

NORTHEAST GEORGIA



Growth Readiness Report
2007

Project Sponsors

The following agencies and organizations made this process possible through their expertise and support:



Core Team

Joe Krewer, Georgia Department of Community Affairs

Jane Fowler, Southeast Watershed Forum

Joel Haden, Tennessee Valley Authority

Linda Harris, Tennessee Valley Authority

Constance Alexander, U.S. EPA Region 4

Stacey Bouma, U.S. EPA Region 4

Funding for support of the Georgia Growth Readiness Program was provided by a Section 319(h) grant from the Georgia Environmental Protection Division

Report Design: Kristen Deitrick, Southeast Watershed Forum

This report was printed on recycled, chlorine-free paper

Front Cover Photo: Dillard, Georgia

Introduction	2
Workshop Summaries	4
Growth Readiness Recommendations	10
Residential Streets and Parking Lots (Habitat for Cars)	10
Lot Development (Habitat for People)	15
Conservation of Natural Areas (Habitat for Nature)	20
North GA Counties Projected Growth Map	25
Participants	<i>Back Cover</i>

INTRODUCTION

The Issues

The mountain regions of north Georgia are blessed with natural resources and scenic vistas that are attracting growth and development on an unprecedented scale. As a result, many communities are facing significant pressures on land, air and water in their regions.

They are now faced with the challenge of maintaining economic growth, clean water and natural beauty all at the same time. While growth is good for these local economies, particularly in traditionally poor and isolated communities, they are in danger of losing the natural beauty and quality of life that is so important to them. Economically-viable, yet environmentally-friendly development practices can help maintain water quality, decrease the costs of infrastructure and construction, and preserve quality of life.

Purpose

In 2006 the Georgia Department of Community Affairs (DCA), Southeast Watershed Forum (SEWF) and Tennessee Valley Authority (TVA) conducted a series of Georgia Growth Readiness workshops for community opinion leaders and decision-makers in both northeast and northwest Georgia. **(Figure 1)**. The northeast Georgia project area included Fannin, Union, Towns and Rabun Counties and their cities. The northwest Georgia project area included Dade, Walker, Catoosa and Chattooga Counties and their cities. While these two regions are physically separated, they share many of the same community issues. Both contain scenic mountain areas and are experiencing rapid residential and commercial development. In northeast Georgia, much of the growth is driven by the influx of retirees and vacation homeowners. In northwest Georgia, the proximity of a major interstate and the city of Chattanooga is also encouraging growth. Many of these communities are largely unprepared for such growth and its impact on their resources, and tend to be independent-minded in regard to local land use planning and development control. Voluntary community-driven consensus building workshops are therefore well-suited for these areas. These

recommendations developed by the participants are intended as guidance for communities and are not mandated by DCA or any other agency, unless noted. However, many of them are appropriate for inclusion in stormwater management programs or other programs required by state law.

The Georgia Growth Readiness Program is based on the Tennessee Growth Readiness Program developed by TVA, SEWF, and the University of Tennessee's Water Resources Center, and builds on the nationally recognized guidance of the Center for Watershed Protection and the University of Connecticut's Nonpoint Education for Municipal Officials (NEMO) program. This approach has been used successfully in communities across Tennessee, Virginia, and other southeastern states, with more states planning additional programs.

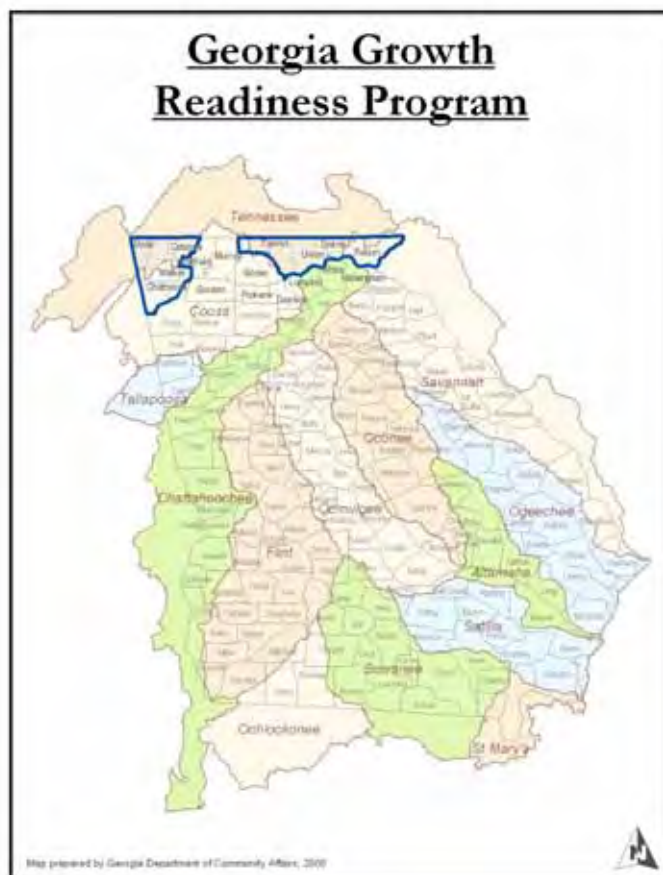


Figure 1. GGRP 2006 Project Areas

Strategy

This project was a pilot program to determine if the Growth Readiness process is a good fit for Georgia, and funding for it was provided in part by a Section 319(h) grant from the Georgia Environmental Protection Division for an Urban Nonpoint Source Capacity Building project. Additional workshop funding was provided by the Tennessee Valley Authority.

The goal of the Georgia project was to convene a broad cross section of community leaders representing planners, elected officials, developers, builders, citizens and others to elicit ideas and support for better site design ordinances. The recommendations of the participants will be provided to all local governments in the project area for consideration.

A Planning and Steering Committee was formed with representatives from the DCA regional offices and Office of Planning & Quality Growth, the Appalachian Regional Commission, the Walker and Union County Commissioners, Towns County Water Authority and Chamber of Commerce, The Nature Conservancy, the Hiawassee River Watershed Coalition, the University of Georgia, US Environmental Protection Agency and the Coosa Valley, North Georgia and Georgia Mountains Regional Development Centers.

DCA also developed an on-line survey tool to gather information about local land use and water quantity issues and to help focus the workshop topics and agenda. Participants identified a number of key issues in northeast Georgia, including the need for education and cooperation of local government officials, landowners, and developers; comprehensive land use and water management planning; adoption and enforcement of environmental ordinances; stream buffer protection; providing drinking water and wastewater infrastructure; and protection of lakes.

Separate back-to-back workshops were conducted in the two project areas. The course outline was the same for both series, but with

population information, development patterns and existing ordinance reviews specific for each region.

This report covers the northeast Georgia workshops conducted in Blairsville and Young Harris, with three counties, three cities, two environmental nonprofit organizations, a university program, and two Regional Development Centers participating in the entire series.

During the workshops, leaders from communities learned about:

- the impact of growth on water quality and quantity
- economic, legal, regulatory, and quality of life reasons why water protection matters
- 22 model principles for Better Site Design and how these are incorporated into ordinances

Invitations to the workshops were sent out by email and regular mail to several hundred potential attendees, include all city and county elected officials, mayors, managers, council members and planners, development authorities, homebuilders associations, selected local developers and realtors, county extension agents, State Soil and Water Conservation Service offices, environmental organizations, the Forest Service, Regional Development Centers, Resource Conservation & Development offices, the Georgia Municipal Authority and Association County Commissioners of Georgia.

Participants were asked to attend all three workshops, or send a delegate if they could not. Each workshop built on the one before it, and was not intended to be a stand-alone workshop. However, the second and third workshops did provide a brief review of the preceding activities for those who missed the previous meeting. The workshops were organized as follows:

Workshop I Having Growth and Water Quality Too

March 2006

Participants learned how urbanization affects water quality and quantity and can have an economic, legal and quality of life impact on a community. They learned the importance of the percentage of impervious surfaces to water quality and identified critical water issues in their communities. Working in small groups with maps and county population projections, they determined where they thought growth would occur in the future. This exercise was particularly useful in helping them to understand the need for cities and counties to modify their development codes simultaneously. Workshop facilitators combined their work into single maps before the second workshop. **(See Projected Growth Map on pg 25.)** The participants received the Center for Watershed Protection's *Better Site Design Handbook* and learned about the 22 Model Principles described there. They were also given the Codes and Ordinances Worksheet (COW), a tool to help communities evaluate their existing ordinances against the model principles, to use for their "homework assignment" of reviewing their development codes. One or more representatives from each jurisdiction present agreed to complete the COW for their community prior to the next workshop.



