

NATURAL RESOURCES ELEMENT

Introduction

A clean natural environment is critical to maintaining a high quality of life and sustaining economic growth. This element establishes natural resources-related Recommendations and Action Strategies.

Public Input

Across the board, Citizen Survey results place the highest priority upon the protection of a clean natural environment. Water quality, air quality, floodplain protection, and protection of scenic views and mountainous areas all ranked very high, varying only slightly according to the question.

The Community Meeting results echo those of the Citizen Survey, with comments regarding the protection of the natural environment comprising more than 7% of all comments made.

64.7% of the respondents to the Designing Our Future Community Vision Ballot indicated that it is important to, “Preserve and restore our mountains, air, and clean water, and protect our unique mountain environment.”

Recommendations & Action Strategies

Recommendation N-01: Minimize the potential for damage to personal property, infrastructure, and life due to flooding.

Floodplain management is critical as the county continues to grow. Necessary regulations are supported by public input. Natural floodplains that are amply vegetated and clear of manmade obstructions serve an important role by allowing floodwaters to spread across their extent. This spreading action, coupled with the friction provided by vegetation, reduces the velocity and force of floodwaters and allows the floodplain to absorb some of the volume. Floodplains also provide valuable wildlife habitat and are valuable for the protection of water quality. Furthermore, floodplain lands are often productive agricultural areas that play an extremely important role in the agricultural component of the county’s economy, and their

protection would further the recommendations of the *Agriculture Element* of this Comprehensive Plan.

Map # 2, *Floodplains and Floodways* (Appendix I) shows the areas susceptible to floods of 100-year and 500-year magnitude as shown on Federal Flood Insurance Rate (FIRM) maps prepared by the Federal Emergency Management Agency's National Flood Insurance Program in the early 1980s. Please see Section 2, *Factors Influencing Growth*, for further discussion of this map.

Figures N.1, N.2, and N.3 detail some of the flood hazard characteristics of Henderson County and its municipalities.

Figure N.1 Floodplain Summary by Jurisdictional Status			
Floodplain	Jurisdiction	Total Acres	Percent of Total Acres
100-Year Floodplain	Municipal	4,102.42	1.71%
	County	10,558.20	4.40%
500-Year Floodplain	Municipal	376.63	0.16%
	County	845.48	0.35%
Floodplain Total		15,882.73	6.62%
Non-Floodplain	Municipal	24,410.27	10.17%
	County	199,806.78	83.22%
Non-Floodplain Total		224,217.05	93.38%
Total County Acres		240,099.79	

Figure N.2 Floodplain by Jurisdiction				
Jurisdiction	Non-Floodplain	100-Year Floodplain	500-Year Floodplain	Total Acreage
County	199,806.78	10,558.20	845.48	211,211.17
Flat Rock	4,809.29	250.15	29.76	5,089.20
Fletcher	2,509.22	1,221.05	118.10	3,848.37
Hendersonville	3,479.41	517.35	119.90	4,116.66
Laurel Park	1,700.44	0.21	0.02	1,700.67
Mills River	11,895.21	2,113.65	108.85	14,117.72
Saluda	16.71	-	-	16.71
Grand Total	224,217.77	14,660.62	1,222.11	240,099.78

Figure N.3 100-Year Floodplain Vulnerability by Jurisdiction								
Type and Number of Structures and Their Value								
Jurisdiction	Residential		Commercial		Industrial		Critical Facilities	
Henderson County*	626	\$140,045,500	76	\$7,110,600	0	0	121	\$24,997,300
Hendersonville	84	\$28,126,700	155	\$50,770,400	1	\$311,100	30	\$9,704,200
Fletcher	29	\$2,282,600	20	\$52,174,100	3	\$21,624,300	6	\$707,700
Laurel Park	0	0	0	0	0	0	0	0
Flat Rock	18	\$7,494,200	2	\$98,000	0	0	8	\$6,454,000
County Total	757	\$177,949,000	253	\$110,153,100	4	\$21,935,400	165	\$41,863,200
* Unincorporated Areas								
Source: Henderson County GIS/IT Department, 2002 Tax Records, and 2000 Census								
<i>Henderson County Multi-Hazard Mitigation Plan.</i>								
Note: The Town of Mills River did not exist at the time that the data depicted in this table was generated.								

