CHAPTER VII. ENVIRONMENTAL FEATURES

Natural resources and environmental features play an important role in determining a community's capacity for growth and development. Some environmental features–such as floodplains, wetlands, threatened or endangered species habitat, steep slopes, and sensitive soils–serve as constraints on development. Others–such as mineral resources, lakes and streams, scenic views, and prime agricultural and forest land–serve as potential opportunities for economic development. Some environmental features can encompass large areas of a community, thereby creating significant obstacles or opportunities for future development. Other features may be scattered throughout the community or limited to specific properties, which limits their potential impacts on future development. Good judgment suggests that urban growth first ought to use the land that can be developed most economically, efficiently, and suitably. While modern design and engineering practices can be used to overcome many environmental constraints, they can be costly and can produce unintended results such as landslides, sinkholes, and increased flooding. Some natural disasters are unavoidable, but good planning–and protection of environmentally sensitive areas–can help prevent or minimize the damage natural events can inflict upon residents' property and lives. These areas do not have to be considered wasted land, however. Instead, they can become some of the community's most valued places, providing a connection between urban dwellers and nature, giving the City an opportunity to expand its park acreage, and leaving visitors with the memory of a beautiful city. This chapter of the Sylacauga Comprehensive Plan contains a basic inventory of the important environmental features in the city and discusses the extent to which they serve as constraints and opportunities.

Overview/Natural Setting

Sylacauga is located in the eastern edge of the Coosa River Valley. Geologically, the city is in the southern most extension of the Appalachian Ridge and Valley physiological province and in the northern most portion of the Piedmont physiological province. Between Sylacauga and the Coosa River, which flows approximately five miles west of Sylacauga, lie several small foothills. The city itself lies in a large rolling valley underlain by limestone, dolomite, and marble. The valley is surrounded by rough mountain land and is bordered by the Talladega National Forest on the east. Water is abundant. Mountain streams flow northward through the city to join with Tallaseehatchee Creek, a major tributary of the Coosa River. Streams in western Sylacauga flow west into Cedar Creek, another Coosa River tributary. Elevations in the Sylacauga area range from 460 feet above mean sea level at Tallasseehatchee Creek to as much as 1000 feet above mean sea level in the surrounding mountains.

The band of marble beneath Sylacauga has brought the city prosperity and worldwide recognition. Sylacauga Marble is known for its high-grade crystalline texture, whiteness, and beauty. It has been quarried, cut, and polished for over 160 years for use in monuments and buildings throughout the state and the country and in numerous works of fine art. Today, Sylacauga Marble is marketed primarily as a filler, an agricultural soil conditioner, and an ingredient in paper pigment and coating. Since 1900 approximately 30 million tons of marble have been quarried in Sylacauga. Geologists estimate that the seam of marble is 32 miles long, 1 ½ miles wide and about 400 feet deep.

Sylacauga residents enjoy a relatively mild climate characterized by long, warm summers and short, mild winters. The normal daily maximum and minimum temperatures are 90° and 69°, respectively, in July and 57° and 37° in January. The mean length of the frost-free period is 222 days, and precipitation averages 53 inches annually. The heaviest precipitation occurs in winter and spring, with relatively dry weather in the fall. While most of the winter precipitation is rain, it does occasionally snow. However, it is rare for snow cover to remain for more than one day. Prevailing winds are from the southeast in the spring and summer and from the northwest in the fall and winter.

Development Constraints and Opportunities

Steep Slopes

Steep slopes can be a significant constraint to development. Some steep slope areas have little or no soil on top of the bedrock, while others have deep but highly erodible soils. Although modern engineering practices can be used to overcome many steep slope constraints, the expense involved in stabilizing development on very steep slopes can make development in such areas economically unfeasible or impractical. In addition, not all environmental impacts can be mitigated. Buildings placed on steep slopes increase the volume and speed of stormwater running down the slope, which increases the rate of erosion. Accelerated erosion, especially on unstable soils, can lead to landslides, resulting in loss of property and perhaps lives. Although specific threshold criteria for steep slopes vary depending upon the type of development activity, the following general slope thresholds are often used in planning circles to determine where slopes become a significant engineering and design constraint to development:

3 percent	Generally accepted limit for railroads.
8 percent	Generally accepted limit for highways, although grades of 6 percent or less are desirable for highways intended to accommodate heavy truck traffic.
10 percent	Generally accepted limit for driveways.
15 percent	Point at which engineering costs for most developments becomes significant and extensive anchoring, soil stabilization, and stormwater management measures must be applied.
25 percent	Generally accepted limit for all development activity.

