

Protecting Riparian Buffers in Coastal Georgia: Management Options

Includes Model Coastal Riparian Buffer Ordinance

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Executive Summary

Scientists have long realized the important benefits that tidally-influenced areas, including estuaries, tidal creeks, and marshlands, provide to communities. Tidal creeks and their adjacent marshes are extremely important nursery areas for fisheries, “providing food and habitat to numerous species of fish and shellfish, including commercially important species” (Mallin and Lewitus 2004). However, in recent years, Georgia’s coast has come under increasing pressure from development, resulting in an increase in nonpoint source pollution to the marshes.

Preserving naturally vegetated buffers along Georgia’s marshlands and other surface water resources is an ecologically and cost effective tool for protecting this valuable and fragile ecosystem. Coastal riparian buffers perform a wide range of ecological functions and services having high economic and social value. Studies have demonstrated that nonpoint source pollution to coastal marshes can be significantly reduced through the preservation of coastal riparian buffers. The buffers act as filters, removing pollutants such as sediment, nutrients, contaminants, and pesticides before they enter waterways (South Carolina Department of Health and Environmental Control 2002a). Coastal vegetative buffer zones also provide:

- Aquatic and terrestrial wildlife habitat protection, including nursery grounds for fish and habitat for shellfish
- Floodwater storage
- Recreational opportunities
- Scenic and aesthetic benefits
- Preservation of historical and cultural resources
- Reduced property damage from floods, high tides and storm surges
- Increased property values
- Reduced maintenance costs compared to turf grass
- Protection of coastal fishing, recreation and tourism industries.

There are many policy tools available to help local governments preserve coastal riparian buffers. A straightforward option is a coastal riparian buffer ordinance, which is a local regulation to limit development activities within buffers. Although several model riparian buffer ordinances have been developed for Georgia’s local governments, these current models were crafted for freshwater ecosystems and do not take into account the unique resources and issues of Georgia’s coastal communities. Therefore, a new model riparian buffer ordinance has been developed to meet the specific needs of local governments along Georgia’s coast (see Appendix A).

Perhaps the biggest impediment to the adoption of riparian buffer ordinances is concern for private property rights. It is essential to draft the ordinance in a way that fully respects the rights of property owners. Buffers protected by a riparian buffer ordinance remain in the ownership of the property owner. This is in contrast to greenways, which are generally publicly owned. A buffer ordinance should never mandate public access to private property, nor should it restrict activities on a property to such an extent that the owner cannot make use of it. These conditions would be grounds for a takings lawsuit. If a local government cannot provide adequate buffer protection along a stream segment without infringing on property rights, then the government must either acquire the parcels in question (or conservation easements on those parcels) or try to offset the lack of protection with controls (whether regulatory or voluntary) somewhere else in the stream basin.

There are also various non-regulatory options such as land acquisition, conservation easements, purchase of development rights, transferable development rights, and clustering that can be used to preserve riparian buffers. Governmental acquisition may be the best mechanism for protecting key pieces of riparian land, although acquisition is usually reserved for special cases because of the costs, particularly in coastal areas where land values are high. There are numerous sources of funds available to local governments that can be applied toward riparian land acquisition. Conservation easements are another option to protect environmentally sensitive areas such as riparian lands.

In a conservation easement, the landowner agrees to give up development, timber harvesting, or other similar rights in order to protect the riparian lands for conservation use. The landowner retains such basic property rights as the right to exclude, the right to sell, and the right to use the property in a manner that does not impair the conservation value of the easement. Local governments, charitable organizations, and private individuals may purchase or receive the easement as a gift. It is then the responsibility of the easement holder to ensure that the easement has not been violated and to pursue any necessary legal recourse for its enforcement. Landowners who donate a conservation easement or a parcel of land in fee simple may be eligible for preferential tax treatment at the federal and State levels.

Another tool for preserving riparian areas and protecting surface water resources is a transferable development rights (TDR) program. With a TDR program, a community can identify riparian lands it would like to preserve as “sending areas.” Other areas where the community prefers to concentrate growth and development are designated as “receiving areas.” Owners of “receiving areas” may purchase

unused development rights from owners of “sending areas.” Once these rights are sold, the “sending area” may not be developed in the future, and these parcels are protected by a conservation easement or similar legal tool. This transferability not only provides compensation to landowners who forego development opportunities, but it also provides the local government with the opportunity to focus growth where it is most appropriate. While TDR programs are used for a variety of purposes, several coastal communities in the United States use TDRs to protect their coastal resources and wetlands.

Clustering is similar to a TDR program, except that clustering involves density transfers within a single parcel of land. For example, a landowner with a 100-acre parcel, with a restriction of one unit per 20 acres, might want to concentrate all 5 units within a 5-acre area to preserve the other 95 acres. By concentrating denser development away from riparian lands, density transfers may help to protect stream buffers and coastal features. A common way of implementing density transfers is through a clustering or conservation subdivision ordinance.

I. Introduction

A recent study commissioned by the Coastal Georgia Regional Development Center and conducted by the Georgia Institute of Technology projected that by 2030, over 840,000 people will live in a 10-county area within Georgia's coastal region (Center for Quality Growth and Regional Development 2006). This is a 50 % increase in population from the roughly 558,000 people living there in 2000. Already, this region has seen a large population increase in recent years, with 17.5 % growth between 1990 and 2000 (Center for Quality Growth and Regional Development 2006). Population growth at such a high rate adds pressure to fragile coastal ecosystems that are critical to the maintenance of the commercial and recreational seafood industries, the coastal tourism industry, and overall quality of life on the Georgia Coast.

A. Why protect Georgia's coastal marshlands?

Scientists have long realized the important benefits that tidally influenced areas, including estuaries, tidal creeks, and marshlands, provide to communities. Tidal creeks and their adjacent marshes are extremely important nursery areas for fisheries and habitat for shellfish, including commercially and recreationally important species (Mallin and Lewitus 2004).

In addition, these areas have value because of their aesthetic beauty, which attracts tourism and new residents. The National Association of Regional Councils estimates that tourism provides \$2 billion annually to the coastal economy in Georgia. According to the Coastal Resources Division (CRD) of the Georgia Department of Natural Resources (DNR), recreational game fishing in the State's coastal waters contributes about \$363 million annually, and the commercial fishing industry adds over \$22 million annually to Georgia's coastal economy (Georgia DNR).

Ahead of major federal environmental legislation such as the Clean Water Act, in 1970 the State of Georgia established itself as a national leader in tidal wetlands

protection when the Georgia legislature took action to protect the State's salt marshes by enacting the Coastal Marshlands Protection Act (CMPA), O.C.G.A. § 12-5-280 *et seq.* Today, this statute remains one of the most protective tidal wetlands laws in the nation. The preamble reads as follows:

The coastal marshlands of Georgia comprise a vital natural resource system. The estuarine area of Georgia is the habitat of many species of marine life and wildlife that cannot survive without the food supplied by the marshlands. The estuarine marshlands of coastal Georgia are among the richest providers of nutrients in the world. Such marshlands provide a nursery for commercially and recreationally valued species of shellfish and other wildlife, provide an important buffer against flooding and erosion, and help control and disseminate pollutants. The coastal marshlands provide a natural recreation resource which has become vitally linked to the economy of Georgia's coastal zone and to that of the entire state.

This coastal marshlands resource system is costly, if not impossible, to reconstruct or rehabilitate once adversely affected by man. It is important to conserve this system for the present and future use and enjoyment of all citizens and visitors to our state. Activities and structures in the coastal marshlands must be regulated to ensure that the values and functions of the coastal marshlands are not impaired and to fulfill the responsibilities of each generation as public trustees of the coastal marshlands for succeeding generations.

B. What are the threats to our marshlands?

In order to protect coastal ecosystems and the coastal economy that depends upon them, communities along Georgia's coast must begin to deal with the environmental impacts associated with its increasing

population. Increased levels of development add large amounts of impervious cover, such as parking lots, rooftops, and roadways, and semi-pervious cover, such as lawns and compacted, unpaved driveways, to the landscape. These surfaces generate increased levels of stormwater runoff, which delivers numerous types of pollutants—such as oil, biological contaminants and excess nutrients—to marshes and creeks. A study conducted in tidal creeks in South Carolina found that creeks draining areas with higher percentages of impervious cover were measurably impaired physically, chemically, and biologically when compared with creeks draining undeveloped areas (Holland et al. 2004).

Pollution like stormwater runoff that does not emanate from a discrete source is called nonpoint source pollution. Other sources of NPS pollution in coastal waters include agriculture and forestry practices, faulty septic systems, and leaking sewer pipes. According to the U.S. Environmental Protection Agency (U.S. EPA), a significant portion of the threats to coastal waters is now caused by NPS pollution (U.S. EPA 1996). Tidal creeks and estuarine systems are particularly sensitive to NPS pollution, which can cause significant damage to the freshwater and marine organisms associated with these ecosystems, including commercially important species (Schiff et al. 2002; Lee 2005; Mallin 2006). Therefore, as resident populations in Georgia's coastal communities grow and development along our shorelines increases, control of NPS pollution becomes critical. An evaluation of the Georgia Coastal Management Program in 2001 by the National Oceanic and Atmospheric Administration (NOAA) recommended that Georgia communities and officials develop appropriate responses to water quality, land use, and population growth in coastal areas and consider the use of buffers (NOAA 2001).

Georgia legislators have already used buffers to address erosion and sedimentation problems to protect Georgia's waters and meet federal water quality standards. The Georgia Erosion and Sedimentation Control Act of 1975 requires a minimum 25-foot riparian buffer along all State waters as a best management practice (BMP) to minimize and prevent erosion and the associated sedimentation problems.

Both the CMPA and the Shoreline Protection Act also give the State regulatory power to establish coastal riparian buffers through the permitting and review process (Desbonnet 1994). Recently, the Georgia DNR adopted a rule requiring 50-foot buffers along coastal marshlands pursuant to the CMPA. In addition, because the effectiveness of nonpoint source pollution minimization and removal measures is dependent upon factors like slope, soil type, vegetation and type of land use, regulating authorities encourage local communities to adopt solutions, including riparian buffer ordinances that are specifically tailored to the particular community's needs (NOAA 2001).

C. What is a coastal riparian buffer?

A riparian buffer is a strip of land along a stream, river, lake or marsh consisting of either undisturbed vegetation in its original natural state or undisturbed vegetation that has been restored to a state that closely mimics its original, natural state. The Georgia Erosion and Sedimentation Control Act defines a buffer as the “area of land immediately adjacent to the banks of State waters in its natural state of vegetation, which facilitates the protection of water quality and aquatic habitat.” In the coastal context, riparian buffers have been defined as “corridors of ... vegetation along rivers, streams, and tidal wetlands that protect waterways by providing a transition zone between upland development and adjoining surface waters” (South Carolina Department of Health and Environmental Control [SC DHEC] 2002a). For more information regarding the types of vegetation that should be present in the buffer and how to best restore and maintain coastal riparian buffers on your land and in your community, please refer to the *Coastal Riparian Buffer Guidance Manual*, prepared by the University of Georgia River Basin Center for the Georgia Environmental Protection Division of the Georgia DNR.

D. Why coastal riparian buffers?

Coastal riparian buffers perform a wide range of ecological functions and provide services having high economic and social value. Scientific research increasingly shows that riparian buffers play a crucial

role in protecting our waters from the effects of nonpoint source pollution by acting as filters and removing pollutants before they enter our waterways (C DHEC 2002a). Coastal vegetative buffer zones also provide:

- Aquatic and terrestrial wildlife habitat protection, including nursery grounds for fish and habitat for shellfish
- Floodwater storage
- Recreational opportunities
- Scenic and aesthetic benefits
- Preservation of historical and cultural resources

- Reduced property damage from floods, high tides and storm surges
- Increased property values
- Reduced maintenance costs compared to turf grass
- Protection of coastal fishing, recreation and tourism industries.

As a result, coastal riparian buffers are a “conservation bargain” because they provide so many functions and services to communities in a relatively small area. It must be noted, however, that a riparian buffer is the last line of defense between our surface waters and nonpoint source pollutants. In order to protect water quality adequately, a buffer ordinance should be accompanied by an effective stormwater management program.

II. Functions of Coastal Riparian Buffers

Provided here is a brief summary of riparian buffer functions, with emphasis on results of research regarding buffers in the coastal plain and tidally influenced ecosystems of the Southeast. A wide variety of articles and reports were reviewed in order to provide information about specific buffer functions and, when available, the buffer widths and other buffer characteristics necessary to achieve those functions.

A. Erosion and Sediment Control

Sediment is the most significant pollutant in many streams and rivers. Sedimentation may originate from a range of sources, including residential, commercial, and industrial construction sites, construction of stream crossings for utilities and roads, stream channel erosion (which increases with high storm flows associated with urbanization), agriculture and forestry, and historical land uses that left “legacy sediment” in streams and rivers (Wenger and Freeman 2006).

Excess amounts of sediment can have numerous deleterious effects on water quality and stream biota:

- Sediment in municipal water is harmful to humans and to industrial processes.
- Sediment deposited on stream beds reduces habitat for fish and for the invertebrates that many fish consume.
- Suspended sediment reduces light transmittance, decreasing algal production.
- High concentrations of fine suspended sediments cause direct mortality for many fish.
- Suspended sediments reduce the abundance of filter-feeding organisms, including mollusks and some arthropods.
- Sedimentation reduces the capacity and the useful life of reservoirs.

