



# CATAWBA COUNTY

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# GENERAL DEVELOPMENT DESIGN MANUAL

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## 1.0 PURPOSE AND INTENT

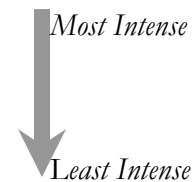
This Manual is intended to serve as a framework for the development of detailed design guidelines for Catawba County. This manual establishes a common design language for new development in the unincorporated jurisdiction of the County. The guidelines are intended to attach the same or greater level of importance to the overall building design as is placed on the use contained within to facilitate the creation of a convenient, attractive and harmonious community as well as to reduce or prevent congestion in the public streets through the construction of a safe and interesting pedestrian realm.

New buildings are expected to be constructed in Catawba County as long-term additions to the community for the purpose of encouraging economic development activities that enlarge the tax base by providing desirable residences and places of shopping, employment and public assembly.

Throughout the County there are a number of conventional development types present including the single-family subdivision, the apartment complex, strip commercial development, and the office/industrial park. These are predominant features on the landscape, not just in Catawba County but throughout the United States as well.

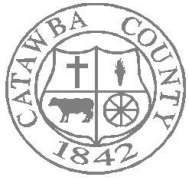
In an effort to guide future development using more sustainable development practices, six recommended development types form the focus of this Manual. They are as follows:

- Village Center
- Highway Commercial Center
- Rural Commercial Center
- Residential Neighborhood
- Cluster Subdivision



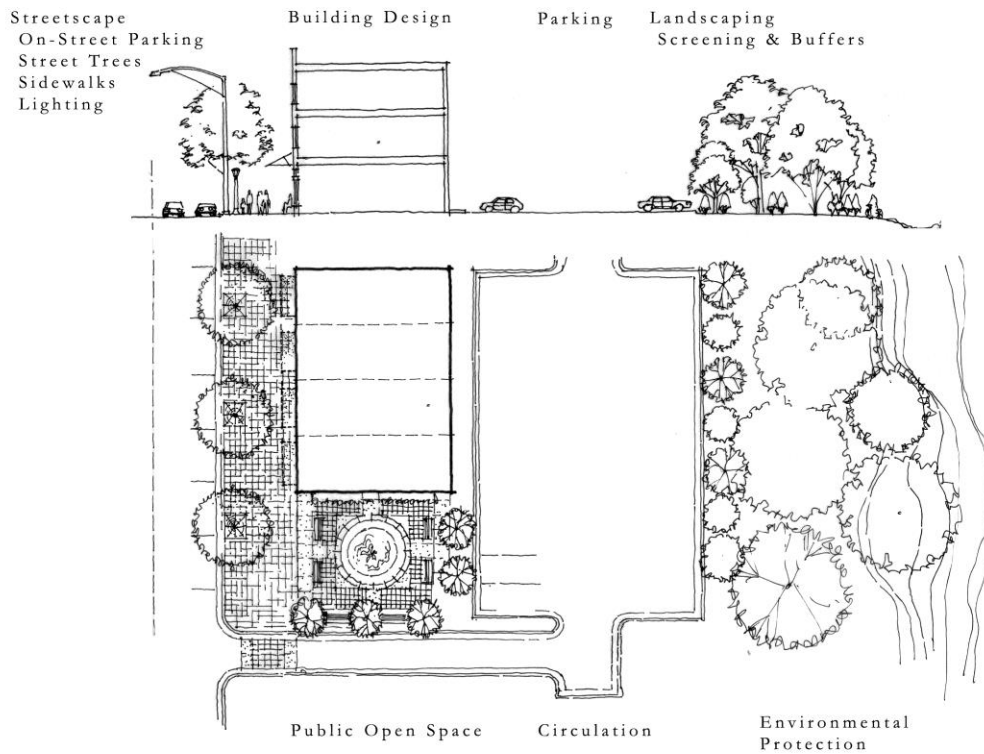
These preferred development types are introduced as variations of mixed-use, walkable developments that define a sense of place for the Catawba County as well as preserve its rural heritage. Use of the concepts, principles, and standards described in this manual can promote more consistent, sustainable development for the County.

