Chapter 5: Environmental (Natural Systems)

Chapter Overview

Environment may refer to:

- Environment (biophysical), the physical and biological factors along with their chemical interactions that affect an organism
- Environment (systems), the surroundings of a physical system that may interact with the system by exchanging mass, energy, or other properties

It may also refer to:

- Built environment, constructed surroundings that provide the setting for human activity, ranging from the large-scale civic surroundings to the personal places
- Knowledge environment, social practices, technological and physical arrangements intended to facilitate collaborative knowledge building, decision making, inference or discovery
- Natural environment, all living and non-living things
- Social environment, the culture that an individual lives in, and the people and institutions with whom they interact
- Physical environment, in ecology

Lincoln residents attach a high value to preserving and enhancing their natural and environmental resources. For many residents, the beauty of the City is an essential part of their quality of life. The area is known for Lake Logan Martin and its hills and ravines that harbor rich woodlands, wildlife, and rare plants. Blue Eye Creek, Historic Lincoln's most prominent natural feature, provided the City's early reason for being—a source of water power. Now the Blue Eye Creek is becoming the focus for downtown revitalization

As the City has developed, pressures have increased to build on sensitive natural lands. Citizens have expressed a desire to increase efforts to protect natural and environmental resources and to move toward a more livable community. Lincoln embraces sustainability and recognizes that elements such as environmental stewardship, financial responsibility, economic development and social impact must serve as a filter for the City's decision making and development of policy. Only through appropriate consideration of these principles will Lincoln provide its residents with the opportunity to meet the needs of the present without compromising the ability of future

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generations to meet their needs. This Plan strives to lead Lincoln towards a more viable future by protecting, promoting and restoring the City's outstanding natural resources.

Blue Eye Park

Geology, Topography and Soils

The natural features of Lincoln, including the geology, topography, and soils, have a significant impact on the suitability of the land for development. The variable rock types underlying the City have formed the hills and ravines, and the Talladega Range (part of the Appalachian Range). Lincoln is located in the Coosa Valley, which is an extension of the Great Valley of Alabama. The topography here is complex, the term "valley" applies to a general trough or depression where the surface varies from rolling to ridgy. Those areas of the City that feature a dissected landscape of ridges and valleys present a challenge to developers, especially for large retail and industrial buildings needing large areas for parking. Clearing and grading of steep slopes can result in significant soil erosion and sedimentation of streams. However, to accomplish much additional development in Lincoln, some steep areas will likely need to be graded. (*USDA Soil Conservation Service)*

The valley is under-laid by sedimentary rocks varieties of limestone, shale, and sandstone. A significant characteristic of the limestone and sandstone is its tendency to develop caves, solution channels, and sink holes as acid rainwater dissolves the rock over time. The geologic term for these areas is "karst." The prevalence of sinkholes is significant because such areas can be unstable. Subsidence can damage roads and buildings though catastrophic collapse rarely occurs.

Karst areas are particularly susceptible to groundwater contamination because of the direct connection between the surface and groundwater through sinkholes and along cracks in surface bedrock. Contamination that seeps down through the sinkholes and cracks can reach the honeycomb of channels and caves below, potentially travelling long distances through these conduits. Some measures that localities can take to protect groundwater in karst areas include: prohibition of waste disposal in sinkholes, requirements that stormwater be directed away from sinkholes, and spill containment measures for industrial and other uses handling toxic or potentially polluting materials near sinkholes. *(USDA Soil Conservation Service)*

Topography. The City is characterized by rolling topography. Slopes from 0 to 15 percent present few limitations for development. Land in the 15 to 25 percent range is appropriate for residential uses; commercial and industrial development with large buildings and parking areas require a great deal of grading to be constructed on these slopes and are generally less appropriate. Slopes 25 percent and over are usually considered unsuitable for development.

Soils. A review of the *Soil Survey of Talladega County, Alabama* (USDA Soil Conservation Service), which covers the City as well, reveals that the City's soils are dominated by sandy loam soils. The primary issues for construction are depth to bedrock and the tendency to slide, with varying moisture levels.