Riparian buffers that are naturally vegetated act as filters to remove sediment from surface runoff. They also serve to keep development and grading activities

and the erosion and sedimentation associated with those activities away from waterways and marshes. Buffers also slow the speed of stormwater runoff before it enters a waterway and stabilize stream banks, thereby reducing scouring and channel erosion.

Studies have yielded a range of recommendations for buffer widths in order to perform the function of erosion and sedimentation control. As a rule of thumb, the wider the buffer, the greater the amount of sediment removal (Wenger 1999; Young et al. 1980; Peterjohn and Correll 1984; Magette et al. 1987, 1989; Dillaha et al. 1988, 1989). To provide for long-term trapping of sediments, studies suggest that buffers likely must be in the range of 100 feet (Wenger and Fowler 2000). A 1994 literature review developed relationships between buffer width and percent removal of sediment and other pollutants (Desbonnet et al). Results showed that a 50% removal efficiency for sediment should be achieved in the first 2 meters but that 90% removal requires a buffer width of 90 meters. (See Table 1). A 1997 study evaluating buffer effectiveness in the inner coastal plain and tidal ecosystems of the Chesapeake Bay Watershed found that in the inner coastal plain ecosystem, when the drainage area to buffer area ratio was 2:1, the buffer retained 96% of sediment (Lowrance et al. 1997).

B. Nitrogen and Phosphorus

Excessive amounts of two nutrients – nitrogen and phosphorus – act as pollutants in aquatic systems, with excessive amounts of nitrogen generally being a more damaging pollutant in marine and estuarine systems and phosphorus being more damaging in freshwater systems (Guadagnoli 2005). Nitrogen and phosphorus can lead to many changes in the ecology of aquatic systems. Both nutrients contribute to eutrophication, the process of “over-fertilization” of a water body due to an increase in nutrient loading. Eutrophication often leads to algal blooms and low oxygen levels in marine and estuarine systems, both of which have been documented in East Coast estuaries in recent years and have been linked to massive fish kills and releases of toxins that are poisonous to humans (Burkholder et al. 1997). Nonpoint sources of phosphorous and nitrogen include agricultural

and residential fertilizers, septic drain fields, leaking sewer pipes, and animal wastes from concentrated animal feeding operations.

Nitrogen is readily removed from stormwater when filtered through a vegetated buffer because it is usually dissolved in the water column. Again, the wider the buffer, the more nitrogen removal function it will provide, but Desbonnet et al. (1994) report a 50% removal efficiency for nitrogen at a buffer width of 3.5 meters and a 90% efficiency at 150 meters (See Table 1).

Nitrogen is present in stormwater in numerous inorganic and organic forms. Two common forms include nitrate (NO_3), which is toxic to humans and animals at high concentrations ($> 10\text{mg/L}$), and ammonium (NH_4), which is toxic to many aquatic organisms. Ammonium is readily taken up by vegetation in the buffer, but buffers remove nitrate from runoff through a process, performed by microorganisms, known as denitrification. When nitrogen is present in stormwater in the form of nitrate, Desbonnet et al. (1994) report that riparian buffers are much less efficient at removing the nutrient, giving a removal efficiency of 50% at a buffer width of greater than 100 meters. However, other studies have found that a much narrower buffer efficiently removes most nitrate from the water column (Fennesy and Cronk 1997; Gilliam 1994; Lowrance et al. 1997), and one study reports that a buffer width of 20 – 30 meters removes nearly 100% of nitrate (Fennesy and Cronk 1997). The efficiency of the buffer for removing nitrate depends largely upon the way in which the water passes through the buffer. This, in turn, depends upon the water table

depth and soil type. If the water table is high so that the flow is shallow and comes into contact with the root zone of the riparian vegetation, nitrate removal will be higher (Lowrance et al. 1997). Nitrate removal is also higher in areas with poorly draining soils, such as clay/loam. Wetlands are particularly important for performing the function of nitrate removal, as they contain a high water table and poorly draining soils (Desbonnet et al. 1994).

Unlike nitrogen, phosphorus is almost always undissolved and attached to sediments (Karr and Schlosser 1977, Peterjohn and Correll 1984, Osborne and Kovacic 1993) or organic matter (Wenger 1999) when present in stormwater. As a result, buffer widths that are sufficient to remove sediments should also be sufficient to trap and remove phosphorus (Wenger 1999). Phosphorus is removed from the buffer mostly by uptake of the riparian vegetation. When the vegetation dies, the nutrients are eventually returned to the soil and then to the water through the process of decomposition.

The Desbonnet et al. (1994) study reports a 50% phosphorus removal efficiency at a buffer width of 5 meters and a 90% removal rate at 150 meters. (See Table 1). Other studies have found that in the short term (before vegetation dies and the phosphorus is reintroduced into the system), buffers of 8 meters and 16 meters in width trapped 66% and 95% of phosphorus, respectively (Vought et al. 1994), and buffers of 20 meters and 28 meters trapped 67% and 81% of phosphorus, respectively (Mander et al. 1997). Finally, studies have found that grassy areas are more efficient than forested areas for nutrient removal. However, these studies also found that

Table 1. Buffer widths required to attain different removal efficiencies for pollutants (Adapted from Table 5, Desbonnet et al. (1994)).

Removal (%)	Sediment	TSS	Nitrogen	Nitrate	Phosphorus
	Buffer width required to achieve removal (meters)				
50	0.5	2	3.5	>100	5
60	2	6	9		12
70	7	20	23		35
80	25	60	60		85
90	90	200	150		250
99	300	700	350		550

buffer effectiveness declined over time, presumably because vegetation was not harvested to prevent reintroduction of the nutrients into the system (Dillaha et al. 1988 and 1989, Magette 1987 and 1989). For grassy buffer areas, studies found that the wider the buffer, the lower the concentration of phosphorus in runoff (Dillaha et al. 1989, Magette 1987 and 1989; Desbonnet 1994).

C. Other Contaminants

Along with sediment and excess nutrients, the other main types of pollutants found in nonpoint source pollution include pesticides, heavy metals, and biological contaminants and pathogens found in human and animal waste. Disease producing pathogens found in human and animal wastes can cause illnesses when people come in contact with polluted water or eat contaminated fish and shellfish. Pathogens can also harm other aquatic organisms directly through disease or indirectly by using up all available oxygen in the water column, which kills fish and other organisms. Just as they trap sediment and nutrients in their vegetation, riparian buffers can trap human and animal wastes transported in surface runoff. Several studies have shown that concentrations of fecal coliform (an indicator of organic pollution) in surface runoff were reduced when the water was filtered through grass buffer strips (Coyne et al. 1995; Karr and Schlosser 1977).

Pesticides are regularly applied to residential lawns and row crop agriculture and, in the Southeast, are used increasingly in forestry practices (Neary et al. 1993). Heavy metals are a by-product of industrial activities in most cases and are usually found in the highest concentrations in urbanized watersheds (Crawford and Lenat 1989). Toxins in pesticides may have immediate lethal effects on aquatic organisms if present in a water body in large amounts. At smaller doses, these toxins may also have various harmful effects on organisms (Cooper 1993). Toxic pollutants such as pesticides and heavy metals can also become trapped in aquatic sediments and persist for hundreds of years. When this occurs, they become virtually impossible to remove from the system. Activities such as boating, dredging or construction that disturb contaminated sediments can then release these toxic

substances into the water column and cause harm to aquatic organisms and humans.

Buffers play an important role in protecting aquatic resources by displacing pesticide application away from the water body. In one study of Coastal Plain streams, unexpectedly low pesticide levels were found in streams located in agricultural watersheds in which pesticides were regularly applied, which was hypothesized to be due to the presence of intact forested floodplains and wetlands (Frick et al. 1998). Buffers are effective at filtering and/or trapping pesticides (Frick et al. 1998; Hatfield et al. 1995; Arora et al. 1996; Lowrance et al. 1997) and heavy metals (Herson-Jones et al. 1995; Groffman et al. 1991) before than can enter a water body. Many pesticides are broken down in the soil, and heavy metals bind to soil particles, becoming trapped in the buffer rather than in aquatic sediments.

As with other types of pollutants, the wider the buffer is, the greater its ability to protect water resources from these chemicals. Wider buffers provide more residence time for chemicals to break down and more sites for metals to bind to soil particles. A 1993 review of studies on the use of buffers to reduce pesticide contamination of water in the Southeast reported that regular use of buffer strips kept pesticide residue concentrations within water quality standards. The report found that the high concentrations of pesticide in the water occurred when no buffer was present or when pesticides were applied within the buffer and concluded that buffers 15 meters in width were effective to minimize pesticide contamination in streams (Neary et al. 1993). Other studies suggest much wider buffers may be required (Lowrance et al. 1997).

D. Habitat Protection

Coastal buffer zones provide habitat for native plant, animal, and aquatic species (Rhode Island Program 1994). Vegetation provides shade and cover from predators, as well as nesting and feeding habitat for resident and migratory species. For example, buffers along the marsh-upland shoreline protect roosting and foraging sites for colonial waterbirds. Wildlife diversity is linked to a buffer's size; wider buffers

support a greater variety and number of species. Furthermore, buffers that possess vegetation native to the area provide more valuable habitat for sustaining resident species. A continuous buffer is of particular value in protecting amphibians, waterfowl, and coastal fish spawning and nursery areas (SC DHEC 2002b).

Since small tidal creeks are critically important spawning and nursery areas for commercially important aquatic species, wider buffers are recommended for small tidal creeks as well as bigger freshwater streams (SC DHEC 2002b). For general-purpose buffers intended to provide some value as wildlife habitat, a minimum width of 15 meters (about 50 feet) is suggested (Desbonnet et al. 1994). Vegetated buffers of this width generally provide some water quality protection for most waterways (approximately 60 % pollutant removal), offer minimal wildlife habitat value, protect visual and aesthetic appeal, and can provide a natural physical barrier between public and private properties (Desbonnet et al. 1994).

E. Private Property Protection: Scenic Viewsheds

Of primary concern to many coastal area planners, managers, and citizens are the preservation and

protection of the coastal region's visual diversity and unique character. Coastal buffers protect the scenic and visual resources along the coast and preserve the natural character of the shoreline, mitigating the visual impacts of coastal development. For aesthetic appeal, a mix of native vegetation provides visual diversity. Utilization of native plants is also economical since the costs of design and engineering are avoided.

F. Private Property Protection: Flood and Drought Prevention

Coastal buffer zones provide a natural transition zone between the open coast, marshes, and upland development (Rhode Island Program 1994). In coastal areas, riparian buffers have been shown to reduce flooding by slowing surface water runoff and spreading it over a wider area and by allowing more water to percolate into the water table (Rhode Island Program 1994; SC DHEC 2002b). A 1998 Georgia coastal plain study reported that in 1994 and 1997, flooding was limited by largely intact natural riparian areas (Michener et al. 1998). Buffers also have been found to mitigate property destruction by maintaining undeveloped land along waterways and locating development away from floodwaters, storm surges and extreme high tides (Desbonnet et al. 1994).

III. Tools to Protect Coastal Riparian Buffers in Georgia

A. Coastal Riparian Buffer Ordinance

On February 28, 2007, the Georgia DNR Board adopted a new rule pursuant to the CMPA¹ that requires preservation of a 50-foot buffer adjacent to coastal marshlands.² This new buffer requirement applies only to projects that require a permit under the CMPA. Under the rule, permitted projects are divided into two parts, a marshland component and an upland component. The marshland component includes any parts of the project located in, on, or over an estuarine area. It also includes activities that “remove, fill, dredge, drain, or otherwise alter any marshlands.” Examples include marinas, bulkheads, community docks, boat ramps, public recreational docks, and piers. The upland component of a project includes the “service areas, amenities, and recreational area” located inland of the coastal marshlands “that serve or augment the functioning of the marshlands component of the project.” Examples listed in the rule include dry stack boat storage, dockmaster shops, fuel storage, and delivery facilities and restrooms intended to serve the marshlands component of the project.

The 50-foot buffer requirement does not apply to projects or activities that are exempt under the CMPA. The buffer also does not apply to projects that do not require a permit under the CMPA, such as most single, private-use recreational docks or any development project that does not alter the marsh or include placement of a structure over the marsh. The rule does not generally extend to or apply to residential development associated with a proposed community dock or marina. As a result, local governments that wish to protect riparian buffers adjacent to coastal marshlands during activities such as residential development, commercial development, and construction of private, single-family recreational

docks should consider adopting a coastal riparian buffer ordinance. Doing so will promote a consistent application of the 50-foot buffer rule recently adopted under the CMPA. In addition, the model ordinance is an excellent tool for managing activities in the buffer after a marshlands permit has been granted. The model ordinance and the companion riparian buffer guidance manual specifically cover activities such as preservation and enhancement of vegetation, use of native plants, limitations on use of pesticides and fertilizers, and creation of view corridors. These activities are not addressed by the rules for the 50-foot buffer under the CMPA.

In July 2007, the DNR Board will adopt additional rules for granting exceptions to the CMPA’s 50-foot buffer.³ While the contents of the exceptions process are yet to be finalized, the draft document would grant an exception if all of the following three conditions are met:

1. Application of the marshlands buffer requirement will create a substantial hardship on the applicant; and
2. The purpose, function, and treatment capabilities of the marshlands buffer can be, or have been, achieved by alternative means such that the stormwater discharge to coastal marshlands from the marshland buffer is managed according to the policy, criteria, and information, including technical specifications and standards, found in the latest edition of the *Georgia Stormwater Management Manual* as amended to address coastal specific issues, and is protective of water quality; and
3. Consistent with the purpose and reasonable use of the proposed project, the smallest practicable encroachment into the marshlands buffer is utilized.