A basic vision developed in all of the small area plans is one of future development taking the form of more integrated residential and commercial development along the lines of traditional American towns and neighborhoods. In these historic precedents and in new developments learning from the lessons they teach us, the range of uses and facilities needed by citizens on a daily basis can be provided within, or immediately adjacent to residential areas. This provides more lifestyle choices, provides opportunities for energy savings, and an overall more enduring model of development.



Special situations may require variations from some of the specific standards or details in this Manual, but in these situations, alternative techniques that serve the intent of these guidelines should be used.

This Manual has been compiled from other design guidelines from throughout the country. It is not intended to regulate specific development decisions nor is it a part of the official Unified Development Ordinance (UDO) or other official ordinances but rather, should be used as suggestions or guidelines that are specific to certain areas of the community that have been designated to accommodate a particular development at a point in time when adequate infrastructure is available. Where this Design Manual is in conflict with the UDO or Procedures Manual, the UDO or Procedures Manual shall prevail.



*The graphic above depicts the scope of these Guidelines ranging from the public realm of the street and the environment to the private realm of the building.*



## 1.1 NOMENCLATURE

The language used to describe and discuss places is important to both help people understand the building blocks of place-making and communicate clearly with one another about development-related decisions and actions.

**Landscape** is a term that describes places by the nature of human activity on the land, from intense activity (an urban landscape) to modest activity (a rural landscape) to limited activity (a natural landscape). In most places, there is rarely a firm line between one type of landscape and another, but instead a gradual transition between landscapes; modifying terms are sometimes used to describe these finer gradations, such as "suburban" landscape or "semi-rural" landscape.

**Development Types** classify places by a combination of the primary function of a place, the diversity of activities within a place, and design characteristics such as scale and physical layout. Development types are of three main forms:

- **District** - a relatively low-density area with a dominant single use designed primarily for automobile access. There can be employment districts consisting of office and industrial uses, retail districts, single-family residential districts, and special districts, such as airports or landfills.
- **Center** - an area of concentrated activity involving multiple uses - living, working, learning, playing, eating, shopping, etc. designed to accommodate pedestrians and transit use in addition to auto travel. Centers can be of different scales: regional, community, neighborhood, village, rural.
- **Neighborhood** - a residential area with a variety of housing types and some supporting service and civic uses that is designed to accommodate pedestrians and transit use in addition to auto travel.

As with landscapes, modifying terms are often used to describe differences in scale or primary purpose among these development types, for example, an "office district" or a "regional center." Special care should be taken in recognizing these modifying terms, especially in the case of "village center" which defines a main development type. A village center is scaled to serve the needs of residents in close proximity to each other.

**Natural Areas** are important land or water areas that may serve as boundaries to development types or may penetrate development types. Natural features such as stream corridors are also often part of districts, centers and neighborhoods; whether they are classified as distinct natural areas is usually a function of their size. In Catawba County, places such as the Catawba Game Lands, Bakers Mountain and Lake Norman are examples of large natural areas.

**Building Type** classifies individual buildings by their physical design.

**Land Use** classifies individual buildings, sites, or areas by the specific activity or activities that occur there.



To see how these terms both differ from and relate to one another when referred to in this Manual, consider the following example:

The detached house is a common building type in the County. It is found in both urban and rural landscapes.

A development type consisting of detached houses on large lots arranged in a cul-de-sac pattern would be a residential district. A development type that integrates detached houses on a variety of lot sizes with other residential building types and supporting service and civic uses arranged along a street network that is walkable would be a neighborhood. Detached houses on small lots can also be found in some centers, where they would be in close proximity to apartments, shops and workplaces.

Although the primary land use of a parcel with a detached house is single-family residential, a detached house can be subdivided into more than one dwelling unit, can be converted into offices or shops, or can serve as both a home and a workplace (such as an accountant's office, a home day-care center or a craft studio).



*Two examples of the detached house being used for non-residential purposes. Except for the small signage in the front yard both buildings maintain their residential character. Note that the image on the right is new construction while the other is a historic homeplace.*





## 2.0 DEVELOPMENT TYPES

These development types are introduced as variations of mixed-use, walkable developments that encourage sustainable development practices and reinforce the rural heritage of the unincorporated portions of the County.