Workshop small group presentation



Workshop small group discussion

**Workshop II
Deciding What’s Right
For Our Community**

June 2006

Participants compared existing population and imperviousness maps with projected population and imperviousness maps developed from the first workshop. **(Table 1 and Figures 2 through 5)**. They discussed important community issues raised by the maps. They also learned about examples of low impact development in Georgia and other states, including the Georgia Coastal Green Growth Program and ordinance changes in Blue Ridge, Georgia. Community representatives then discussed the results of the COW for their jurisdictions. Participants divided into three work groups based on the better site design categories (Streets and Parking, Lot Design, and Natural Areas) **(Table 2)** to identify opportunities to work together on recommendations for change. They agreed to continue meeting in their work groups to develop their recommendations before the third workshop.

**Workshop III
Building Consensus for Change**

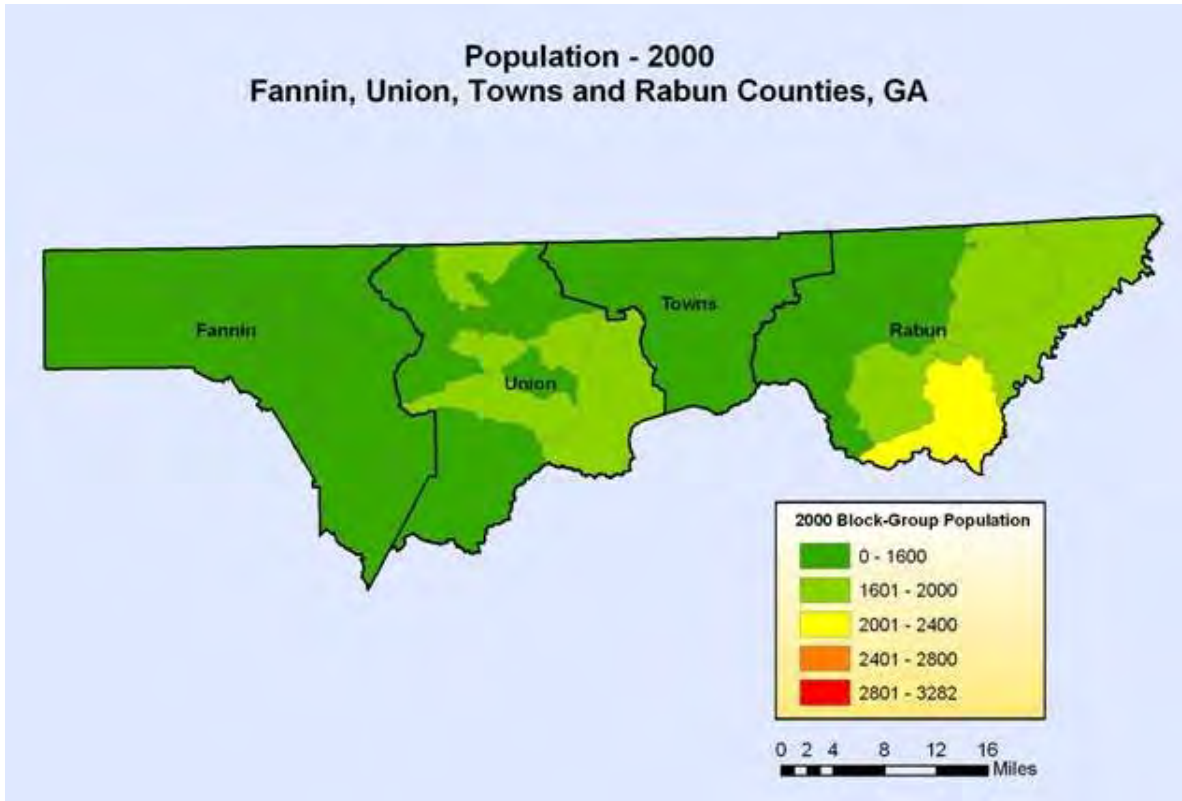
September 2006

The three work groups met independently between the second and third workshops to put together their better site design recommendations, which they presented to the whole group at this workshop. They considered opportunities to work together to change their respective codes and ordinances to promote watershed-friendly development. The group identified a wide range of principles of common interest.

The entire group then participated in a consensus-building process to endorse the recommendations and to suggest specific changes and/or raise questions to be answered prior to finalizing the recommendations. The group discussed how to implement these development policies and practices in their area and suggested steps to involve other stakeholders in their respective jurisdictions. Workshop organizers later incorporated the changes made to the recommendations for distribution to workgroup members for final comments.

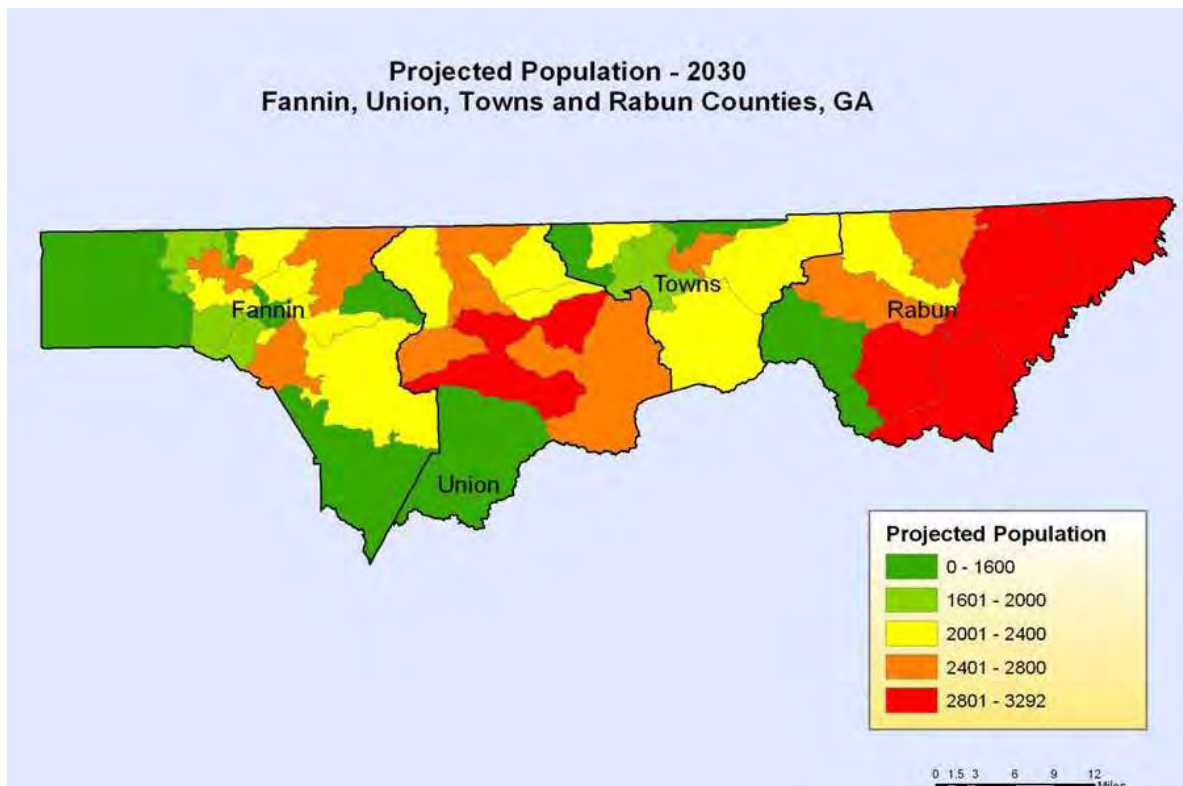
TABLE 1. POPULATION PROJECTIONS
(US Bureau of Census and DCA DataView)