In Figure N.2, Critical Facilities include structures such as rest homes, hospitals, County government buildings, airports, and buildings associated with infrastructure such as substations, water and sewer plants, fire departments, emergency shelters and others.

A. Adopt a Flood Hazard Prevention Ordinance.

As of the drafting of this County Comprehensive Plan, Henderson County does not have a flood hazard prevention ordinance, and floodplains are protected only by the inability of anyone building in the floodplain to acquire a conventional mortgage and flood insurance. To date, this policy has afforded some protection to the floodplain. However, it is evident from the aforementioned figures that such policy has not fully protected the county from floodplain development. As development pressures grow and land prices continue to rise, the temptation to fill and develop portions of the floodplain will grow.

Recent changes in North Carolina State law make it likely that Henderson County will no longer be eligible for disaster assistance funds in response to *any* natural hazard (earthquakes, tornados, ice storms, etc.) if the County does not have a flood hazard prevention ordinance and participate in the National Flood Insurance Program (White). In response to these factors, Henderson County and its municipalities recently adopted as policy the *Henderson County Multi-Jurisdictional Hazard Mitigation Plan* ("Mitigation Plan").

Included among the goals and recommendations of the Mitigation Plan is the establishment of a Henderson County Flood Hazard Prevention Ordinance and a Stormwater Management Plan, and participation in the FEMA National Flood Insurance Program. These echo earlier recommendations of the *1993 Comprehensive Land Use Plan* and the *Mills River / Fletcher Area Land Use Study*.

The County will establish a flood hazard prevention ordinance that meets minimum Federal Emergency Management Agency and North Carolina Division of Emergency Management guidelines, and will consider participation in the FEMA National Flood Insurance Program.

Minimum NFIP requirements permit the placement of new structures within the 100-year flood plain so long as it can be proven that such structures are elevated at least 1 foot above the base flood elevation (in addition to other requirements). While such requirements may generally protect elevated structures they ignore the fact that earthen fill (and other types of fill), which is the method normally used to lift a structure above the base flood elevation, can displace flood water onto other properties. The long-term effect of cumulative floodplain fill is to displace flood waters such that the base flood elevation – indeed the very shape of the floodplain itself – becomes unnaturally altered. Areas not historically prone to flooding become susceptible, elevated structures become vulnerable, flood velocity is potentially increased, and the flood absorption capacity is compromised. Eventually, floodplain fill can have a negative effect similar to that of river channelization, levies, or dykes.

Any flood hazard prevention ordinance or other standards and requirements adopted by the County will contain provisions that prevent inappropriate alterations of floodplains and stream channels, such as channelization, levy or dyke construction, and floodplain filling. It should be reiterated that under North Carolina law such provisions would not apply to agricultural operations.

While County floodplain management is important, the county's municipalities control a significant portion of the county's flood-prone areas (see Appendix I, Map # 2, *Floodplains and Floodways*). Proper floodplain management cannot occur without consistent management within the county's municipalities. The County will encourage its municipalities to adopt flood hazard prevention standards similar to those described above.

B. Investigate measures to maintain the open and free flow of all perennial streams in the county.

Flooding problems can be exaggerated by unnatural stream blockages that impede the flow of floodwaters. Such blockages can include unnatural accumulations of debris, as well as roads, bridges, and culverts. The County will investigate measures to minimize stream blockages, including improved design standards for private stream crossings and culverts. Furthermore, the County will work with the N.C. Department of Transportation to improve the design of public roads and bridges so as to minimize their negative effects upon flooding.

Recommendation N-02: Protect Water Quality.

