



Chapter Sections:

7.1 Overview

7.2 Project Phasing

7.3 Opportunities and Strategies

7.4 Action Steps

7.5 Staffing

7.6 Operations and Maintenance

7.7 Establishing Performance Measures

7.8 Bicycle Facility Development

7.9 Implementation of Greenway Network

7.1 Overview

This chapter describes how Durham can turn the vision of a connected, integrated bicycle system into a reality. The physical and policy recommendations of this Plan provide the ingredients while the implementation strategy provides a guide for action. A dedicated effort towards implementation over the next 10 to 20 years will make the City and County of Durham a more bicycle-friendly community, thus achieving the goals set out by this Plan. This chapter contains project phasing information, opportunities and strategies, key action steps, an evaluation and monitoring process, staffing recommendations, maintenance, methods for developing bicycle facilities, and methods for greenway implementation and acquisition.

7.2 Project Phasing

Bicycle projects have been divided into three phases. The short term phase is 0-5 years; medium term phase is 5-10 years; long term phase is 10-25 years. Short term projects are specific improvements that will facilitate an immediate increase in connectivity, access, safety, and promotion of the network. A portion of the recommended bicycle improvements included in the short term phase consist of striping bicycle lanes on existing roadways and should be implemented within the first three years after the plan is adopted. Detailed information on such “paint” projects is outlined in Appendix D. These recommendations take advantage of some of the most promising opportunities to add non-motorized facilities as a part of upcoming projects. These projects are intended to build community support and momentum for implementing additional recommendations of this Plan.

7.3 Opportunities and Strategies

Durham has several opportunities that can help propel implementation. First, is the grassroots interest among citizens and local groups such as the Durham Bicycle and Pedestrian Advisory Committee. Active citizens turned out to public meetings and responded to the online public opinion form in large numbers throughout

this planning process. All showed interest in forming committees and working with communities across Durham to follow progress, stay active, and promote the comprehensive on-road and off-road system to decision-makers and fellow citizens. The organization of all interested citizens will help advocate the network development, promote awareness, develop local education and encouragement programs, and stimulate volunteer efforts.

A second opportunity is taking advantage of existing bicycle facilities, greenways, and trip attractors. Colleges, parks, shopping centers, etc. are all places people are interested in biking to. Short connections between existing facilities or trip attractors can lead to further connections, forming longer corridors that provide for both transportation and recreation. Also, the addition of bicycle racks, lockers, trailheads, and signage will make these destinations more attractive and visible.

A third opportunity is to take advantage of the region's growth. Engineering and design of new roads and developments should follow recommendations and design guidelines from this Plan to develop both on-road and off-road facilities. Also, where roadway reconstruction projects occur, bicycle facilities should be incorporated to reduce the overall cost of the system.

A fourth opportunity exists in the numerous departments and agencies that are involved in the creation of this Plan and/or could be involved in the implementation. An inter-departmental and inter-agency coordinating committee should be formed to directly coordinate the implementation of this Plan. This would function to continue communication between groups to ensure the integration and implementation of the new bicycle network. It would also function to have representatives from different backgrounds such as health and wellness, community development, the environment, etc. to tap into a variety of potential funding, program, volunteer, and development mechanisms. This inter-departmental coordinating committee will oversee the implementation of this plan, seek funding resources and opportunities, provide oversight/coordination/leadership for the overall network, develop programs, be a source for information and idea exchange, establish performance measures, listen to the community's needs and requests, update the Plan as necessary, and continue to build momentum for the overall network. The coordinating committee will also be responsible for integrating off-road and on-road facilities, and sharing updated GIS data for bicycle facilities. A final task is to remain connected and integrated with surrounding counties and regional bicycle networks. This committee should meet four times annually and include staff from:

- Durham Transportation Department
- Durham Engineering Department
- Durham Planning Department
- Durham Parks and Recreation Department
- Durham Area Transit Authority (DATA)
- Triangle Transit Authority (TTA)
- DCHC MPO
- Durham Police/Sheriff Departments
- Durham GIS Department