*Village Center: A mixed-use activity center scaled to serve a trade area with a radius less than 3 miles.*

*Rural Commercial Center: A mixed-use activity center in a rural setting for area residents consisting of scattered, small buildings with an aggregate retail component less than 15,000 square feet per zoning lot; buildings are clustered around a central public space or prominent intersection. Individual buildings at rural crossroads and along rural thoroughfares are similarly detailed.*

*Highway Commercial Center: A mixed-use activity center for the general public with an aggregate retail component of 50,000 or less per zoning lot with the buildings clustered around a central public space, major intersection or along a corridor.*

*Residential Neighborhood: A conventional single-family subdivision that is designed to be compact and pedestrian-friendly and built on an interconnected street pattern.*

*Cluster Subdivision: A rural neighborhood that clusters development onto a portion of a site, retaining the remainder in open space. Design elements favor the protection of environmentally sensitive areas or the community's rural character.*

While it is not expected that all future development will conform to these conventions, these development types can accommodate the full range of uses in a community.



## 2.1 VILLAGE CENTERS

*A mixed-use activity center scaled to serve a trade area with a radius less than 3 miles.*

Village Centers are nodes that are focused around major and minor street intersections, as adequate infrastructure is made available. They are equivalent in their program (but not their form) to the Neighborhood Center as defined by the International Council on Shopping Centers (ICSC) as development of retail shops and offices.

Village Centers encourage the construction of compact, walkable buildings that compliment the surrounding neighborhoods and are



*Images of a pedestrian-friendly village center with wide sidewalk with street trees, on-street parking, quality building materials and appropriate architectural detailing*

supported by existing and planned

transportation networks constructed to support the traffic demands of both the auto and the pedestrian. Village Centers should be designed around a square, plaza, or other urban open space that can serve as a focal point for community activities.

Village Centers historically formed near the convergence of large, coherent neighborhoods and near the intersection of major streets or roads.

In general, Village Centers have a maximum distance from the center of the Storefront area to the edge of 1/4 mile or a 5 minute walk for the average adult. Village Centers are most often comprised of uses similar to a typical Grocery Store-anchored shopping center, though they front on a pedestrian-friendly grid of streets rather than a large parking lot.

Classical Village Centers are typically defined by 4 organizing elements: the Storefront area, Central residential area, Village residential area and the Village greenway area.

*Storefront area.* This area serves as the village core and is the center of pedestrian activity. A typical village core is an area radiating 1/8 to 1/4 mile (or up to a 5 minute walk for an average adult) from the "Main-Main" intersection or a primary focal point such as a town square or village green. All mixed use/commercial uses of the village must be located only within the storefront area and consists of the most intense urban buildings in both massing and use. This area provides a variety of retail shops and services to support the needs of village residents and other local residents, complemented by other compatible business, civic, institutional and upper-story residential uses in commercial type buildings in a manner consistent with a small

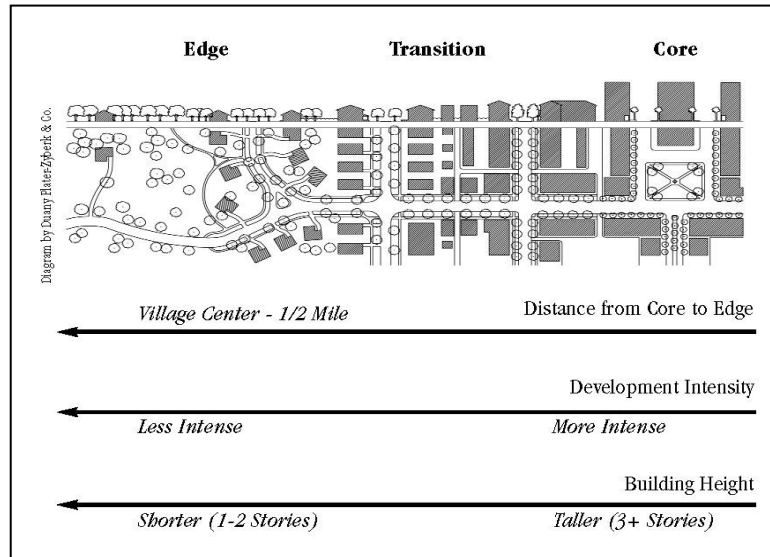




downtown or central market place in the community. Upper story dwelling units above non-residential uses are encouraged. First floor residential uses are prohibited.

