNNAMED-304025085390	629198.813	3394214.500	Other Springs	Washington
8905	304025085390000	UNNAMED-304025085390	629199.438	3394223.250	Other Springs	Washington
8906	304027085390000	UNNAMED-304027085390	629226.375	3394290.500	Other Springs	Washington
8908	302926085312000	DEVILS HOLE	641845.688	3374070.250	Second Magnitude	Washington
8909	302731085316000	PALM SPRING	640817.438	3370509.500	Third Magnitude Group	Washington
8910	302731085316000	PALM SPRING #2	640812.313	3370506.250	Third Magnitude Group	Washington
8911	302838085314000	TUPELO SPRING	641406.688	3372574.000	Third Magnitude	Washington
9087	303125085504000	POTTER SPRING	610904.625	3377400.750	Second Magnitude	Washington
9088	303051085505000	BLUE RUN SPRING	610492.875	3376355.000	Other Springs	Washington

Source: NWFWMD

In 2003, Nestle Waters of North America, Inc. purchased Cypress Springs located north of Vernon on SR 79. Due to concerns regarding the alteration of the springs in their natural state, withdrawal was limited well withdrawal adjacent to the springs rather than the basin itself. Tankers transport the water to a bottling plant in another county. There are currently two wells located at the springs. The North Florida Water Management District issued permit 20060015 with a commercial classification allowing for a combined withdrawal of 150,000 gallons of water per day, a maximum combined withdrawal of 1,040,000 gallons during a single day and a combined monthly withdrawal of 8,920,000 gallons. The property owner reports that during 2008, not much water left the site with a daily average of 14,000 gallons. They expect the number to be higher during 2009.

6. Water Resources - Water Conservation

Washington County has an abundant water supply, which serves a relatively small population. The County's water resources have not been subject to excessive demand, and consequently, have not been jeopardized by drawdown. Table E-7 summarizes the freshwater withdrawals by catetory. The County has started the process of water conservation by adopting conservation-oriented policies into the Comprehensive Plan. The County does not have a water conservation program; however, the Water Resources Act of 1972 mandated that each Water Management District "promote the conservation, development, and proper utilization of surface and ground water," (Section 373.013, F.S.). The NWFWMD has incorporated water conservation in policy and rule development, planning resource management, and public information. The District has a wealth of information regarding water conservation techniques for all water uses

Table E-7. Freshwater Withdrawals by Catetory (mgd) -- 2000 – 2020

			Projected		
Average Daily Flow	2000	2005	2010	2015	2020
Water Use Category					
Public Supply	1.27	1.34	1.41	1.48	1.58
Domestic SS/Small Public SS	1.98	2.01	2.02	2.01	2.03
Commercial-Industrial SS	0.11	0.11	0.11	0.11	0.11
Recreational Irrigation	0.19	0.19	0.19	0.25	0.25
Agricultural Irrigation	1.24	1.32	1.45	1.56	1.70
Power Generation	0.00	0.00	0.00	0.00	0.00
Total	4.79	4.97	5.18	5.41	5.67
Large Public Supply System Water Use					
	7,523	8,248	9,077	10,015	11,056
Total population served	39	40	41	42	44
Percent of total population	169	163	155	148	143
Per capita (gal/d)					
Average Daily Flow of Large	2000	2005	2010	2015	2020

Public Supply System (mgpd)					
Utility					
Caryville					
Chipley	0.09	0.08	0.10	0.10	0.10
Sunny Hills (Aqua Utilities)	0.89	0.62	0.70	0.71	0.73
Vernon	0.17	0.18	0.17	0.18	0.19
Total	0.12	0.14	0.13	0.14	0.14
	1.27	1.02	1.10	1.13	1.16

Source: NWFWMD *NWFWMD Water Supply Assessment Update 2008*

Water Management Districts are mandated by Section 373.207, F.S., to have an ongoing program to identify and plug abandoned free-flowing artesian wells and restore them to the original hydrologic condition. The plugging of these wells can prevent wasting of water resources while preventing contamination of the aquifer.

Section 373.246, F.S., enabled each Water Management District to formulate a plan for implementation during periods of water shortage, to declare water shortage warnings, and implement water use restrictions. The intent of the plan is to provide for essential water uses (fire protection, hospitals, etc.), and ensure equity in all other uses.

Water Reuse of reclaimed water is in force in the City of Vernon. The treated effluent waster is transported to a remote site and is used to water a hay field that is harvested for use on roadway shoulders and other projects. Treated effluent is no longer discharged into Holmes Creek. Chipley will complete their reuse site in 2010 and all discharges to Alligator Creek will cease.

C. Air Quality

Washington County's air quality is "good" at the time of the Element adoption. Ambient air quality is monitored through the State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS) Network. According to the Bureau of Air Quality Management (FDEP), there are no monitoring stations in Washington County. The closest monitoring station is in neighboring Bay County at the St. Andrews State Park, Panama City Beach (AIRS ID # A005-0006) and is operated by the State of Florida's Environmental Protection, Northwest District Program. Ozone and Particle Pollution are measured with the EPA website indicating that the air quality is good and poses no health impacts in the range.

A permit is required for the construction, modification, expansion, or operation of any facility or development that will emit pollutants into the air. The Bureau of Air Resources Management (FDEP) issues air quality construction permits for major possible air pollution developments.

Overall, the air quality in Washington County is excellent and taking into consideration the absence of heavy industry and minimal automobile congestion in Washington County, the County should continue to experience. There have been isolated incidents with individual sand mining pits where dust has created undesirable conditions. On occasion, during a wildfire event, smoke will emerge as a temporary problem affecting those with breathing condition and affecting visibility.

D. Commercially Valuable Minerals

According to the Florida Geological Survey/U. S. Geological Survey of 2006 (Figure E-_____),

there are two major minerals being produced in Washington County, which have commercial value – construction crushed stone and sand and gravel. Several small clay pits are located in the County, but these primarily furnish road construction materials for in-county unpaved road maintenance.

The grains of sand in Washington County are remnants of rocks that originally occurred in states to the north of Florida, Georgia, Alabama, and the Carolinas. Over a period of thousands of years through various processes of chemical and physical weathering, these rocks disintegrated and the resulting smaller sand particles were washed into the streams by rains. The streams transported the sand, depositing some along the stream floodplains.
The test results of the sands taken from core holes in Washington County drilled by the U. S. Bureau of Mines demonstrate that all the sands sampled has a potential use for concrete and abrasives. The sands tested were not high quality glass sands due to iron coatings and inclusions, although they may have a potential use for bottle glass. In all but two cases, the sands were found to be surficial with indicated reserves only large enough for small-scale operations. Other uses for sands found in the southern portion of Washington County include beach renourishment.

Table E-8 presents a listing of the current mining activities within the County. Since 2000, a minimal number of new borrow pits have opened and some closed. Many of the older pits that have closed developed during a period of time when there were no effective mining regulations; they therefore closed with no effective reclamation plan in place. In spite of no reclamation plan, many have been planted in pines. Table E-8 presents the locations of these mines and pits and can be compared with Figure 10 to confirm the location of the mines. These facilities are developed and reclaimed in accordance with the provisions of the County's LDC and DEP rules and regulations. The largest mining operating is located at of SR 77 and SR 20 and currently consists of 201 acres with a pending request for an additional 70 acres to be added to the operation. The expansion is pending the outcome of litigation (2009).

Table E-8. Current Status of Mines and Pits in Washington County			
Figure E-10 Map Number	Status Open or Closed	Name	Mineral Resource
1	Open	Jackson Pit	Clay
2	Closed	Cook Pit	Clay
3	Open	Washington County	Clay
4	Closed	Anderson Pit	Sand
5	Closed	Beveritt Pit (Washington County)	Clay
6	Open	Ebro Pits	Clay
7	Closed	Gwen Pit	Clay
8	Open	Fussell Pit	Clay
9	Open	TrawickPit	Clay
10	Closed	Ralph Carter Pit	Clay
11	Closed	Loggin Pit	Clay
12	Open	Tumble Creek Pit (Washington County)	Clay
13	Closed	Firetower Pit	Clay
14	Open	Leaon Ward	Clay
15	Closed	Sunny Hills Pit	Clay
16	Open	Griffin Pit	Clay
17	Open	Florida Asphalt Pit	Clay
18	Open	Ward-Yates Pit	Clay
19	Closed	Jack Green Pit	Clay
20	Open	Washington County	Clay
21	Open	David Odom Pit	Clay
22	Open	Gilbert Pit	Clay
23	Open	Corbin Pit	Clay
24	Closed`	Jenkins Pit	Clay
25	Closed	Roberts Pit	Clay
26	Open	Sikes Pit	Sand
27	Open	Miller, James and Nella	Sand
28	Open	Ward, Alfred	Sand
29	Closed	White Construction Company	Clay
Source: Washington County Planning Office			

E. Hazardous Waste Management

There are no large quantity generators (over 2,200 Ibis/month of hazardous waste) in the County according to the Hazardous Waste Management Assessment of Washington County.