- Durham Bicycle and Pedestrian Advisory Committee
- Durham Open Space and Trails Committee
- Other representatives of groups such as Duke Univ. Bicycle Advocates
- Active citizens (appointed to represent geographic regions of Durham)

7.4 Action Steps

These action steps may occur simultaneously and address the integration of physical and policy improvements. The key steps are:

- 1) Adopt this Plan. This should be considered the first step in implementation for the local government. Through adoption of this document, the community is able to shape regional decisions so that they fit with the goals and recommendations of this Plan.
- 2) Form the Committee described in above section to oversee implementation and integration of the bicycle network.
- 3) Secure and commit funding necessary to undertake the short term projects and develop a long term funding strategy to allow continued development and maintenance of the overall system. Explore alternate funding sources from federal, state, and local sources and means.
- 4) Begin working on the phase one projects described in section 7.2 and illustrated in Appendix D. This will build momentum and focus attention on high priority areas.
- 5) Begin acquiring land and easements necessary to complete priority greenway segments and provide connections between systems where there are gaps.
- 6) Ensure that bicycle planning is integrated with other transportation planning and funding efforts at the state and local level, taking advantage of all future paving, construction, and reconstruction projects, as well as with long range and current land use, economic development, parks and recreation, environmental, and community planning, especially the new City of Durham UDO.
- 7) Facilitate development of local citizen committees and groups to advocate the Plan, build support, promote awareness, and develop local education and encouragement programs. These committees would also provide feedback to Durham City and County staff about the implementation of the Plan.
- 8) Organize quarterly forums for citizens to raise bicycle issues to Durham City and County staff. These forums should be supplemented by online feedback forms.
- 9) Develop and implement education, encouragement, and awareness programs such as public events, which can be used to announce new bike routes and upcoming projects and be a source of revenue.

7.5 Staffing

Durham Transportation Department

Representatives from the Durham Transportation Department should take on the responsibilities of “Bicycle Coordinator”. These duties would include carrying out recommendations from this Plan, applying for funding, overseeing planning, design, and construction of the bicycle systems, and coordinating with local and regional jurisdictions and NCDOT. These coordinators should work with other staff to conduct tasks such as updating and publishing new local bicycle maps, creating and updating GIS layers of all bicycle facilities, coordinating education, enforcement, and encouragement programs, monitoring the use and safety of bicycle facilities, proposing future alternative routes, and working with adjacent communities and regional organizations to coordinate bikeway linkages.

Because of the growing need to develop the on-road bicycle system and supporting education, enforcement, and encouragement programs, the Bicycle Coordinator should also have an assistant. The general responsibilities of the Bicycle Coordinator and Assistant Bicycle Coordinator are listed below.

Bicycle Coordinator

- Overall implementation of on-road bicycle recommendations in this Plan
- Future on-road bikeway planning
- Roadway design and construction project review
- Interagency and jurisdiction coordination
- Grant applications
- Public outreach
- Staff training on bicycle issues
- Reporting to the transportation director

Assistant Bicycle Coordinator

- Reviewing and addressing public feedback
- Monitoring on-road bicycle system performance (safety, usage, amount of facilities provided)
- Coordinating education, enforcement, and encouragement programs
- Monitoring the demand for and installing new bicycle racks
- Replacing bicycle route signs and continually evaluating bicycle routes
- Oversight of on-road bicycle facility maintenance

Public Works Department /Engineering

The Public Works Director should oversee the construction and maintenance of all trail and bicycle facilities. The Public Works section devoted to Streets should also be devoted to future recommendations for the bicycle networks, discussed earlier

in this plan. One member of the Public Works should handle facility development and construction (including posting bicycle route signs) among his/her other responsibilities.