Water quality is an important emerging issue in Henderson County, and clean water is an important component of a high quality of life. Public input indicates a high level of support for the protection of water quality. Henderson County's policies and regulations can have a profound effect upon this issue. The County will take steps to protect the quality of all perennial streams within the County's jurisdiction. Typical measures to protect the quality of water include maintaining vegetation along stream banks, preventing erosion, and limiting the discharge of pollutants into water bodies.

A number of key documents and sources were consulted in the development of this element, including the following:

- 1993 Henderson County Comprehensive Land Use Plan
- Mills River / Fletcher Area Land Use Study
- Mills River Watershed Protection Plan
- Mud Creek Watershed Restoration Plan
- Green River Gorge Protection Plan
- Hickory Nut Gorge Protection Plan
- French Broad River Basin Protection Plan
- Other programs and activities of various Federal, State, Regional, and Local agencies and organizations

Each of these studies identifies a number of key issues and relevant solutions. The following is a summary of the major findings:

- Overall, Henderson County's streams are in good shape. However, certain streams are either critically impaired (Mud Creek) or are clean but are critically important for reasons including human consumption needs (Mills River).

- Stream impairment sources include:
 - pesticides
 - removal of riparian vegetation
 - stream access by livestock
 - wastewater discharges
 - potential hazardous spills
 - channelization, dikes, and other stream alterations
 - sedimentation from disturbed stream banks, unpaved roads, etc.
 - polluted urban stormwater runoff

Proposed management strategies include the following:

- Stormwater management
- Restore stream channels by removing channelization
- Encourage Best Management Practices (BMPs) to combat pesticide contamination
- Restore riparian buffers through voluntary means
- Acquire conservation easements to protect riparian areas
- Reduce sediment loading through stream bank stabilization, stormwater management, and other measures
- Prevent hazardous spills and leaks, and minimize illegal dumping
- Public and Landowner education
- Sustained monitoring

C. Support water quality protection and restoration programs in Henderson County.

Numerous voluntary programs, including those mentioned above, have shown success in protecting and restoring water quality within Henderson County's streams. Henderson County has contributed limited staff time and funding to several of these programs, such as the Mills River and Mud Creek projects. Additional funding, staff time, and other support may be necessary in the future.

D. Identify and incorporate Sedimentation and Erosion Control standards and requirements into County land development ordinances.

The previously mentioned studies identify sedimentation as an important cause of water quality degradation in Henderson County, and expected future development will only increase the likelihood of sedimentation occurring. Sedimentation and Erosion Control Ordinances are common across North Carolina. Typical ordinances codify

existing State soil and erosion control regulations at the local level with some modifications for local conditions. The benefits include more dedicated full-time enforcement coupled with local knowledge and locally-tailored regulations. The drawbacks include higher cost to the local government, including the need for a knowledgeable staff.

The County has previously considered the development of a Local Sedimentation and Erosion Control Ordinance, most recently in 1996. Henderson County currently does not have such an ordinance, and relies upon the enforcement of State regulations. Henderson County will identify and incorporate appropriate sedimentation and erosion control standards and requirements into its land development ordinances.

E. Identify and incorporate Stormwater Management standards and requirements into County land development ordinances.

Stormwater is that portion of rainfall that does not infiltrate into the soil and that runs off hard surfaces like roads, roofs and parking lots into stormwater drains or ditches. Eventually, stormwater is discharged untreated into our streams and rivers, sometimes through pipes, sometimes directly. The State and Federal governments are increasingly interested in stormwater management. A number of cities and urbanized counties in North Carolina and all construction sites larger than one acre will soon be required to get permits and manage stormwater runoff under rules proposed by the US Environmental Protection Agency. The rules are the so-called "Phase II" Stormwater regulations which will expand the national program put into place in 1990 to regulate stormwater discharges as "point sources" under the National Pollutant Discharge Elimination System (NPDES). It is unclear as to what extent Phase II will affect Henderson County. However, it does appear that as North Carolina becomes increasingly urbanized, the likelihood of mandated stormwater regulations would increase. Henderson County's growth rates make it likely that the county will become subject to stormwater regulations to some degree within the operational timeframe of this Comprehensive Plan.