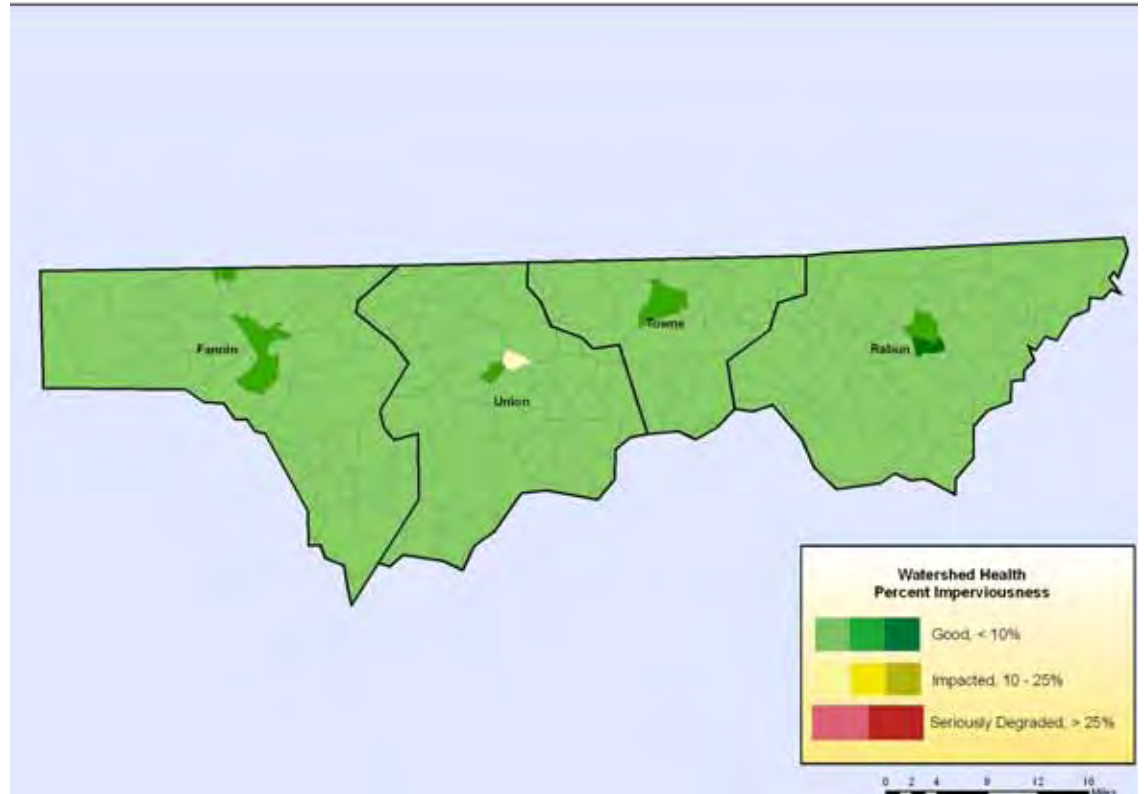
COUNTY	1990	2000	2030 PROJECTION
Fannin	15,992	19,798	27,373
Rabun	11,648	15,050	21,926
Union	11,993	17,289	29,138
Towns	6,754	9,319	14,841



(Top) Figure 2. 2000 Population from US Census Information.

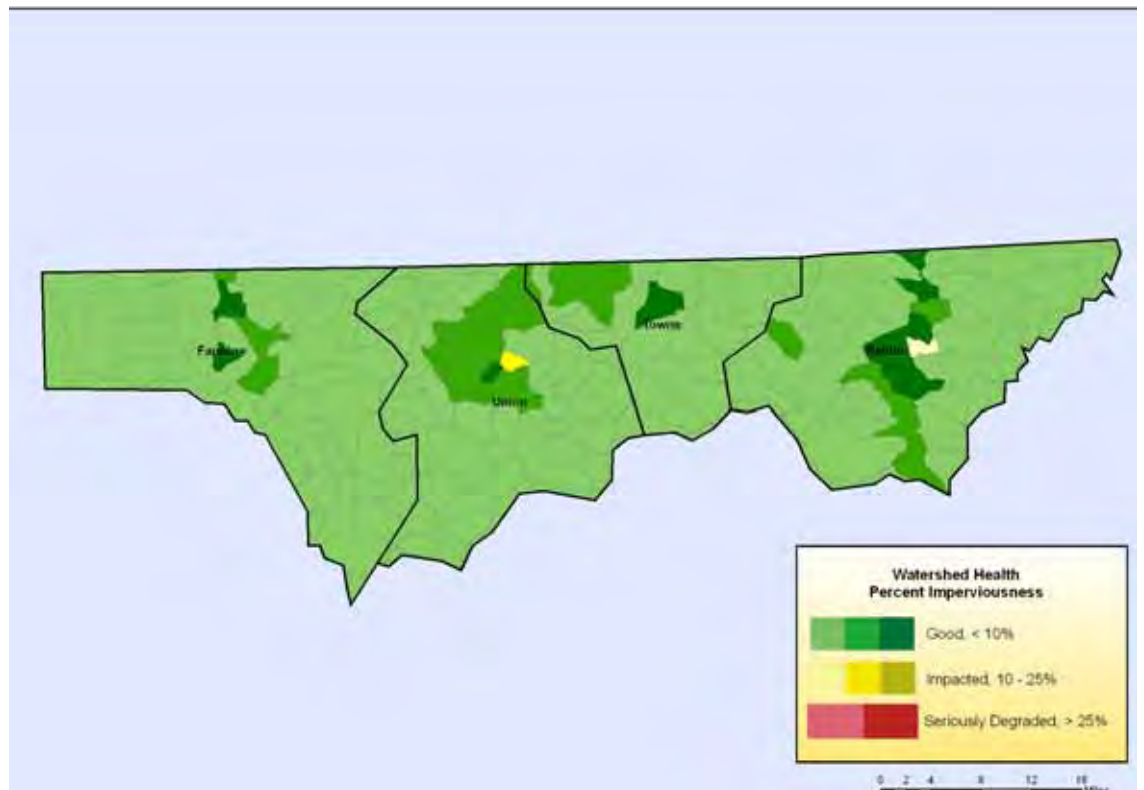
(Bottom) Figure 3. Projected 2030 Population Map Developed at Workshops





(Top) Figure 4. Current Percent Impervious Surface – 2000.

(Bottom) Figure 5. Projected Percent Impervious Surface – 2030.



WORKSHOP SUMMARIES

Streets & Parking	
Kathy Papa	GA Department of Community Affairs – Region 2
Jim Conley	City of Blairsville, Mayor
Glenda Swanson	Rabun County Planning Commission
Chris Ernst	Georgia Mountains Regional Development Center
Joe Krewer	GA Department of Community Affairs
Lamar Paris	Union County Sole Commissioner
Lot Design	
Callie Dobson Moore	Hiawassee River Watershed Coalition
Mary Elizabeth Law	Rabun County Commissioner
Carol Turner	Rabun County Planning Commission
Larry Vanden Bosch	North Georgia Regional Development Center
Connie Alexander	U.S. EPA, Region 4
Natural Areas	
Linda Harris	Tennessee Valley Authority
Rebecca Peterson	Rabun Green
Bill Blumreich	Towns County Homeowners Association
Norman Bennett	Hiawassee River Watershed Coalition Board & Towns County Homeowners Association
Joe Garner	GA Mountains Experiment Station, UGA

(Above) Table 2. Workgroups for Better Site Design Recommendations.

(Below) Steering Committee



Next Steps

The workshop organizers have agreed to provide additional resource materials requested by participants and help promote the implementation of the recommendations across the region. The participants suggested that the workshop organizers develop materials to educate decision-makers and stakeholders about the issues and recommendations. They would like this to include a project report and PowerPoint presentation for city and county planning boards, commissioners, and other decisions makers. More information about how the ordinance modification process works at the local government level would also be useful. Organizers have obtained additional funding to pursue these goals and help educate decision makers.