North Carolina Department of Transportation

NCDOT Division Five should maintain all bicycle facilities within the roadway rights-of-way that are owned by the state. This includes paved shoulders and bicycle lanes on main roadways. Durham should work with NCDOT to develop a schedule for routine maintenance and a means of identifying locations for spot maintenance improvements.

City of Durham Parks and Recreation Department

Duties for the Park and Recreation Department would include carrying out the greenway recommendations from this Plan, applying for funding, and overseeing all greenway facilities. Staff should also conduct tasks such as updating and publishing new maps, creating and updating GIS layers of all greenway facilities, proposing future alternative routes, and working with adjacent communities/counties to coordinate linkages to other bikeways. The Parks and Recreation staff should also play a role in education and encouragement programs.

Police/Sheriff Departments

All local police officers should be educated about North Carolina's bicycle and pedestrian laws to promote positive interactions between bicyclists, pedestrians, and motorists. The Guide to North Carolina Bicycle and Pedestrian Laws, written by the NCDOT Division of Bicycle and Pedestrian Transportation, should be distributed to local law enforcement. Specific laws in the State of North Carolina include wearing a helmet under the age of 16, having an adequate light if riding after dark, riding on the right side of the road, and proper signaling when turning. Officers should become more proactive in educating the public and enforcing laws when they are broken.

Volunteers

Services from volunteers, student labor, and seniors, or donations of material and equipment may be provided in-kind, to offset construction and maintenance costs. Formalized maintenance agreements, such as adopt-a-trail/greenway or adopt-a-highway can be used to provide a regulated service agreement with volunteers. Other efforts and projects can be coordinated as needed with senior class projects, scout projects, interested organizations, clubs or a neighborhood's community service to provide for the basic needs of the proposed networks. Advantages of utilizing volunteers include reduced or donated planning and construction costs, community pride and personal connections to Durham's bicycle and greenway networks.

7.6 Operations and Maintenance

Operations and maintenance refers to specific day-to-day tasks and programs performed to assure resources and facilities are kept in good usable condition.

This begins with sound design, durable components, and a comprehensive management plan. A management plan should be embraced by the entities responsible for maintaining the bicycle and greenway network, at the beginning of the implementation process. In addition, community groups, residents, business owners, developers and other stakeholders should be engaged in the long term stewardship of the resources preserved and enhanced by this plan as discussed later in this chapter.

7.6.1 Guiding Principles for Effective Operations and Maintenance

The Durham bicycle network should be viewed and maintained as a public resource. Indeed it will become infrastructure similar to the street system or utility networks, serving the community for generations to come. The following guiding principles will help assure the preservation of a first class system:

- Good maintenance begins with sound planning and design
- Foremost, protect life, property and the environment
- Promote and maintain a quality outdoor recreation experience
- Develop a management plan that is reviewed and updated annually with tasks, operational policies, standards, and routine and remedial maintenance goals
- Maintain quality control and conduct regular inspections
- Include field crews, police and fire/rescue personnel in both the design review and on-going management process
- Maintain an effective, responsive public feedback system and promote public participation
- Be a good neighbor to adjacent properties
- Operate a cost-effective program with sustainable funding sources

7.6.2 Maintenance Responsibilities

The bicycle network should be maintained by the City of Durham Public Works and Parks and Recreation Departments, NCDOT, and patrolled by the City Police Department and Durham County Sheriff's Office. A key to continued success will be the establishment and acceptance of bicycle facility operations and maintenance guidelines and proper training of both supervisory and field personnel regarding on-road bicycle facility upkeep. There should also be interagency coordination and user feedback protocols that assure timely response to citizen complaints and suggestions, including a website and toll-free hotline for bicycle maintenance requests. Bicycle route signs and bicycle racks should also be maintained by the City of Durham Public Works and Parks and Recreation Departments and NCDOT, depending on the types and locations of facilities. More specific department/staffing information is described above in Section 7.5

7.6.3 Routine and Remedial Maintenance

Routine Maintenance Defined

Routine maintenance refers to the day-to-day regimen of litter pick-up, trash and debris removal, weed and dust control, trail sweeping, sign replacement, tree and shrub trimming, and other regularly scheduled activities. Routine maintenance also includes minor repairs and replacements such as fixing cracks and potholes or repairing a broken hand railing.