The County will identify and incorporate the best available stormwater management principles and practices into design standards and requirements for new development. Benefits include proactive protection of the county's water bodies and "getting a jump" on future mandatory stormwater requirements that are likely to be imposed by the State and / or Federal governments. As with a soil erosion control ordinance, the drawbacks include higher cost to the local government, including the need for a knowledgeable staff.

Existing County regulations address water quality to a certain extent. Article IV, Section 170-37 of the *Henderson County Subdivision Ordinance*, and Section 192-15 of the *Henderson County Water Supply Watershed Protection Ordinance* require that a thirty-foot setback from all development be maintained along all perennial streams. The Watershed Ordinance requires vegetation, while the Subdivision Ordinance does not. The *Growth Management Strategy* of this Comprehensive Plan will recommend the consolidation of all County land development ordinances into a “unified development code,” or Land Development Code. It will be necessary to carry such requirements forward into the Land Development Code. With regard to the Subdivision requirements, it is not clear that vegetation can be required within the regulated area. The County will clarify existing language to require vegetation within the regulated area on subject properties. The County will not substantially regulate the specific design and management of such vegetation. Exemptions for agriculture and other necessary structures and activities will be maintained. The County should identify and consider incorporating standards to promote or require low impact development.

Other measures to protect water quality are listed in below.

Recommendation N-03: Promote development patterns that respect sensitive mountainous areas.

Public input indicates considerable support for the protection of the natural environment, scenic mountain views, and rural areas. The need to protect steep slope areas from inappropriate development was recognized in the *1993 Comprehensive Land Use Plan* and the *1977 Land Use Plan*. Mountainous areas are an important scenic, economic, and natural resource. They contribute to the county’s economy by enhancing the county’s quality of life, which attracts tourists, businesses, and residents; and they provide areas for the production of forest resources. While mountainous areas provide opportunities for home sites with spectacular views, they also present special challenges with regard to safety, cost of development, the protection of scenic mountain views, and the security of the natural environment. They serve as important recharge areas for the county’s surface and groundwater supply, and they are host to sensitive natural areas and important wildlife habitat. They are highly sensitive to damage associated with development, including soil erosion and water quality degradation. Road construction and septic placement often prove difficult and costly.

As development pressures grow, including the demand for more remote “resort housing,” so will the negative impacts of development on mountainous terrain grow,

particularly in sensitive steep slope areas. The County will strive for a pattern of development that respects the sensitive environmental and scenic characteristics of the county's mountainous areas.

See Map # 03, *Percent Slope* (Appendix I) for steep slope areas. See Map # 09, *Sensitive Natural Areas* (Appendix I) for protected mountain ridges.

At present, development in steeply sloping areas is regulated to some extent via the Henderson County Subdivision Ordinance which limits the maximum grade of roads to 18%, with variable road construction standards on lesser slopes. It is important to note that while standards may limit some road development, they do not address driveways or structural development in steep slope areas. As mentioned in Section 2, *Factors Influencing Growth*, development on certain "protected mountain ridges" is currently regulated by the Henderson County *Mountain Ridge Protection Ordinance*. The geographic scope and regulatory effect of the *Mountain Ridge Protection Ordinance* is very limited. It applies only to those areas within 100 feet of the top of ridges when such ridges are 500 feet or more above the valley floor. The ordinance does not completely preclude development in such areas. Rather, it limits the extent to which structures of a height of forty feet or more can protrude above the crest of protected ridges. Section 2, *Factors Influencing Growth* discusses other minor requirements that address protected mountain ridges. It will be necessary to roll these requirements forward into the Land Development Code recommended by the *Growth Management Strategy* of this Comprehensive Plan. Further, the Land Development Code will include standards that address the public health, safety, and general welfare issues posed by the development of steep slopes.

