Natural Buffer Zones are protected zones within a stream corridor usually containing a mix of native vegetation which help reduce the effects of surrounding land uses that might otherwise harm water quality. The State of North Carolina has adopted water supply watershed regulations that require buffers along certain waterways. Local governments have the authority to adopt regulations more stringent than the State. Some localities have adopted natural buffer regulations in which the removal of trees, for example, is prohibited.

**What is it?**

**Shared Impact and Benefits**

- Stream Buffers filter out and process pollutants, such as nitrogen and phosphorus, particularly from non-point source origins, before they can contaminate reservoirs and present health risks.
- Stream Buffers trap and remove sediment from storm water runoff, provide flood control and protect stream banks from erosion.
- Stream Buffers will improve the water quality and therefore reduce the costs of water clean-up.
- Many areas depend on rainwater soaking into the ground to replenish underground drinking water supplies. The vegetation in buffer zones absorbs storm water runoff and allows it to percolate down into the ground water supplies.
- Stream Buffer zones provide vital networks for wildlife as well as opportunities for recreational greenways.
- Studies show that property values increase when located next to a natural buffer zone.
- As more communities implement stream buffer plans, the more overall water quality for the entire region will benefit.

**How long does this take to implement?**

Many of the plants that form buffers require a relatively short time to mature, but can effectively function before then. Trees require the most time.

**Costs**

Buffer lands can be acquired through conservation easements, required in setbacks, received by donation or purchased. Local government will require a trained staff to provide technical assistance, program start-up, planning and legal requirements, site selection, and community education.

**The Bottom Line**

- Buffer zones along waterways improve water quality by filtering out harmful pollutants and sediment, reduce the risk and damage level of flooding, provide habitat for wildlife and provide recreation opportunities.
- This project can be implemented and maintained fairly easily with the entire region benefiting as a result.

**Interested? Read on!**
Who needs to be involved in implementation?

- City/Town Council & Planning Board
- State and local environmental engineering experts
- Chamber of Commerce and business leaders
- Parks and Recreation Commission and staff
- Utility advisory board (storm water, sewer)
- Local marine association representatives
- Community groups
- Environmental groups
- Local Land Trusts
- Real Estate and Home Builders Associations
- Private citizens and property owners

Action Steps

1. Become familiar with some of the basic facts regarding stream buffers and their role in protecting watersheds. Start with reading the Basic Information section below.
2. Assemble a local project team (advisory panel) with members from the groups listed on page 2.
4. Draft guidelines for buffer requirements catered to your community.
5. Establish an effective buffer management plan which should include establishment, management and distinctions of allowable and prohibited uses in the buffer zones. Ensure that buffers boundaries will be well defined and visible before, during and after construction with clear signs or markers.
6. Work with recreation and wildlife representatives to evaluate the benefits of proposed buffers as wildlife corridors and/or greenways/trails.
7. Adopt a Stream Buffer Ordinance in your community and develop technical criteria for establishing, evaluating and maintaining stream buffers. Criteria should include a Plan Review Check Sheet for designers.
8. Invest in staff resources and training for plan review, consultation, and inspections. Manuals, workshops, seminars and direct technical assistance will be needed to explain the new requirements to all involved in the land development business as well as raising the awareness of residents regarding stream buffers.

Who’s doing this?

- In South Carolina, Chester and York Counties have adopted natural buffer requirements on the Catawba River in their zoning ordinances.
- In North Carolina communities that fall under the Watershed Protection Act must have a minimum level of protection of surface waters that serve North Carolina local government water intakes.

Tracking Progress

- Let CCCOG know when you have implemented this action by calling 704-372-2416 so that we can document actions and results on a region-wide basis.
- Before implementing a buffer zone contact NCDENR or SCDHEC about measuring the water quality above the buffer zone, at the buffer zone, and below the buffer zone. Measure again during the project and at its completion. Then, measure periodically to evaluate the effectiveness of the buffer zone.
Basic Information

For greatest effectiveness, buffers are often divided into zones of various management strategies and intensities. (See above)

Although the heaviest pollution in waterways usually comes from urbanized areas, farming, forestry, and livestock are also substantial contributors of pollutants in the form of fertilizers, animal waste and sediment.

In both of the Carolinas, land trusts work to establish buffer zones along creeks and rivers through acquisition of land and voluntary conservation easements.

Potential challenges to implementing natural buffer zones include: loss of possible land for development, invasion of exotic "nuisance species" into the new habitat, and demand on local government resources for maintenance.

To lessen the burden of buffer requirements on developers and home owners, consider the following:

- Conservation easements allow the citizen to retain the ownership of the property and receive tax credits. [http://www.strom.clemson.edu/primelands/]
- Buffers can be included into already existing setback requirements.
- Buffers can be used in satisfying common open space or Best Management Practice (BMP) requirements.
- Lot size requirements can be reduced or density bonuses awarded where natural buffer zones are employed.
- Buffer averaging allows the buffer width to be narrowed at some points if the average width of the buffer and the overall buffer area meet the minimum criteria.

