Principles for Greenway Design

- Designers should strive to conserve and enhance the connectivity of natural features of the landscape and thereby contribute to landscape integrity, including connectivity of many sorts.
- Greenway plans should keep nature near where people live, no matter how urban the area. People benefit from having access to nature nearby, even if that nature is not pristine.
- Greenways should be distributed as equally as possible, with special emphasis on low-income areas, so that their benefits are available for all.
- Most landscapes have both natural and cultural resources, and greenways should be designed and managed with these multiple objectives in mind.
- Greenways and systems of green infrastructure are as deserving of careful planning and management as are utility corridors, roads, and other forms of gray infrastructure.
- Unlike gray infrastructure, green infrastructure must be designed and managed with its ecological dynamics in mind. This may mean, for example, that greenway widths must be determined not only on what is within a greenway, but also what is adjacent to it.
- Greenways should reclaim degraded areas to accommodate natural processes and serve people's needs.
- Planners should design gray and green infrastructure at the same time so they do not degrade each other.
- Community gardens, farms, and forests should be included where possible within or adjacent to greenways.
- It may be important to provide short connector trails than long distance ones.

Landscape Elements: Patches, Corridors, Matrix

<u>Patch</u>: A patch is a relatively homogenous nonlinear area that differs from its surroundings.

- Examples of undeveloped patches include woody area in a savanna, a meadow in a forest, and a wetland in a shrub land.

<u>Corridor</u>: A corridor is a strip of land of a particular type that differs from adjacent land on either side.

- Examples of corridors include roads and trails, streams, and utility right of ways.

<u>Matrix</u>: A matrix is the most extensive and best connected element – the land use or land cover that predominates in a landscape.

- In agriculture areas the matrix is farmland.

Matrix: Farmland

Patch: Wooded areas and pond

Corridor: Wooded fence row

The closer the patch shape is to round, the more interior habit is maintained.

Two broad questions are useful in framing a discussion of wildlife corridor design:

1. What is the relative value of sensitive native species versus exotic or opportunistic species?
2. Should corridors focus on one or several target species or on entire communities?

Riparian Corridor Design

Although a riparian greenway may have many intended uses, protection of water resources and environmental integrity should always be a primary goal.

Riparian Greenway Features:

- The natural meandering span of the stream, which we have defined as its geomorphic floodplain;
- The riparian forest; and
- The area over the stream's shallow groundwater system, including any significant ground water recharge areas in uplands outside the floodplain and riparian forest (the water table near streams is both a source and a sink for stream water, depending on the time of year and recent weather).

Two questions about the physical form of the greenway must be answered.

1. What will be the most effective width at various locations along the greenway?
2. What additional critical areas beyond this width should be included in the corridor, and what critical areas within the boundaries should receive special management attention?

The width of a riparian buffer should increase in direct proportion to (1) the size of the area contributing runoff, sediment, and nutrients; (2) the steepness of both the adjacent slope and the riparian zone; and (3) the intensity of cultural activities and disturbances in the uplands, such as agriculture, forestry, or suburban or urban development.

Corridor Widths

Set widths make for good policy, but width variances are better. For example, a farm field that uses fertilizer would need more riparian buffer width than a less impactful neighbor.

Key uses should determine corridor widths.

<u>What are the key uses?</u>

1. Recreation – biking, walking, jogging, nature viewing, etc
2. Environmental protection?

Corridor Width Examples:

<u>Granville County, NC</u>

“Greenway corridors in the system will vary in width according to the topography of the area, the amount of existing development, the existence of significant biological areas, and patterns of property ownership. The following guidelines are intended to balance the needs to preserve greenway corridors and connectors, provide enough land for trails when appropriate, and to provide privacy for existing residences.”

Erie, CO

“The trail configurations described above dictate a minimum of 22-feet of horizontal space needed to fit the trail’s cross-section. Additional space will be needed to allow for the trail to be graded and to meet existing grades at the corridor’s edge and to fit around existing trees or other obstructions. The amount of additional space needed will increase with the steepness of the terrain and the density of existing vegetation or other obstructions. Providing adequate separation from roadways and other adjacent hazards may also dictate a wider corridor. Space for directional signs, trailside benches, and other amenities should also be taken into account.

A minimum corridor width of 30-feet is recommended in order to account for the variables listed above, and a corridor width of at least 40-feet is recommended whenever possible. This corridor can be an easement or right-of-way, but the entire corridor width must be available for trail purposes.”

Part 4
DESIGN STANDARDS & GUIDELINES

The Design Standards and Guidelines section of the Master Plan provides a set of parameters for implementing a consistent physical character for Chapel Hill greenway system.