There are concerns about the possibilities of landslides in the area due to the nature of the soil types found in the City.

Vegetation and Wildlife

Lincoln is an urban area built within an agricultural area. It no longer contains large areas of woodland and natural wildlife habitat. Significant populations of deer are found in several sections of the City, but otherwise most types of wildlife are those found in urban and suburban settings. Generally, the citizens value the City's remaining green spaces, and recreational areas; and expressed interest during committee meetings in these green spaces being preserved and expanded to the extent possible. An increase in tree planting was also supported.

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Water Resources

Lincoln is drained by several creeks and streams. Blue Eye Creek and Choccolocco Creek are main tributaries of Coosa River that flow though Lincoln. By far, Choccolocco Creek has the largest watershed area affecting the City.

Both the frequency of bank overflow and flood elevations can become a concern in the future. The potential impact of increased urbanization on stream watersheds not only can impact the City but also neighboring communities. The City's floodplain mapping, with the new FEMA 100-year floodplain data, have been adopted. While the City has permitted development to occur in the 100-year floodplain in the past, it should limit new development in the floodplain in the future and seek to protect existing development that may be affected by flooding.

Air Quality

Lincoln continues to maintain excellent air quality and is under no compliance order with federal ambient air quality standards. The only concerns are in the possible impacts on air quality from Anniston and Birmingham SMAs

Understanding the Value of Natural Systems

There is a keen interest among citizens in improving the environmental quality of Lincoln and protecting its natural resources. The first step in protecting these resources is to understand their value in providing a healthy environment. Monitoring and managing the environmental resources within the City can require a significant amount of resources. Many cities and counties across Alabama are developing environmental databases in their GIS systems to help them plan environmentally sensitive communities. Most cities map topography, soils, water bodies, floodplains and parks.

City officials and citizens could benefit from more comprehensive information about effective environmental protection techniques. City staff from a variety of departments should be kept abreast of environmental trends and practices through training, conferences, workshops, and other educational forums. The City should established a panel of local experts to serve on a Natural Resources Advisory Committee and/or a Stormwater Advisory Committee to evaluate and comment on natural resource-related policies.

Resource Management & Protection

The City desires to improve the protection and management of its natural systems in order to create a truly sustainable community. There are a number of approaches that the City may choose to pursue, including environmental performance standards, incentives for private actions, education and awards programs, as well as direct City actions.

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As described above, it is important for the City to consider environmental performance standards for new development and redevelopment, not only to ensure compliance with state and federal standards, but also to address the protection and management of important natural resources. Through the application of reasonable standards limiting the development of floodplains, wetlands and streamside steep slopes, these important resources could be preserved. Standards for the construction and maintenance of stormwater management facilities would ensure that flooding levels are kept in check and that the water quality of stormwater discharges is addressed. A major concern raised by citizens is the design, quality, and upkeep of stormwater management facilities.

The City should adequately enforce post construction maintenance agreements on private stormwater best management practices to ensure that they are performing as designed. Incentives, rather than codified standards, may be more appropriate for other efforts to achieve viable development. For example, the City should continue to promote the recycling and re-use of existing buildings and offer incentives for the cleanup and redevelopment of brownfield sites. Such incentives might include tax abatement, density/intensity increases, and contributions to infrastructure and public amenities. Density increases, or other incentives for private developers, should be available in a variety of zoning districts in exchange for the preservation of significant wooded open space, unique species areas or critical habitats, and for green building design. The City should also continue to work with property owners desiring to participate in the stormwater credit program.

Environmental protection is an important and vital element when dealing with water, wastewater, stormwater and sanitation (solid waste). To this end, the City of Lincoln should consider implementing "Green Building" or standards within the community's department's operational standards and the City's developmental regulations (Zoning Ordinance and Sub-division Regulations).

The City should also employ softer techniques for natural resource protection such as educational programs and programs to recognize private environmental initiatives. The City supports a variety of environmental education efforts including interpretive signage, programming and design workshops.

Awards programs are also a way to promote green development. These programs could be used to highlight a variety of topics including the eradication of invasive plant species developments that incorporates green building techniques, water conservation initiatives and various efforts to protect steam valleys and woodlands.