While steep slopes may prohibit development in some areas, an undeveloped, wooded hill or fern-covered stream bank can add beauty to a neighborhood setting or a drive through the community. Natural undulations in the land also serve a practical purpose–channeling stormwater to area streams. According to USGS contour maps and the current soil survey for Talladega County, Sylacauga is surrounded by steep slopes (see Map 7, page 127). The funnel-shaped ridgeline associated with Kahatchee Mountain runs across northern Sylacauga. To the east and south are the rugged uplands associated with Rebecca Mountain. The most constraining slopes in the planning area appear to lie outside Sylacauga's current city limits and are sparsely developed.

Floodplains

Floodplains are the areas around streams that tend to flood when there is a heavy rain. Flooding occurs when a larger amount of stormwater enters the stream–as rain and as runoff from the surrounding land–than the stream can transport. Development within floodplains is not recommended primarily because of the strong potential for property damage and the possibility of loss of life during a flood. Buildings can be raised above the floodplain by being placed on tall foundations, or the floodplain can be filled with soil then developed; however, these practices should not be encouraged. The floodplain acts as a holding area, retaining flood waters until the stream lowers and allowing some water to seep into the ground to recharge groundwater supplies. When this area is filled in, the only place for the overloaded stream to go is up, which causes it to spill over the banks in areas that did not previously flood. In addition, the rooftops and paved areas built in the former floodplain prevent water from seeping into the ground, taking away one groundwater recharge area and adding the unabsorbed water to the flooding downstream. Besides being subject to flooding, land near surface water also may have low bearing strength or be subject to shrink-swell–two characteristics that are discussed later in this chapter.

The Federal Emergency Management Agency's Flood Insurance Rate Maps are the official source of information on floodplains. These maps show the 100-year floodplain, or areas that possess at least a one percent probability of flooding in any given year. Sylacauga's floodplain areas are shown on Map 8 (page 129). The largest 100-year floodplain is associated with Tallaseehatchee Creek, particularly near its confluence with Emauhee Creek and where it changes from being a westerly-flowing stream to a northerly-flowing stream. Another fairly significant floodplain surrounds Crooked Creek. Very few homes have been built in either of these floodplains. Although floodplains also run through some heavily developed parts of Sylacauga, these streams have been channelized where needed to control flooding. Some localized flooding does occasionally occur, but property damage tends to be minimal.

While lakes, rivers, streams, and their associated floodplains can be viewed as development constraints, they also provide development opportunities. Area farmers take advantage of the nutrient-rich sediments that have been deposited in the floodplains. Sylacauga draws its water from Lake Howard, an impoundment of Tallaseehatchee Creek, and from wells that area streams and floodplains help recharge. Other streams also are available as future drinking water supplies, if needed–provided measures are in place to control polluted runoff from farms and urban development. Keeping areas immediately surrounding these water bodies in a natural state helps protect the city's drinking water supply, enhances the scenic quality of the landscape, and preserves the local ecosystem. These areas provide food and habitat for fish and wildlife, which–if treated in a sensitive manner–can be used to draw more residents and eco-tourists to the community.

Sylacauga has made an effort to mitigate the risks of floodplains by participating in the National Flood Insurance Program (NFIP), which is administered by the Federal Emergency Management Agency (FEMA). In order to participate in the NFIP, a local government must sign an agreement with the federal government stating that the community will adopt and enforce a floodplain management ordinance to reduce future flood damage. In exchange for this commitment, the NFIP makes federally-backed flood insurance available to homeowners, renters, and business owners in

these communities. The National Flood Insurance Reform Act of 1994 strengthened the NFIP by providing mitigation insurance and mitigation assistance grants. Mitigation insurance helps owners of homes and businesses that are repetitively flooded or substantially damaged to rebuild in compliance with local floodplain management ordinances. Mitigation assistance grants assist states and communities in creating and implementing plans to reduce or eliminate the long-term risk of flood damage to structures insurable under the NFIP. The City also will be incorporating stormwater management and impervious surface provisions into its zoning ordinance and subdivision regulations. These provisions will help reduce the amount of stormwater that flows off newly-developed properties into area streams.