The County presently monitors all small quantity generators (less than 12,200 lbs/month of hazardous waste) on a revolving five-year cycle to ensure that a licensed hauler is collecting the waste, and for this reason feels that the overwhelming majority of hazardous waste is now disposed of properly. There are at present, 83 small quantity hazardous waste generators located in the County. The county keeps track of these generators through the use of the Small Quantity Generator Management System and the related Small Quantity Generator Database. Analysis of the data from this system reveals that virtually all of the hazardous waste generated from these 83

facilities is property disposed of. The County surveys 20 percent of these small quantity generators on an annual basis to insure that this is maintained.

Washington County reported several different types of waste disposal methods. The method most used for disposal of waste was pickup by private hauler.

Of the disposal methods reported, only four are considered proper practices for the disposal of hazardous waste. These are incinerated/burned; treated onsite; injected into a well; or recycled or reused. Other methods of disposal are considered improper. Of the types hazardous wastes usually mismanaged pounds a majority are a combination of lead-acid batteries, waste oil and greases, and spent solvents. All three are recyclable materials.

F. Florida Forever Programs

The NWFWMD's goal has been to bring as many of the County's natural resources as possible under public ownership and protection in order to conserve the County's wetlands, floodplains, and aquifer recharge areas. All District conservation lands are available for public use. Such uses include fishing, hunting, camping, hiking, boating, swimming, and other recreational and educational activities. Access issues are addressed on a parcel-by-parcel basis prior to acceptance. Figure E-_____, NWFWMD Central Region, 2008 Proposed Land Acquisition Areas demonstrates the district's efforts to obtain and preserve land along the Choctawhatchee River, Holmes Creek, and the Econfina Creek that is the major contributor to Deer Point Lake, which serves as the public water supply for all of Bay.

G. Drought

Drought, or below average amounts of annual rainfall, is particularly devastating to farmers, dairies, poultry operations, hay production, water wells, and the local economy. Closely associated with drought are increased wildfire risks and the impact to the silviculture economy of the county's private landowners. Irrigation of lawns can occasionally cause lower water pressure on public water systems, thus increasing the risk to firefighters combating urban or wild land fires. Drought can also cause abnormal animal movement as wildlife begins to seek water sources near areas of human population and development. Overall, all residents, businesses, and governmental operations are vulnerable to drought. The greatest risks are considered to be in the agricultural community, and to those relying on private wells or public water systems as drinking water sources. The county anticipates the need for outside financial or resource assistance in during severe droughts especially when groundwater levels are affected and individual residential wells cannot provide sufficient water to accommodate the needs of households.

Table E-9. Average Rainfall Record for Washington County Region and Chipley -- 2000 - 2008

	Period	Pensacola	Milton	Crestview	Niceville	DeFuniak	Chipley	Panama City
Total	2008	56.69	60.59	57.03	59.74	65.12	57.18	41.52
Total	2007	57.76	46.63	62.77	53.55	40.29	35.83	37.22
Total	2006	45.26	44.76	38.56	41.53	44.91	42.56	42.54
Total	2005	87.32	-	71.31	90.57	-	71.17	52.67
Total	2004	69.55	75.30	73.80	77.16	-	-	46.39
Total	2003	63.89	76.86	69.41	73.38	82.00	61.46	64.75
Total	2002	63.85	68.57	60.18	73.04	64.07	71.65	49.05
Total	2001	47.53	55.11	53.00	56.55	55.16	56.89	50.42
Total	2000	42.34	--	34.55	61.14	48.32	--	41.24

Source: Northwest Florida Water Management District

H. Wildfires

Wildfires are of great concern in Washington County. An average of 75+ grass or woods fires occurs in any given year in Washington County. Lightning causes many of the natural wildfires while other s in the County is human-induced fires. This includes purposely-caused fire (arson) or accidental causes (escaping trash fires, cigarettes, sparks from passing railcars, motor vehicle fires on roadsides that spread to woodlands, or house fires that expand to wild lands).
Soils and plant communities contribute greatly to the potential for a fire in the sand hills region of the county, but fires may occur at practically any location. Although not the only identifying characteristic to identify wildfire-vulnerable areas, those locations with "Lakeland Fine Sand" (as shown in agricultural soil guides for the county) generally have fire dependent plant species growing in them. The Sunny Hills subdivision and surrounding environs, constructed in sand hills where natural vegetation is conditioned to bum and regenerate, is of particular concern. In addition, severe drought can create conditions favorable to swamp land fires.

All forestland, open areas, and rural interfaces of the county and municipalities are vulnerable to wildfires. According to the Florida Department of Forestry, approximately 85 to 90 percent of the land in the county is open forestland and most locations outside of the floodplains and swamplands consist of natural vegetation historically related to the Longleaf Pine or upland Southeastern forests (a fire dependent ecology). These lands are particularly vulnerable during periods of drought. According to the Washington County Comprehensive Emergency Management Plan (May 5, 2003), Washington County averages over 75 grass and woods fires per year in

unincorporated areas. However, according to the Florida Department of Forestry's "Significant Fires in Florida List", although numerous small grass fires have occurred, no significant wildfires have taken place in Washington County or the surrounding municipalities between the years 1981 to 2005. As more development occurs in rural, unincorporated areas, the potential for costly damage due to wildfire increases. In keeping with the County's migration plan, developers will be required to submit a wildfire mitigation plan that will address drought and wildfires within proposed development area.

Annual Fire Control Report for Washington County – 2008-2009

Number of Incidents	124
Number of Wildfires	25
Number of Acres	114
Number of Notices of Violations	13
Plowing and Burning Assists	31
Number of Acreage Permits	1,089
Number of Pile Burn Permits	1,554
Number of Acres Burned	14,683

I. Greenway Planning

A greenway is a connected corridor of undeveloped land set aside for conservation or recreation purposes. Greenways generally follow natural land features, such as streams, ridges, or a manmade feature (for example, a canal or abandoned railroad). Greenways can be multi-use. They can be used for a pedestrian trail or a biological corridor to protect wildlife habitat, vegetation, and water quality. Greenways can also help protect downstream properties from erosion and flooding. A number of techniques can be used to reserve land for greenways. The land can be acquired using public or private funds or through subdivision and site plan exactions. In turn, developers can use the greenway as an amenity for residents. Communities can also use public right-of-way for greenways. Private businesses (for example, a utility company) can also provide right-of-way that can be used as a greenway. Another way to create greenways is through the conversion of railroad rights-of-way. The program for railroad approach is called Rails-to Trails, a concept promoted by the Rails-to-Trails Conservancy. In Florida, the Florida Rails-to-Trails Conservancy is working to create a network of rail-trails throughout the state. The organization provides technical assistance and education and publishes the *Official Rails to Trails Florida Guidebook*, a guide to Florida's rail-trail system. The principal resource on greenway planning in Florida is the Office of Greenways and Trails, which works directly with local communities, developers, private landowners, and state and federal agencies to facilitate the establishment of a statewide system of greenways and trails for recreation, conservation, and alternative transportation, and hosts an on-line guide to be the state's greenways and trails.

IV. GOALS, OBJECTIVES, AND POLICIES OF THE CONSERVATION ELEMENT OF THE WASHINGTON COUNTY COMPREHENSIVE PLAN

Pursuant to Section 163.3177(6)(e) FS, and Sections 9J-5.013(2)(b) and (c), F.A.C, the following represents the Conservation Goals, Objectives and Policies of Washington County and the municipalities of Caryville, Ebro, Vernon, and Wausau. In addition to statutory requirements, the Goals, Objectives, and Policies were developed in keeping with the character, conditions, both environmental and social, and desires of the community. These goals, objectives and policies are intended to address the establishment of a long-term directive for protecting and enhancing the natural resources found in the community.

GOAL 1: Preserve, enhance, and maintain the natural resources and environmental amenities of Washington County to a state of quality which is the highest possible attainable.

Objective 1: Throughout the planning period, the County and municipalities shall protect and maintain air quality within their jurisdiction in conformance with Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (DEP) minimal ~~State and~~ Federal air quality ~~guidelines~~ air quality standards.

Policy 1-1: ~~Land Development Regulations (LDRs) will continue buffer requirements between adjacent incompatible uses. Specifically, vegetated buffers will be required between adjacent incompatible uses. Specifically, vegetated buffers will be required between future industrial and/or commercial land uses and residential land uses.~~The Land Development Code will continue to require vegetative or other approved buffers when there are incompatible uses between new agriculture, residential, neighborhood commercial, commercial, and industrial development where automobile pollution, dust, noise or lighting will impact the adjacent use.

Policy 1-2: The County and municipalities shall continue to reduce the potential for automobile emissions pollution by providing for developments such as PUDs in the adopted LDRs.