Although several model riparian buffer ordinances have been developed for Georgia’s local governments, these current models were crafted with

1 O.C.G.A. § 12-5-280 *et seq.*(2007).

2 Ga. Comp. R. & Regs. r.391-2-3-.02 (2007).

3 Georgia Department of Natural Resources, Coastal Resources Division, *Notice of Intent to Amend Department Rules Relating to Coastal Marshlands Protection Chapter 391-2-3 and Notice of Public Hearings* (April 27, 2007), available at <http://crd.dnr.state.ga.us/content/displaycontent.asp?txtDocument=1135>.

freshwater ecosystems in mind and do not take into account the unique resources and issues facing the tidally influenced ecosystems of Georgia's coastal communities. Therefore, there is a need for a model riparian buffer ordinance that meets the specific needs of local governments along Georgia's coast. A Model Coastal Riparian Buffer Ordinance for Georgia has been developed and is available in Appendix A of this document.

B. Land Acquisition

Acquisition is sometimes the best mechanism for protecting key parcels of riparian lands. Generally, acquisition is reserved for special cases. While cost is obviously the most significant barrier to use of acquisition as a protection tool, especially in coastal areas where land values are generally extremely high, there are numerous sources of funds available to local governments that can be applied toward riparian land acquisition.

The most significant source of funds available to Georgia's local governments for land acquisition is the new Georgia Land Conservation Program (GLCP). The GLCP was created in 2005 by the Georgia Land Conservation Act⁴ and provides funding for land conservation projects in the form of loans and grants to all cities and counties in Georgia, regardless of their size or location. Since its beginning, the Georgia Land Conservation Council has approved projects totaling over 18,000 acres.⁵ The funds from the program can be used for all direct costs of activities required by State and local law in order to purchase a fee simple or lesser interest in real property. Such activities include the purchase price, the cost of due diligence, title insurance costs, attorneys fees, fees for services related to acquisition (such as holding costs, overhead costs, finders fees, etc.) and costs related to the closing transaction.⁶

In order to be considered for funding under the GLCP,

4 O.C.G.A. § 36-22-1 *et seq.* (2006).

5 Georgia Department of Natural Resources Coastal Resources Division, Recent Projects, http://www.gadnr.org/glcp/Documents/Recent_Projects.pdf (last visited June 1, 2007).

6 O.C.G.A. § 36-22-2 (2006).

projects must demonstrate that they will serve one or more of the conservation goals of the program. One of the program's listed conservation goals is "protection of riparian buffers and other areas that serve as natural habitat and corridors for native plant and animal species," and several of the other listed conservation goals are served through purchase of riparian lands. These include water quality protection, flood protection, wetlands protection, reduction of erosion, and scenic protection.⁷ Therefore, projects that aim to use the funds in order to purchase riparian lands are just the type of projects that the GLCP was created to serve and fund. For more information regarding the application process and other details of the program, visit <http://www.gadnr.org/glcp/>.

Another funding source for the purchase of riparian lands available to communities located in Georgia's 11-county "coastal zone" area is NOAA's Coastal and Estuarine Land Conservation Program (CELCP).⁸ This program was established in 2002 to permanently protect coastal and estuarine lands "considered important for their ecological, conservation, recreational, historical or aesthetic values." It provides matching funds to state and local governments for purchase of such lands or for purchase of permanent conservation easements on such lands.⁹ From 2002-2006, CELCP has provided over \$177 million nationally for purchase of coastal lands. The types of projects funded to date include those with the goals of protecting wetlands and other significant coastal habitats, reducing coastal water pollution, and providing the public with recreational access to the coast.¹⁰

7 *Id.*

8 National Oceanic and Atmospheric Administration, The Coastal and Estuarine Land Conservation Program, <http://coastalmanagement.noaa.gov/land/welcome.html> (last revised Sept. 15, 2006). Georgia's coastal zone includes the 11 counties that border tidally-influenced waters or have economies that are closely tied to coastal resources. National Oceanic and Atmospheric Administration, State Coastal Zone Boundaries, available at <http://coastalmanagement.noaa.gov/mystate/docs/StateCZBoundaries.pdf> (April 22, 2004).

9 Georgia Coastal Resources Division, Georgia Coastal & Estuarine Land Conservation Plan, <http://crd.dnr.state.ga.us/content/displaycontent.asp?txtDocument=1045> (last revised Sept. 27, 2006).

10 National Oceanic and Atmospheric Administration, CELCP

Georgia's CELCP is administered by the Georgia DNR, and program staff considers projects that are consistent with the State's Coastal and Estuarine Land Conservation Plan. According to this Plan, funds will be prioritized for purchases of key parcels of coastal or estuarine, tidally influenced lands that are under threat of development, in relatively good ecological condition and need no significant restoration work in order to provide the community with ecological services. To date, no projects in Georgia have been funded by the program, although the Georgia DNR has submitted a proposal to CELCP for the fee simple purchase of lands adjacent to the Sansavilla Wildlife Management Area in the Altamaha River basin. If the project is selected for the program, the funds will become available in March 2007.¹¹ For more information, visit <http://coastalmanagement.noaa.gov/land/welcome.html> or contact Program Manager, Georgia DNR Coastal Management at 912-264-7218.

Other sources of funding for riparian land acquisition include:

- *Clean Water Act Section 319*. Funds for nonpoint source pollution control. Priority goes to restoration of impaired streams.
- *Impact Fees*. Local governments are authorized to charge fees to developers to pay for the infrastructure necessary to support the development.¹² These fees can be applied to protect and produce water supplies, acquire and protect parks and open space, protect and improve shores (stream banks), and provide for flood control, among other purposes.
- *Creation of a stormwater utility*. In recent years, several Georgia local governments have instituted a stormwater utility to help pay for the maintenance and construction costs associated with stormwater infrastructure. These funds could potentially be used by a local government to purchase key riparian lands for the purposes of stormwater control and water quality protection.

Projects, http://coastalmanagement.noaa.gov/land/celcp_projects.html (last revised July 13, 2006).

11 Personal communication with Jill Andrews, Georgia DNR Coastal Management Program.

12 O.C.G.A. § 36-71-1 *et seq.* (2007).

C. Conservation Easements and Purchase of Development Rights

In 1992, the Georgia legislature passed the Uniform Conservation Easement Act, O.C.G.A. § 44-10-1 *et seq.*, which authorizes and encourages the use of conservation easements in Georgia. A conservation easement is a legally binding agreement between a landowner and a governing authority or a federally recognized charitable organization that restricts certain development activities and uses of the land.¹³ Fee simple ownership of land entitles one to a “bundle of rights” including the right to sell, the right to exclude others, the right to farm or mine and the right to develop, among others. In a conservation easement agreement, the fee simple landowner agrees to give up or sell one or more of these rights in order to protect a natural resource. For example, a landowner may choose to give up or sell the right to harvest timber or conduct land-disturbing activity on forested riparian lands in order to protect water resources and wildlife habitat. The landowner retains such basic property rights as the right to exclude others from his property, the right to sell and the right to use the property in a manner that does not compromise or interfere with the conservation goals of the easement. Local governments, charitable organizations and private individuals may purchase or receive the easement as a gift. It is then the responsibility of the easement holder to ensure that the terms of the easement are not violated and to pursue any legal recourse necessary for its enforcement.¹⁴

Conservation easements have been used effectively to protect environmentally sensitive areas and can be useful in preserving tracts of riparian lands.¹⁵ In addition to these environmental benefits, conservation easements offer other advantages to local governments, such as reduced maintenance and service costs.¹⁶

13 Fowler, Laurie, *Conservation Easements for Natural Resource Protection*, (1994), available at http://outreach.ecology.uga.edu/tools/easements/cons_easements_1st_ed.html.

14 *Id.*

15 Wenger, Seth and Laurie Fowler, *Protecting Stream and River Corridors: Creating Effective Local Riparian Buffer Ordinances 27* (2000).

16 *Id.*

Though it is difficult to predict what the level of participation in such a voluntary program might be, a number of recent developments in Georgia should serve to encourage landowner participation.

The Uniform Conservation Easement Act empowers both governmental bodies and certain charitable corporations or trusts to become holders of easements.¹⁷ Though local governments do hold some easements, charitable organizations provide an attractive alternative holder, and charitable organizations known as land trusts have become increasingly active in the State in the past decade. Land trusts are capable of accepting and enforcing conservation easements, thereby relieving local government of the burden of monitoring and oversight.¹⁸ There are now 46 land trusts active in Georgia.¹⁹

The following land trusts currently maintain property or will consider maintaining property along Georgia's coast:

- *St. Simons Land Trust.* Since 2000, the St. Simons Land Trust has preserved 72 acres, including 5 easements containing coastal riparian lands. In evaluating acquisition, St. Simons Land Trust looks at the overall conservation value of the land and inquires whether its preservation fits into the overarching Greenprint Plan for the island.²⁰ For more information, visit <http://www.sslt.org/>
- *The Georgia Land Trust.* With a staff of nine individuals, the Georgia Land Trust currently preserves over 1,400 acres of coastal land, most of which contain riparian lands. The Trust has easements in Effingham, Bryan, Liberty, Camden and Chatham counties, including two small easements on Tybee Island.²¹ For more

information, visit <http://www.galandtrust.org/>

- *The Nature Conservancy.* For more information, visit www.nature.org/

In addition to a commitment to environmental protection, tax incentives may also encourage landowners to donate or sell conservation easements. These tax deductions and credits give landowners an extra incentive to donate or sell conservation easements because they are able to recoup some of the value of the property lost by foregoing development.²² At the same time, the local government saves by not paying full fair market value for the interests in land (if the easement is sold rather than donated).²³

Both federal and State tax laws allow landowners to deduct the value of a donated conservation easement or land in fee simple (considered a charitable gift) from their income tax so long as the easement furthers one of four conservation purposes. These purposes include “the protection of relatively natural habitat of fish, wildlife, or plants, or similar ecosystems” and “the preservation of open space yielding significant public benefit for the scenic enjoyment of the general public or pursuant to a clearly delineated federal, state or local government conservation policy,”²⁴ both of which would likely be satisfied in the case of coastal riparian buffers. The value of the easement or the fee simple interest in land, which must be determined by a qualified appraiser if it exceeds \$5,000, is the difference between the fair market value (FMV) of the land without the restriction and the FMV after the restriction. In most cases the landowner can deduct up to 30% of his adjusted gross income (AGI) over a period of six years until the value of the easement is exhausted. If a landowner acts quickly, however, he may be eligible for more advantageous treatment. In August 2006, Congress enacted a provision in the tax code allowing a landowner to deduct up to 50% of his AGI over sixteen years or until the amount of the value of the gift is used up. This provision will sunset on December 31, 2007, after which the deductions

17 O.C.G.A. § 44-10-2(2) (2007).

18 Wenger and Fowler, *supra* note 12, at 27.

19 Georgia Land Trust Service Center, Georgia Environmental Policy Institute, <http://www.gepinstitute.com/landtrust.asp> (last visited June 1, 2006).

20 Personal communication with Michelle Pugliese, St. Simon's Land Trust.

21 Personal communication with Frank McIntosh, Georgia Land Trust.

22 Fowler, Laurie, Hans Neuhauser, and Curt Soper, *A State Income Tax Credit Program: An Incentive for Private Land Conservation* 3 (2004) (on file with author).

23 *Id.* at 5.

24 I.R.C. § 170 (2007).

revert to the previous limits of 30% of AGI and a 6-year carryover.²⁵

In 2006, the Georgia legislature passed and Governor Perdue signed HB 1107, the Georgia Land Conservation Tax Credit. The Georgia Conservation Income Tax Credit Program (GCTCP) allows Georgia landowners who donate either a conservation easement or land in fee simple to the State or qualified organization to receive a State income tax credit of 25% of the value of the donated land or easement, as determined by the local tax assessor. In addition, the value of the donation cannot exceed the taxpayer's income tax liability, and, in any event, is capped at \$250,000 for individual donors or \$500,000 for corporate donors. The tax credit may be applied to the landowner's tax liability over a period of up to 6 years.²⁶ Lands eligible for the GCTCP include wetlands, riparian buffers, and "other areas that serve as natural habitat and corridors for native plant and animal species. Donations must be made to the State or to a "qualified organization," which include any charitable non-profit organization that has adopted the Land Trust Standards and Practices and has been in existence for five or more years at the time of donation.²⁷

Finally, the landowner who places a conservation easement on his property may be eligible for a property tax deduction. Georgia's Uniform Conservation Easement Act provides that the landowner may demand a revaluation of his property so as to reflect the existence of the encumbrance on the next tax digest.²⁸

In addition to soliciting donations of conservation easements to protect buffers, local governments

can establish purchase of development rights (PDR) programs. Under such a program, the local government purchases the development rights from willing landowners and a conservation easement is subsequently placed upon the landowner's parcel. Local governments select lands for purchase based upon the willingness of landowners and the conservation value of the land (as determined by criteria established by the community). For information on funding sources for PDR programs, please see the preceding section entitled "Land Acquisition," as the sources of funds for outright acquisition and easement purchase by local governments in Georgia are similar, if not identical.