Recommendations Review



Lake Rabun, Georgia

GROWTH READINESS RECOMMENDATIONS

The following recommendations were developed by the three workgroups and refined by the whole group. The numbered principles are the Center for Watershed Protection's 22 Model Principles. They provided a framework for the recommendations. Consensus was reached on these recommendations by the full group at the third workshop.

Residential Streets and Parking Lots (Habitat for Cars)

Principle 1. Street Width

Design residential streets for the minimum required pavement width needed to support travel lanes; onstreet parking; and emergency, maintenance, and service vehicle access. These widths should be based on traffic volume.

Recommendations:

- 20 ft wide for local streets and small collectors (up to 500 ADT)
- 22 feet for larger streets and collectors (up to 1000 ADT)
- Increase road width by 8 ft for each side where permanent on-street parking is provided.
- Permanent on-street parking is not allowed in low density rural areas
- Shallow, open drainage swales are encouraged in lieu of curbs and gutters.
- Increase width by four feet to accommodate bike lanes where necessary
- Follow State DOT requirements for major streets where necessary.

Principle 2. Street Length

Reduce the total length of residential streets by examining alternative street layouts to determine the best option for increasing the number of homes per unit length.

Recommendations:

- Encourage and allow traditional neighborhood and open space development designs and also relax lot setbacks in ordinances. The actual requirements should follow the group's recommendations for Principle 11 related to open space development and Principle 12 related to front and side yard setbacks.
- Actual distances will vary according to the type of development, but in general, relax minimum lot frontage widths and front yard setbacks, keeping in mind that on-street parking may dictate a wider frontage width, while parking in driveways may require deeper front setbacks. Also relax side yard setbacks to encourage narrower lots.
- Street design should complement natural site characteristics and foster connectivity as much as possible.

***Because of impervious surfaces,
a city block creates nine times more runoff
than a woodland area of the same size.***

*- EPA, Office of Wetlands,
Oceans & Watersheds*

Principle 3. Right-of-Way Width

Wherever possible, residential street right-of-way widths should reflect the minimum required to accommodate the travel-way, the sidewalk, and vegetated open channels. Utilities and storm drains should be located within the pavement section of the right-of-way wherever feasible.

Recommendations:

- Road Right-of-Way (ROW) widths should be variable so as to accommodate different approaches to reducing pavement width. However, the reasonableness of counties and municipalities obtaining and keeping up with different ROW widths is impractical. A 60' right-of-way is ideal and required for DOT funded projects, but should be left up to the local governments to determine if possible and applicable. With proper engineering and road construction, the entire ROW width would not have to be cleared, only what is needed.
- While smaller ROW widths certainly minimize the number of trees that must be cut, it also creates a much less friendly environment to long term road health. Roads need sunlight to be maintained to their optimal level, especially in the mountains. The minimum clearing width within the ROW should be at least 30' to take this into account.
- Subdivision road widths should consider potential traffic volume and/or number of lots, with 16' being a minimum width to allow for adequate safety vehicle access. Traffic counts of fewer than 500 vehicles per day should not require a pavement width in excess of 18' to 20'. If on-street parking is considered, then 26' would allow for angle parking on one side of the road with some queuing or parallel parking on each side with queuing.
- If storm water drainage will be piped under the road surface, provisions should be made at the outlet end of the pipe to treat the water with some adequate type of retention. While out-sloping roads and avoiding ditches when possible is preferable, wider ROW width should be allowed when wide grass ditches (swales) are utilized. Utilities can use these same areas. Installing utilities under pavement is generally not advised unless expense is not an issue and all utilities can be installed in conduit. This allows for replacement without digging up pavement.

Principle 4. Culs-De-Sac

Minimize the number of residential street culs-de-sac and incorporate landscaped areas to reduce their impervious cover. The radius of a cul-de-sac should be the minimum required to accommodate emergency and maintenance vehicles. Alternative turnarounds should be considered.

Recommendations:

- Flexibility should be allowed for both cul-de-sacs with and without landscaped islands. If landscaped islands are not used, the cul-de-sac should have a radius of 30 ft. The 30 ft diameter cul-de-sac should allow stormwater flow away from the cul-de-sac's center and should be evenly distributed to the surrounding landscaped yards (bioretention areas). Biofilters should be used as the primary means of retention within the landscaped yards; however, other means may be used where appropriate, with prior approval from the local governing body. In combination, the landscaped yards shall be designed to accommodate a 10 year rain event.
- Cul-de-sacs with landscaped islands should have a radius of 20 ft. between the outer edge of the cul-de-sac and the outer edge of the landscaped island. The cul-de-sac shall be designed so that all stormwater generated from the cul-de-sac flows evenly across the paved surface and into the landscaped island. The landscaped island shall be designed to accommodate stormwater flows for a minimum of a 10 year rain event.

GROWTH READINESS RECOMMENDATIONS

Residential Streets and Parking Lots (Habitat for Cars) Continued

Principle 5.

Vegetated Open Channels

Where density, topography, soils, and slope permit, vegetated open channels should be used in the street right-of-way to convey and treat stormwater runoff.

Recommendations:

Grass channels and dry swales should be installed along all new roads and along roads that are undergoing substantial revision where there is sufficient right of way to accommodate the structure and where minimal disturbance to existing infrastructure is possible. The installation of grass channels and dry swales should be designed to accommodate, at a minimum, a 10 year flood event. Construction of grass channels and dry swales should be completed in such a manner as to promote rapid re-vegetation of disturbed land from swale and channel construction activity.

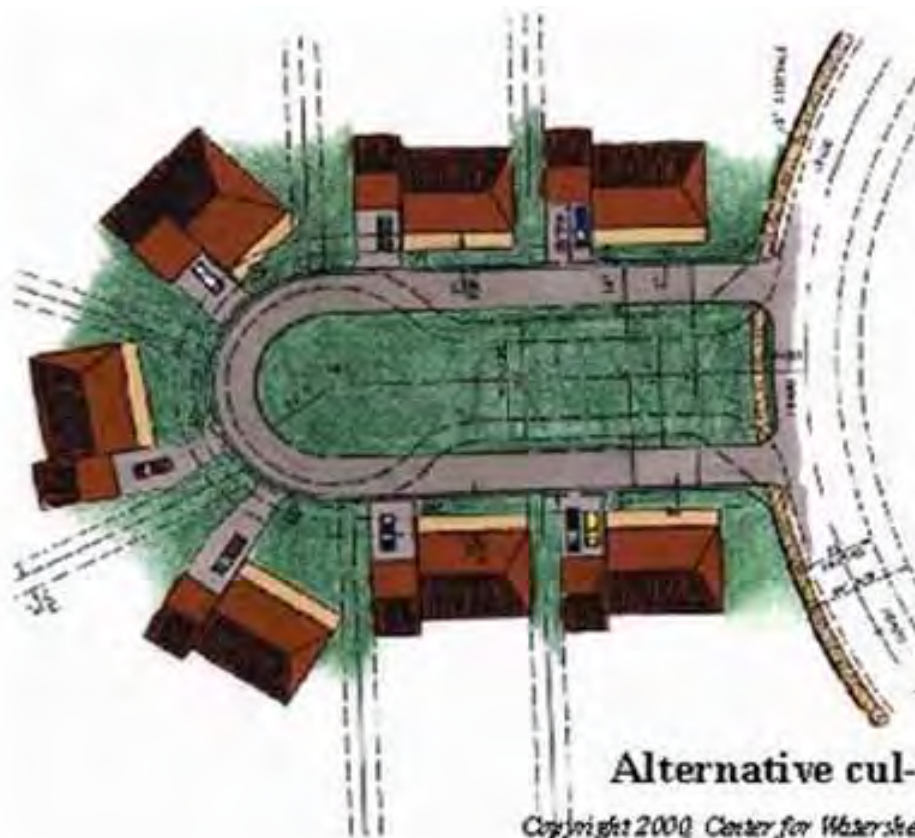
Principle 6.

Parking Ratios

The required parking ratio governing a particular land use or activity should be enforced as both a maximum and a minimum in order to curb excess parking space construction. Existing parking ratios should be reviewed for conformance taking into account local and national experience to see if lower ratios are warranted and feasible.