Wetlands

Wetlands are areas characterized by periodic or seasonally high water tables that sustain plant species capable of thriving in wet environments. Although most people associate wetlands with ponds, marshes, bogs, and swamps, some wetlands are dry until filled with storm waters. Vegetation varies. Trees are present in some wetlands, others are grassy. Despite their individual characteristics, wetlands are crucial to an area's ecological well-being. They detain stormwater runoff and help control flooding. Wetland soils and vegetation help remove excess nutrients, sediments, and other impurities from the detained stormwater as it seeps into the ground to replenish groundwater supplies. Wetlands also provide habitat for flora and fauna and sometimes create their own localized microclimates and microecosystems. Major wetlands are considered generally unsuitable for development. Flooding is one obvious concern, as is a high water table level, which can cause wet basements, cracked foundations, and failing septic systems. Besides the threats to development, wetlands may be home to threatened and endangered plant and animal species. Section 404 of the Clean Water Act accentuates the importance of wetlands to the nation's water supply. Under this body of Federal law, the Army Corps of Engineers is responsible for evaluating wetland areas to determine whether or not a specific development project can occur.

Map 9 (page 131) shows the wetlands delineated on the National Wetland Inventory maps prepared by the U.S. Fish and Wildlife Service. Table D-1 in Appendix D describes the types of wetlands found in the Sylacauga area. According to the National Wetland Inventory, wetlands are scattered throughout Sylacauga's planning area. Some are very small, while others are large complexes of different types of wetlands. Most of the wetlands are located within floodplains or stream channels; however, several small wetlands and some fairly sizeable wetlands have formed in places away from streams where the land is relatively flat. The variety of wetland types in the Sylacauga planning area is quite impressive. The City needs to consider wetland areas when approving subdivision plats and making other land development decisions. Developers need to comply with the Clean Water Act not only because it is the law but also because filling in wetlands could reduce groundwater supplies, potentially affecting the amount of water area residents can draw from wells. Rather than filling in wetlands, developers could make a wetland the centerpiece of a new neighborhood or a signature piece in a commercial or industrial development.

Other Sensitive Soils

Steep slopes, floodplains, and wetlands tend to be the most common natural features that are sensitive to development or constrain development. However, other soils also can limit development, under specific circumstances. For example, on-site septic systems do not function properly in poorly drained or excessively drained soils. Poorly drained soils have high water tables, which limit the soil's ability to absorb leachfield wastewater and increase the potential for groundwater contamination. Excessively drained soils tend to be very sandy. Leachfield wastewater moves too quickly through these soils, so not all of the contaminants are removed before it reaches the groundwater. Sewer service needs to be extended to areas with these types of soils before or concurrent with intensive development. As seen in Map 7, the Sylacauga vicinity has several areas with severe constraints for septic systems (entitled "areas requiring sewer"). More intensive development could occur in these areas if sewer lines are extended. Some of these areas are close to Sylacauga's existing sewer service area; others do not have easy access to the sewer system. The Talladega County Health Department has noted failing septic systems across the northern portion of the Sylacauga planning area, particularly in the Oldfield and Odena communities. Sewer lines already run through portions of Oldfield, and Odena is near the new Teksid plant, which is served by the public sewer system.

Other soil characteristics also contribute to a site's development capacity. As mentioned previously, shallow-to-bedrock soils can be developed using special engineering techniques, but construction costs will increase. Soils with low bearing strength may require deep foundations to prevent buildings from shifting. Soils that shrink and swell significantly under changing environmental conditions can damage foundations, roads, and underground utilities. In Talladega County, these characteristics tend to pose severe constraints to development only when combined with other factors such as steep slopes or flooding. The *Soil Survey of Talladega County, Alabama*, published by the United States Department of Agriculture's Soil Conservation Service and Forest Service in 1974, contains detailed maps of the soils found in the Sylacauga area. It also contains tables that rate each soil's suitability for various agricultural, engineering, and planning purposes. Map 7 depicts only the soils that have severe constraints for residences, light industries (stores, offices, and small industries), and septic tank absorption fields. Unshaded areas have only slight or moderate limitations for development. The Sylacauga area has a very complex soil composition. Nearly all of the county's 67 individual soil types are found in the Sylacauga area. Of course, the maps included in this comprehensive plan and in the Soil Survey are generalized and should not replace on-site soil testing.