Because conservation easements have the potential to preserve additional riparian lands beyond those protected by a riparian buffer ordinance, easements have great potential to provide for supplemental protection of riparian lands. Local governments can encourage the donation of conservation easements with public information campaigns, cooperation with local land trusts, and the inclusion of positive statements in their comprehensive plans regarding the preservation of riparian lands.²⁹

D. Transferable Development Rights

Another preservation tool for communities confronted with growth management is a transferable development rights (TDR) program. With this tool, the community can focus future development away from environmentally sensitive areas, such as riparian buffers, to more appropriate locations.³⁰ With a TDR program, a community can identify riparian lands it would like to preserve as "sending areas." In many cases, the local government zones these areas at a low density. Other areas where the community prefers to concentrate growth and development are designated as "receiving areas." Owners of "receiving areas" may purchase unused development rights from owners of "sending areas" in order to gain the right to develop more densely than the underlying zoning would

29 Wenger and Fowler, *supra* note 12, at 27.

30 Rick Pruetz, *Saved by Development: Preserving Environmental Areas, Farmland and Historic Landmarks with Transfer of Development Rights* 3 (1997).

25 Memorandum from Lee Carter and Beau Howell, Upper Altamaha Practicum, River Basin Center, University of Georgia, to Peyton Ferry Farm Members 6-7 (Dec. 1, 2006) (on file with author).

26 O.C.G.A. § 48-7-29.10 (2007); see also Georgia Department of Natural Resources, *Procedures for the Georgia Conservation Tax Credit Program* 8 (2006), available at <http://www.galandtrust.org/PDF%20files/ConservationTaxCreditDraftRegs.pdf>

27 Ga. Comp. R. & Regs. § 391-1-6.-03 (2007).

28 O.C.G.A. § 44-10-8 (2007).

allow.³¹ Once these rights are sold, the sending area may not be developed in the future, and these parcels are protected by a conservation easement or similar legal tool. This transferability not only provides compensation to landowners for low-density zoning, but provides the local government with the opportunity to focus growth where it is most appropriate. Although it is possible to designate all coastal stream and river corridors as “sending areas,” this may have the effect of flooding the market with a large number of small TDR credits. The establishment of a TDR banking system may address this problem.³²

While TDR programs are used for a variety of purposes, the following coastal communities use TDRs specifically to protect their coastal resources and wetlands.

- Clearwater, Florida, adopted a TDR ordinance in order to preserve open space, specifically limiting development in those properties “seaward of the coastal construction control line along the beaches of the Gulf of Mexico.”³³
- Lee County, Florida, protects wetlands and the adjacent transitional zones by heavily restricting development in these areas. The county’s TDR program allows development rights in these areas to be purchased and used in more intensely developed urban, commercial and industrial zones.³⁴

- Hollywood, Florida, rezoned one of its last undeveloped beachfront areas from 25 units per acre to 7 units per acre. The city’s TDR program allows developers to transfer density credits from this area to a multiple-family residential zone further away from the beach.³⁵
- Brevard County, Florida, adopted a TDR ordinance to encourage preservation of coastal areas and to compensate landowners whose property was rezoned from 30 units per acre to 1 unit per acre.³⁶

E. Clustering and Conservation Subdivisions

Though similar to the concept of TDRs, clustering is different in that the transfer of density occurs within a single parcel of land.³⁷ For example, a landowner with a 100 acre parcel that is zoned at 1 unit per 20 acres might want to concentrate all 5 units within a 5 acre area to preserve the other 95 acres. By concentrating denser development away from riparian lands, clustering may help to protect stream buffers and coastal features.³⁸ A common way of implementing clustering in a community is through a clustering or conservation subdivision ordinance. For more information on these tools and how to implement them in Georgia, visit http://www.rivercenter.uga.edu/service/tools/cons_subdivisions.htm.

31 *Id.*

32 Wenger and Fowler, *supra* note 12, at 26.

33 Pruetz, *supra* note 27, at 359.

34 *Id.* at 272.

35 *Id.* at 370.

36 *Id.* at 29, 340.

37 *Id.* at 7.

38 Wenger and Fowler, *supra* note 12, at 26.

IV. Buffers and Private Property Rights

Perhaps the biggest impediment to establishing riparian buffer ordinances is concern for private property rights. Yet a well-written ordinance that is administered fairly will balance natural resource protection with the rights of property owners. It is entirely possible to provide strong protection for riparian buffers while respecting the rights of property owners.

Buffers protected by a riparian buffer ordinance remain in the ownership of the property owner and preclude general public access. This is in contrast to greenways, which are generally publicly owned. A buffer ordinance should never mandate public access to private property, nor should it restrict activities on a property to such an extent that the owner cannot make use of it. These conditions would be grounds for a takings lawsuit. If a local government cannot provide adequate buffer protection along a stream segment or marsh without infringing on property rights, then the government must either acquire the parcels in question (or conservation easements on the parcels) or try to offset the lack of protection with controls (whether regulatory or voluntary) somewhere else in the stream basin.

A. Federal Takings Law

Today, any discussion of land use management and regulation must include the takings issue. The provision of the Fifth Amendment that prohibits government from taking property for a public use without just compensation is the key to constitutional land use law.³⁹ The Takings Clause of the Fifth Amendment provides: “nor shall private property be taken for public use, without just compensation.”⁴⁰ This provision is applied to the states through the Fourteenth Amendment.⁴¹ Traditionally, the

government acquires property from private parties through the condemnation process, adhering scrupulously to the requirements of the takings clause.⁴² However, a more difficult case is presented when government, or a government agency, issues a regulation, like a riparian buffer ordinance, that may inadvertently reduce or eliminate the value of the privately owned land.⁴³

Initially, only when the government physically exerted dominion or control over private property did the courts require compensation under the Takings Clause.⁴⁴ Therefore historically, governments could regulate the use of private property without compensating the owner.⁴⁵ This formalistic approach changed in 1922 when Justice Oliver Wendell Holmes, Jr., speaking for the U.S. Supreme Court, specified “while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a ‘taking.’”⁴⁶ Justice Holmes elaborated, “whether the state’s regulation has “[gone] too far” is a question of degree – and therefore cannot be disposed of by general propositions.”⁴⁷ Since that decision, courts have attempted to clarify when a statute “goes too far.”⁴⁸ The Court later endorsed “ad hoc, factual inquiries” based on the specific facts of each case.⁴⁹ This inquiry uses a three-part balancing test to determine whether a taking requiring compensation has occurred. The *Penn Central* balancing test analyzes the economic impact on the claimant,

42 Marzulla, Nancie, *State Private Property Rights Initiatives As a Response to “Environmental Takings”*, 46 S.C. L. Rev. 613, 623 (1995).

43 Burcat, Joel R. and Julia M. Glencer, *The Law of Regulatory Takings: Part I – Development of the Law* 1 (2002), available at http://www.klng.com/files/tbl_s48News/PDFUpload307/7641/burcatwhtpaper.pdf.

44 Hutchinson, David, *A Setback for the Rivers of Massachusetts? An Application of Regulatory Takings Doctrine To The Watershed Protection Act And the Massachusetts River Protection Act*, 73 B.U.L. Rev. 237, 246-47 (1993).

45 *Id.*

46 *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922) (emphasis added).

47 *Id.* at 416.

48 Burcat and Glencer, *supra* note 40.

49 *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104, 124 (1978).

39 Jurgensmeyer, Julian C. & Thomas Roberts E., *Land Use Planning and Development Planning Regulation Law, Constitutional Limitations: The Takings Issue*, §10.2 (1st ed. 1998).

40 U.S. Const. amend. V.

41 Jurgensmeyer & Roberts, *supra* note 36.

the extent to which the regulation interferes with investment-backed expectations, and the character and extent of the government action.⁵⁰

In 1992 the Court decided an important regulatory takings case, *Lucas v. South Carolina Coastal Council*.⁵¹ In *Lucas*, the landowner purchased two undeveloped beachfront lots on a South Carolina barrier island, intending to build a single family home on each. In 1988, before Lucas began construction, the State legislature enacted a land use statute that effectively barred any development on Lucas's property. The trial court found the statute had rendered the property valueless and granted Lucas compensation for the taking. The State appealed and the South Carolina Supreme Court reversed, holding the State's purpose in preventing harm to the coastline outweighed Lucas's economic interest.⁵² The U.S. Supreme Court took the opportunity to elaborate on its takings jurisprudence and held that a taking occurs when a land use regulation "does not substantially advance legitimate State interests or denies an owner economically viable use of his land." The Court characterized denial of all economically viable use as a "categorical" rule automatically triggering a taking.⁵³ The Court did establish one exception to this rule – if it is clear that the landowner purchased the property after the regulation that denies him or her all economically viable use of the land was already in place, then no compensation will be given.⁵⁴ The case was returned to the lower court to allow the State to identify background principles of nuisance and property law that would prohibit the landowner from making his desired use of the property.⁵⁵

Also in *Lucas*, the Court noted specifically that uses of property may be denied, regardless of the economic impact, if they constitute a public nuisance in accordance with long-established principles of common law. Since nonpoint source pollution may

⁵⁰ *Id.*

⁵¹ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992).

⁵² *Id.* at 1008-10.

⁵³ *Id.* at 1015.

⁵⁴ *Id.* at 1027.

⁵⁵ *Id.* at 1031-32.

constitute a public nuisance and riparian buffers are an effective way to prevent such pollution, buffers may be protected from takings claims on those grounds as well.⁵⁶ Conversely, the Court's emphasis on economic and developmental uses in the case may suggest a bias against purely environmental purposes.⁵⁷ The Court states that it does consider non-economic interests in land in its takings analysis and environmental regulations like riparian buffer ordinances have both market and non-market economic value.⁵⁸

B. Georgia Takings Law

The Georgia Constitution has its own takings clause that parallels the U.S. Constitution's Takings Clause.⁵⁹ Governmental regulations, such as riparian buffer ordinances, may be challenged under the federal Constitution, the Georgia Constitution, or both. Consequently, any riparian buffer regulation should comply with all applicable federal and State laws.⁶⁰ The Georgia Supreme Court has twice visited the constitutionality of mandatory riparian buffers and both times has upheld the laws.⁶¹ Many of the local jurisdictions in the metropolitan Atlanta area have enacted buffer ordinances requiring a buffer width of from 75 to 150 feet; these ordinances have not been challenged in court. A brief analysis of the evolution of regulatory takings jurisprudence in Georgia follows below.

In 1975, the Georgia Supreme Court clarified that governmental regulations are "subject to the constitutional prohibition against taking private property without just compensation."⁶² In the same case, the court employed a balancing test that weighed

⁵⁶ Wenger and Fowler, *supra* note 12, at 36 (2000).

⁵⁷ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1020 (1992).

⁵⁸ *Lucas*, 505 U.S. at 1019n.8. Stream buffer regulations have economic value elements that are both market and non-market; see *infra*, section entitled "Economic Considerations" for a full explanation of the economic value of coastal riparian buffers.

⁵⁹ Ga. Const. art. I, §1, para.I.

⁶⁰ *Id.*

⁶¹ *Pope v. City of Atlanta*, 240 S.E.2d 241, 242 (1977); *Threatt v. Fulton County*, 266 Ga. 466 (1996).

⁶² *Barrett v. Hamby*, 235 Ga. 262, 264 (1975).

the economic loss to the property owner against the public benefits that the regulation provided in order to determine if the regulation constituted a taking under the Georgia Constitution.⁶³ In 1986, the court rearticulated the balancing test to be applied in challenges to governmental regulations in *Gradous v. Richmond County*.⁶⁴ First, the court established the presumption that regulations are valid.⁶⁵ Then, in order to overcome that presumption, the claimant must prove two things: (i) “significant detriment” caused by the challenged regulation; and (ii) an “insubstantial relationship” between the challenged regulation and the public interest. If both prongs are met, the court will then balance the economic detriment to the property owner against the public interest advanced by the regulation.⁶⁶

In *Parking Association of Georgia, Inc. v. City of Atlanta*,⁶⁷ the City of Atlanta enacted a comprehensive regulation requiring landscaping in surface parking lots that had been cited by the city for environmental and aesthetic problems. The parking lot owners claimed the regulation violated the State takings clause. The court applied the *Gradous* test to the regulation and found that while the claimants would experience profit losses and costs if they complied, this value diminution did not constitute the required “significant detriment.” The court also found, “the means adopted have a real and substantial relation to the goals to be obtained” and upheld the regulation.⁶⁸

There are several differences between the State and federal analyses for regulatory takings. In Georgia, a finding of a “significant detriment” does not require the total or nearly total loss of the property’s value in order to meet the state takings test. Instead, a severely detrimental loss in value is sufficient.⁶⁹ Second, in Georgia, monetary compensation for regulatory

takings is not authorized if a court holds a taking has occurred; invalidation of the regulation is sufficient (with one exception).⁷⁰ Third, similarities exist between the federal concept of “distinct investment-backed expectations” in *Penn Central* and the Georgia concept of “vested rights,” although there are some significant differences between the two concepts.⁷¹

The Georgia Supreme Court has defined vested rights as “interests which it is proper for the state to recognize and protect and of which [the] individual cannot be deprived arbitrarily without injustice.”⁷² Georgia’s vested rights doctrine is among the most liberal in the nation, requiring consideration and caution by government regulators. Georgia has adopted the minority rule regarding vested rights, holding that a landowner’s right to develop his land “vests” and he is entitled to a building permit when he makes “substantial investments in his land in reliance upon an existing ordinance and the assurance of zoning officials.”⁷³ This is the case regardless of whether a regulation that would prohibit the activity for which the building permit is sought is passed after any substantial investments and/or assurance from a zoning official occurs. In order to ensure that they do not violate the vested rights doctrine when enacting riparian buffer ordinances, local governments in Georgia should take several precautions. First, localities should provide ample public notice during the ordinance adoption process. Local governments should also consider placing a moratorium on encroachments into the proposed buffer area during the ordinance development process so as to cut down on the number of vested rights claims. Finally, the ordinance should clearly state that it does not apply to landowners that receive a building permit and/or other assurances from zoning officials before the ordinance’s effective date.