The following tasks should be performed on a regular basis to keep all network facilities in good, useable condition. Maintenance tasks should be conducted more frequently for bicycle and greenway facilities where use is the most concentrated. Methods such as bicycle counts, sketch plan analysis methods for estimating bicycle demand, public survey results, and public meeting comments can be used to determine which resources are the most heavily used and may require the most maintenance attention. The frequency of required maintenance tasks should be established as new facilities are implemented and should be reviewed and updated annually to reflect any changes in usage, safety issues, etc. Basic housekeeping of bicycle and greenway facilities will ensure that the network is clean and functional and will also improve the life of each facility.

Remedial Maintenance Defined

Remedial Maintenance refers to correcting significant defects in the network, as well as repairing, replacing or restoring major components that have been destroyed, damaged, or significantly deteriorated from normal usage and old age. Some items (“minor repairs”) may occur on a five to ten year cycle such as repainting, seal coating asphalt pavement or replacing signage. Major reconstruction items will occur over a longer period or after an event such as a flood. Examples of major reconstruction remedial maintenance include stabilization of a severely eroded hillside, repaving a trail surface or a street used for biking. Remedial maintenance should be part of a long-term capital improvement plan.

All facilities will require repair or replacement at one time or another. The repair or replacement of existing facilities should be reflected in a projected budget for future maintenance costs. The time between observation and repair/replacement will depend on whether the needed repair is deemed a hazard, to what degree the needed repair will affect the safety of the user, and whether the needed repair can be performed by an in-house maintenance crew or if it is so extensive that the needed repair must be done by outside entities or replaced completely. Some repairs are minor, such as repainting or resurfacing bicycle lanes and can be done in conjunction with other capital projects, such as repaving the adjacent street. The following tasks should be performed on an as needed basis to keep network facilities in good, useable condition.

- Replace/repair damaged or worn signage
- Repaint pavement markings
- Replace dangerous drainage grates
- Repave/seal
- Fill pot holes
- Repair/replace lighting
- Replace asphalt or concrete
- Replenish gravel, mulch, or other materials
- Remove encroaching debris along bicycle lanes and paved trail edges
- Regrade to prevent or eliminate low spots and drainage issues
- Add culverts, bridges, boardwalks, retaining walls, etc. to greenways to prevent or eliminate drainage/erosion issues

7.7 Establishing Performance Measures (Evaluation and Monitoring)

Durham should work with local communities and advocacy organizations to establish performance measures to benchmark progress towards achieving the goals of this Plan. These performance measures should be stated in an official report within one to two years after the Plan is adopted. Baseline data should be collected as soon as the performance measures are established. The performance measures should address the following aspects of bicycle transportation and recreation in the Durham area:

- Safety - Measures of bicycle crashes or injuries.
- Usage - Measures of how many people are bicycling on on-road and off-road facilities.
- Facilities - Measures of how many bicycle facilities are available and the quality of these facilities.
- Education/Enforcement - Measures of the number of people educated or number of people ticketed as a part of a bicycle safety campaign.
- Institutionalization - Measures of the total budget spent on bicycle projects and programs or the number of municipal employees receiving bicycle facility design training.

When establishing performance measures, Durham should consider utilizing data that can be collected cost-effectively and be reported at regular intervals, such as in a performance measures report that is published every two to three years. As the process of collecting and reporting bicycle data is repeated over time, it will become more efficient. The data will be useful for identifying trends in non-motorized transportation usage and conditions.

It will also be a responsibility of the Committee to evaluate and monitor the existing and recommended network over the next 25 years. The Committee should review process and progress and evolve and adapt as needed. Land use, transportation, development, and the overall landscape will continue to change as Durham grows

resulting in a dynamic urban area. Also new opportunities or input from an on-going monitoring and evaluation process may emerge, leading to the need to adapt and update the recommendations of this Plan.