Recommendations:

Enforce the required parking ratio governing a particular land use or activity as both a maximum and a minimum in order to curb excess parking space construction. Review existing parking ratios for conformance taking into account local and national experience to see if lower ratios are warranted and feasible.



Principle 7. Parking Codes

Parking Codes should be revised to lower parking requirements where mass transit is available or enforceable shared parking arrangements are made.

Recommendations:

Follow the Principle to revise parking codes to lower parking requirements where mass transit is available or enforceable-shared parking arrangements are made. This item is not currently a high priority in the project area.

Principle 8. Parking Lots

Reduce the overall imperviousness associated with parking lots by providing compact car spaces, minimizing stall dimensions, incorporating efficient parking lanes, and using pervious materials in spillover parking areas.

Recommendations:

- Use tables 8.2 and 8.3 on pages 77 and 78 of the *Better Site Design Handbook* to evaluate pervious materials for use in spillover parking areas.
- Reduce imperviousness by having compact car spaces.



Porous Paving, Chickamauga

GROWTH READINESS RECOMMENDATIONS

Residential Streets and Parking Lots (Habitat for Cars) Continued

Principle 9.

Structured Parking

Provide meaningful incentives to encourage structured and shared parking to make it more economically viable.

Recommendations:

- Study parking trends in downtown areas (number of cars/space/day, turnover rate, demand for parking at special events)
- Consider allowing parking structure development in lots not typically suited for development (sloped lots) in downtown areas particularly behind the square or central business district in communities such as Blairsville, Clayton or Blue Ridge
- Consider the possibility of allowing first-level parking for lake-side condominium development. Incentive could be to allow for additional height to structures.

Principle 10.

Parking Lot Runoff

Wherever possible, provide stormwater treatment for parking lot runoff using bio-retention areas, filter strips, and/or other practices that can be integrated into required landscaping areas and traffic islands.

Recommendations:

- Landscaping is required for all lots containing 10 or more parking spaces. All landscaping will use native vegetation that is appropriately placed for the specific site/plant. A list of native vegetation types and suitable conditions should be provided by the local government. Two trees shall be placed for every 10 parking spaces, and the trees must have a 2" minimum diameter breast height (dbh) at the time of planting. Sufficient landscaped area should be provided to ensure the survival of the trees as they reach maturity. Tree areas should be designed to allow stormwater runoff to enter these areas, if possible. Trees should be protected from damage by vehicles with barriers or other methods, such as wide buffers. Maintenance of landscaping shall be the landowner's responsibility. Diseased or hazard trees shall be removed and immediately replaced by the landowner. Proper selection and placement of tree species is critical to safety. Line-of-sight and other safety factors must be considered.
- On-site bioretention shall be implemented for all residential, commercial, and industrial sites with a land disturbance area greater than 5 acres. Permitted bioretention methods include dry swales, perimeter sand filters, filter strips, or any other natural filtration methods approved by the local government. In total, the bioretention systems shall accommodate no less than 50 percent of the total stormwater runoff produced during a 10 year event. Additional BMPs shall be implemented for the treatment of the remaining stormwater. No residential, commercial, or industrial site with a land disturbance area greater than 5 acres shall release untreated stormwater runoff directly into a natural channel or drainage system.
- Additional recommendations for stormwater BMP's may be found in the Georgia Stormwater Management Manual.

Lot Development (Habitat for People)

Principle 11.

Open Space Development

Advocate open space development that incorporates smaller lot sizes to minimize total impervious area, reduce total construction costs, conserve natural areas, provide community recreational space, and promote watershed protection.

Recommendations:

- Conservation-based development designs are encouraged. Land conservation and impervious cover reduction are major goals and objectives of an open space or conservation-based development design.
- For developments within areas served by sewer systems, conservation-based developments are recommended, incorporating smaller lot sizes to minimize total impervious area, reduce total construction costs, conserve natural areas, provide community recreational space, and promote watershed protection. For such developments, there is no minimum lot size, provided the development is consistent with provisions outlined in the Open Space Management section. Submittal and review requirements will be the same as those for conventional development.
- For developments that are outside of areas served by sewer systems, conservation-based developments are encouraged, provided neutral density is maintained. Neutral density is achieved by allowing smaller individual owned residential lots in neighborhoods that are surrounded by open space areas while maintaining the prorated density of residential units for the overall site area.
- Community septic systems may be utilized in conservation-based developments that are not served by sewer systems, but other options that may be proposed by a developer will be considered. Encourage such on-site septic systems, as well as small discharge-type systems, be turned over to local utilities or private contracting companies for management purposes.

Principle 12.

Setbacks and Frontages

Relax side yard setbacks and allow narrower frontages to reduce total road length in the community and overall site imperviousness. Relax front setback requirements to minimize driveway lengths and reduce overall lot imperviousness.

Recommendations:

- Developers shall have flexibility in design with regard to setbacks and frontages due to mountain topography and relatively non-urban setting.
- Irregular lots are allowed.
- There are no frontage requirements. Front, rear and side setbacks should merely ensure safe distance from public roads, and between homes for safety and fire protection. Safe distances may vary according to terrain and density.

Lot Development (Habitat for People) Continued

Principle 13. Sidewalks

Promote more flexible design standards for residential subdivisions sidewalks. Where practical, consider locating sidewalks on only one side of the street and providing common walkways linking pedestrians.

Recommendations:

- Sidewalks are not required in rural residential developments; if sidewalks are included in such developments, they shall be:
 - ◊ located on only one side of the street;
 - ◊ a maximum of 3 feet wide (minimum of 4 feet for Federal Highway Administration projects);
 - ◊ sloped away from the street; and
 - ◊ constructed of pervious materials when possible.
- In mixed-use developments that are closer to commercial areas, sidewalks should be located on only one side of the street, where practical, and construction shall only be required when providing common walkways linking pedestrian areas. Sidewalks shall be a maximum of four feet wide, sloped away from the street, and constructed of pervious materials when possible.
- Alternate pedestrian networks (unpaved trails) are encouraged as a substitute for sidewalks, particularly in rural residential areas.

Principle 14. Driveways

Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together.

Recommendations:

- Shared driveways, two-track design, and those made of pervious materials (e.g. grass, gravel, porous pavers, etc.) are encouraged in residential developments. There is no maximum width for these types of driveways.
- If individual driveways are paved, the maximum width shall be 8 feet.
- Paved parking areas at home sites shall be limited. For homes larger than 1,500 square feet, paved parking areas shall be limited to 900 square feet or no more than 20% of the home's square footage. (Example: Maximum paved parking for a 3,000 square foot home would be 600 square feet.) Homes that are less than 1,500 square feet may have up to 300 square feet of paved parking. These requirements can be waived if post-construction stormwater retention and treatment is provided for the development.
- If driveways and parking areas are constructed of pervious materials, there shall be no maximum width or parking area requirements.

Owners of small companies ranked recreation, parks, and open space as the highest priority in choosing a new location for their business.

*- Journal of Parks and Recreation
Administration, 1997*



(Above) Walking Trail, Chatuge Reservoir

(Below) Blairsville Rain Garden



Lot Development (Habitat for People) Continued

Principle 15.

Open Space Management

Clearly specify how community open space will be managed and designate a sustainable legal entity responsible for managing both natural and recreational open space.

