

Section 8

Mitigating the Impacts of Future Development

8.1 Introduction

Both residential and commercial development will continue in the Peachtree Martins Creek planning area. Without a focused effort to mitigate the impacts of this activity, further degradation of water quality, hydrologic condition and stream habitat is likely to occur in many area streams. Additionally, efforts to ameliorate current degradation may have little noticeable impact, or those impacts may be short-lived, if future development issues are not dealt with effectively and expeditiously.

The potential water quality and ecological impacts of development can be avoided or reduced through institutional measures taken by local and state governments to guide and shape this activity. These measures can include ordinances, design standards, educational efforts and other actions to assure that development occurs in such a manner that negative environmental impacts are minimized.

Cherokee County currently has few regulations to guide development activity. A limited floodplain ordinance applies to portions of the Valley River drainage, outside of the planning area. A water supply protection program includes part of the McComb Branch and Calhoun-Mission sub-watersheds. Cherokee County does not have a comprehensive plan and has not developed a subdivision ordinance.

This section recommends nine institutional measures for the consideration of local officials in the Peachtree-Martins Creek area:

1. Adoption of a subdivision ordinance that encourages Low Impact Development (LID) approaches and other methods of reducing impacts;
2. Instituting post-construction stormwater management requirements;
3. Developing a local erosion and sediment control program;
4. Ongoing public education regarding watershed and stormwater issues;
5. Evaluation of stormwater control opportunities on government properties;
6. Adoption of hillside development standards;
7. Expansion and revision of the existing water supply and floodplain ordinances;
8. Development of a long-term wastewater management plan; and
9. Development of a comprehensive land use plan.

The task of developing and adopting these measures will be a major undertaking for the County and will take some time to carry out. It is important that the process begin as soon as possible, so that as much future development as possible takes place under a set of standards that will more effectively mitigate environmental impacts. While all nine of the recommended measures are important, the first four are particularly important to pursue as expeditiously as possible.

8.2 Recommendations

Adoption of a subdivision or development ordinance

Recommendation 1: Cherokee County should consider developing and adopting a subdivision ordinance to ensure that adequate planning occurs prior to land development and that design standards and development practices are adequate to address environmental and resource protection needs. The ordinance should encourage Low Impact Development and other measures to minimize water quality impacts from development and should provide developers with incentives to undertake a variety of voluntary conservation efforts.

Discussion: Subdivision and land development ordinances are important tools both to promote orderly growth and facilitate the provision of public services, as well as for ensuring environmental protection. A subdivision ordinance should consider a range of issues related to water quality, including: infrastructure planning, road design, vegetative clearing, building setbacks, drainage design, open space and other concerns. *Better Site Design* (Center for Watershed Protection, 1998), a document developed by the Center for Watershed Protection, is one useful resource in developing such an ordinance. The recommendations developed by participants in the Northeast Georgia Growth Readiness Program (Southeast Watershed Forum, 2007) provide a set of consensus guidelines developed for the southeastern mountains by individuals representing a diverse group of interests. These recommendations encompass planning for roads and related vehicular uses, lot development and conservation of natural areas.

In the design of the ordinance, options should be included to encourage the use of Low Impact Development (LID) techniques. LID is a comprehensive land planning and engineering design approach with a goal of maintaining and enhancing the pre-development hydrologic regime of urban and developing watersheds. LID techniques generally include the active promotion of infiltration practices and other approaches to limit stormwater volume in both low density and high density development. LID seeks to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source. Stormwater management through landscape features located at the lot level is preferred over larger subdivision scale controls. A variety of resource materials on LID are available (see: Prince George's County, 1999; USEPA, 2000; <http://www.epa.gov/nps/lid/>; and <http://www.lowimpactdevelopment.org/>).

While an ordinance must include specific requirements, it will be most effective if it also provides developers with incentives to undertake voluntary land conservation efforts, including preservation of open space and natural areas as well as practices that promote environmental protection. Several of the measures discussed in the recommendations to follow (e.g. post construction stormwater management and hillside development standards) could potentially be addressed as part of a subdivision or development ordinance.

Post-construction stormwater management

Recommendation 2: Cherokee County should consider developing and adopting a comprehensive stormwater management program to reduce the environmental impacts of post-construction stormwater.

Discussion: In order to prevent further stream channel and biological community degradation, it is critical that effective post construction stormwater management be employed throughout the planning area. This need is particularly acute in the US 64/NC141 area and in the vicinity of the

new US 64 Bypass, but stormwater concerns will become more common throughout the area as development continues. There is little likelihood that stormwater management will improve without requirements established by local government. A post-construction stormwater program should seek to reduce the volume of stormwater runoff, as well as velocities and peaks flows, providing water resource benefits as well as helping to prevent flooding. Traditional structures such as wet detention ponds can be used, as well as constructed wetlands, bioretention areas and a variety of other practices, including those associated with LID.

Erosion and sediment control

Recommendation 3: Cherokee County should consider development of a local erosion and sediment control program, with specific provisions to address smaller sites and road and site development on steep slopes. Staffing levels sufficient to support effective enforcement are essential. Efforts to reduce construction-related sediment will be most effective if they include not only a regulatory component, but also non-regulatory efforts to educate contractors and property owners regarding the importance of limiting disturbance and utilizing appropriate control practices. These educational functions could also be performed as part of a broader public education program (see below).