7.8 Bicycle Facility Development

This section describes types of transportation facility construction and maintenance projects that can be used to create new bicycle facilities. Note that roadway and transit construction and re-construction projects offer excellent opportunities to incorporate facility improvements for non-motorized modes. It is much more cost-effective to provide bicycle facilities along with these projects than to initiate the improvements later as “retrofit” projects.

Roadway Design Guidelines

Roadway design guidelines are important policy documents because they describe the types of facilities that should be provided during construction and reconstruction projects. Roadway design guidelines should include accommodations for all modes of transportation in roadway corridors, including transit, automobile, bicycle, and pedestrian transportation. Bicycle accommodations should be incorporated into all City of Durham Roadway Design Guidelines documents, and should continue to be incorporated into all future updates. These guidelines should specify requirements for new bicycle accommodations, such as bicycle lanes on all collector and arterial streets. Field construction teams must pay close attention to detail in order to provide the high quality bicycle facilities recommended in this plan.

Other Opportunities for Integrating Bicycle Accommodations

The City and County of Durham, surrounding communities, and NCDOT should also take advantage of several other types of opportunities to incorporate bicycle facilities into routine transportation projects. These opportunities are to ensure that bicycle facilities are listed as a part of projects in the Transportation Improvement Program (TIP), repaving schedules, and other lists of upcoming projects (See Appendix E). The types of projects listed below are particularly good opportunities to incorporate bicycle accommodations.

Restriping

Restriping projects include adding bicycle lanes or shoulder stripes to streets without making any other changes to the roadway. In the Durham area, opportunities for this type of improvement are found on many neighborhood collector streets within urban areas that are between 30- and 50-foot wide from curb to curb. Roadways of this width that have on-street parking should generally be striped with edgelines, while roadways of this width that do not have on-street parking should be striped with bicycle lanes.

In some locations where the existing lanes are 12- or 13-foot wide, they can be narrowed to 10 feet to provide space for bicycle facilities (where appropriate, given

traffic conditions). This requires changing the configuration of the roadway during a resurfacing project (see below).

Removing parking

Some neighborhood collector roadways are wide enough to stripe with bike lanes, but they are used by residents for on-street parking, especially in the evening. In locations like this, removing parking is likely to create considerable controversy and is not recommended unless there is no other solution (unless the parking is NEVER used). In the rare case that removing parking is being considered, the parking should not be removed unless there is a great deal of public support for the bike lanes on that particular roadway, and a full public involvement process with adjacent residents and businesses is undertaken prior to removing parking.

If it is not practical to add a bike lane, edgelines and shared lane markings may be considered. On roads where the outside lane and parking area combined are more than 17-feet-wide, 10-foot-wide travel lanes can be striped with an edgeline, leaving the rest of the space on either side for parking. The stripe would help slow motor vehicles and provide extra comfort for bicyclists, especially during the daytime when fewer cars would be parked along the curb. On roads with outside lane and parking areas that are narrower than 17-feet-wide, shared lane markings can be provided every 100 to 200 meters on the right side of the motor vehicle travel lane to increase the visibility of the bike route.

Repaving

Repaving projects provide a clean slate for revising pavement markings. Further, when a road is repaved, the roadway should be restriped to create narrower lanes and provide space for bike lanes and shoulders (the City should narrow travel lanes to a minimum 10-foot width, depending on traffic speeds and composition). In addition, if the space on the sides of the roadway has a relatively level grade and few obstructions, the total pavement width can be widened to include paved shoulders. There are many rural roadways in Durham where this type of improvement can be made.