Policy 1-3: The County and municipalities shall promote the use of bike and pedestrian paths in all new development (especially PUDs) to help reduce automobile pollution.

Policy 1-4: In order to maintain air quality, all new developments with the potential to emit pollutants into the air will be required to obtain any and all necessary federal and state permits prior to ~~authorization~~ approval of a development permit by Washington County and municipalities.

Policy 1-5: All mining activities shall comply with DEP standards designed to reduce point sources of air pollution. ~~[9J-5.013(2)(b)1]~~ Chapter 62-213 Florida Administrative Code (F.A.C.)

Policy 1-6: The County will support state government programs to regulate petroleum and gasoline storage facilities with emphasis on controlling Volatile Organic Compounds (VOC) emissions.

Objective 2: Throughout the planning period, the County and municipalities will conserve, appropriately use, and protect the quality, quantity, and natural functions of current and projected water sources and waters that flow into estuarine water.

Policy 2-1: The County and municipalities shall continue implementing the comprehensive stormwater management ordinance consistent with Chapters 17-25 and 17-302, F.A.C. establishing:

a. 3020-foot waterline buffer zones adjacent to wetlands and surface water bodies to preserve natural vegetation, which provides filtration of stormwater runoff.

b. A 50 foot 100 foot development setback from the ordinary high water line of water bodies.

c. General design and construction standards for onsite stormwater management systems for new development (consistent with State and federal rules and regulations) to ensure that post-development runoff rates, volumes and pollutant loads do not exceed pre-development conditions.

d. Development plans for all commercial development and residential subdivisions will include a stormwater plan that will be reviewed by the county engineer for sufficiency.

e. A site visit by the building inspector is required of all permanent commercial and single-family dwellings prior to the issuance of a development permit.

f. Best management practices for agricultural and silvicultural land uses, consistent with State and federal recommended standards, to reduce pesticide and fertilizer runoff and soil erosion.

g. Planned Unit Developments (PUDs) will require the development of standards and practices that will protect environmentally sensitive areas and prevent nonpoint source pollution stormwater runoff onto any adjacent land use area or conservation area.

Policy 2-2: The municipalities with central sewer systems shall continue to comply with all effluent standards in the operation of their wastewater treatment plants.

Policy 2-3: The County and municipalities shall coordinate with the NWFWMD and shall adopt and/or amend LDR's which serve to implement SWIM program recommendationsThe County shall require, as part of the development review process, the intergovernmental coordination of development plans with the Florida Department of Environmental Protection and the Northwest Florida Water Management District to assist in monitoring uses and levels of service that may affect the County's current and projected water sources.

Policy 2-4: The County shall, as lands are identified as conservation, place these areas into the "Conservation" land use designation.

Policy 2-5: All subdivision or developments that are required to dedicate open space and recreational areas will be required to maintain the allowable uses within the open space area as passive use with minimal impact to the environment.

Policy 2-6: Protect and restore the ecological functions of wetlands systems to ensure their long-term environmental, economic, and recreational value.

Policy 2-7: Emphasize the acquisition and maintenance of ecologically intact systems in all land and water planning, management, and regulation.

Objective 3: The County and municipalities shall protect the natural functions of areas within the 100-year floodplain.

Policy 3-1: The County and municipalities shall continue to enforce minimum FEMA construction standards for the 100-year floodplain (as contained in presently adopted Floodplain Management Ordinance in 2006). In floodplain areas where base flood elevations have not be established, the County and municipalities require development setbacks from stream banks of 50 feet) or 5 times the width of the stream at to the top of the bank width, whichever is greater in accordance with the LDCs of Washington County. When flood zones are evident, a flood elevation certificate is required to be submitted before a development permit is issued. No variance will be granted for the required flood elevations.

Policy 3-2: The County and municipalities shall continue to enforce Land Development Code, which include provisions, which establish and implement construction standards in accordance with the Federal Emergency Management Agency (FEMA) guidelines at a minimum.

Policy 3-3: ~~The County shall identify and recommend to the State and the NWFWMD floodplains and/or water bodies that would warrant acquisition under conservation, preservation, and recreation use acquisition grant programs~~ The County, partnering with the State and NWFWMD, shall pursue acquisition of appropriate parcels of land through the Preservation 2000~~,~~ (Florida Forever) program, the Conservation and Recreational Lands (CARL) program, the Florida Communities Trust or the Trust for Public Lands and/or other agencies as may be appropriate to develop State/County partnerships to protect environmentally sensitive lands, to protect unique, rare and endangered habitats, assure survival of listed wildlife species, protect scenic water corridors and their shoreline ecosystems, and provide enhanced public access to outdoor recreational opportunities and open space.

Policy 3-4: As they are identified, the County and municipalities will ~~hereby~~ designate areas that fall within the 100-year floodplain as environmentally sensitive lands.

Policy 3-5: In accordance with regional policy, the County will prohibit all construction, except piers, docks, and landscaping within 100 feet of mean high water mark of Econfina Creek. The County will continue to monitor development on the Econfina Creek as provided for in the LDC. ~~amend the LDRs to include this provision within one year.~~

Policy 3-6: The location of non-residential land uses shall be prohibited within all FDEP Jurisdictional Wetlands and buffer areas. Stream crossings shall be permitted in accordance with the requirements of the U.S. Army Corps of Engineers Nationwide Permit Process.

Policy 3-7: Silvicultural activities shall follow the Best Management Practices outlined in the publication titled: Silviculture Best Management Practices Manual, Florida Department of Agriculture and Consumer Services, Division of Forestry, as currently adopted.

Objective 4**:** The natural functions of the County's wetlands shall be conserved and protected from physical and hydrologic alterations.

Policy 4-1: The County shall continue to implement the Land Development Code to ensure that:

a. All wetlands are designated within the conservation land use district

b. Silviculture on publicly managed lands will be restricted to non-wetland areas

c. Wastewater treatment plants and individual septic tanks for new subdivision plats and newly cutout parcels that are platted or cutout after the approval date of this Plan must be setback at least 30 feet from the wetland's edge.

d. Site plans for new development will identify the location and extent of wetlands located on the property. Each development permit will be reviewed by the County Planning Office to ensure that this policy is met. All plats are required to have wetlands, conservation, and flood areas clearly defined.

e. Site plans will provide measures to assure that normal flows and quality of water in wetlands will be maintained after completion of development impacting wetlands.

f. All plats submitted for approval are required to have wetlands, conservation, and flood areas clearly defined.

g. Installation of culverts at the developers' expense ~~Such measures as culverting~~ will be required where alteration of wetlands is necessary in order to allow reasonable use of property. Installation will only occur after being approved by the County Engineer.

h. Either the restoration of the disturbed wetlands will be provided or additional wetlands will be created to mitigate any wetland destruction. The appropriateness of the request for mitigation will be reviewed by the County Engineer who will make a recommendation regarding the request.

Policy 4-2: The County shall cooperate with the FDEP, NWFWMD, and the Army Corps of Engineers to improve compliance with the dredge and fill policies of the State and Federal permitting system process.

Policy 4-3: ~~The County and municipalities hereby designate wetlands, as depicted on the~~

~~Wetlands Map in the Future Land Use Map series, as environmentally sensitive lands~~ The County and municipalities hereby designate wetlands, as depicted on the Wetlands Map in the Future Land Use Map series, as environmentally sensitive lands and will seek opportunities to cooperate with the North West Florida Water Management District (NWFWMD) to have these wetlands converted to a "Conservation" land use designation where they have not yet done so.

Policy 4-4: ~~The essential character of wetland and conservation property will be preserved to the greatest extent possible by the prevailing statutes and rules.~~ The County shall take into consideration, in the assessed value of property, increased property values directly related to infrastructure expenditures by government, and shall require that impacts to, and incompatible land uses adjacent to, wetlands should be minimized by first avoidance and then mitigation; and all properties meeting Conservation criteria shown as Conservation on the FLUM, as appropriate.

Policy 4-5: The County will use available resources and media to provide information to the public regarding the nature, value and fragile nature of conservation areas and wetlands.

Objective 5: Throughout the planning period, the County and municipalities shall conserve the water supply and protect the quantity and quality of the current water source and any new water source.

Policy 5-1: ~~The County and municipalities shall continue to implement the water conservation ordinance which prohibits agricultural irrigation (other than drip irrigation) from 10:00 AM to 6:00 PM during times of drought, and shall keep the public informed of these restrictions.~~Silviculture and agricultural uses shall be required to use Best Management Practices (BMP) pursuant to *Silviculture: Best Management Practices Manual* (State of Florida, Division of Forestry, June 1989) as may be revised, and to prevent drainage and pollution problems.

Policy 5-2: The County and municipalities shall continue to comply with emergency water conservation measures imposed by the Northwest Florida Water Management District.

Policy 5-3: The County and municipalities shall require that all new construction and all remodeling activities utilize fixtures conforming to the following schedule of maximum water usage, thereby conserving the potable water resources.