63 *Id.*

64 256 Ga. 469 (1986).

65 *Id.* at 470.

66 *Id.* at 471.

67 264 Ga. 764 (1994), *cert. den.* 115 S. Ct. 2268.

68 *Id.*

69 Zoekler, Robert L., *A Summary of Takings Law* 10 (1997) (on file with author).

70 *Id.* at 11. The exception is if the government acts in contempt of court after being ordered to rescind the unlawful regulation. A line of three cases clearly establishes this principle: *Fulton County v. Wallace*, 260 Ga. 358 (1990), *Cobb County v. McCollister*, 261 Ga. 876 (1992) and *Alexander v. Dekalb Co.*, 264 Ga. 362 (1994).

71 Zoekler, *supra* note 66, at 11.

72 *Fortson v. Weeks*, 208 S.E. 2d 68 (Ga. 1974).

73 *Barker v. Forsyth Co.*, 281 S.E. 2d 549 (Ga. 1981).

Only two state takings cases specifically address whether a riparian buffer regulation constitutes a taking under the state or federal constitution. In both cases, the riparian buffer regulations were upheld as constitutional. In *Pope v. City of Atlanta*, Pope wished to build a tennis court on the rear portion of her property bordering on the Chattahoochee River.⁷⁴ The City of Atlanta issued a stop work order claiming that at least part of the tennis court was within 150 feet of the river and that construction of the tennis court violated the Metropolitan River Protection Act.⁷⁵ The case went to the Georgia Supreme Court where the court concluded: “the River Act does not constitute zoning within the definition set out in the Georgia Constitution...but instead falls within the reserved powers [police powers] of the State to act, along with local governing authorities, with regard to the water system, as is set out in the purpose of the River Act.”⁷⁶ This case clearly establishes that environmental regulations, such as riparian buffer ordinances, are a valid exercise of the police power.

Threatt v. Fulton County, the second case involving riparian buffers that has been litigated in Georgia, involves another challenge to the buffer requirements of the Metropolitan River Protection Act.⁷⁷ The Atlanta Regional Commission adopted a

regulation pursuant to the Metropolitan River Protection Act that required a vegetated buffer be left undisturbed for a distance of 50 feet from the banks of the Chattahoochee River and prohibited construction of impervious surfaces within 150 feet of the river’s banks.⁷⁸ The Georgia Supreme Court rejected the claim that the buffer regulation constituted a taking under the state and federal constitutions, holding that, “there has been no showing that the buffer area or any other applicable regulation has deprived the [landowners] of any or all economically viable or beneficial use of their property.”⁷⁹ Referencing *Parking Association*, the court went on to state, “nor is this a situation in which it can be argued that fairness and justice dictate that the burden imposed by the regulation be borne by the public as a whole.”⁸⁰

Private property is a core constitutional concept in this country. Therefore it is not surprising that governmental interaction with private property rights can create controversy. But private property rights have always been tempered by the needs of the general public.⁸¹ As Justice Scalia stated in *Lucas*, “[T]he property owner necessarily expects the uses of his property to be restricted from time to time, by various measures newly enacted by the State in legitimate exercise of its police powers.”⁸²

74 240 S.E.2d 241, 242 (1977).

75 O.C.G.A. § 12-4-440 *et. seq.* (2007).

76 240 S.E. 2d at 244 (clarification added).

77 266 Ga. 466 (1996).

78 *Id.* at 468.

79 *Id.* at 470.

80 *Id.*

81 Zoeckler, *supra* note 66, at 16.

82 *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1027 (1992).

V. Economic Considerations

As discussed above, many studies have demonstrated that coastal riparian buffers have value in protecting coastal marshes and tidal creeks from nonpoint source pollution. They also provide numerous other valuable benefits to coastal communities, such as recreation, flood protection, and protection of wildlife habitat and diversity. However, what are the actual economic values of these benefits? And what are the costs associated with implementing buffers in a coastal community? While the current status of economic research on coastal buffers cannot provide full answers to these questions, there is some information available on the economic costs and benefits of coastal riparian buffers that can help local governments make better decisions about protecting buffers in their communities.

This section was first published in its original form in Wenger and Fowler (2000). Information regarding the economic valuation of riparian buffers in coastal areas was added to this material, and it is intended to provide a short summary of economic research on the costs and benefits associated with preserving riparian buffers in coastal communities. No attempt is made to quantify the actual economic benefits or costs of buffers, because such an assessment is beyond the scope of this project. The purpose here is to show that riparian buffers do have economic benefits, and these can be equal to or greater than the economic costs of a buffer ordinance.

A. The Costs

The economic costs of a buffer ordinance are related to the costs of administration and the loss of unrestricted use of properties. A buffer ordinance imposes costs on a local government in the form of staff time, staff training, public education efforts, and technical assistance to landowners and developers. For most local governments, the greatest expense is staff time (Herson-Jones 1995). Once a buffer ordinance is established and integrated into the plan review process, however, this cost should be low in most cases.

For landowners, the most significant cost of the ordinance is likely to be the loss of full use of the land in the riparian buffer. For a developer, a buffer ordinance may slightly decrease the lot yield of a property, especially in areas zoned at high density; for low-density areas, the buffers can usually be incorporated into the backside of individual lots, with little impact on yield. For owners of individual lots, the limitation on use can also conceivably reduce property values, but this is likely offset by the positive effects of improved aesthetics and recreational opportunities discussed in the next section. Other costs include time spent delineating the riparian buffer and completing necessary documentation to submit to the local government authority. Protecting the riparian buffer during construction might also add to construction costs.

B. The Benefits

The value of riparian buffer zones can be broken down into a number of components, some of which are obvious and some of which are not. An obvious value is that of the timber in a riparian zone that can be cut and sold. A less obvious value is the protection of the scenic vista of the tidal marshes that the vegetation of the riparian zone provides by shielding development from view. The obvious values are what economists call “market values” because we can measure them in actual prices, while the less obvious ones are “nonmarket.” They are real, but are harder to measure because they don’t correspond to things that are commonly bought and sold. It is important to note that most of the actual costs of having buffer ordinances relate to market values, while many of the benefits are nonmarket. If these nonmarket values are ignored, people will tend to undervalue riparian buffers, which can lead to poor protection and negative impacts on both the environment and the economy (Bollman 1984).

1. The Value of Recreation and Tourism

Rivers, streams, lakes, coastal marshlands, and other water bodies are natural magnets for recreational activities and tourism. A protected riparian buffer acquired by the local government can serve as a public park or greenway, a function with significant

economic value. Of course, most buffers protected by an ordinance will remain in the ownership of individuals, and it is usually not legal or desirable for a government to mandate access to these lands. Still, these buffers can contribute positively to recreation and tourism by improving water quality and by protecting the aesthetics of stream corridors and scenic marsh vistas, both of which are important for water-based recreational activities.

Determining the economic value of stream and marshland recreation gives us an indication of the value of riparian buffers. There are several ways to calculate this.

Using a method known as contingent valuation, researchers asked visitors to a river preserve in Arizona how much they would be willing to pay to ensure that there were adequate flows to maintain a healthy river system, which resulted in an estimated value of \$520,000 for the preserve (Crandall et al. 1992). Using another valuation method known as the travel cost method, the river preserve was valued based on the amount of money and time visitors spent to visit it, which was estimated at \$613,360. Finally, local economic impact analysis determined that visitors who came to the area specifically to visit the preserve contributed \$88,240 to the local economy (Crandall et al. 1992). These methods have been used to value parks in Georgia as well. Visitors to State parks spend as much as \$13.26 per visit (Bergstrom et al. 1990).

The value of buffers on the Georgia coast in protecting the tourism, recreation and fishing industries is significant considering the enormous contributions that water-based tourism and recreation make to Georgia's coastal economy. Indeed, the National Association of Regional Councils estimates that tourism provides \$2 billion annually to the coastal economy in Georgia (Guadagnoli et al. 2005). Recreational game fishing alone contributes about \$363 million annually and commercial fishing provides an additional \$22 million (Georgia DNR).

2. Property Value Increases

A protected stream or river corridor is an aesthetic amenity that can increase property values in the nearby community. In one study using a method known as

hedonic pricing, property values of homes located near seven restored streams in California were found to be 3 – 13% higher than the values of similar homes located near unrestored streams. In Colorado, a study found that housing prices were 32% higher when the houses were located adjacent to a buffer managed as a greenbelt (Schueler 1997). In addition to increasing community aesthetics so that property values increase, buffers have also been found to increase property values due to the water quality services they provide. A study of shoreline buffers on several lakes in Maine found that a difference of 3 feet in water clarity (i.e. the ability to see an additional 3 feet deeper into the lake with the naked eye) resulted in an increase in the value of the adjacent shoreline property of \$11 to \$200 per foot of water clarity (Schueler 1997).

For a developer, a riparian buffer ordinance may have the effect of requiring residential development projects to take the form of conservation subdivisions. That is, the property is subdivided in such a way that individual lots are clustered together and a significant area of riparian land is preserved in a natural state. Studies have shown that home buyers will pay more to live in a well-designed conservation subdivision than a traditional development (National Park Service 1995). In addition, clustering homes allows the developer to save money on infrastructure costs, which itself can offset the costs of development. Georgia developer Steve MacCaulay, who specializes in conservation subdivisions, says that he can make the same profits off of conservation subdivisions as he can from conventional designs (1999).

3. The Value of Clean Water

In Georgia's coastal areas, water quality is extremely important for maintenance of the commercial and recreational fish, shrimp, and shellfish industries. The tourism industry, which depends on the availability of water that is fishable and swimmable, is also affected significantly when water quality is degraded. One can estimate the value of clean water to Georgia's coastal communities by examining the contribution that the recreational and commercial fish, shellfish, and shrimp industries make to Georgia's economy. Based upon data compiled by the Coastal Resources Division of the Georgia DNR, over 6.8 million pounds of commercially valuable fish, shellfish,

and other organisms, valued at over \$12.2 million, were harvested from Georgia's coastal waters in 2005 (Georgia DNR 2006a). Over the last ten years (1994-2004), an average of 10.8 million pounds of commercially valuable organisms was harvested per year, for an average worth of \$22.4 million (Georgia DNR).

Another way to measure a buffer's water quality services is to determine how much it would cost to provide similar services using technological approaches. A study in Maryland determined that using riparian buffers and nonstructural controls was more cost-effective than engineered solutions in reducing nutrient pollution by 40 %. (Palone and Todd 1998). The city of Boulder, Colorado, decided that the services provided by Boulder Creek and its riparian zone were more valuable than those provided by a new nitrification tower, and chose to restore the stream system rather than to construct the technological solution (National Park Service 1995). Riparian buffers can also eliminate the need for engineered stormwater management systems, which can cost from \$500 to \$10,000 per acre (Palone and Todd 1998).

4. The Value of Flood Protection

As discussed above, in coastal areas, riparian buffers have been shown to reduce flooding by slowing surface water runoff and spreading it over a wider area and by allowing more water to percolate into the water table (Rhode Island Program 1994; SC DHEC 2002a). Buffers also have been found to mitigate property destruction by maintaining undeveloped land along waterways and steering development

away from floodwaters, storm surges, and extreme high tides (Desbonnet et al. 1994). Specifically, one study of ten programs from across the country that protected floodplains from development found that land adjacent to such protected floodplain areas increased in value by an average of \$10,427 per acre (Schueler 1997).

5. The Value of Endangered Species & Other Wildlife

Riparian buffers in coastal settings have been shown to protect wildlife habitat for many species. The wildlife-watching opportunities afforded by buffers can increase property values. In one study, researchers found that about 60% of suburban residents engage in wildlife viewing near their homes, and a majority were willing to pay a premium for homes located near areas that attract wildlife (Schueler 1997). Threatened and endangered species have value to people even when they provide no direct economic benefits. Economists have used the contingent valuation method to determine how much people are willing to pay to ensure that these organisms survive. Studies have shown that people will pay \$3–\$9 per year to preserve habitat for relatively obscure nongame species such as the Colorado squawfish (*Ptychocheilus lucius*) and the striped shiner (*Notropis chrysocephalus*). They will pay considerably more (\$30–\$60 per year) for higher profile species such as the Chinook salmon (*Oncorhynchus tshawytscha*) (Loomis and White 1996). One study found that Washington households would pay \$73 per year to remove dams and restore the Elwha River to improve salmon populations (Loomis 1998).

VI. Conclusion

As the population of Georgia's coastal region continues to thrive and grow, the development pressures that accompany this population increase are beginning to threaten the very resources that attract people to the region – Georgia's abundance of undisturbed coastal marshlands and its tidal ecosystem. As Georgia's coastal communities look toward the future, tools such as riparian buffer ordinances are becoming increasingly important for protecting the scenic value of Georgia's marshes, the state's coastal fish and shellfish industries, and private property from the unwanted effects of development. Increased levels of development on the coast have begun to add large amounts of impervious cover, such as parking lots, rooftops, and roadways, and semi-pervious cover, such as compacted lawns and unpaved driveways, to the landscape. These surfaces generate increased levels of stormwater runoff, which delivers numerous types of pollutants—such as oil, biological contaminants, and excess nutrients—to marshes and creeks. As this report has shown, recent scientific research indicates that riparian buffers play a crucial role in protecting our waters from the effects of nonpoint source pollution by acting as filters and removing pollutants before they enter our waterways. Furthermore, as our scientific understanding of the benefits and functions of riparian buffers in coastal Georgia continues to grow, scientists and other experts will be able to make recommendations for protecting buffers that are more effective and successful at protecting these important resources.