Roadway Construction and Reconstruction

Bicycles should be accommodated any time a new road is constructed or an existing road is reconstructed. Reconstructed roadways with moderate to heavy motor vehicle traffic should have on-road bike facilities (bike lanes or paved shoulders); some may warrant both on-road and off-road facilities (shared-use paths) so that all types of bicyclists can be accommodated comfortably.

Bridge Replacement

All new or replacement bridges should accommodate bicycles with bicycle lanes on both sides of the bridge. If the bridge is in a developed area or an area that may experience development in the future, it should also have wide sidewalks on both sides to accommodate all types of bicyclists.

Federal law, as established in the Transportation Equity Act for the 21st Century

(TEA-21), makes the following statements with respect to bridges:

“In any case where a highway bridge deck is being replaced or rehabilitated with Federal financial participation, and bicyclists are permitted on facilities at or near each end of such bridge, and the safe accommodation of bicyclists can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations.” (23 U.S.C. Section 217)

On urban and suburban bridge projects, bridge shoulders should be a minimum of 5.5-feet wide and sidewalks should be a minimum of 5.5-feet wide if traffic volumes are projected to be less than 15,000 vehicles per day. If traffic volumes are projected to be 15,000 or more vehicles per day, the shoulders should be at least 6.5-feet wide and sidewalks should be at least 7-feet wide.

Bridge replacement projects on controlled access freeways where pedestrians and bicyclists are prohibited by law will generally not include facilities to accommodate bicyclists and pedestrians. In cases, however, where a bridge replacement project on a controlled access freeway impacts a non-controlled access roadway (i.e., a new overpass over an arterial roadway), the project should include the necessary access for bicyclists on the non-limited access roadway (i.e., paved shoulders, sidewalks, and bicycle crossing improvements).

Retrofit Roadways with New Bicycle Facilities

There are several critical locations in Durham with significant bicycle safety issues. These locations are often a part of essential links to destinations. In these locations, it may be justified to add new bicycle facilities before a roadway is scheduled to be repaved or reconstructed.

In some places, it may be relatively easy to add bicycle lanes and/or extra pavement for shoulders, but other locations may be more difficult to improve bicycle facilities because the improvement may require removing trees, moving landscaping or fences, or regrading ditches or hills.

7.9 Implementation of Greenway Network

A number of methods should be pursued for the overall implementation, acquisition, development, management, and maintenance of the greenway network. Alternate funding sources for actual greenway development can be found in Appendix C. Acquisition tools are described here.

Because the majority of greenways exist in an off-road environment, the acquisition of land or easements becomes a critical part of the implementation process. The recommended alignment of greenways in this Plan follows publicly-owned land where possible, but in most cases, an acquisition strategy will have to be implemented in areas of privately-owned land.

There are several resources and strategies that can aid in the acquisition process. Enlisting the support of a local land trust could help broker land protection arrangements between private landowners and the City of Durham. Providing educational material to local landowners and developers about the benefits of greenways and land/easement donations is also an excellent means to stimulate greenway acquisition.

The following sections detail a list of specific strategies including the formation of partnerships and a toolbox of acquisition options.

7.9.1 Partnerships

Durham should pursue partnerships with land trusts and land managers to make more effective use of its land acquisition funds and strategies. The following offers recommendations on how these partnerships could be strengthened

Land Trusts

Land trust organizations, such as the Triangle Land Conservancy and the Trust for Public Lands, to name just two, are valuable partners for Durham, when it comes to acquiring land and rights-of-way for greenways. These groups can work directly with landowners and conduct their business in private so that sensitive land transactions are handled in an appropriate manner. Once the transaction has occurred, the land trust will usually convey the acquired land or easement to a public agency, such as the City or County for permanent stewardship and ownership.

Private Land Managers

Another possible partnership that could be strengthened would be with the utility companies that manage land throughout Durham County. Trails and greenways can be built on rights-of-ways that are either owned or leased by electric and natural gas companies. Electric utility companies have long recognized the value of partnering with both local communities, non-profit trail organizations and private land owners to permit their rights-of-ways to be used for trail development. This has occurred all over the United States and throughout North Carolina.