Maximum Flow Rates and Consumption for Plumbing Fixtures and Fixture Fittings	
PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY"
Lavatory, private	2.2 gpm at 60 psi
Lavatory, public, (metering)	0.25 gallon per metering cycle
Lavatory, public (other than metering	0.5 gpm at 60 psi
Shower head	2.5 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Urinal	1.0 gallon per (flushing cycle
Water closet	1 .6 gallons per flushing cycle
For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 *Urn* 1 pound per square inch = 6.895 kPa. a. A hand-held shower spray is a showerhead. b. Consumption tolerances shall he determined from referenced standards.	
Source: Florida Building Code – Plumbing (as provided by the Washington County Building Department.	

Policy 5-4: This space has been left blank.

Policy 5-5: The County and municipalities shall comply with any Northwest Florida Water Management District mandates concerning reuse of water.

Policy 5-6: The County and municipalities shall allow septic tanks only in areas where public sewer is unavailable and only upon issuance of a Washington County Health Department permit.

Policy 5-7: The County and municipalities shall continue to implement the Land Development the Code ~~Regulations~~ (including wellhead protection zones) which include provisions for the protection of existing and future public water wells.

Policy 5-8: By the year 2020, the County will develop water conservation policies that will serve to relieve drought conditions by the inclusion of water reuse plans for reuse of gray water generated by residential, commercial, government, and school buildings or reclaimed water from a wastewater treatment plant which would both promote water conservation for industrial, commercial, and private sectors within the county. Such activities include the beneficial reuse of reclaimed water for landscape irrigation of public and residential property, agricultural irrigation, aesthetic purposes, ground water recharge such as land application systems, industrial uses such as cooling water and wash water, environmental enhancement of surface waters, indirect potable reuse to augment the supply of potable water, and fire protection.

Policy 5-9: It will be the policy of the County to incorporate into the Land Development Code landscaping a list of plants of native drought tolerant vegetation as recommended in the Florida Yards and Landscaping publication, "Drought-Tolerant Plants for North and Central Florida," to encourage reduction for water irrigation. (Publication is available at the following website:

www.disaster.ifas.ufl.edu/wwefiles/wwe-drought-tol-plants-web.pdf).

Policy 5-10: The County will encourage use of building methods and products that meet the Florida Building Codes that will promote efficient water conservation.

Policy 5-11: In accordance with Florida statutes, the County encourages the use of Xeriscape landscaping practices that discourages the planting of some exotic species that are illegal.

Policy 5-12: A wildfire mitigation plan will be submitted for all proposed developments of 20 or more acres.

Objective 6**:** Mining activities shall be regulated so that they do not adversely affect air qualityr, groundwater, surface water, land, or wildlife.

Policy 6-1: The County and municipalities shall prohibit any mining activities within ecologically sensitive areas (e.g., wetlands or floodplains), except those associated with providing stormwater retention.

Policy 6-2: All mining operations shall require site-specific approval by the County with the Special Exception Type V process. The mining application must be accompanied by a pre-mining topography and drainage, pre-mining vegetation, total area to be mined, environmental impact statement, and disturbed, post reclamation topography, drainage, and structures, a reclamation plan to include planned post-reclamation vegetation, wetland delineations, cross-sections of reclaimed sheer walls or water bodies, schedules of and descriptions of reclamation phasing. reclamation plan shall be submitted for review and approval and shall contain a site plan. A licensed geologist must certify that based on the information provided in the proposed mining plan that the Floridan aquifer will not be affected.

Policy 6-3: Phasing of extraction activities shall be used as a device to assure that only small areas are affected by such activities at one time. Where mining is being accomplished in benches that are more than five (5) years apart, general maintenance to control erosion, provide safety sheer slopes, provide stormwater drainage and minimize groundwater impacts shall be implemented.

Policy 6-4: ~~Buffers~~ A 500-foot buffer shall be required to be established and maintained between the outermost perimeter of mining activities and adjacent existing and future uses to achieve an aesthetically pleasing landscape compatible with those land uses.

Policy 6-5: A reclamation plan shall be submitted and approved by the County as part of the development review process before mining activities are permitted.

Policy 6-6: Before mining operations are approved, the County shall require that a fee and/or bond be posted in amounts sufficient to compensate for any degradation of County maintained roadways with the amount of the fee or bond being determined by the County Engineer and approved by the Board of County Commissioners.

Policy 6-7: Each geographically distinct mining site shall require a separate permit application.

Policy 6-8: The County requires that the application for any mining permit from state and/or federal agency for mining operations and or reclamation be submitted concurrently to the County for consistency with the Special Exception process as detailed in the Land Development Code and a copy of the approved permit be furnished by the permittee to the Washington County Planning Department.

Policy 6-9: Mining plans shall be issued for a maximum period of 25 years. At least every five (5) years the local governing body shall review each individually permitted geographically distinct mining site for a compliance review. If the mining activities are not compliant, then mining will cease until such time as the County can be assured that compliance requirements are being met

Policy 6-10: Permissible hours of operation will be between the hours of 7:00 a.m., and 6:00 p.m., from Monday through Saturday, except that the Washington County Planning Commission can recommend that the hourly period can be extended from sunrise to sunset only within remote areas.~~with the worksite being at least 2,000 feet from any residence~~.

Policy 6-11: The Type V Special Exception application shall address appropriate modifications in mining operations that will reduce adverse response from the public. These modifications will address the reductions of dust, noise, traffic, stormwater, roadway damage, and security of the site.

Policy 6-12: It will be the policy of the County to address future undesirable conditions resulting from placement of new mines or expansion of existing mines in close vicinity to existing private potable water wells. A 500-foot setback shall be required from the outer perimeter of the approved planned site of the mine to the any existing identifiable private water wells. Placement of any wells by private developers or property owners within the 500-foot setback after approval of the Special Exception process will require a variance from the Planning Commission.

Policy 6-13: To start the process of closing a mine, the developer must file a statement stating the conditions of the pit closure and when the closure is expected to be completed.

Policy 6-14: Revegetation of reclaimed areas shall consist primarily of perennial species native to the area or other species approved by the County. Cost estimates shall be provided by the operator with the reclamation plan and be approved by the County. The cost estimate shall be reviewed every five (5) years and the security shall be updated as needed. Security shall remain in effect until all of the affected lands have been reclaimed, inspected, and approved by the County Engineer.

Policy 6-15: The natural functions of wetlands, floodplains and the Choctawhatchee River will be protected by prohibiting mining in 100-year floodplain areas, wetlands and within 100 feet of the Choctawhatchee River, Holmes Creek, and Econfina Creek.

Policy 6-16: To provide for the safety of persons, wildlife, and adjoining property, during final reclamation activities, the site shall be adequately cleared of debris, equipment, materials, and structures. The developer will furnish the Planning Office with a copy of ~~FDEP's authorization of closure for the pit.~~the Reclamation Plan, as outlined in Chapter 378.401, F.S. for the requirements to begin reclamation and defines the reclamation standards. Bonding shall be required in an amount equal to or exceeding the total cost of completing all work delineated in the Reclamation Plan.

Policy 6-17: The County will require ~~a limestone permit~~ evidence that all state permits necessary to operate any mine have been issued and evidence from a licensed geologist that the operation will not breech the Floridan Aquifer during mining of the mineral.

Policy 6-18: Upon approval of a mining operation under the Special Exception process, a development agreement between the developer and Washington County or the affected municipality will be executed. This development agreement will include all conditions as set forth in the Comprehensive Plan and the Land Development Code as well as those approved during the public hearing and approved by the Board of County Commissioners.

Policy 6-19: The Type V Special Exception application shall address appropriate modifications in mining operations that will reduce adverse response from the public. Upon approval, these modifications pertaining to the reductions of dust, noise, traffic, stormwater, roadway damage, and security of the site will be incorporated into an agreement between the County and the developer.

Objective 7: The County shall, working with the Natural Resource Conservation Service, reduce the rate of soil erosion caused by agriculture, land development, and other human activities to less than 5 tons per acre in all hydrologic units by 2015.

Policy 7-1: The County shall consider topographic, hydrologic, and vegetative cover factors on the development review process of proposed developments.

Policy 7-2: The County shall prohibit the use of off-road vehicles in areas that are susceptible to erosion.

Policy 7-3: The County shall assist the Natural Resource Conservation Commission in those activities (i.e. Best Management Practices) directed at minimizing soil erosion and protecting the natural functions of existing soils.

Objective 8: The County and municipalities shall conserve and protect soils, native vegetative communities, forestlands, wildlife, and wildlife habitats from adverse effects, with emphasis on threatened and endangered species, and species of special concern.