Finally, the City itself could become actively involved in natural resource protection and management. When the City constructs a building, a parking lot, a road, or a park, for example, it should strive to protect wooded areas, steep slopes, and floodplains to the extent feasible. The City should use green building techniques and demonstrate well-landscaped stormwater

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management facilities that not only serve as best management practices but also provide visually pleasing amenities.

Citizens in the goal formulation process voiced a great deal of support for the City establishment of a greenway program to expand Blue Eye Trail to connect to other parts of the community (Library, City Hall, shopping areas and parks). The greenway program should promote the purchase, and accept donations, of open space for resource protection along streams.

The City could also use environmental performance standards to obtain the dedication of stream or lake frontage for public access points for the greenway program.

A Regional Approach

Since nature does not respect political boundaries, regional cooperation is essential in addressing environmental problems and managing natural systems. The expansion of existing partnerships should be encouraged to address regional environmental issues such as stormwater (in progress), greenways, scenic resources, water and air quality, and invasive species. Collaboration between state agencies, local and regional environmental groups, and colleges and universities may prove more effective in addressing resource protection and management. The regional stormwater management effort is a good example of environmental planning that extends across jurisdictions and utilizes grant funds from the Alabama Department of Environmental Management (ADEM). The City should continue to pursue other funding opportunities to monitor and manage environmental resources.

Information about the health of the natural systems in the City and region is dispersed among various groups, and data collection is currently a cooperative effort. There is no local repository for information. Information-sharing responsibilities and data collection protocols should be established between the various groups so that an annual report on the state of the City's and Region's natural systems and environmental health can be produced.

Goals

The Environmental Committee identified four primary goals for inclusion in the City's Comprehensive Plan. Along with these goals have been provided recommended action items for which the City will need to formulate policies and programs to carry out.

E-1. Preserve and enhance the City's natural environment

a) Developmental regulations that will provide options to protect wetlands, streams, Lake Frontage, and other environmental sensitive areas.

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- Identification of sensitive areas within the City.

- An on-going review of all developmental regulations for compatibility, implementation, and effectiveness

- Modify the Zoning Ordinance to address protection of environmental sensitive areas.

E-2. Increase accessibility to the City's natural environment

a) Expand the amount of open spaces, trails, walkways and passive recreation activities

- Build municipal owned boat dock and landing on Lake Login Martin within two years
- Expand walking trail system and sidewalks to connect schools, historic area and commercial center within the next five years.
- Work with private developers to promote public open spaces within their developments, trails through the development, or access to the lake.

E-3. Encourage development that is compatible with the natural environment

a) Improve the quality and compatibility of land uses and development.

- Review the existing developmental regulations for compatibility of land uses within the same zoning districts.

b) Promote development that is sensitive to the natural environment.

- Work with developers or private property owners through the site planning process to take advantage of the natural terrain and environment while planning the developments.

E-4. Improve the visual appearance of the City

a) All new development and redevelopment will be required to provide landscaping and maintenance as a part of the project.

- Developmental regulations that will provide for streetscape and parking lot landscaping as part of new development or redevelopment projects.

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b) Development of City gateways, landscaping of public facilitates and maintenance.

- Implement landscaping improvement demonstration projects at City gateways and other appropriate locations to include signage.
- Provide proper maintenance of City landscaping projects
- Prepare and implement landscaping plans for City public facilities and development projects.

c) Promote proper private property maintenance and upkeep.

- Full enforcement of current nuisance and property maintenance ordinances.
    1. Clearance and removal of dilapidated structures
    2. Maintenance of lots: cutting of grass, removal of dead trees, clearance of abandoned/junk vehicles and equipment.

d) Improve appearance at interstate interchanges

- Develop and implement landscaping plans at all interchanges
- Review regulations on land uses, signage, and design
- Work with developers on the quality and type of development
- Enforcement of regulations

e) Continue and enhance the current City Clean-up Campaigns

- Fully engage all communities, organizations, businesses and individuals one annual clean-up days.
- Provide educational material the importance of litter free environments

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