Wildlife Habitats

Sylacauga has an opportunity to preserve wildlife habitat areas, particularly along steep slopes and in the Tallaseehatchee and Crooked Creek floodplains. Areas left in a natural state not only provide homes for animals, they also can provide places for people to enjoy nature and view plants, birds, and other animals that do not exist in an urban setting. According to the *Flood Plain Management Study: Tallaseehatchee, Crooked, Shirtee Creeks and Tributaries in Vicinity of Sylacauga, Alabama*, prepared by the USDA Soil Conservation Service in 1984, the Sylacauga area has a great diversity of plant life. Sylacauga-area creeks are surrounded by a great variety of overstory trees in the oak-

hickory complex, including: white, red, black, chinquapin, post, and chestnut oaks; black locust; sugar and red maples; blackgum; sweetgum; beech; hickories; loblolly, longleaf, shortleaf, and Virginia pines; and sourwood. Among the plants which make up the understory and ground cover are flowering dogwood, eastern redbud, sweetshrub, American beautyberry, American strawberry bush, Piedmont azalea, honeysuckles, and many others. The growth of urban areas and their surrounding suburbs has had an adverse impact on this deciduous forest community. Other adverse effects have occurred as the result of converting the oak-hickory forest to pine plantations or farmland and inundating the forest land when creating impoundments on the larger streams.

The oak-hickory complex provides habitat for several game and non-game species of wildlife. Game species occurring or residing in the oak-hickory complex are whitetail deer, wild turkey, gray squirrels, rabbits, and the bobwhite quail. Furbearers found in this complex include opossum, raccoon, bobcat, beaver, mink and muskrat. Other animal populations supported by the oak-hickory complex include amphibians, reptiles, and non-game birds. The major species of game fish in the Tallaseehatchee, Crooked and Shirtee Creeks include bluegill, largemouth bass, longear sunfish, black and white crappie, white bass, and striped bass. The so-called rough fish species include catfish, bullheads, gar, suckers, carp, buffalo, and shad.

Special habitat areas for species classified as "threatened" or "endangered" under the Endangered Species Act should be considered as fragile or sensitive natural areas. As of August, 2002, a total of three endangered species and three threatened species were known to inhabit Talladega County.[3] Five of these species are aquatic. The endangered Coosa Moccasinshell Mussel and Tulotoma Snail and the threatened Fine-lined Pocketbook Mussel, Lacy Elimia (snail), and Painted Rocksnail could live in Sylacauga-area wetlands or waterways. If any of these species exist in the Sylacauga area, the City can best protect them by protecting water quality and streambed habitat. Common water quality measures in developed and developing areas are the creation of vegetative buffers around streams and careful design and placement of wastewater treatment and stormwater sewer outfalls. To protect waterways in undeveloped areas, the State has created Best Management Practices for agriculture and for forestry. Best Management Practices for Forestry also will help protect Talladega County's endangered bird, the red-cockaded woodpecker. Red-cockaded woodpeckers nest in large pines that are at least 65 years old. Logging or other activity near the den trees during the breeding or brood rearing season may disturb them enough to cause them to abandon the site or to be unsuccessful in raising their young. No endangered plants or other types of animals are listed; however, the listings are based on known and documented sightings. Populations of other threatened and endangered species may exist in the Sylacauga area.

Policy Implications

1. Steep slopes wrap around the City of Sylacauga. The most constraining slopes appear to lie outside Sylacauga's current city limits and are sparsely developed.

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[3] According to the Internet publication *Threatened and Endangered Species of Alabama: A Guide To Assist With Forestry Activities* by Rhett Johnson, Director, Solon Dixon Forestry Education Center, Auburn University and Brett Wehrle, Fish and Wildlife Biologist, U.S. Fish & Wildlife Service, Daphne, Alabama.

2. Steep slopes can provide an attractive backdrop to development.

3. Very few homes have been built in the large floodplains north and east of Sylacauga. The streams that run through the city have been channelized where needed to control flooding.

4. Tallaseehatchee Creek and its tributaries pose a formidable barrier to development north of Sylacauga, and Crooked Creek and the Talladega National Forest limit development to the east.

5. Water resources have played an important role in Sylacauga's past and will be important to the City's future. Protecting these resources is essential to the community's well-being.

6. Sylacauga participates in the National Flood Insurance Program, which makes flood insurance available to Sylacauga residents and provides funding assistance for flood hazard mitigation activities.

7. The Sylacauga area has an impressive number and variety of wetlands. Incorporating wetland areas into development designs, rather than filling them in, can give a new neighborhood, shopping area, or office or industrial park a unique identity and greater appeal.

8. The Talladega County Health Department has received reports of failing septic systems in the northern portion of the Sylacauga planning area. If possible, public sewer should be extended to these areas.

9. The Sylacauga area has a great diversity of plant life in its undeveloped areas. Steep slope areas and the Tallaseehatchee and Crooked Creek floodplains provide excellent opportunities to preserve wildlife habitat areas. Nature areas provide homes for animals and attract new residents and eco-tourists to a community.

10. Six threatened or endangered species exist in Talladega County. Five of these species are aquatic, and one lives in old growth pine forest. Several techniques are available to protect these species' water and forest habitats.