While Georgia legislators have already recognized the value of buffers in addressing erosion and

sedimentation problems to protect Georgia's waters and meet federal water quality standards, there is overwhelming evidence that more work needs to be done to protect the state's invaluable coastal resources from nonpoint source pollution. As a result, in January 2007, the Board of the Georgia DNR adopted a resolution regarding nonpoint source pollution control in coastal Georgia. The resolution finds that the increasing impairment of water resources from nonpoint source pollution is evidence that "current state statutes and rules, and local ordinances and practices intended to prevent nonpoint source pollution are not effective in many areas of the state." The Board goes on to note that riparian buffers are known to be effective tools in preventing nonpoint source pollution, and it requests the state Environmental Advisory Council (EAC) conduct a review of current statutes, regulations, and programs aimed at controlling nonpoint source pollution. Furthermore, in conducting its review, the Board requests that the EAC pay specific attention to the use of "riparian buffers, impervious surfaces, and storm water management practices."

As the state begins to focus on riparian buffers as a primary tool to curb nonpoint source pollution in Georgia's coastal region, local governments along the coast can enhance and further state efforts by implementing their own coastal riparian buffer ordinances. By working together, Georgia's state and local governments can ensure a bright future for Georgia's coastal region, one in which the economic and social benefits of development go hand-in-hand with conservation of the unique natural resources that this region has to offer.

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Appendix A: Model Coastal Riparian Buffer Ordinance for Georgia's Local Governments

Guidance & Recommendations

Although several model riparian buffer ordinances have been developed for Georgia's local governments, these models were crafted with freshwater ecosystems in mind and do not take into account the unique resources and issues facing the tidally influenced ecosystems of Georgia's coastal communities. Therefore, there is a need for a model riparian buffer ordinance that meets the specific needs of local governments along Georgia's coast.

In working with local governments in Georgia's coastal region and in other areas of the State, several issues and points of confusion regarding riparian buffers have arisen. Below are clarifications regarding three common points of confusion about the role of local governments in maintaining and protecting riparian buffers in light of the 25-foot buffer required by the state Erosion and Sedimentation Control Act. The fourth section is a description of buffer averaging, an optional tool available to local governments for setting buffer width that has been incorporated into this Model Ordinance. The fifth section is an explanation of the buffer encroachment permit, which is a new permit introduced in the Model Ordinance.

1. Local regulation of activities in the statewide 25-foot riparian buffer.

Within the 25-foot riparian buffer established along state waters under the Georgia Erosion and Sedimentation Control Act of 1975 (E&S Act), the Georgia Environmental Protection Division (EPD) has the primary authority to approve or deny a variance request for intrusion into the buffer. In addition, local governments in Georgia that have been certified as local issuing authorities under the E&S Act retain some decision-making authority regarding variance requests in the 25-foot buffer. Op. Att'y Gen. No. 90-40 (1990).

The shared state-local responsibility for issuing variances in the state 25-foot buffer works in the following way. The EPD receives all variance requests and first decides whether to deny or issue the variance. If EPD denies a variance request, a local issuing authority with jurisdiction over the property may not issue its own variance, and no intrusion into the 25-foot buffer is permitted. However, if EPD issues a variance allowing intrusion into the 25-foot buffer, the local issuing authority has two options: it may allow encroachment into the 25-foot buffer pursuant to the EPD variance, or it may disallow intrusion by issuing a land disturbance permit without allowing for intrusion into the 25-foot buffer. The Georgia Dept. of Natural Resources regulations state it this way:

If a variance issued by the [EPD] Director is acceptable to the [local] issuing authority, the variance shall be included as a condition of permitting and therefore becomes a part of the permit for the proposed land disturbing activity project. If a stream buffer variance is not acceptable to the issuing authority, the issuing authority may issue a land disturbing permit without allowing encroachment into the buffer. Ga. Comp. R. & Regs. § 391-3-7-.05(8) (2006).

2. Minor landscaping activities.

The E&S Act allows for minor land disturbing activities such as home landscaping and gardening within the state 25-foot buffer through an exemption. No variance request is necessary to engage in these activities. However, because the model coastal buffer ordinance intends to protect riparian lands from environmental

degradation beyond the purpose of erosion and sedimentation control, its stricter requirements likely fall within the purview of the savings clause in the E&S Act's best management practices provision. This clause states that "nothing shall prevent a local government from adopting...ordinances...which contain stream buffer requirements that exceed the minimum requirements of [the E&S Act]." O.C.G.A. §12-7-6(c) (2006). Furthermore, it is likely within the "home rule" powers of local governments to regulate landscaping activities. The Home Rule clause of the Georgia Constitution gives local governments wide "legislative power to adopt clearly reasonable ordinances, resolutions, or regulations relating to its property, affairs, and local government for which no provision has been made by general law." Ga. Const. Art. IX, Sec. 2, para. 1. Regulating landscaping activities most likely falls within the boundaries of this wide grant of authority of a local government to regulate its property and affairs.

3. Buffers in areas where banks have been stabilized.

Local governments may require maintenance of buffers in areas where the banks have been stabilized with bulkheads or other structures such as a rip rap revetment of rocks or concrete. As explained above, because the model coastal buffer ordinance intends to protect riparian lands from environmental degradation beyond the purpose of erosion and sedimentation control, any stricter requirements likely fall within the purview of the savings clause in the E&S Act's best management practices provision. O.C.G.A. §12-7-6(c) (2006). Therefore, regardless of whether the state 25-foot buffer is applied to areas in which the installation of stabilization has removed the point of "wrested" vegetation, from which the E&S buffer is normally measured, local governments have the ability to require buffers in these areas through adoption of a multi-purpose riparian buffer ordinance.

4. Buffer averaging.

Providing local governments with a flexible method for delineating riparian buffer width is important for creating a successful ordinance. Often, cases will arise in which it is necessary or ecologically defensible to reduce the buffer width at certain points. This was addressed in the model ordinance by including an optional buffer averaging provision. Buffer averaging is a system that allows for a reduction of the buffer's width at a certain point or points within a single parcel so long as the average buffer width across the entire parcel is the minimum width required by the ordinance. In any case, buffer averaging may not be used to reduce the buffer at any one point to less than the 25-foot State-mandated buffer.

Buffer averaging is incorporated into the attached ordinance in Section 5, "Buffer Encroachment Permits." It is recommended that buffer averaging not be used when the width of the buffer is less than 75 feet, because it may result in an unacceptably narrow buffer at a certain point or points within a single parcel. It is essential to clearly establish the conditions under which a buffer encroachment permit for buffer averaging may be issued. A buffer encroachment permit for buffer averaging should be considered in two cases:

- a) When the width of the buffer as related to the size and shape of the parcel results in a situation in which it is impossible for the property owner to make reasonable economic use of the portion of the parcel not in the buffer. The buffer should be reduced only as much as necessary to allow for reasonable activity, and never to less than 25 feet.

- b) When the width of the buffer as related to the size and shape of the parcel results in a situation in which it is impossible for the property owner to construct a single family dwelling on the portion of the parcel not in the buffer. The buffer should be reduced only as much as necessary to allow for reasonable activity, and never to less than 25 feet.

5. Buffer encroachment permit.

Under the Model Ordinance, a landowner should apply for a buffer encroachment permit when he or she desires to encroach into the buffer for the purpose of placing an accessory structure to a residential dwelling, such as a deck, in the buffer. Use of the buffer encroachment permit is also appropriate when the landowner wishes to use buffer averaging.

The buffer encroachment permit and the ordinance's variance procedure are intended to be used for two separate situations. If the landowner wishes to encroach for a purpose other than use of buffer averaging or placement of an accessory structure to a residential dwelling in the buffer, use of the variance procedure is the appropriate method.

Model Coastal Riparian Buffer Ordinance for Georgia's Local Governments

Description

This model ordinance provides a framework for local governments to establish buffer zones for streams, lakes, coastal marshlands, and freshwater wetlands as well as the requirements that minimize land development within those buffers. It is the purpose of these buffer zone requirements to protect and stabilize stream banks, prevent sedimentation of coastal water resources, protect water quality for important nursery areas for fisheries, and preserve aquatic and riparian habitat.

Note

All bulleted text with this symbol ► and in *italics* should be interpreted as comments, instructions, or information to assist the local government in tailoring the ordinance. This text would not appear in a final adopted ordinance.

Section 1. Intent and Purpose

- 1) The rivers, streams, wetlands, and coastal marshlands constituting the riparian lands of [*local government*] are a significant natural resource and are essentially linked to [*local government*]'s economy. The [*Board of Commissioners/ City Council*] recognizes that these lands provide numerous benefits and are vital to the health, safety, and economic welfare of its citizens. The [*Board of Commissioners/ City Council*] finds that buffers adjacent to these lands provide substantial benefits including:
 - a) Minimizing activities that degrade, destroy, or otherwise negatively impact the value and function of coastal marshlands;
 - b) Maintaining stream and river water quality;
 - c) Trapping sediment and other pollutants found in surface runoff;
 - d) Promoting bank stabilization and reducing erosion;
 - e) Protecting terrestrial coastal habitat for nesting and feeding wildlife;
 - f) Reducing the impact of flooding by increasing floodwater storage areas;
 - g) Enhancing the marshlands' scenic value and recreational opportunities;
 - h) Protecting property values of individual landowners; and,
 - i) Protecting and restoring greenspace and the natural character of the coastal region; and
 - j) Protecting important nursery areas for fisheries, which provide food and habitat to numerous species of fish and shellfish, including commercially important species.

- 2) It is therefore the purpose and intent of this ordinance to establish a coastal riparian buffer zone of restricted development and limited land use adjacent to coastal streams, rivers, marshes, and wetlands. The purposes of this coastal riparian buffer zone are to:
 - a) Protect the public health, safety, environment, and general welfare of the citizens of [*local government*];
 - b) Minimize public and private land loss due to erosion, sedimentation, and water pollution;
 - c) Maintain water quality for human use and for protecting the important nursery areas for fisheries, which provide food and habitat to numerous species of fish and shellfish, including commercially important species;
 - d) Protect terrestrial coastal habitat for nesting and feeding wildlife;
 - e) Reduce the impact of flooding by increasing floodwater storage areas;

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- f) Protect the natural and native vegetation in the zone;
 - g) Protect the coastal region’s visual character and unique natural resources; and,
 - h) Avoid land development within such buffers by establishing buffer zone requirements and by requiring authorization for any land disturbing activities.
- 3) The standards and regulations set forth in this ordinance are created under the authority of the [local government]’s Home Rule and zoning powers defined in Article IX, Section 2 of the Georgia Constitution.

Section 2. Definitions

“Access path” means a pervious path designed, constructed, and maintained pursuant to the “Coastal Riparian Buffer Guidance Manual” that provides for access to water-dependent uses through the buffer and takes the route that impacts the natural vegetation of the buffer to the least extent possible.

“Buffer encroachment permit” means the permit issued by [local government] and required to undertake certain buffer encroaching activities as described in Section 4 herein.

“Coastal marshland” or “marshland” means any marshland intertidal area, mud flat, tidal water bottom, or salt marsh within the estuarine area of the [local government] whether or not the tidewaters reach the littoral areas through natural or artificial watercourses. “Vegetated marshlands” shall include those areas upon which grow one, but not necessarily all, of the following: salt marsh grass (*Spartina alterniflora*), black needlerush (*Juncus roemerianus*), saltmeadow cordgrass (*Spartina patens*), big cordgrass (*Spartina cynosuroides*), saltgrass (*Distichlis spicata*), coast dropseed (*Sporobolus virginicus*), bigelow glasswort (*Salicornia bigelovii*), woody glasswort (*Salicornia virginica*), saltwort (*Batis maritima*), sea lavender (*Limonium nashii*), sea oxeye (*Borrchia frutescens*), silverling (*Baccharis halimifolia*), false willow (*Baccharis angustifolia*), and high-tide bush (*Iva frutescens*). The occurrence and extent of salt marsh peat at the undisturbed surface shall be deemed to be conclusive evidence of the extent of a salt marsh or a part thereof. Coastal Marshlands Protection Act, O.C.G.A. § 12-5-282.

“Coastal riparian buffer” or “buffer” means, on any given parcel of land, a natural or enhanced vegetated area of riparian land lying adjacent to a stream, pond, impoundment, wetland, or coastal marshland.

“Estuarine area” means all tidally influenced waters, marshes, and marshlands lying within a tide-elevation range from 5.6 feet above mean tide level and below. Coastal Marshlands Protection Act, O.C.G.A. § 12-5-282.

“Impervious cover” means a surface composed of any material that greatly impedes or prevents the natural infiltration of water into soil. Impervious surfaces include, but are not limited to, rooftops, buildings, streets and roads, except those designed specifically to allow infiltration.

“Impoundment” means any lake, pond, or other body of freshwater.

“Land disturbing activity” means: (1) any installation of impervious cover; (2) any grading, scraping, excavating or filling of land; (3) any construction, rebuilding or significant alteration of a structure that damages or destroys vegetation; (4) any other activity that destroys vegetation in the buffer.

“Land disturbance permit” means the permit issued by [EPD or local government] pursuant to the Georgia Erosion and Sedimentation Control Act and required for undertaking any land disturbing activity.

“Littoral area” means the tidal area between the high water and low water marks.

“Native vegetation” means vegetation that is naturally found in the area and is listed in the native vegetation list found in the “Coastal Riparian Buffer Guidance Manual.”