Recommendations:

- Open space must be consolidated as much as possible into large units and must comprise at least 30% of the gross tract area. Large areas of impervious surface shall be excluded from the Open Space.
- The following are considered Primary Conservation Areas and are required to be included within the Open Space, unless the developer demonstrates that this provision would constitute an unusual hardship:
 - ◊ The 100-year floodplain;
 - ◊ Riparian zones at least 50 feet wide along all perennial and intermittent streams;
 - ◊ Slopes above 25% of at least 5000 square feet contiguous area;
 - ◊ Wetlands that meet the definition used by the Army Corps of Engineers pursuant to the Clean Water Act;
 - ◊ Populations of endangered or threatened species, or habitat for such species; and
 - ◊ Archaeological sites, cemeteries and burial grounds.
- The following are considered Secondary Conservation Areas and should be included within the Open Space to the maximum extent feasible:
 - ◊ Important historic sites;
 - ◊ Existing healthy, native forests of at least five acres contiguous area;
 - ◊ Existing trails that connect the tract to neighboring areas.
 - ◊ Individual existing healthy trees greater than 10 inches caliper, as measured from a distance of 5 feet from ground level;
 - ◊ Other significant natural features and scenic viewsheds such as ridge lines, peaks and rock outcroppings, particularly those that can be seen from public roads;
 - ◊ Prime agricultural lands of at least five acres contiguous area.
- Above-ground utility rights-of-way and small areas of impervious surface may be included within the protected Open Space but cannot be counted towards the 30% minimum area requirement. This requirement may be waived if at least 50% of the open space (or 15% of the gross tract area, whichever is smaller) is in one contiguous tract and is managed in a natural condition.
- Permitted uses of open space are as follows:
 - ◊ Conservation of natural, archeological or historical resources;
 - ◊ Meadows, woodlands, wetlands, wildlife corridors, game preserves, or similar conservation-oriented areas;
 - ◊ Walking or bicycle trails, provided they are constructed of porous paving materials;
 - ◊ Passive recreation areas, such as open fields;
 - ◊ Active recreation areas, provided that they are limited to no more than 10% of the total Open Space and are not located within Primary Conservation Areas.
 - ◊ Agriculture, horticulture, forestry, or pasture uses, provided that all applicable best management practices are used to minimize environmental impacts, and such activities are not conducted within Primary Conservation Areas;
 - ◊ Landscaped stormwater management facilities, community wastewater disposal systems and individual wastewater disposal systems located on soils particularly suited to such uses. Such facilities shall be located outside of Primary Conservation Areas;
 - ◊ Easements for drainage, access, and underground utility lines; or
 - ◊ Other conservation-oriented uses compatible with the purposes of this ordinance.
- Active recreation areas may contain small amounts of impervious surface. Active recreation areas that are in excess of the 10% limit must be located outside of the protected Open Space. This requirement may be waived if at least 50% of the open space (or 15% of the gross tract area, whichever is smaller) is in one contiguous tract and is managed in a natural condition.

(Principle 15 Continued)

- Prohibited uses of Open Space are as follows:
 - ◊ Roads, parking lots and impervious surfaces, except as specifically authorized in the previous sections;
 - ◊ Golf courses;
 - ◊ Agricultural and forestry activities not conducted according to accepted Best Management Practices;
 - ◊ Impoundments; or
 - ◊ Other activities as determined by the developer and recorded on the legal instrument providing for permanent protection.
- Open Space land shall be preserved and maintained solely for the purposes specified above. The Open Space shall be protected in perpetuity by a binding legal instrument that is recorded with the deed. The method for effectuating such preservation and maintenance shall be one of the following:
 1. Establishment of a mandatory Home Owners Association (HOA) to own and maintain the land in common for the open space purposes intended according to the following provisions:
 - ◊ With their application for a permit to build a conservation subdivision, developers will create and submit minimum requirements and structure for the HOA before the first lot is sold;
 - ◊ The HOA will maintain, pay taxes, and own the open space;
 - ◊ Membership in the HOA is mandatory for all homeowners, and dues are uniform;
 - ◊ The HOA, by law, will stipulate that a third party, such as the local government, may enforce the maintenance of the open space through legally enforceable liens.
 2. Dedication of legally described and platted “open space” to a public entity (federal, state, or local government body).
 3. Dedication of legally described and platted “open space” to a Land Trust established in compliance with the requirements of Georgia law and shall be for conservation purposes.

***Principle 16.
Rooftop Runoff***

Direct rooftop runoff to pervious areas such as yards, open channels, or vegetated areas and avoid routing rooftop runoff to the roadway and the storm water conveyance system.

Recommendations:

- Rooftop runoff should be directed to pervious areas such as yards, open vegetated channels, or forested areas. Avoid concentrating rooftop runoff such that ditches form or such that water ponds on areas which contain septic drainage fields. If gutters are employed, the area immediately below gutter downspouts should be protected against erosion.
- Avoid routing rooftop runoff into roadways or stormwater conveyance systems.
- Avoid routing rooftop runoff toward a neighboring driveway or home.
- Stormwater best management practices that promote infiltration (e.g. buried perforated pipes), capture, retention, and/or reuse (e.g. rain barrels, rain gardens, etc.) of rooftop runoff are encouraged.

Conservation of Natural Areas (Habitat for Nature)

Principle 17.

Buffer Systems

Create a variable width, naturally vegetated buffer system along all perennial streams that also encompasses critical environment features such as the 100-year floodplain, steep slopes and freshwater wetlands.

Recommendations:

(Note: These items do not supersede any existing state or federal laws and regulations that may apply)

- Create a variable width, naturally vegetated buffer system along all perennial streams that also encompasses critical environment features such as the 100-year floodplain, steep slopes and freshwater wetlands.
- A three-zone 100-foot buffer system is required from both banks along all perennial streams – a streamside zone, a middle zone and an outer zone defined as follows (Figure 6.):
 - ◇ The streamside zone shall be a minimum of 25 feet (50 feet on trout streams) as required by current state law. It shall consist of undisturbed mature forest and should be reforested if necessary. Allowable use is very restricted and includes only flood control, utility right-of-ways and footpaths.
 - ◇ The middle zone shall be a minimum of an additional 50 feet, depending on slope and the 100-year floodplain. It shall consist of managed forest with some clearing allowed by permit. Allowable use is restricted to some passive recreational uses, some stormwater BMPs, bike paths and tree removal by permit. Individual trees may be removed that are in danger of falling, causing damage to dwellings or other structures or causing blockage of the stream. Timber cutting may be done if necessary to preserve the forest from extensive pest infestation, disease infestation or threat from fire, or where removal is important to the long-term protection of the stream.
 - ◇ The outer zone shall be a minimum of an additional 25 feet, as a setback from any impervious surfaces. Forest is encouraged in this zone, but turfgrass or forage grass is permitted. Allowable use is restricted to lawn, garden, compost, yard wastes, and most stormwater BMPs.
- Buffers may be reduced by variance permit provided stormwater BMPs are used.
- A strict review and permitting process is required for all public and private sector development within the minimum 100-foot buffer requirement along all perennial streams.

Principle 18.

Buffer Maintenance

The riparian stream buffer should be preserved or restored with native vegetation that can be maintained throughout the plan review, delineation, construction, and occupancy stages of development.

Recommendations:

- The riparian stream buffer should be reserved or restored with native vegetation. Maintain the buffer system through the plan review delineation, construction, and post-development stages.
- Forest riparian buffers should be maintained and reforestation should be encouraged where no wooded buffer exists. Riparian forest should be part of restoration.
- The riparian stream buffer ordinance outlines the local government and the organization or landowner responsible for long-term management and maintenance of the buffer.
- The riparian stream buffer ordinance outlines allowable uses. Examples of allowable uses might be:
 - ◇ Utility right of way
 - ◇ Footpaths
 - ◇ Management of flood control and storm water
 - ◇ Stream restoration projects
 - ◇ Water quality monitoring
- The ordinance specifies enforcement and educational mechanisms. Enforcement of ordinances might include:
 - ◇ Written notices to violators
 - ◇ For violations continuing after the fixed time for abatement and correction have expired, the violator will be cited.
 - ◇ Violators of ordinance may be liable and may be assessed for cost or expenses, monetary penalty and /or imprisonment.
- Education might include:
 - ◇ Signage along the buffers
 - ◇ Public service announcements and newspaper articles on the buffer program
 - ◇ Government sponsored buffer walks
 - ◇ Written disclosures regarding the buffer that convey with the deeds of buffer owner and all landowners adjacent to the buffer.
 - ◇ Outline of buffer uses and maintenance requirements in community association covenant

Principle 19.

Clearing and Grading

Clearing and grading of forests and native vegetation at a site should be limited to the minimum amount needed to build lots, allow access, and provide fire protection. A fixed portion of any community open space should be managed as a protected green space in a consolidated manner.