Policy 8-1: The County shall continue to enforce the Land Development Code which include provisions to protect ecologically sensitive communities in Washington County, specifically, the Longleaf Pine Community, by

a. Discouraging the fragmentation of large community associations during site development review

b. Requiring buffering of sensitive ecological areas, such as establishing a 100-foot natural vegetative buffer around major damaged areas

c. Allowing clustering of development on portions of a site which are not environmentally sensitive, in order to protect sensitive areas from the effects of development

d. Restricting silviculture on publicly managed areas to non-wetland areas only on accordance with the Policies of the Future Land Use Element to 100-foot waterline buffer.

Policy 8-2: The County shall coordinate with adjacent counties and the NWFWMD to protect unique vegetative communities along the County's border by enforcement of the respective County floodplain ordinances, by establishing a 100-foot buffer around major damaged areas and by establishing a 30 ~~25~~-foot waterline buffer.

Policy 8-3: ~~The County shall assist, through provisions in its Land Development Code, in application of and compliance with all State and federal regulations which pertain to endangered and rare species~~. The County shall, through provisions in the Land Development Code and application of and compliance with all state and federal regulations, protect unique, rare, and endangered habitats, to assure survival of listed wildlife species.

Policy 8-4: The County shall consult with the Florida Fish and Wildlife Conservation Commission prior to the issuance of a land use approval that would result on an adverse impact to any endangered are species, in order to identify possible mitigation measures.

Policy 8-5: The County shall maintain a listing of the believed specific locations of endangered/threatened species developed by the Florida Natural Areas Inventory (source: Nature Conservancy), and shall consult this listing (available at www.fnai.org) before issuing any development permit.

Policy 8-6: When one or more of a threatened or endangered species is found on a development site, development activities that may cause harm to the species shall not be allowed until a management plan has been prepared and which once implemented, would result in no net loss of individuals of endangered or threatened species.

Policy 8-7: Maximum allowable density ratios established in the Future Land Use Element of the Plan for Silviculture areas shall preclude intense development of forestlands, and the associated disturbance of large community associations.

Policy 8-8: The County will continue to participate in the m~~M~~anagement of mature upland forests that consists ~~onsisting~~ of pinelands, sand hills, and hardwoods exceeding sixty (60) years of age by ~~shall~~ addressing include the following:

a. Avoidance of large block cutting

b. Protection for habitat needs of wildlife that requires mature forests

c. Establishment of mature open stands via the selection of effective stand rotation and stocking rates

d. Encouraging proper site preparation techniques that minimize soil disturbances (i.e. roller chopping and burning)

e. Encourage the minimization of impacts to important habitat features such as stumps, snags, dens, and burrows

f. Promoting the use of prescribed fire on pineland sites in order to reduce hardwood \encroachment and to rejuvenate understory vegetation

Policy 8-9: The County shall promote the long-term maintenance of natural systems through a comprehensive approach that involves education, public participation, regulations, incentives, acquisition, intergovernmental coordination, and other appropriate mechanisms.

Policy 8-9: The County will increase public understanding of natural resources issues and provide access to the most current and reliable information so that the public may make informed decisions regarding their health, welfare, and safety.

Objective 9: The County shall continue to promote the protection of natural reservations and will implement policies that will lessen any adverse effects that adjacent future developments might have on the reserved conservation areas.

Policy 9-1: The County shall cooperate with the Fish and Wildlife Conservation Commission, the NWFWMD, and the State Division of Parks and Recreation to continue to implement their management programs in Falling Waters State Recreation Area, Pine Log State Forest, and the Choctawhatchee Water Management Area and the NWFWMD Management Area (formerly known as the Rosewood Wildlife Management Area).

Policy 9-2: The County shall coordinate with the State Division of Parks and Recreation, the NWFWMD, and the Fish and Wildlife Conservation Commission to review developments that are adjacent to any of the major managed areas to assess possible adverse effects.

Policy 9-3: The County shall continue to enforce in its LDR's the requirement for a 100-foot wide buffer area surrounding major managed areas. Such buffer shall be retained in a natural condition. These regulations will include the designation of allowable adjacent residential and commercial development to lessen adverse effects from incompatible land uses.

Policy 9-4: The County will use development agreements where appropriate to partner with the development community on quality environmental site and building designs.

Policy 9-5: Washington County will continue to work in partnership with its citizens, neighboring governments, developers, businesses, educators and agencies to achieve a sustainable future, and will collaborate locally, regionally and nationally to identify innovative opportunities and ideas for consideration.

Policy 9-6: The County shall review the Plan annually to recognize the role of the Northwest Florida Water Management District and the agency's responsibility for Environmental Resource Permitting.

Objective 10: Throughout the planning period, the County and municipalities shall continue to prohibit the disposal of hazardous wastes into the public sewer system, canals, ditches, and sanitary landfills, or any other unacceptable method of disposal of hazardous waste, and will promote acceptable hazardous waste disposal.

Policy 10-1: Through intergovernmental coordination, the County and municipalities shall continue to hold hazardous waste amnesty days of at least once per year.

Policy 10-2: The general public shall be informed of the dangers of hazardous waste materials and methods of safe disposal through annual newspaper notices.

Policy 10-3: The County has, by accepting the 1985 Hazardous Waste Management Assessment, designated one or more hazardous waste transfer/temporary storage facilities.

Policy 10-4: The County shall seek funding as needed from FDEP's local Hazardous Waste Collection Grants Program to manage hazardous wastes.

Policy 10-5: The County Emergency Management Department shall continue to survey and assess the waste generation and management techniques of 20 percent of the hazardous waste generators on the County Master List annually. In this regard, all small quantity generators will be assessed once every 5 years.

Objective 11**:** The County shall protect the natural functions of existing fisheries, rivers, lakes, and freshwater shores.

Policy 11-1: The County will continue to enforce the stormwater management policies of the County ~~rules~~ that incorporates a 25-foot waterline buffer zone.

Policy 11-2: The County will continue to enforce the land development codes that address the control of erosion, sedimentation, and runoff caused by new development.

Policy 11-3: The County will require the use of Best Management Practices for all silviculture and agriculture activities.

Objective 12: The County will establish appropriate measures to protect its springs, spring sheds, and surface water contributing areas.

Policy 12-1: ~~When identified,~~ The County ~~will~~ has placed significant springs on the Future Land Use maps as part of ~~its~~ the comprehensive watershed management master plans (Choctawhatchee River and Bay System, Surface Water Improvement and Management (SWIM) Plan *2002 Update* and St. Andrew Bay Watershed, Surface Water Improvement and Management Plan *2000*) being developed in cooperation with the NWFWMD.

Policy 12-2: The County will develop land development codes for springs' protection that will address the use, storage, and disposal of hazardous materials, best management practices for turf grass and landscaping, enhanced development and parking lot standards, enhanced buffers, habitat/environmental protection standards, and other appropriate and feasible measures to minimize surface and groundwater contamination and the reduction of groundwater recharge.

Policy 12-3: In order to maintain the aquifer recharge areas, the County shall require all new subdivisions to preserve and dedicate adequate open space. Open space standards shall be as defined in Policy 2-2 of the Recreation and Open Space Element.

a. All new subdivisions shall be required to use open space/conservation subdivision design plans.

b. To the greatest extent possible, units shall be clustered with central water and wastewater treatment compliance where required.

c. Open space shall be connected to adjacent open space to create networks and corridors of larger areas.

d. Nonresidential development shall be required to minimize the size of contiguous impervious areas.

e. Within residential and PUD districts composed entirely of residential dwelling units and accessory uses, at least sixty (60) percent of the gross area shall be devoted to usable open space.

f. Within PUD districts containing commercial, industrial and mixed use including residential, at least thirty (30) percent of the gross area shall be devoted to usable open space.

Policy 12-4: The County will develop land development codes to address development and site construction practices adjacent to springs, spring runs, and sinkholes open to the aquifer.

Policy 12-5: All lands located adjacent to springs, spring runs, and sinkholes open to the aquifer and cleared for development shall be seeded, sodded, or mulched promptly after clearing if construction has not commenced within six months following issuance of the development permit.

Policy 12-6: Erosion control barriers shall be required around the impacted area perimeters unless continuous buffers of natural vegetation exist.

Policy 12-7: During construction near springs a buffer of native vegetation of 100 feet or greater shall protect uplands around springs, spring runs, and open sinkholes. When site restrictions interfere with the accommodation of a buffer, an engineered system that meets the same standards of protection may be submitted as an alternative. A spring run shall be defined as a spring fed stream flowing from its source to its confluence into a receiver river, lake, canal, or other body of water.

Policy 12-8: The following uses are prohibited from locating within 500 feet of any springs, spring run creek, sink, or contributing stream or surface water body:

Any new business or use classified as one of the following handler types by the Florida Department of Environmental Protection under its Hazardous Waste Compliance and Enforcement Tracking System under the Resource Conservation and Recovery Act (RCRA) program.