Discussion: The state's Erosion and Sediment Control (E&SC) Program, operated by the Division of Land Resources, covers the planning area out of a regional office located in Asheville. The state program was developed to address sediment issues on a state-wide basis and is not specifically designed to address issues particular to the mountain region, which has steeper slopes and higher rainfall levels than elsewhere in North Carolina. An approved local program would provide the County with the authority to enforce both state and local standards. Some state funding is available to support the start up of local programs. Development of a local program should facilitate both more responsive enforcement of regulations and the development of guidelines that better reflect local needs and concerns, including construction on steep slopes and impacts from smaller development sites which fall below the state's one acre threshold for an erosion control plan.

Public education

Recommendation 4: Cherokee County should develop a robust public education program to increase public knowledge of water quality and watershed issues, including stormwater and other issues of concern.

Discussion: Effective education of local citizens and business is critical to all aspects of watershed management. It is important both to change individual behaviors that result in unnecessary pollution and to build public support for effective solutions to both existing and anticipated problems. Among the issues a program should address are the following:

- Potential impacts of uncontrolled stormwater on stream channels and water quality;
- Role of both voluntary and regulatory measures in watershed management;
- Proper pesticide and fertilizer use;
- Proper riparian zone management, including retaining existing wooded riparian areas on streams and replanting native riparian vegetation where it is absent;
- The importance of avoiding stream channel disturbance; and
- Proper septic system maintenance.

Education is a long-term investment in the future of the Peachtree-Martins Creek area. Though a piecemeal approach can be used to address various educational needs, a more viable approach would be to develop a comprehensive program implemented at the county level.

Evaluation of stormwater control opportunities on government properties

Recommendation 5: Publicly owned facilities - including facilities owned by Cherokee County, NCDOT, TCCC and other government agencies - should be evaluated for their potential to treat/retain stormwater. Stormwater BMPs should be implemented on other public properties as they are developed.

Discussion: Cherokee County and other governmental agencies have the opportunity to use their facilities both to initiate water quality improvement efforts and to educate citizens and business owners regarding stormwater management. Implementing feasible stormwater retrofits and other projects on public properties is one way for local and state agencies to exercise leadership in watershed management.

Adoption of hillside development standards

Recommendation 6: Cherokee County should consider the development of hillside development or mountain protection standards to address potential problems associated with development activity on steep terrain.

Discussion: Local and state governments in North Carolina, Georgia and other portions of the southeastern US have become increasingly aware of the potential hazards associated with development on land characterized by steep slopes and shallow soils. Without appropriate design and construction, development in these areas poses an increased risk of water quality impacts due to sediment and an increased risk to life and property from landslides and slope failure. A variety of approaches have been implemented or discussed by governmental agencies, including measures such as the following: create standards that specify conditions under which a geotechnical analysis is required; require plan approval by an engineer; set limitations on the extent of disturbance (e.g. percentage of site graded based on slope) or road corridor dimensions; require preservation and/or replacement of vegetation; and regulate the nature and extent of fill. Voluntary efforts to avoid development in difficult areas could be encouraged by educating property owners and developers regarding these issues and encouraging better land planning and subdivision design. Asheville, Boone and Jackson County are among the North Carolina jurisdictions that have recently passed hillside development ordinances. Henderson and Buncombe Counties are currently considering draft measures to address hillside development concerns.

Expansion and revision of the existing water supply and floodplain ordinances.

Recommendation 7: Cherokee County should consider expansion of its floodplain ordinance to include relevant portions of the Peachtree-Martins Creek area, and should evaluate both the floodplain and water supply protection ordinances to determine ways in which they may be improved.

Discussion: Floodway and floodplain development can pose dangers to life and property and cause a variety of environmental impacts. Upstream actions, such as the filling of floodplain areas can have a significant impact on downstream properties. Floodplain policies provide guidance to control the alteration of natural floodplains, stream channels, and natural protective barriers involved in the accumulation of flood waters, including filling, grading, dredging, or other development which may increase erosion or flood damage. Such policies can help to minimize public and private losses during floods.

Development of a long term wastewater management plan

Recommendation 8: Cherokee County should develop a long term plan for meeting future wastewater treatment needs.

Discussion: As the county continues to grow, it will become increasingly important to plan for the adequate disposal of domestic wastewater. Maintenance and expansion of the existing sanitary sewer/wastewater treatment system is one key concern. Assuring the integrity of onsite systems, including system maintenance and the proper disposal of pump-out waste, is also important. In order to assure that both environmental and service delivery issues are addressed, a comprehensive plan should be developed that addresses future needs for both of these components.

Development of a comprehensive land use plan

Recommendation 9: Cherokee County should consider the development of a county-wide comprehensive land-use plan.

Discussion: A comprehensive land use plan is a tool to aid local governments and citizens in guiding growth, ensuring adequate infrastructure and services and protecting environmental resources. Development of a plan will help the county to develop a vision for the future and take a proactive approach to attaining that vision. County guidelines or ordinances can then be developed as appropriate to implement the plan.