The guidelines address the following design issues:

- Corridor Width Guidelines
- Trail Classifications
- Special Trail Needs
- Trail Locations
- Trail Amenities
- Parking Areas
- Accessibility
- Naming Trails
- Signage

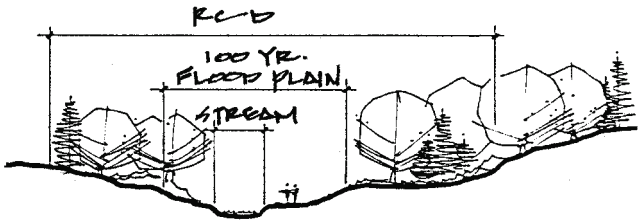
Greenway design standards and guidelines can help elected officials, advisory board members, and staff make decisions involving the expenditure of public funds and the enhancement of public safety. Decisions related to amounts of land or easements to be purchased, the types of trails to construct, and the location of trails can be facilitated by incorporating standards and guidelines in the greenways planning and decision-making process.

Corridor Width Guidelines

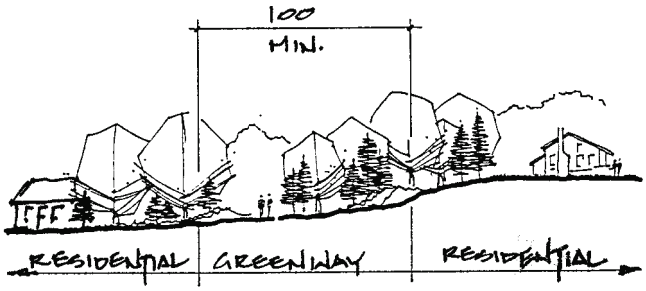
Greenway corridors in Chapel Hill vary in width according to the topography of the area, the amount of existing development, the existence of significant biological areas, and patterns of property ownership. The following guidelines are intended to balance the needs to preserve greenway corridors and connectors, provide enough land for trails when appropriate, and to provide privacy for existing residences.

The Town should make reasonable attempts to protect the following greenway corridors by restricting development, requiring greenway dedications, and purchasing land or easements.

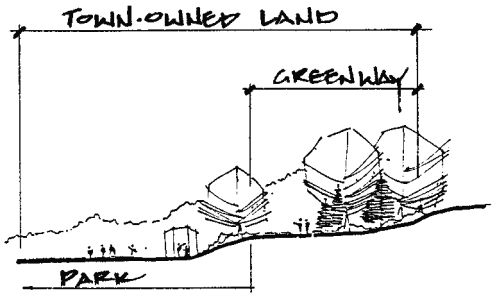
Stream Corridors:
Stream corridors may vary in width depending on the stream and the site specific characteristics of the land itself. Corridor widths should generally be as wide as can be acquired to help assure the privacy of adjacent property owners and the environmental quality of the site. Several factors which often contribute to increased corridor widths of stream-associated greenways include adjacent sanitary sewer easements, 100-year floodplain land and areas within the Town's Resource Conservation District.

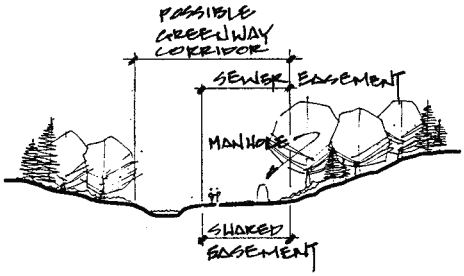


Connector Trails:
Greenway connectors not located along streams should be a minimum of 100 feet in width, if possible. This width should allow for sufficient buffering between neighborhoods, placement of trails, and adequate area for the free movement of wildlife. Smaller corridor widths, however, may be necessary in order to create trail connections between lots in subdivisions.



Greenways as Parks:
Wider greenways may be needed if the land is to be developed as a park. Parks require more land than is typically acquired for a linear greenway. Parks and greenways can share the same land, although the needs of the park may require additional lands outside of the greenway corridor.



Developed Areas:
Greenway corridors or connectors should not be used for trails within areas that are currently developed if placement of a greenway trail would severely impact the privacy of existing residences. An exception would include areas where approval of the development foresaw the construction of a trail. An example is the Parkside II neighborhood where a connector trail corridor was preserved relatively close to homes. In this case the planning and land acquisition was complete prior to the construction of the first home.

Utility Easements:
Pedestrian and non-motorized vehicle easements should be coupled with utility easements when possible.