Recommendations:

- Clearing and grading of forests and native vegetation at a site should be limited to the minimum amount needed to build structures and the septic system, allow access, and provide fire protection. An example might be limiting disturbed area around structures to a reasonable distance outward from the building pad.
- Reserve (secondary) septic field areas cannot be cleared of trees at time of development.
- It was proposed that clearing of construction roads should coincide with planned permanent roadways whenever possible, but there were strong opinions both for and against this recommendation, so no consensus was reached. Further research and discussion is indicated
- Specific clearing and grading rules governing protection of buffers, jurisdictional wetlands, steep slopes, and floodplains should be created and enforced to minimize cumulative impacts of sediment to water resources and to retain the natural hydrology of the development site. In no case should these requirements be any less stringent than those currently required under the Georgia Erosion and Sedimentation Control Act. (i.e., the Green Book)
- Development sites of less than one acre, not covered by state and local erosion control permits, should also mitigate impacts of land disturbance and address soil erosion, tree conservation and stormwater runoff management.
- A grading ordinance should prescribe maximum and minimum slopes for house lots, and if a variance is allowed, a greater percentage of trees and native vegetation must be preserved or planted. Example: 2:1 slope - 20% of land must have trees/native vegetation preserved or planted, 3:1 slope - 25 or 30% of land must have trees/native vegetation preserved or planted.
- A post-development Forest Conservation Threshold related to zoning categories should be considered, such as Single Residential - 25% of woodland/forest must be preserved; Multiple Dwellings - 20 %; Commercial/Industrial - 15%. Any clearing of forest areas below the threshold should require reforestation, possibly at a ratio of two acres for every one cleared, either at the site or at another site in the same watershed. A suggestion for requiring a certain percent of canopy cover was given, but the appropriate percentage needs to be researched.
- A site inspection should be required to confirm clearing/grading requirements as specified in an approved site plan are met prior to initiation of construction.
- Encourage preservation of large contiguous tracts of forest greater than 3 acres, including primary conservation acres such as steep slopes/jurisdictional wetlands, and secondary conservation areas such as forest habitat/natural areas along streams and lakes, through incentives for forest protection, assessed fees based on woodland loss.

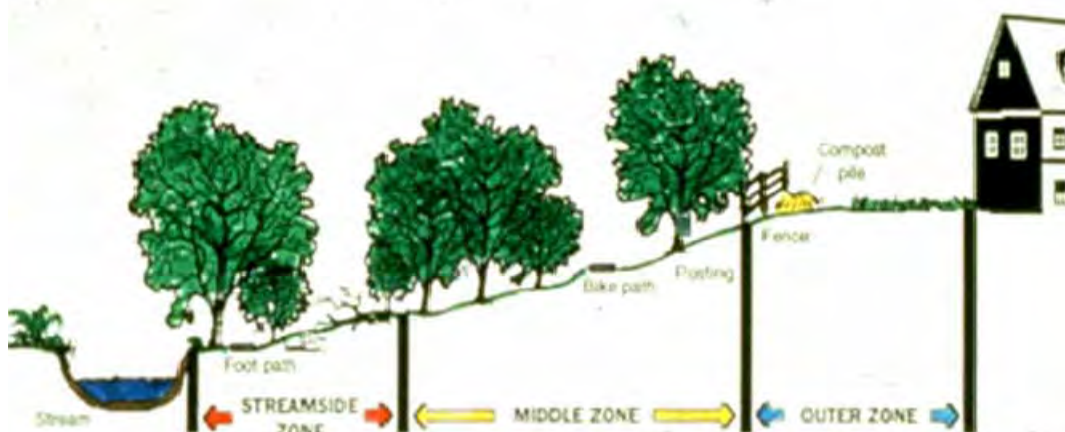


Figure 6.
Three Zone Buffer
System, Center for
Watershed Protection

GROWTH READINESS RECOMMENDATIONS

Conservation of Natural Areas (Habitat for Nature) Continued

Principle 20.

Tree Conservation

Conserve trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native plants. Whenever practical, manage community open space, street rights-of-way, parking lot islands, and other landscaped areas to promote natural vegetation.

Recommendations:

- Obtain professional recommendations to the cities, counties, developers and private citizens on design, maintenance and upgrading of natural areas and xeriscaping.
- Consider having a monetary incentive for homeowners practicing xeriscaping. Xeriscape landscapes are defined as "quality landscaping

that conserves water and protects the environment." Xeriscape-type landscaping is a package of seven common-sense steps for making a landscape more water-efficient:

- 1.Planning and Design
- 2.Soil Analysis
- 3.Appropriate Plant Selection
- 4.Practical Turf Areas
- 5.Efficient Irrigation
- 6.Use of Mulches
- 7.Appropriate Maintenance

- For access to the Georgia Xeriscape Guide, go to <http://pubs.caes.uga.edu/caespubs/pubcd/B1073.htm>
- Develop guidelines for lawn & garden maintenance and specimen tree and protected plant preservation in cities.
- Implement planting of trees and shrubs along street right of ways to reduce impervious surface cover.



Buffer Restoration Project

Property values of homes with trees in the landscape are 5 - 20% higher than equivalent properties without trees.

- Trees Atlanta

Principle 21.

Land Conservation Incentives

Incentives and flexibility in the form of density compensation, buffer averaging, property tax reduction, stormwater credits, and by-right open space development should be encouraged to promote conservation of stream buffers, forests, meadows and other areas of environmental value. In addition, off-site mitigation consistent with locally adopted watershed plans should be encouraged.

Recommendations:

- Incentives and flexibility should be encouraged to promote conservation of stream buffers, forests, meadows, and other areas of environmental value. Jurisdictions should consider the following types of incentives to determine which best meet the needs of their community: density compensation, buffer averaging, property tax reduction, storm water credits, and by-right open space development.
- Density Compensation - encourage developers to build approximately the same number of homes in a more compact design that will create savings in infrastructure costs in exchange for 25%-50% protected open space, including floodplains, jurisdictional wetlands, woodlands, stream buffers and native meadows.
- Buffer Averaging - allow developers to narrow the buffer width at some points (but no less than state minimum for regular and trout streams) and widen it at others, as long as the average width meets the minimum criteria. Appropriate use of this practice should be limited to specific situations, such as accommodating existing structures and recovering lost lots. Requests for variances should be scrutinized to eliminate potential impacts to streams through use of this practice.
- Property Tax Credit - reduce, defer, or exempt property taxes on conserved land in exchange for Conservation Easements or protection of high value resources in the community. If this incentive is adopted, the program should provide a penalty if property is later taken out of conservation use in order to be developed.
- Stormwater Credits - require use of site level techniques that reduce stormwater management costs for developers by reducing runoff volumes and minimizing construction of more costly stormwater management structures. Techniques include natural area conservation and retention of pre-development water quality and hydrologic characteristics such as forest retention areas, wetlands, floodplains, and steep slopes. Other considerations can be directing runoff to well-established filter strips and wooded buffers adjacent to streams and use of environmentally sensitive site design techniques applied to low density development, such as large lot residential.
- By-right Open Space Development - encourage open space development by allowing developers to submit plans, follow plan review and appeal procedures that are no more arduous than that needed for approval of conventional subdivisions.
- Enact and enforce the Georgia Mountain Protection ordinances to protect properties above 2200ft in elevation from clear cutting and destruction of native plant and specimen trees, and severe erosion of soil.
- Develop and enforce ordinances for new developments below 2200ft in elevation to protect from destructive clearing and development practices and non-essential removal of specimen trees.
- Develop and enforce rules for clear cutting on new lots and subdivisions and to protect existing trees from damage during clearing and construction (for example physical barriers).
- Develop and implement rules and laws for Cluster Development to conserve land, protect forested areas and reduce human impact.
- Appoint a committee to investigate, report on, and facilitate funding sources for both public and private programs to protect specimen trees, new forestation projects, stream buffers, and land and water conservation efforts

Conservation of Natural Areas (Habitat for Nature) Continued

Principle 22.