Recommendation N-04: Identify and implement measures to protect the region's air quality.

Clean air is critical to human and environmental health, a high quality of life, and a viable tourist industry. Public input indicates a high level of support for the protection of clean air through government programs, regulations, and expenditures.

F. Implement Early Action Compact plan elements for Henderson County

In 2002, the Henderson County Board of Commissioners entered into an agreement entitled The Mountain Area Early Action Compact (EAC) with the North Carolina Department of Environment and Natural Resources and the United States Environmental Protection Agency Region 4 office. The EAC was an agreement

designed to protect human health by enabling an accelerated local approach to ozone attainment, and to encourage early emission reductions that would ensure attainment of the 8-hour ozone standard. A summary of the EAC agreement is found in Appendix III, *Early Action Compact Elements*.

Since the adoption of that agreement, Henderson County has been declared in attainment. Furthermore, concerns have arisen regarding the legality of the EAC. Therefore, the Board of Commissioners decided at their March 8, 2004 meeting to refrain from formal participation in the EAC, but to implement the recommendations of the Early Action Compact on a voluntary basis.

The *Growth Management Strategy Element* of this Comprehensive Plan will recommend land use practices that encourage higher densities of development. More efficient land use practices will minimize driving distances, which in turn minimizes emissions from motorcycles, automobiles, and other motorized vehicles.

Recommendation N-05: Protect key sites of historical and cultural significance from development.

Henderson County continues to grow and change at a rapid pace. As such growth continues, those sites that symbolize our heritage and traditions will become threatened by development pressures. If Henderson County is to maintain visual, tangible links to its past, it is necessary that important sites be identified and protected.

See Map# 15, *Cemeteries* and also *Cemeteries in Henderson County as of 2004* (Appendix I).

G. Conduct an inventory of historic / culturally significant sites / structures.

A Henderson County architectural survey was completed in 1981. Another survey has not been completed since that time, although a comprehensive survey of Flat Rock was completed in 1996 and surveys of Hendersonville were completed in 1996 and 1997. The surveys are cooperative local/state projects accomplished with grants and staff assistance from the State Historic Preservation Office. A total of 707 potentially historic structures were identified in Henderson County by these surveys, including residential, commercial and public structures. An updated inventory will provide a basis for future programs to protect and enhance historic and cultural resources.

Other measures to protect historic sites are listed below.

Relationship to Other Elements

Recommendations and Action Strategies of other elements are relevant to this element.

The *Growth Management Strategy (GMS) Element* of this Comprehensive Plan will recommend a number of additional Recommendations and Action Strategies that will benefit the implementation of many of the Recommendations above:

- a) Current County land development regulations contain provisions allowing developers to create “open space” developments, whereby a portion of the project is permanently set aside from development, and the development potential from that portion is transferred to the remaining area to be developed. The *GMS* will recommend that such provisions be carried forward into future land development ordinances, and that they be enhanced through generous incentives that encourage the protection of sensitive natural areas and historic sites in exchange for additional development potential.
- b) In addition to the incentives mentioned above, the Action Strategy *GMS-01.C* will recommend changes to the County’s land development ordinances that would establish protections for historic sites.
- c) The *GMS* will recommend that, should the State of NC ultimately enable local governments to do so, Henderson County should consider establishing a Transfer of Development Rights (TDR) program. Please see the *Growth Management Strategy* of this Comprehensive Plan for more information regarding TDR programs.
- d) The *GMS* will recommend changes to the County’s land development ordinances that impose maximum density standards that are consistent with the characteristics of each section of the county, including the presence of sensitive natural areas such as floodplains and steep slopes.

Section 4 of this Comprehensive Plan will set forth a community based planning framework for future planning in Henderson County. Key opportunities for the protection of sensitive natural areas and historic sites protection should be identified as part of each Community Plan.

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