Handler Types (receives universal waste from other handlers)
CLO - Closed
LQG - Large Quantity Generator
MER - Mercury Handler
OIL - Used Oil Handler
TRA - Hazardous Waste (HW) Transporter
TSD - Treater/Storer/Disposer

The following handler types are exempt:
NHR - Non-handler.
CES - Conditionally Exempt SQG
SQG - Small Quantity Generator

Policy 12-9: The County encourages following landscaping BMPs within new and revised planned developments to reduce nutrient loading:

a. Planted grasses and landscaping on residential lots should be limited to a maximum of 50 percent of the upland portion of the deeded lot and shall be native to the area.

b. The use of ~~turf~~ grasses and landscape vegetation that is drought tolerant and common to the area is encouraged.

c. All development should use and encourage the use best management practices as dictated by the principles and practices of the Florida Yards and Neighborhood Program.

Policy 12-10: Sensitive karst features, including sinkholes with a direct connection to the aquifer and stream-to-sink features, shall not be utilized as stormwater management facilities. Prior to subdivision approval, all depressions will be investigated by a Florida licensed professional

engineer using a professionally acceptable methodology for suitability of water retention using generally accepted geo-technical practices with an emphasis on identification of potential connections to the aquifer. If connections are determined to exist, the depression shall not be used for stormwater retention and the area draining to this feature under pre-development conditions shall be preserved through a conservation easement

Policy 12-11 The County shall protect springs by prohibiting increases in allowed land use intensity at the current Future Land Use level within 50 feet of a spring or open sinkhole.

Policy 12-12 The County shall evaluate adoption of land development codes to protect springs, spring groups, and wetlands within the Choctawhatchee River Basin and Holmes Creek.

Policy 12-13: The County shall provide educational opportunities (FYN) for landscape and lawn-care professionals regarding the use and application of fertilizers and pesticides.

Objective 13: The County will preserve existing open spaces and seek methods to identify those areas that require protection in order to maintain good air quality, water quality, to minimize flooding, and to maintain the community character by establishing a system of greenways and trals consisting of safe, clean and enjoyable network of bicycle, pedestrian, and equestrian paths, nature trails, and waterways.

Policy 13-1: The County will coordinate the Natural Resources Inventory with the designated open spaces, trails and other environmentally sensitive areas to create a network of Green Infrastructure.

Policy 13-2: Washington County will encourage new development to link neighborhoods with park and recreation facilities, conservation areas, walking and riding trails, schools and other public buildings, cultural and historic sites, business areas and transportation facilities.

Policy 13-3: Washington County shall seek partnerships with federal, state, regional and local government entities to design, fund and construct greenways and trails.

Policy 13-4: Washington County's greenways and trails shall continue to encourage social interaction within and between neighborhoods; create gathering places for social or recreational activities; and promote a sense of place for neighborhoods.

Policy 13-5: All new or revised golf course siting, design, construction, and management within County shall be consistent with Best Management Practices for the Enhancement of Environmental Quality on Florida Golf courses.

OBJECTIVE 14: Develop strategies for the preservation of green space, natural resources, reduction of impervious surface (contributing to heat islands and stormwater runoff), clustering of development and use of appropriate densities to conserve open space and maximize use of developable lands to address energy conservation.

Policy 14-1: Protect important natural assets and areas of communities and regions to maintain

their roles as "carbon sinks." Government, business and institutions of higher learning should help communities identify and map these assets.

Policy 14-2: Create, protect and manage systems of green infrastructure (i.e., urban forests, parks and open spaces, green roofs, natural drainage systems) in regions and communities. Fully fund programs that support the development, identification, and maintenance of green infrastructure. Support new research and training for design professionals on the development, incorporation and preservation of green infrastructure.

Policy 14-3: Support policies, programs and funding of projects that will assist industries that are point sources of pollution to rehabilitate their facilities to reduce or eliminate the source of pollution.

Objective 15: To protect, preserve, enhance, conserve, and restore natural resources and environmentally sensitive areas, including locally significant resources, which include karst springs and steephead ravines. The County will regulate development and redevelopment within and surrounding environmentally sensitive areas in order to protect, preserve, enhance, conserve, restore, and appropriately use these natural resources and environmentally sensitive areas.

Policy15-1: The county wide mapping analysis shall evaluate environmentally sensitive resources, including but not limited to, karst springs, karst lakes and their outfalls, steephead ravines, creeks, river, surface and ground waters that impact water quality and quantity of public water supplies, water recharge areas, living marine resources, and protected vegetative communities shall be protected through overlay zones, preservation requirements, buffers, setbacks, and Florida Friendly landscaping as defined in 373.185, Florida Statutes, marina siting design criteria, storm water management design standards for treatment and discharge, and other land development regulations to protect and restore the quality and functionality of these natural resources for future generations.

Policy 15-2: The County shall establish the following buffer standards to protect environmentally sensitive areas:

1. Inlets, creeks, rivers, and lakes: No development or redevelopment (other than boardwalks, docks, or other shoreline access structures) shall be located within a minimum of 100 feet of the above as measured from the mean or ordinary high water line. Within these buffer areas, clearing shall be limited to a maximum swath of 10 feet in width for access to the shoreline. The remainder of this buffer area shall be left undisturbed in native vegetation, except for the removal of exotic species, and maintained as permanent open space.
2. Karst lakes and springs: No development (other than boardwalks, docks, or other shoreline access structures) shall be located within a minimum of 100 feet of the above, as measured from the mean or ordinary high water line. Within this buffer area, clearing shall be limited to a maximum swath of 10 feet in width for access to the shoreline. The remainder of this buffer area shall be left undisturbed in native vegetation, except for the removal of exotic species, and maintained as permanent open space.
3. Karst lake and spring outfalls: No development within a minimum of 100 feet from the historical outfall area. This buffer area shall be left undisturbed along either side of the historical outfall area.

4. Choctawhatchee River, Holmes Creek, and Econfina Creek systems: No development (other than boardwalks, docks, shoreline access structures, or erosion protection measures) shall be located within a minimum of 100 feet riverine systems, as measured from the mean or ordinary high water line. Within the buffer area, clearing shall be limited to a maximum swath of 10 feet in width for access to the shoreline. The remainder of this buffer area shall be left undisturbed in native vegetation, except for the removal of exotic species, and maintained as permanent open space.
5. Wetlands: No development (other than boardwalks, docks, or other shoreline access structures) shall be located within a minimum of 30 feet of a wetland, as measured landward from the upland edge of the wetland. Within this buffer area, clearing shall be limited to a maximum swath of 10 feet in width for access to the wetland boundary. The remainder of this buffer area shall be left undisturbed in native vegetation, except for the removal of exotic species, and maintained as permanent open space.
6. Single family development on lots or parcels of record established as of April 11, 1991, that lack sufficient depth to meet the buffer requirements for inlets, creeks, rivers, canals, coastal dune lakes, karst springs, and the Choctawhatchee River, Holmes Creek, and Econfina Creek systems shall be subject to a reduced buffer. A lot lacking sufficient depth means a lot that is 200 feet deep or less. Such lots shall be subject to a minimum buffer of 25 feet or 25 percent of the depth of the lots, whichever is greater. Clearing within this buffer area shall be limited to a maximum swath of 10 feet in width for access to the shoreline.

Policy 15-3: The County shall support the Northwest Florida Greenway partnership and provide incentives for conservation and preservation through land acquisition to enhance natural resource preservation. In addition, within one year, the County shall adopt requirements in its Land Development Code for the protection and preservation of landmark trees.

Policy 15-4: The County shall cooperate with all appropriate jurisdictions to provide the fullest protection and preservation of local, regional, state, and federally owned resource based recreation sites and those sites identified in other elements that have been set aside for the protection of natural resources and public recreation. The County through the development order review and approval process will ensure that development activities are consistent with goals, objectives, and policies that provide protection of adjacent natural resources.

Policy 15-5: The County shall establish interlocal agreements with adjacent local governments that address the preservation, use, conservation and protection of unique vegetative communities, living marine resources, and river and bay system surface waters that cross local jurisdictional boundaries to support, maintain, and improve natural resources environmental quality.

Policy 15-6: The County will gather and compile data as it becomes available to inventory and map environmentally sensitive areas, including locally significant resources' habitats indigenous to Washington County that are not presently inventoried or mapped as part of the County's existing data base. This inventory and mapping project will include, but not be limited to, wetlands associated with the karst lakes and their outfalls, river and karst systems and their tributaries, Outstanding Florida Waterbodies, steephead ravines, SWIM priority waterbodies, and all karst springs.

Objective 16: To enhance and improve stormwater management systems to protect water quality and quantity. The County shall ensure that new development and redevelopment does not increase stormwater runoff rates or create flooding problems. The level of service standards for stormwater treatment and discharge for new development or redevelopment shall ensure that capacity of drainage structures for roads and other development are designed to meet area drainage needs. The County shall adopt land development regulations to implement the standards established herein.

Policy 16-1: The channeling of untreated stormwater runoff from development sites draining directly into surface water bodies or other environmentally sensitive areas is prohibited. Any development not meeting the level of service standards for treatment and discharge for stormwater management established in this plan shall be prohibited.