Options for stream buffer ownership include:

- Owned, managed and controlled by the public
- Owned, managed and controlled by a property owners' association or non-profit conservation organization.
- Owned by a private owner but subject to a conservation easement
- Owned by a private owner but subject to the requirements of the buffer ordinance.
FAQ’s

Q: What are the benefits of riparian buffers?
A: Riparian buffers accomplish quite a lot. They reduce flooding from the runoff of parking lots, drives and other impervious surfaces to the streams. They protect streams and aquatic life by trapping debris and chemicals carried in the runoff, such as pesticides, nutrients, pathogens, and sediment, that would otherwise reach the streams and stress aquatic life. They help prevent erosion of stream banks by holding soil in place. They provide recreation and a natural environment for residents. And they can help buffer wildlife and private residences from the noise of busy waterways or highways.

Q: How wide do buffers have to be?
A: The required size of the buffer is dependent upon the local or state government’s regulations. Typically, buffers need to be tailored to the particular property. Properties with greater slope would require wider buffers.

Q: Can I cut any trees in my buffer to improve the view?
A: Local regulations should state whether you are allowed to remove any trees in the buffer, though it is generally not recommended that trees be removed. Trees provide many environmental benefits in addition to role they serve in the buffer.

Q: How can the cost of buffer requirements to developers be softened?
A: Buffer averaging may relieve some of the significant financial hardships for developers by allowing them to narrow the buffer width at some points if the average width of the buffer and the overall buffer area meet the minimum criteria.

Q: Will buffers increase my property values?
A: Property values tend to increase as a result of buffers and other open space. Buffers tend to screen out undesirable views, and provide natural beauty and an increased sense of privacy and spaciousness for adjacent properties.

Q: Sounds great so far, but what are the disadvantages of buffers that I need to consider?
A: Buffers place restrictions on land that can mean a potential loss of developable land area. Private landowners may be required to provide public access to privately held stream buffers. Excessive nuisance species may be present due to the natural buffer and so can increase landscape maintenance costs. And buffer programs will place additional demand on local government resources.

Q: Will buffers increase my property values?
A: Local regulations should state whether you are allowed to remove any trees in the buffer, though it is generally not recommended that trees be removed. Trees provide many environmental benefits in addition to role they serve in the buffer.

Q: How can the cost of buffer requirements to developers be softened?
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Intersecting Interests

WATER SUPPLY PLANS

Natural Buffer Zones play a significant role in increasing the effectiveness of available water sources. Water Supply Plans identify groundwater recharge areas, some of which serve as Buffers, to be protected from incompatible development.

WATERSHED IMPACT MODELS

Watershed Impact Models are used to understand how development will affect a watershed. Development places demands on watersheds primarily through non-point source pollution. Natural Buffer Zones capture these pollutants.

GREENWAYS & OPEN SPACE

Natural Buffer Zones often create perfect opportunities for greenways as they line streams and other water bodies. These green corridors can provide bike and pedestrian connectivity in addition to recreational resources.
Resources

**USEPA Clean Water Act Section 319(h) funds**
are administered by state water quality agencies, including SCDHEC and NCDWQ. These grants target the prevention of non-point source pollution affecting 303d listed streams as part of a TMDL project. To learn more, contact Grants Coordinator at SCDHEC Bureau of Water, at 803-898-4222, or visit them at [http://www.scdhec.gov/environment/water/grants.htm](http://www.scdhec.gov/environment/water/grants.htm). In NC, contact 319 Grant Coordinator at NCDWQ 919-807-6438 or visit [http://portal.ncdenr.org/web/wq/ps/nps/319program](http://portal.ncdenr.org/web/wq/ps/nps/319program).

**The Urban & Community Forestry Grant offered by the North Carolina Department of Forest Resources** can provide 50% matching funds for naturalization projects involving riparian buffers or wooded corridors connecting fragmented forested areas. For more information, visit the NCDFR website at [http://www.dfr.state.nc.us/urban/urban_grant_overview.htm](http://www.dfr.state.nc.us/urban/urban_grant_overview.htm) or call 919-857-4801.

**South Carolina’s Recreation Land & Trust Fund (RELT)** is similar to PARTF. Project considered to have regional significance may be eligible for up to $100,000. Find out more by contacting the SC Dept. of Parks, Recreation and Tourism Grants Coordinator at 803-734-0617.

**Contact your local Soil and Water Conservation District for information on conservation programs, educational resources and natural resource technical support.** For SC county contacts, see [http://www.dnr.sc.gov/conservation/](http://www.dnr.sc.gov/conservation/) and for NC counties, visit [http://www.ncaswcd.org/districts.htm](http://www.ncaswcd.org/districts.htm).
For More Information

- Streamway Corridors: The Importance of Riparian Buffer Zones, Jessica Hayes-Conroy — [http://serendip.brynmawr.edu/biology/b103/f00/web2/hayesconroy2.html](http://serendip.brynmawr.edu/biology/b103/f00/web2/hayesconroy2.html)
- Aquatic Buffers Fact Sheet: Buffer Zones — [http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Tool3_Buffers/BufferZones.htm](http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Tool3_Buffers/BufferZones.htm)
- For application guidelines for conservation easements in the Catawba River Basin for both North and South Carolina, visit [http://www.strom.clemson.edu/primelands/](http://www.strom.clemson.edu/primelands/)
- Storm Water Center Model Buffer Ordinance — [http://www.stormwatercenter.net/Model%20Ordinances/buffer_model_ordinance.htm](http://www.stormwatercenter.net/Model%20Ordinances/buffer_model_ordinance.htm)