Durham should actively update and maintain relationships with private utility and land managers to ensure that community wide bicycle, pedestrian and greenway system can be accommodated within these rights-of-way. The city and county will need to demonstrate to these companies that maintenance will be addressed, liability will be reduced and minimized and access to utility needs will be provided.

7.9.2 Greenway Acquisition Tools

The following menu of tools describe various methods of acquisition that can be used by landowners, land conservation organizations, and the City and County of Durham to acquire greenway lands.

Land Management

Management is a method of conserving the resources of a specific greenway parcel

by an established set of policies called management plans for city-owned greenway land or through easements with private property owners. Property owners who grant easements retain all rights to the property except those which have been described in the terms of the easement. The property owner is responsible for all taxes associated with the property, less the value of the easement granted. Easements are generally restricted to certain portions of the property, although in certain cases an easement can be applied to an entire parcel of land. Easements are transferable through title transactions, thus the easement remains in effect perpetually.

Management Plans: The purpose of a management plan is to establish legally binding contracts which define the specific use, treatment, and protection for city-owned greenway lands. Management plans should identify valuable resources; determine compatible uses for the parcel; determine administrative needs of the parcel, such as maintenance, security, and funding requirements; and recommend short-term and long-term action plans for the treatment and protection of greenway lands.

Conservation Easement: This type of easement generally establishes permanent limits on the use and development of land to protect the natural resources of that land. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Dedicated conservation easements can qualify for both federal income tax deductions and state tax credits. Tax deductions are allowed by the Federal government for donations of certain conservation easements. The donation may reduce the donor's taxable income.

Preservation Easement: This type of easement is intended to protect the historical integrity of a structure or important elements in the landscape by sound management practices. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Preservation easements may qualify for the same federal income tax deductions and state tax credits as conservation easements.

Public Access Easements: This type of easement grants public access to a specific parcel of property when a conservation or preservation easement is not necessary. The conditions of use are defined in the terms of the public access easement.

Government Regulation

Regulation is defined as the government's ability to control the use and development of land through legislative powers. The following types of development ordinances are regulatory tools that can meet the challenges of projected suburban growth and development as well as conserve and protect greenway resources.

Dedication/Density Transfers: Also known as incentive zoning, this mechanism allows greenways to be dedicated for density transfers on development of a property. The potential for improving or subdividing part or all of a parcel of property, can be expressed in dwelling unit equivalents or other measures of development density or intensity. Known as density transfers, these dwelling unit equivalents may be

relocated to other portions of the same parcel or to contiguous land that is part of a common development plan. Dedicated density transfers can also be conveyed to subsequent holders if properly noted as transfer deeds.

Negotiated Dedications: This type of mechanism allows municipalities to negotiate with landowners for certain parcels of land that are deemed beneficial to the protection and preservation of specific stream corridors. This type of mechanism can also be exercised through dedication of greenway lands when a parcel is subdivided. Such dedications would be proportionate to the relationship between the impact of the subdivision on community services and the percentage of land required for dedication-as defined by the US Supreme Court in *Dolan v Tigar*.

Fee-in-Lieu: To complement negotiated dedications, a fee-in-lieu program may be necessary to serve as a funding source for other land acquisition pursuits. Based on the density of development, this program allows a developer the alternative of paying money for the development/protection of greenways in lieu of dedicating greenway lands. This money is then used to implement greenway management programs or acquire additional greenway land.

Reservation of Land: This type of mechanism does not involve any transfer of property rights but simply constitutes an obligation to keep property free from development for a stated period of time. Reservations are normally subject to a specified period of time, such as 6 or 12 months. At the end of this period, if an agreement has not already been reached to transfer certain property rights, the reservation expires.

Buffer / Transition Zones: This mechanism recognizes the problem of reconciling different, potentially incompatible land uses by preserving greenways that function as buffers or transition zones. Care must be taken to ensure that the use of this mechanism is reasonable and will not destroy the value of a property.