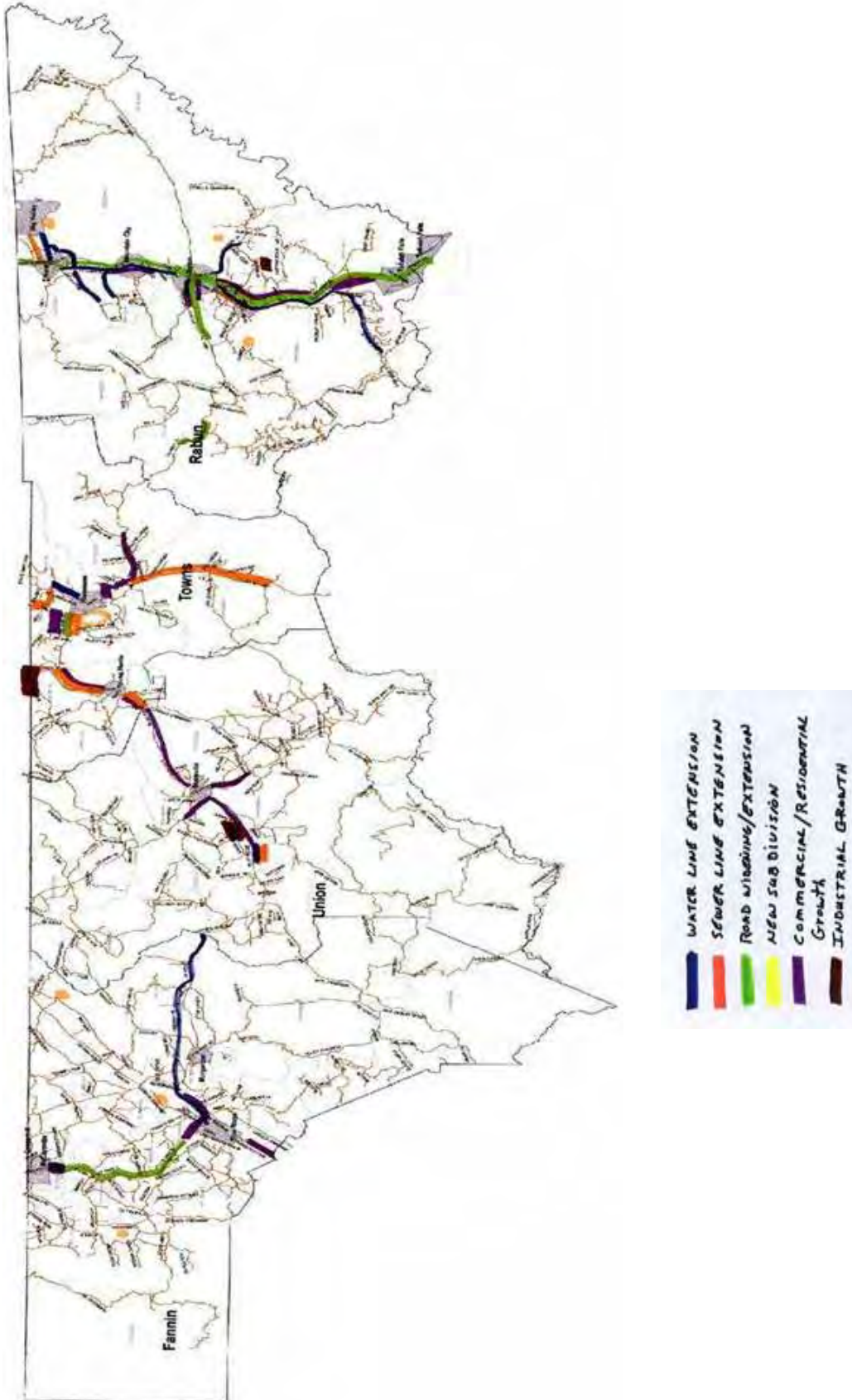
Storm Water Outfalls

New storm water outfalls should not discharge unmanaged storm water into jurisdictional wetlands, sole-source aquifers, or other water bodies.

Recommendations:

- New storm water outfalls should not discharge unmanaged storm water into jurisdictional wetlands, sole-source aquifers, or sensitive lakes and streams.
- Develop a floodplain management ordinance that restricts or prohibits development within the 100 year floodplain.
- Stormwater must be treated for quality before it is discharged.
- General Application Structural Controls are to be used whenever feasible to effectively treat the water quality volume and remove total suspended solids (TSS) load (up to 80%). These must be designed, constructed and maintained in accordance with specifications in the Georgia Stormwater Management Manual. These include:
 1. Stormwater ponds - constructed stormwater retention basins with a permanent pool of water that detains and treats runoff from each rain event.
 2. Stormwater Wetlands- constructed wetland systems consisting of combinations of shallow marsh areas, open water and semi-wet areas above permanent water surface.
 3. Bio-retention Areas - shallow stormwater basins or landscaped areas which utilize engineered soils and vegetation to capture and treat stormwater runoff.
 4. Enhanced Swales - vegetated open channels that are explicitly designed and constructed to capture and treat runoff within dry or wet cells formed by check dams or other means.
 5. Infiltration Trench - excavated trench filled with stone aggregate used to capture and infiltrate stormwater runoff into the surrounding soils.
 6. Sand filters - multi-chamber structures that treat stormwater runoff through filtration using the sand bed as the primary filter media.
- Limited Application Structural Controls, such as filter strips, grass channels, gravity oil-grit separators, underground sand filters and porous surfaces may be used as one component of a stormwater treatment train, or applied only for special site or design conditions, as alone they do not achieve appropriate TSS removal targets.
- Detention Structural Controls are not intended to treat stormwater runoff. Use them only for water quantity control such as channel protection, overbank flood protection or extreme flood protection in a stormwater treatment train.
- Physiographic factors (Low relief, high relief, and karst terrain) should be taken into consideration during the planning process as they limit use of many structural controls, and soils should be tested for infiltration feasibility.
- An effective stormwater management program requires sufficient staff and resources to inspect and enforce applicable ordinances and specifications.

NORTH GA COUNTIES PROJECTED GROWTH MAP



PARTICIPANTS

Connie Alexander	USEPA, Region 4
Michael Annast	Towns County Homeowners Association
Norm Bennett	Hiawassee River Watershed Coalition Board and Towns County Homeowners Association
Jim Bleckley	Rabun County Commissioner
William Blumreich	Towns County Homeowners Association
Stacey Bouma	US EPA, Region 4
Mary Jo Bragen	US EPA, Region 4
Eric Brinke	Blue Ridge Mountain Electric Membership Corporation
Harriet Bryant	GA Environmental Protection Division, TMDL Program
Pete Cleveland	Rabun County
Jim Conley	City of Blairsville, Mayor
Malcolm Dillard	City of Dillard, City Council
Callie Dobson-Moore	Hiawassee River Watershed Coalition
Jane Fowler	Southeast Watershed Forum
Ottis Franklin	City of Blairsville
Rob Fulmer	GA Soil and Water Conservation Commission
Joe Garner	GA Mountains Experiment Station, UGA
Mary Gazaway	GA EPD, TMDL Program
Kristen Gunia	Fannin County Economic Development Authority
Joel Haden	Tennessee Valley Authority
Linda Harris	Tennessee Valley Authority
Randy Hartmann	GA Department of Community Affairs
Tim Hawkins	City of Blue Ridge Water Authority
Chris Ernst	Georgia Mountains Regional Development Center
Joseph Krewer	GA Department of Community Affairs
Mary Elizabeth Law	Rabun County Commissioner
Kathryn Papa	GA Department of Community Affairs
Lamar Paris	Union County Sole Commission
Rebecca Peterson	Rabun Green
Dale Rice	Towns County Chamber of Commerce
Carl Shultz	Friends of Towns County
Larry Stephens	City of Blairsville
Glenda Swanson	Rabun County Planning Commission
Carol Turner	Rabun County Planning Commission
Larry Vanden Bosch	North Georgia Regional Development Center
Richard Vollrath	Fannin County Board of Commissioners
Annaka Woodruff	GA Department of Community Affairs
Marie Woody	Fannin County Land Development Office
Andrea Zimmer	US EPA, Region 4