Policy 16-2: The County shall require that post-development runoff cannot exceed pre-development conditions, pursuant to the standards specified in the Drainage sub-element of this plan. The County will amend the Land Development Code to incorporate innovative techniques such as, watershed based strategies, sustainable design techniques including vegetated infiltration and bio-retention areas, incentives for retrofitting stormwater management facilities, and incentives to institute best management practices to meet state water quality standards.

Policy 16-3: The County will limit the disturbance of the natural topography by requiring that development be clustered on the portion of the site with least slope and by requiring that structures and roads be designed to maintain the natural topography to the maximum extent feasible.

Objective 17: To protect and enhance the continued viability and functionality of karst lakes, their tributaries and outfalls. The County shall designate a Citizens Water Advisory Board (CWAB) to identify the karst lakes and springs, their tributaries, and outfalls. The County shall work cooperatively with the CWAB and other local, regional, state, and federal agencies to protect and maintain the water quality in the karst lakes and springs through various regulatory programs, land acquisition programs, and the development of a management plan for the karst lakes and springs. The following policies shall apply to the karst lakes and springs, their tributaries, and outfalls, for those karst lakes and springs identified in the County's FLUM series.

Policy 17-1: The CWAB shall recommend establishing a Karst Lakes and Springs Protection Overlay Zone (KLSPOZ) is defined as the zone beginning at the mean or ordinary high water line of the karst lakes and springs, whichever is applicable, and extending 300 feet landward for karst lakes and springs and their tributaries. Development within this zone shall meet the specific criteria outlined in the Land Development Code and shall include the following:

1. Requiring a shoreline setback and buffer of 100 feet from the mean or ordinary high water line, whichever is applicable, in which no development (other than boardwalks, docks, or other shoreline access structures) shall be allowed, with the exception of a maximum 10-foot wide access perpendicular to the shoreline. With the exception of clearing a 10-foot wide access to the shoreline, all existing native vegetation will be preserved within this setback and buffer area.

2. Requiring that the grading of lots ensure untreated stormwater runoff from lawn fertilizers, pesticides, or patios, driveways, etc. do not enter the lake and or spring. In cases where this is not possible, require other stormwater treatment methods between the developed area and the lake and or spring to hold and treat runoff.
3. Requiring specific erosion control measures, in accordance with the Best Management Practices as established by FDEP.
4. Prohibiting any uses within the KLSPOZ that involve the storing, handling, or generating of hazardous wastes.
5. Prohibiting seawalls, bulkheads, revetments, and rip-rap.
6. Protecting native vegetative communities, including habitat for threatened, endangered, or species of special concern, in the KLSPOZ.
7. Prohibiting new point or non-point sources of pollution to be discharged into the lakes, including but not limited to treated wastewater effluent or untreated stormwater runoff.

Policy 17-2: The County shall continue to work with the CWAB to implement the Management Plan for Washington County's Karst Lakes and Springs. The plan establishes priorities and ranks specific recommendations for management, sampling, monitoring, control of exotic/invasive plants, and identification of cost-effective solutions to address and eliminate pollution sources.

Policy 17-3: The County shall continue to identify properties in the historical outfall sweep areas of the lakes and seek grant opportunities to purchase and preserve these sweep areas.

Policy 17-4: The County encourages the removal of invasive species listed by the Florida Exotic Pest Plant Council at each lake. Where invasive species are removed, the County recommends that vegetation native to that site be planted to restore the area.

Policy 17-5: The County will collaborate with the CWAB to implement recommendations consistent with management plans and seek special legislative designation for protection of the karst lakes, their tributaries, and outfalls.

Policy 17-6: It is the intent of Washington County that all development in a karst lake watershed shall connect to central sewage systems.

Objective 18: To protect, preserve, and restore the Choctawhatchee River, Holmes Creek, and Econfina Creek Systems. The County will participate with all jurisdictions within the watershed and any available programs to minimize pollution of the Choctawhatchee River, Holmes Creek, and Econfina Creek Systems, its tributaries, and watershed.

Policy 18-1: The County shall encourage living shoreline programs in accordance with guidelines of regional, state, and federal agencies to preserve, create or maintain natural shoreline functions for marine and wildlife habitat.

Policy 18-2: Land that is located within 150 feet landward of the mean or ordinary high water line of Choctawhatchee River, Holmes Creek, and Econfina Creek Systems shall be subject to the following criteria, which shall be more specifically addressed in the Land Development Code:

1. Except as otherwise provided herein, lots along the Choctawhatchee River, Holmes Creek, and Econfina Creek Systems are required to provide a 100 foot shoreline setback from the mean or ordinary high water line, whichever is applicable. Newly platted subdivision lots along Choctawhatchee River, Holmes Creek, and Econfina Creek Systems must be of sufficient depth to meet the 100-foot shoreline setback requirement of this policy.
2. Siting sewage disposal systems at least 100 feet landward of the mean or ordinary high water line.
3. Grading lots or parcels to ensure untreated stormwater runoff from lawn fertilizers, pesticides, or patios, driveways, etc., do not enter the Choctawhatchee River, Holmes Creek, and Econfina Creek Systems.
4. Utilizing site specific erosion control measures, during and after construction, in accordance with the Best Management Practices as established by FDEP. In addition to erosion control during construction, stabilization of the shoreline shall be provided by prohibiting clearing of existing native vegetation within a minimum 100 foot setback from the mean or ordinary high water line of the shoreline, except for a maximum 10 foot wide area for access. Retaining walls or other erosion control measures may be allowed within the 50-foot buffer as a special exception, subject to review and approval in accordance with the requirements in the Land Development Code. Alternatives such as living shoreline protection measures and energy dissipating alternatives are encouraged and may be required by the County when warranted.
5. Prohibiting uses or activities within the area 150 feet landward of the mean or ordinary high water line of the Choctawhatchee River, Holmes Creek, and Econfina Creek systems that involve the storing, handling, or generating of hazardous wastes, except for fueling facilities located at marinas, fishcamps, or boat launching facilities permitted by the County and all appropriate regional, state, and federal agencies.
6. Native vegetative communities including habitat for endangered, threatened, or species of special concern in this zone shall be protected in accordance with this Plan and the Land Development Code.
7. No new point or non-point sources of pollution shall be discharged into the Choctawhatchee River, Holmes Creek, and Econfina Creek systems, including treated wastewater effluent or treated stormwater runoff, unless permitted by FDEP and/or the NWFWMD.
8. Notwithstanding, the limitations on clearing for access pursuant to Paragraph 4 above, commercial water-dependent uses proposed on lots or parcels located within 150 feet landward of the mean or ordinary high water line of the Choctawhatchee River, Holmes Creek, and Econfina Creek systems shall be allowed to clear up to the minimum necessary to ensure viable access to the particular water-dependent use for which development approval is sought.

Policy 18-4: The County shall cooperate with private non-profit organizations, and regional, state, and federal agencies targeting shoreline properties adjacent to Choctawhatchee River, Holmes Creek, and Econfina Creek Systems for acquisition as a primary means of protecting its functioning ecosystem. Where shoreline ecosystems have been degraded, the County shall take measures, as funding allows, restoring the ecosystem in a manner that enhances or recreates a natural system and its functionality.

AQUIFER RECHARGE SUB-ELEMENT

GOAL 1: PROTECT AND MAINTAIN THE FUNCTIONS OF NATURAL GROUNDWATER RECHARGE AREAS WITHIN THE COUNTY.

Objective 1-1: Aquifer Recharge Protection
Washington County shall ensure that all new development and redevelopment maintains aquifer water quality and water quantity of any site proposed for development to ensure enough recharge to sustain projected groundwater requirements for natural systems and future populations of the county.

Policy 1-1.1: Washington County, through its Land Development Code (LDC) provisions, shall protect groundwater recharge water quantity and water quality by regulating land uses, stormwater treatment and management throughout the County.

Policy 1-1.2: The County LDC shall include regulations to protect open spaces so that rainfall may reach the aquifer through infiltration to minimize the transport of contaminants to the aquifer.

Policy 1-1.3: The County establishes a 500-foot radius wellhead protection area around all public potable water wells, as defined in Rule 62-521.200, F.A.C., to ensure protection of the wellheads and zones of influence from potential contamination. The first 200-foot radius is established as a zone of exclusion where no development or redevelopment will be permitted unless approved by the water utility provider. Within the remainder of the wellhead protection area, land uses will be regulated to prohibit the use, sale, storage, or generation of hazardous material or waste on the Florida Substance List. Other polluting materials as well as wastewater treatment plants, wastewater percolation ponds, mines, and the excavation of waterways or drainage facilities that intersect the water table will also be prohibited. The County will prohibit development or redevelopment that would not maintain the quality and quantity of the supply of ground and surface water contributing to the recharge areas.