“Person” means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, state agency, municipality or other political subdivision of this State, any interstate body or any other legal entity.

“Riparian land” means any land along the edge of a stream, wetland, coastal marshland, pond or impoundment.

“Stream” means any freshwater stream, beginning at: (1) the location of a spring, seep or groundwater outflow that sustains streamflow; or (2) a point in the stream channel with a drainage area of 25 acres or more; or (3) a point in a stream channel with a drainage area of less than 25 acres, if evidence from field studies required by the [local government] verify the existence of a stream.

“Wetland” means those areas, which are not coastal marshlands, that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil. Ga. Comp. R. & Regs. r.391-3-16-.03 (2006).

Section 3. Applicability

This ordinance shall apply to all land disturbing activity on property containing a coastal riparian buffer. These requirements are in addition to, and do not replace or supersede, any other applicable buffer requirements established under state law. Approval or exemption from these requirements does not constitute approval or exemption from buffer requirements established under state law or from other applicable local, state or federal regulations.

3.1. Grandfather Provisions

This ordinance shall not apply to the following activities:

- 1) Existing development and land disturbance activities as of [*the effective date of this ordinance*] except that new development or new land disturbing activities on such properties will be subject to all applicable buffer requirements.
- 2) Any land disturbing activity that is scheduled for permit approval or has been submitted for approval as of [*the effective date of this ordinance.*]
- 3) Land disturbing activity that has not been submitted for approval, but that is part of a larger master development plan, such as for an office park or other phased development and that has been previously approved within one year of [*the effective date of this ordinance.*]

After [*the effective date of this ordinance*], this Ordinance shall apply to all new subdividing and platting activities.

3.2. Exemptions

- *It is recommended that the seven exemptions listed below be adopted as part of the local government's ordinance because similar exemptions exist in the Georgia Erosion & Sedimentation Control Act. In Georgia, a local law regulating a particular subject or issue is preempted by a state law that regulates that same subject or issue (unless the state law explicitly allows for local laws on the subject) . Ga. Constit. art. III, sec. VI, para. IV(a). Therefore, if the local law conflicts with the state law, then state law prevails. In this instance, the state law establishing the 25-foot buffer exempts certain activities. Therefore, any local law regulating activities in the 25-foot buffer should contain those same exemptions in order to avoid preemption by the way of conflict. A local government could, most likely, disallow these exemptions in areas of the buffer beyond the first 25 feet without facing the risk of preemption by state law since the state does not regulate activities in buffers beyond 25 feet.*

The following specific activities are exempt from this Ordinance:

- 1) Public sewer line easements paralleling the stream, lake, impoundment, wetland, and/or coastal marshlands, except that all easements (permanent and construction) and land disturbance should be at least 25 feet from the mean high water line in coastal marshlands and wetlands or the top of the bank for streams, lakes, and impoundments. This includes such impervious cover as is necessary for the operation and maintenance of the utility, including but not limited to manholes, vents and valve structures. This exemption shall not be construed to allow the construction of roads, bike paths, or other transportation routes in such easements, regardless of the type of paving material used.
- 2) Land disturbing activities by governments within a road right of way existing at the time this ordinance takes effect, or approved under the terms of this ordinance. Development activities are only allowed if they cannot reasonably be located outside the buffer.
- 3) Land disturbing activities within utility easements existing as of the effective date of this ordinance or approved under the terms of this ordinance when necessary for the operation and maintenance of the utility, including but not limited to manholes, vents and valve structures.
- 4) Emergency maintenance and repairs necessary to preserve life and/or property. However, when emergency work is performed under this section, the person performing it shall report such work to the [local government] as soon as possible and within 24 hours of the commencement of the work. Within ten (10) days thereafter, the person shall apply for a variance and perform such work within such time period as may be determined by the [local government] to be reasonably necessary to correct any impairment such emergency work may have caused to the water conveyance capacity, stability or water quality of the protection area.
- 6) Forestry and silviculture activities on land that is zoned for forestry, silvicultural or agricultural uses, provided these activities are not incidental to other land disturbing activity and are conducted using applicable best management practices. If such activity results in land disturbance in the buffer that would otherwise be prohibited, no land disturbing activity other than normal forest management practices will be allowed on the entire property for three years after the end of the activities that intruded on the buffer.
- 7) Stream crossings for water lines or stream crossings for sewer lines, provided that they occur at an angle, as measured from the point of crossing, within 25 degrees of perpendicular to the stream; cause a width of disturbance of not more than 50 feet within the buffer; and adequate erosion control measures are incorporated into the project plans and specifications and are implemented.

➤ **Menu of Options:** *The following list is a menu containing possible exemptions that a local government may wish to include in its ordinance depending on the community's needs and desires.*

- 1) Activities for the purpose of constructing public water supply intake or public wastewater outfall structures, when designed, constructed, and maintained pursuant to the “Coastal Riparian Buffer Guidance Manual.”
- 2) Activities to restore and enhance stream bank stability, vegetation, water quality, and/or aquatic habitat, when designed, constructed, and maintained pursuant to the “Coastal Riparian Buffer Guidance Manual.”
 - *See the “Coastal Riparian Buffer Guidance Manual” for a list of native vegetation and bioengineering techniques.*
- 3) Any trimming or pruning of vegetation for the purpose of creating a keyhole view corridor and/or access path and conducted in accordance with the “Coastal Riparian Buffer Guidance Manual.” This exemption shall not allow for the removal of trees.
- 4) Creation of an access path to water-dependent uses through the buffer when designed, constructed, and maintained pursuant to the “Coastal Riparian Buffer Guidance Manual.”
- 5) Structural maintenance and repair (not replacement or enlargement) of any damaged structure that existed in the buffer as of the effective date of this ordinance, provided the repair is less than fifty (50) percent of the value of the structure, as determined by a local building inspector and is constructed and designed pursuant to the “Coastal Riparian Buffer Guidance Manual.”

Section 4. Standards and Regulations

All land disturbing activity that is not exempt from this Ordinance pursuant to subsection 3.2 above shall meet the following requirements:

- 1) A buffer shall be maintained for a minimum of 75 feet along both banks of streams and along all impoundments, as measured from the top of the bank of the stream or impoundment. All land disturbing activity is prohibited within the 75-foot buffer unless a variance or buffer encroachment permit is granted pursuant to Section 4.3 or Section 4.4 below.
 - 2) A buffer shall be maintained for a minimum of 75 feet along all coastal marshlands, measured horizontally from the estuarine area. All land disturbing activity is prohibited within the 75-foot buffer unless a variance or buffer encroachment permit is granted pursuant to Section 4.3 or Section 4.4 below.
 - 3) A buffer shall be maintained for a minimum of 75 feet along all wetlands as measured from the inland edge of the wetland. All land disturbing activity is prohibited within the 75-foot buffer unless a variance or buffer encroachment permit is granted pursuant to Section 4.3 or Section 4.4 below.
- *Buffer widths used in this ordinance model are intended as minimums. Local governments are encouraged to adopt wider buffers as necessary to receive the benefits of other buffer services such as increased sediment and pollutant removal, general wildlife and avian habitat, floodwater control, recreational and aesthetic benefits and protection of commercially important fish and shellfish. A description of recommended buffer widths for each of these services is available in the attached document entitled “Protecting Riparian Buffers in Coastal Georgia: Management Options.”*

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- 4) No septic tanks or septic tank drain fields shall be permitted within the buffer.
 - 5) The establishment of a manicured lawn shall not be permitted in the buffer.
 - 6) The application of herbicides shall not be permitted in the buffer.
- **Menu of Options:** *The following is an optional provision that a local government may choose to adopt in addition to the above standards and regulations. This provision establishes a variable-width buffer.*
- 7) A buffer shall be maintained for ___ feet along all high value areas. High value areas include [those designated by the local government].
- *Under a variable width buffer ordinance, the local government requires a wider buffer adjacent to aquatic areas that the local government designates as having high value. In all other areas, the buffer width is set by Section 4 (1), (2), and (3) above. Examples of areas that a local government may wish to designate as high value include: small, headwater tidal creeks that have high value as nursery grounds for fish and shellfish in certain seasons; oyster habitat; endangered species habitat and; streams or creeks listed on the Clean Water Act § 303(d) list for non-compliance with water quality standards (other than sediment). The width of the buffer in high value areas is determined by the local government. Please refer to the document entitled “Protecting Riparian Buffers in Coastal Georgia: Management Options,” for suggested buffer widths.*

Section 5. Buffer Encroachment Permit

5.1 General

- 1) No person shall conduct any land disturbing activity within the coastal riparian buffer without first obtaining a buffer encroachment permit from the [local government] to perform such activity.
- 2) Buffer encroachment permits may be issued by the [local government] only if the land disturbing activity constitutes one of the following activities:

➤ **Menu of Options:** *The following is a list of options from which a local government may choose when determining the activities for which it wishes to require citizens to obtain a buffer encroachment permit.*

 - a) construction of a porch, deck, boardwalk, or similar structure that is an accessory use to a residential dwelling, constructed and designed in accordance with the “Coastal Riparian Buffer Guidance Manual”;

➤ *For boardwalks that will extend into the coastal marshlands, landowners must first receive a permit or license, whichever is applicable, from the Coastal Marshlands Protection Committee before applying for a buffer encroachment permit.*
 - b) any other land disturbing activity that results in a reduction in buffer width over a portion of a parcel, in exchange for an increase in buffer width elsewhere on the same parcel, provided that the average buffer width on the entire parcel is 75 feet and the buffer width at any given point on the parcel is not less than 25 feet.
- 3) The following factors will be considered in determining whether to issue a permit:

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- a) whether the buffer encroachment will result in a reduction of the quality of the water exiting the parcel, or a diminishment of a uniform coastal marshland scenic vista;
 - b) whether the proposed development in the buffer will be conducted in accordance with all design guidelines, low impact development techniques, and other guidance found in the “Coastal Riparian Buffer Guidance Manual;”
 - c) whether the proposed intrusion into the buffer is the minimum intrusion necessary to accomplish the purpose of the intrusion;
 - d) whether a feasible alternative design exists that would result in no intrusion into the buffer;
 - e) when the permit is sought pursuant to subsection 5.1 (d), whether the width of the buffer as related to the size and shape of the parcel results in a situation in which it is impossible for the property owner to make reasonable economic use of the portion of the parcel not in the buffer; and
 - f) when the permit is sought pursuant to subsection 5.1 (d), whether the width of the buffer as related to the size and shape of the parcel results in a situation in which it is impossible for the property owner to construct a single family dwelling on the portion of the parcel not in the buffer.

5.2 Application Requirements and Procedures

- 1) The application for a buffer encroachment permit shall be submitted to the [*local government*] and must include the following:
 - a) A site plan showing:
 - The location of all riparian lands on or immediately adjacent to the property;
 - Identification of any streams found on the Clean Water Act § 303(d) list that are adjacent to the property;
 - Boundaries of the riparian buffer, as described by Section 4 of this Ordinance, on the property;
 - Buffer zone topography with contour lines at no greater than five (5)-foot contour intervals;
 - Delineation of forested and open areas in the buffer zone; and,
 - Detailed plans of all proposed land development and land disturbing activity on the site;
 - b) A description of any potential development impact on the buffer and how it will be avoided;
 - c) Any other documentation that the [*local government*] may reasonably deem necessary for review of the application and to insure that the coastal riparian buffer ordinance is addressed in the approval process; and
 - d) Payment of the application fee of _____.
- 2) The coastal riparian buffer shall be clearly delineated on all development plans and plats submitted for buffer encroachment permit approval, and buffer limits must be staked in the field in a manner approved by the [*local government*] before and during construction with posted signs that describe allowable activities. Buffer boundaries shall be printed on all development and construction plans, plats, and official maps.
- 3) All buffer areas must be recorded on the final plat of the property following plan approval.

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- 4) Within [ten] working days of receiving an application for a permit, the [planning department or public works department] shall review it for completeness and notify the public of the application by placing a notice [on its website or in a local newspaper]. If the [planning department or public works department] finds that the application is incomplete, it shall within such [ten] day period, send to the applicant a notice of the specific ways in which the application is deficient, with appropriate references to the applicable sections of this ordinance.
 - 5) The [planning department or public works department] shall process all buffer encroachment permit applications within [thirty] business days of the [planning department or public works department]'s actual receipt of a completed application and a permit fee. The [planning department or public works department] shall give notice to the applicant of its decision by hand delivery or by mailing a notice, by Certified Mail, Return Receipt Requested, to the address on the permit application on or before the [thirtieth] business day after the [planning department or public works department]'s receipt of the completed application. If the jurisdiction fails to act within the [thirty day] period, the permit shall have been deemed to have been granted.
 - 6) In the event the [planning department or public works department] determines that all requirements for approval have not been met, it shall promptly notify the applicant of such fact and shall automatically deny the permit.
 - 7) An individual whose permit application has been denied or a permittee whose permit has been revoked may appeal the decision of the [planning department or public works department] to the [County Commission/City Council] provided that they file written notice of an appeal with the [County/City Clerk] within [fifteen] business days of the [local government]'s decision. Such appeal shall be considered by the [County Commission/City Council] at the next [County Commission/City Council] meeting held after the [county/city's] receipt of the written notice of appeal, provided that notice of appeal is received by the [County Commission/City Council] a minimum of [five] full business days before the meeting. In the event an individual whose permit has been denied or revoked is dissatisfied with the decision of the [County Commission/City Council], they may petition for writ of certiorari to the [superior court] as provided by law.
 - 8) The [planning department or public works department] shall inspect each lot for which a permit for a new land disturbing activity or for modification of an existing land disturbing activity is issued. This inspection shall occur on or before [six months] from the date of issuance of such permit.
 - a) If the land disturbing activity is not complete within [six months] from the date of issuance, the permit shall lapse and become void. No refunds will be made for permit fees paid for permits that expired due to failure to engage in the land disturbing activity. If later, an individual desires to continue land disturbing activities at the same location, a new application must be processed and another fee paid in accordance with the fee schedule applicable at such time.
 - b) If the land disturbing activity is substantially complete, but not in full compliance with this ordinance the [planning department or public works department] shall give the applicant notice of the deficiencies and shall allow an additional [thirty days] from the date of inspection for the deficiencies to be corrected. If the deficiencies are not corrected by such date, the permit shall lapse and become void.