Overlay Zones: An overlay zone and its regulations are established in addition to the zoning classification and regulations already in place.

Subdivision Exactions: An exaction is a condition of development approval that requires development to provide or contribute to the financing of public facilities at their own expense. For example, a developer may be required to build a greenway on-site as a condition of developing a certain number of units because the development will create the need for new parks or will harm existing parks due to overuse. This mechanism can be used to protect or preserve greenway lands, which are then donated to either the City or County. Consideration should be given to include greenway development in future extraction programs.

Acquisition

Acquisition requires land to be donated or purchased by a government body, public agency, greenway manager, or qualified conservation organization.

Donation or Tax Incentives: In this type of acquisition, a government body, public agency, or qualified conservation organization agrees to receive the full title or a conservation easement to a parcel of land at no cost or at a “bargain sale” rate. The donor is then eligible to receive a federal tax deduction of up to 30 to 50 percent of their adjusted gross income. Additionally, North Carolina offers a tax credit of up to 25 percent of the property’s fair market value (up to \$5000). Any portion of the fair market value not used for tax credits may be deducted as a charitable contribution. Also, property owners may be able to avoid any inheritance taxes, capital gains taxes, and recurring property taxes.

Fee Simple Purchase: This is a common method of acquisition where a local government agency or private greenway manager purchases property outright. Fee simple ownership conveys full title to the land and the entire “bundle” of property rights including the right to possess land, to exclude others, to use land, and to alienate or sell land.

Easement Purchase: This type of acquisition is the fee simple purchase of an easement. Full title to the land is not purchased, only those rights granted in the easement agreement. Therefore the easement purchase price is less than the full title value.

Purchase / Lease Back: A local government agency or private greenway organization can purchase a piece of land and then lease it back to the seller for a specified period of time. This lease may contain restrictions regarding the development and use of the property.

Bargain Sale: A property owner can sell property at a price less than the appraised fair market value of the land. Sometimes the seller can derive the same benefits as if the property were donated. Bargain Sale is attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has a fairly high current income and could benefit from the donation of the property as an income tax deduction.

Option / First Right of Refusal: A local government agency or private organization establishes an agreement with a public agency or private property owner to provide the right of first refusal on a parcel of land that is scheduled to be sold. This form of agreement can be used in conjunction with other techniques, such as an easement to protect the land in the short-term. An option would provide the agency with sufficient time to obtain capital to purchase the property or successfully negotiate some other means of conserving the greenway resource.

Purchase of Development Rights: A voluntary purchase of development rights involves purchasing the development rights from a private property owner at a fair market value. The landowner retains all ownership rights under current use, but exchanges the rights to develop the property for cash payment.

Condemnation: The practice of condemning private land for use as a greenway is viewed as a last resort policy. Using condemnation to acquire property or property rights can be avoided if private and public support for the greenway program is present. Condemnation is seldom used for the purpose of dealing with an unwilling property owner. In most cases, condemnation has been exercised when there has been an absentee property ownership, when the title of the property is not clear, or when it becomes apparent that obtaining the consent for purchase would be difficult because there are numerous heirs located in other parts of the United States or different countries.

Eminent Domain: The right of exercising eminent domain should be done so with caution by the community and only if the following conditions exist: 1) the property is valued by the community as an environmentally sensitive parcel of land, significant natural resource, or critical parcel of land, and as such has been defined by the community as irreplaceable property; 2) written scientific justification for the community's claim about the property's value has been prepared and offered to the property owner; 3) all efforts to negotiate with the property owner for the management, regulation, and acquisition of the property have been exhausted and that the property owner has been given reasonable and fair offers of compensation and has rejected all offers; and 4) due to the ownership of the property, the timeframe for negotiating the acquisition of the property will be unreasonable, and in the interest of pursuing a cost effective method for acquiring the property, the community has deemed it necessary to exercise eminent domain.