Policy 1-1.4: The County shall continue to work with the Northwest Florida Water Management District (NWFWMD) to delineate and field verify existing areas of high groundwater contribution to surface waters and high recharge areas for the surfical and Floridan Aquifer System within Washington County. Land uses that discharge substances that could contaminate or degrade the ground and surface waters in these areas shall be prohibited.

Policy 1-1.5: Industries and other businesses that use, sell, trade or generate hazardous waste or materials shall be sited, designed, operated, and monitored to ensure that no hazardous materials or waste degrade ground or surface waters. Each business of this type shall prepare a spill containment, cleanup, and reporting plan as required by state or federal law. Reporting must be undertaken immediately to appropriate county and state officials. Furthermore, such businesses shall not be located in flood prone areas, in areas of high or moderate aquifer recharge potential, areas within 500 feet of a karst spring, or within 500 feet of existing or planned potable water well as identified in a public supply system's master plan. Areas of "high or moderate aquifer recharge potential" shall be defined as those areas that are shown as the Floridan Aquifer High

Recharge Area on the West Florida Regional Planning Council maps of Regionally Significant Resources (1996).

Policy 1-1.6: No new development within the wellhead protection area shall be approved unless the water quality and water quantity of the supply of ground and surface water inflow to the zone of influence are maintained. The level of treatment for stormwater discharge from an area where herbicides, and pesticides have been applied, or petroleum hydrocarbons, and sanitary sewer effluent exist or have existed must ensure that the water quality of the zone of influence for wellhead and recharge areas are not degraded.

Policy 1-1.7: Septic tanks shall not be permitted within the wellhead protection area or within 500 ft of a karst spring unless the septic tank system is an advanced treatment system such as a performance based septic system.

Policy 1-1.8: Washington County shall regulate solid waste activities to minimize the possibility of contamination to the Floridan aquifer.

Policy 1-1.9: Prior to issuance of a development order for an activity or structure that involves the use or storage of hazardous materials, the County shall require the applicant to provide evidence of permitting by all regulatory agencies having jurisdiction.

Policy 1-1.10: Washington County shall prohibit inappropriate development within high recharge areas as identified such as heavy industrial and intensive commercial uses like mining and solid waste disposal facilities. Washington County will direct incompatible land uses away from high recharge areas through the plan amendment review and approval process.

Policy 1-1.11: Washington County shall use Best Management Practices developed by Northwest Florida Water Management District and performance standards to maximize open space, limit impervious surfaces and turf grass areas, promote protection of natural vegetation, promote the use of pervious parking areas, and treat stormwater to protect water quality.

Objective 1-2: Washington County shall establish a water quality protection strategy for the springsheds.

Policy 1-2.1: Washington County shall develop protection strategy for springsheds through the following actions:

(A) Coordinate with the Northwest Florida Water Management District to develop county design criteria for stormwater management practices that minimize the leaching or discharge of nutrients or contaminants within the springsheds. The County will use karst area requirements set forth in *Protecting Florida's Springs: Land Use Planning Strategies and Best Management Practices* (November, 2002);

(B) Seek funding for the Florida Yards and Neighborhoods program to inform the public about proper lawn and landscaped area fertilization and irrigation;

(C) Incorporate the principles of the Florida Yards and Neighborhoods program into local landscaping ordinances;

(D) Coordinate water conservation programs with public, and private non-profit water

suppliers;

(E) Inform the public about the proper operation and maintenance of septic tanks. Assist the Florida Department of Health (FDOH) local septic management program to assure that these systems are regularly inspected, pumped out, and brought up to current standards;

(F) Promote the local stewardship "adopt a river and spring" program; other incentive and volunteer springshed awareness and protection programs; and

(G) Pursue grant funding from regional, state, and federal agencies for the acquisition, restoration, protection, and management of springsheds.

(H) Revise the permitted and special exceptions identified throughout the County to provide greater protection to the subsurface and Floridan Aquifer.

(I) Revise the density and intensity of future land uses throughout the County to provide greater protection to the subsurface and Floridan Aquifer.

GOAL 2: WASHINGTON COUNTY SHALL DEVELOP AND MAINTAIN A WATER SUPPLY FACILITIES WORK PLAN; COORDINATE WITH THE NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT, AND OTHER LOCAL, REGIONAL, STATE AND FEDERAL AGENCIES IN THE IMPLEMENTATION OF EFFECTIVE TRADITIONAL AND ALTERNATIVE WATER SUPPLY PROGRAMS, INCLUDING AQUIFER RECHARGE PROJECTS; AND IN THE IMPLEMENTATION OF EFFECTIVE LINKAGES BETWEEN WATER RESOURCE MANAGEMENT AND GROWTH MANAGEMENT IN THE COUNTY.

Objective 2-1: Washington County shall develop and maintain a Work Plan for a minimum of a five-year planning period addressing traditional and alternative water supply sources, facilities, and issues necessary to serve existing and future development within Washington County.

Policy 2-1.1: The Work Plan shall identify traditional and alternative water supply projects that the County may use to meet existing and projected water demands. These alternative water supply projects will be selected from the Water Management District's Regional Water Supply Plan or otherwise proposed by the County, public and private non-profit utility companies in cooperation with NWFWMD.

Objective 2-2: When updating or maintaining the Work Plan, Washington County shall utilize any sources of water and treated wastewater to recharge the aquifers in an effort to help offset the effects of existing and future water demands.

Policy 2-2.1: The County will partner with the Northwest Florida Water Management District, public and non-profit private utilities, in developing efficient, cost-effective, and technically feasible water sources that will meet future demands without causing adverse impacts to water quality, wetlands, aquatic systems, or the environment.

Policy 2-2.2: The County, the public and nonprofit private providers will continue to participate in regional educational forums regarding development of alternative water sources to support the growing permanent and seasonal populations.

Objective 2-3. Protection of Groundwater
In order to minimize the contribution of nitrates to groundwater with its resultant effects on increased growth of vegetation in the spring and river and loss of water clarity, and to foster long-term stewardship of springs, special design and best management practices (BMPs) shall be required for all development located within a Springs Protection Area.

Policy 2-3-1: All development shall comply with the following setback standards:

Table 1-1. Setback Standards from Specified Features.

Feature	Minimum Setback (feet)
1st and 2nd magnitude springs	500
3rd magnitude and smaller springs	500
Spring runs	100
Sinkholes	100
Steephead Ravines	100
Caves	300
Swallets	100

a. The setback from sinkholes and swallets shall be measured from the drainage divide.
b. The setback from springs and spring runs shall be measured from the ordinary high water line for fresh water springs and from the mean high water line for tidally connected springs.
c. The setback for caves shall be measured from the outside edge of the cave system.
d. Where a lot of record is too small to accommodate development in compliance with the setbacks set forth in Table 1.1, an allowable use may be established provided that:

- the building and associated paved areas are located the maximum distance possible from the features listed in Table 1.1,

- a swale and berm are located between the development and the feature, and
- the swale and berm are designed to direct drainage away from the feature.

Objective 2-4: Landscaping and Vegetation in the [Primary/Secondary] Springs Protection Area
Landscaping design, landscaping management practices, and vegetation protection requirements shall be implemented that reduce impacts to land in the [Primary/Secondary] Springs Protection Area.

Policy 2-4-1: Removal of vegetation within the [Primary/Secondary] Springs Protection Area shall be limited to the minimum necessary to accommodate development. Buildings and other disturbed areas shall be located to avoid removal of native vegetation to the maximum extent feasible.

Policy 2-4-2: Native or naturalized species shall be used in all landscaped areas in the [Primary/Secondary] Springs Protection Area in order to avoid or minimize the use of irrigation

and fertilizers. A minimum of 75 percent of installed vegetation in the Primary Springs Protection Area and fifty (50) percent of installed vegetation in the Secondary Springs Protection Area shall be in accordance with the Florida Yards and Neighborhood Program.

Policy 2-4-3: The land area within the required setback set forth in Policy 1.1 is a buffer and all native vegetation shall be retained, except for minimal removal necessary to provide for pedestrian paths or boardwalks. Paths and boardwalks shall not exceed fifteen (15) feet in width and shall not be paved with impervious materials.

Policy 2-4-4: All landscaping for development in the [Primary/Secondary] Springs Protection Area shall conform to the best management practices as stated in the Guidelines for Model Ordinance Language for Protection of Water Quality and Quantity Using Florida Friendly Lawns and Landscapes. (Florida Department of Environmental Protection, September 2, 2003).

Policy 2-4-5: The Washington County shall establish guidelines for managing existing and future lawns and landscapes at all county facilities using the educational guidelines contained in the University of Florida Extension's Florida Yards and Neighborhoods Program, Environmental Landscape Management (ELM) principles and Best Management Practices. Such guidelines shall include practices that are designed to reduce nitrate infiltration into ground and surface water.

Policy 2-4-6: Establish education and certification program for landscape and lawn-care professionals regarding the use and application of fertilizers and pesticides