Section 6. Inspection

The [planning department or public works department] or its authorized representative may inspect ongoing work in the buffer to be made periodically during the course thereof and shall make a final inspection following completion of the work. The landowner shall assist the [planning department or public works department] or authorized representative in making such inspections. The [planning department or public works department] shall have the authority to conduct such investigations as it may reasonably deem necessary to carry out its duties as prescribed in this Ordinance, and to enter at a reasonable time upon any property, public or private, for the purpose of investigating and inspecting the sites of any land disturbing activities within the buffer protection area.

No person shall refuse entry or access to any authorized representative or agent who requests entry for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper or interfere with any such representative while in the process of carrying out official duties.

Section 7. Variance Procedure

Variances from the above buffer requirements may be granted in accordance with the following provisions:

- 1) Where a parcel was platted prior to the effective date of this ordinance, and its shape, topography, or other existing physical condition prevents land disturbing activity consistent with this ordinance, and such land disturbing activity cannot be authorized through issuance of a buffer encroachment permit, the [local government] may grant a variance that shall allow a reduction in buffer width only to the extent necessary to provide relief from the conditions which prevented land disturbing activity on the parcel, provided adequate mitigation measures are implemented by the landowner to offset the effects of such variance.
- 2) Variances shall not be considered when:
 - a) following adoption of this ordinance, actions of any property owner of a given property have created conditions of a hardship on that property; or
 - b) the owner previously applied for a buffer encroachment permit that was denied by [the local government].
 - *The buffer encroachment permit and the variance procedure are intended to be used for two separate situations. A landowner should apply for a buffer encroachment permit when he or she desires to encroach into the buffer for the purpose of placing an accessory structure to a residential dwelling, such as a deck, in the buffer. Use of the buffer encroachment permit is also appropriate when the landowner wishes to use buffer averaging. However, if the landowner wishes to encroach for a purpose other than use of buffer averaging or placement of an accessory structure to a residential dwelling in the buffer, use of the variance procedure is the appropriate method.*
- 3) Except as provided above, the [local government] shall grant no variance from any provision of this ordinance.
- 4) When a public hearing on the application for a variance is conducted, the [local government] shall give

public notice of each such public hearing in a newspaper of general circulation within the [local government]. The [local government] shall require that the applicant post a sign giving notice of the proposed variance and the public hearing. The sign shall be of a size and posted in such a location on the property as to be clearly visible from the primary adjacent road right-of-way.

- 5) At a minimum, a variance request shall include the following information:
- a) A site map that includes locations of all streams, wetlands, coastal marshlands, floodplain boundaries, and other natural features, as determined by field survey;
 - b) A description of the shape, size, topography, slope, soils, vegetation, and other physical characteristics of the property;
 - c) A detailed site plan that shows the locations of all existing and proposed structures and other impervious cover, the limits of all existing and proposed land disturbance both inside and outside the buffer;
 - d) The exact area of the buffer to be affected shall be accurately and clearly indicated;
 - e) Documentation of the inability to develop the property without a variance;
 - f) Documentation that shows how buffer encroachment will be minimized to the greatest extent possible;
 - g) Documentation that shows how the buffer encroachment will not result in reduction of water quality or diminishment of a uniform coastal marshland scenic vista;
 - h) At least one alternative plan, which does not include a buffer encroachment, and an explanation of why such a plan is not possible;
 - i) A calculation of the total area and length of the proposed encroachment;
 - j) A stormwater management site plan, if applicable; and,
 - *A stormwater management site plan may be required if the property is located in a Phase I or II NPDES permitted area pursuant to the federal Clean Water Act or if the local government otherwise requires such a plan.*
 - k) A proposed mitigation plan designed pursuant to the “Coastal Riparian Buffer Guidance Manual” that offsets the effects of the proposed encroachment. If no mitigation is proposed, the application must include an explanation of why none is being proposed.
 - *Acceptable mitigation might include restoration and/or enhancement and protection of a degraded area of coastal riparian buffer on an adjacent or nearby property.*
 - l) Payment of the application fee of _____.

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- 6) The following factors will be considered in determining whether to issue a variance:
- a) Whether the requirements of the riparian buffer represent an extreme hardship for the landowner, such that little or no reasonable economic use of the land is available without the reduction of the width of the riparian buffer;
 - b) Whether actions of the landowner of a given property have created conditions of a hardship on that property;
 - c) The size, shape, topography, soils, vegetation and other physical characteristics of the property that may prevent land development;
 - d) The location and extent of the proposed buffer encroachment;
 - e) Whether alternative designs are possible which require less or no intrusion;
 - f) The long-term water-quality impacts of the proposed variance;
 - g) The water quality impacts of any construction that the granting of the variance would allow in the buffer;
 - h) Whether the issuance of a variance and the completion of the applicant's proposal will unreasonably interfere with the conservation of fish, shrimp, oysters, crabs, clams, or other marine life, wildlife, or other resources, including but not limited to water and oxygen supply; and
 - i) whether the proposed development in the buffer will be conducted in accordance with all design guidelines, low impact development techniques, and other guidance found in the "Coastal Riparian Buffer Guidance Manual."
- *Only the Georgia Environmental Protection Division may approve buffer variances within the 25-foot buffer established along state waters under Georgia's Erosion and Sedimentation Act of 1975. Op. Att'y Gen. No. 90-40 (1990). For purposes of the Erosion and Sedimentation Act of 1975, state waters include, inter alia, ponds, lakes, reservoirs, and coastal marshlands. Op. Att'y Gen. No. 93-7 (1993).*
- *A local issuing authority does not have to allow encroachment into the 25-foot buffer, despite the issuance of a variance by EPD.*

If a variance issued by the Director is acceptable to the issuing authority, the variance shall be included as a condition of permitting and therefore becomes a part of the permit for the proposed land disturbing activity project. If a stream buffer variance is not acceptable to the issuing authority, the issuing authority may issue a land disturbing permit without allowing encroachment into the buffer. Ga. Comp. R. & Regs. § 391-3-7-.05(8) (2006).

Section 8. Compatibility with Other Regulations and Requirements

This ordinance is not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, statute or other provision of law. The requirements of this ordinance should be considered minimum requirements. Where any provision of this ordinance imposes restrictions or protective standards different from those imposed by any other ordinance, rule, regulation, or other provision of law, the more restrictive provision applies.

The requirements of this ordinance shall in no case be interpreted to preempt the need for other relevant local, state and federal permits and approvals.

- *All land disturbing activities must comply with the requirements of the Erosion and Sedimentation Act of 1975 and all applicable best management practices therein.*
- *A 100-foot buffer must be maintained along perennial rivers with an average annual flow of at least 400 cubic feet per second pursuant to the Mountain and River Corridor Protection Act, O.C.G.A. § 12- 2-8. For purposes of the Act, the 100-foot buffer begins from the river bank at mean high water. This subsection only applies to counties or cities whose jurisdiction extends beyond tidally-influenced waters governed by the Coastal Marshland Protection Act.*
- *Construction of docks, piers and marinas are not governed by this ordinance and require permits from the Department of Natural Resources (Coastal Resources Division) and/or Army Corps of Engineers. Permit information can be found at <http://crd.dnr.state.ga.us> and <http://www.usace.army.mil>. However, any land disturbing activity encroaching the buffer area associated with construction of a dock, pier, or marina must satisfy the requirements of the ordinance.*
- *Construction of bulkheads, groins, revetments, and any other shoreline engineering activities are not governed by this ordinance and require permits from the Department of Natural Resources (Coastal Resources Division) and/or Army Corps of Engineers. Permit information can be found at <http://crd.dnr.state.ga.us> and <http://www.usace.army.mil>. However, any land disturbing activity encroaching the buffer area associated with the construction must satisfy ordinance requirements.*

Section 9. Violations, Enforcement and Penalties

Any action, or inaction, which violates the provisions of this ordinance or the requirements of an approved site plan may be subject to the enforcement actions outlined in this Section. Any such action, or inaction, which is continuous with respect to time, is deemed to be a public nuisance and may be abated by injunctive or other equitable relief. The imposition of any of the penalties described below shall not prevent such equitable relief.

9.1. Notice of Violation

If the [local government] determines that a permittee or other responsible person has failed to comply with the terms and conditions of a permit, an approved stormwater management plan or the provisions of this ordinance, it shall issue a written notice of violation to such permittee or other responsible person. Where a person is engaged in activity covered by this ordinance without having first secured a permit therefore, the notice of violation shall be served on the owner or the responsible person in charge of the activity being conducted on the site.

The notice of violation shall contain:

- 1) The name and address of the owner or the applicant or the responsible person;
- 2) The address or other description of the site upon which the violation is occurring;
- 3) A statement specifying the nature of the violation;
- 4) A description of the remedial measures necessary to bring the action or inaction into compliance with the permit, the stormwater management plan or this ordinance and the date for the completion of such remedial action;
- 5) A statement of the penalty or penalties that may be assessed against the person to whom the notice of violation is directed; and,
- 6) A statement that the determination of violation may be appealed to the *[local government]* by filing a written notice of appeal within thirty (30) days after the notice of violation (except, that in the event the violation constitutes an immediate danger to public health or public safety, 24 hours notice shall be sufficient).

9.2. Penalties

In the event the remedial measures described in the notice of violation have not been completed by the date set forth for such completion in the notice of violation, any one or more of the following actions or penalties may be taken or assessed against the person to whom the notice of violation was directed. Before taking any of the following actions or imposing any of the following penalties, the *[local government]* shall first notify the permittee or other responsible person in writing of its intended action and shall provide a reasonable opportunity, of not less than 72 hours (except, that in the event the violation constitutes an immediate danger to public health or public safety, 24 hours notice shall be sufficient) to cure such violation. In the event the permittee or other responsible person fails to cure such violation after such notice and cure period, the *[local government]* may take any one or more of the following actions or impose any one or more of the following penalties.

- 1) Stop Work Order - The *[local government]* may issue a stop work order which shall be served on the permittee or other responsible person. The stop work order shall remain in effect until the permittee or other responsible person has taken the remedial measures set forth in the notice of violation or has otherwise cured the violation or violations described therein, provided the stop work order may be withdrawn or modified to enable the permittee or other responsible person to take the necessary remedial measures to cure such violation or violations.
- 2) Withhold Certificate of Occupancy - The *[local government]* may refuse to issue a certificate of occupancy for the building or other improvements constructed or being constructed on the site until the permittee or other responsible person has taken the remedial measures set forth in the notice of violation or has otherwise cured the violations described therein.
- 3) Suspension, Revocation or Modification of Permit - The *[local government]* may suspend, revoke, or modify the permit authorizing the land development project. A suspended, revoked, or modified permit may be reinstated after the permittee or other responsible person has taken the remedial measures set forth in the notice of violation or has otherwise cured the violations described therein, provided such permit may be reinstated (upon such conditions as the *[local government]* may deem necessary) to

enable the permittee or other responsible person to take the necessary remedial measures to cure such violations.

- 4) Civil Penalties - In the event the permittee or other responsible person fails to take the remedial measures set forth in the notice of violation or otherwise fails to cure the violations described therein within 72 hours, or such lesser period as the [local government] shall deem appropriate (except that in the event the violation constitutes an immediate danger to public health or public safety, 24 hours notice shall be sufficient) after the [local government] has taken one or more of the actions described above, the [local government] may impose a penalty on the permittee or other responsible person not to exceed \$1,000 (depending on the severity of the violation) for each day the violation remains un-remedied after receipt of the notice of violation.

- 5) Criminal Penalties - For intentional and flagrant violations of this ordinance, the [local government] may issue a citation to the permittee or other responsible person, requiring such person to appear in [appropriate municipal, magistrate or recorders] court to answer charges for such violation. Upon conviction, such person shall be punished by a fine not to exceed \$1,000 or imprisonment for 60 days or both. Each act of violation and each day upon which any violation shall occur shall constitute a separate offense.

The **River Basin Center** is the public service and outreach office of the University of Georgia Institute of Ecology. The Center's mission is to integrate science and policymaking, particularly relating to the intersection of land use with water quality/quantity and biodiversity issues. Faculty, staff and graduate students include research scientists, policy analysts, outreach specialists, and attorneys. Major projects of the Center include the development of an aquatic habitat conservation plan for the local governments of the Etowah River basin, funded by the U.S. Fish & Wildlife Service; and the Initiative for Watershed Excellence: Upper Altamaha Pilot Project, funded by the U.S. EPA and Georgia EPD.

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The **UGA Land Use Clinic** provides innovative legal tools and strategies to help preserve land, water and scenic beauty while promoting creation of communities responsive to human and environmental needs. The clinic helps local governments, state agencies, landowners, and non-profit organizations to develop quality land use and growth management policies and practices. The clinic also gives UGA law students an opportunity to develop practical skills and provides them with knowledge of land use law and policy.

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