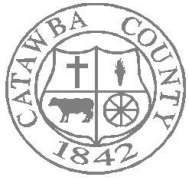
- *Central residential area.* This area provides a wide variety of housing types in close proximity to the storefront area when the village contains commercial uses or the village core when commercial uses are not present. This area serves as an ideal location for medium to high-density housing. The housing, together with the core, provide a network of well-connected, pedestrian-scaled streets. In addition, where transit stops are located in the core, there is a significant transit user population within walking distance. The central residential area serves as the transition from the intensity of the core to the surrounding lower density neighborhoods. The size of the area is largely a function of the scale of the village center, and walking distances to the core.
- *Village residential area.* This area is required in all villages, generally located outside the central residential area, and contains primarily single-family detached dwelling units, but may include multi-family and accessory dwelling units. While these areas should be seamlessly connected to the central residential area and/or the storefront area by pedestrian-oriented streets, transitions from the adjacent areas should be accomplished through the proper design of the public realm of the street (including the use of traffic calming features on existing streets) as well through appropriate massing, scale, and architectural design of the buildings.
- *Village greenway area.* This area is required in all villages. This area must consist of a combination of natural wooded area (if pre-existing) and managed areas such as multiple greens, commons, squares and parks.

Within all Village Centers, building heights should be greatest in the Storefront core area and should transition to lower heights outward from the Core to the boundary of the Village Center. Buildings at the Edge should be comparable in height and massing to the adjacent and nearby properties as well as the surrounding neighborhood. In general, housing densities should be highest within Centers, transitioning to progressively lower densities moving outwards from the Core to the Village Residential area. This transition can be accomplished using thoughtful architectural design, height, and massing.



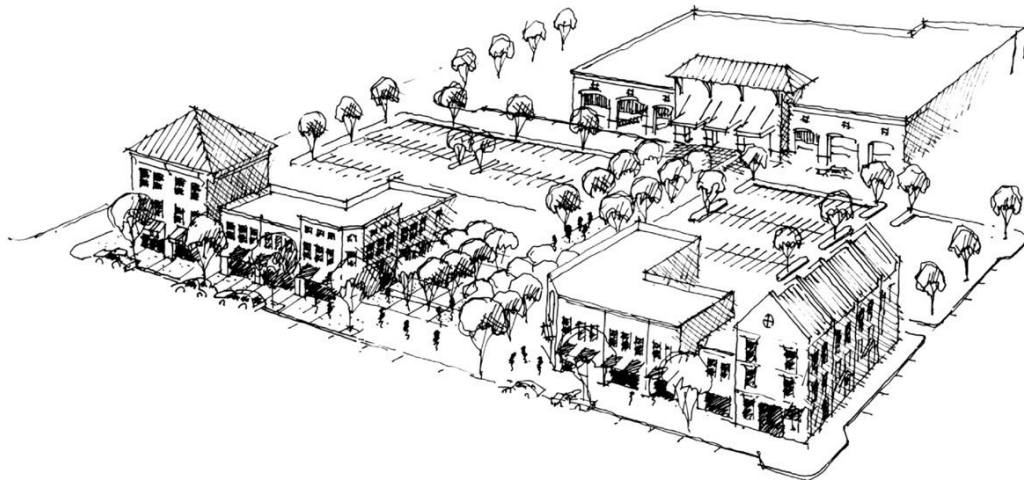
### General Village Center Guidelines

- A. There is a variety of residential, non-residential, and civic uses within close proximity to each other all connected with a logical street system and a coherent pedestrian/bicycle network.
- B. Parking is generally to the side or rear of buildings. Where parking is located in the front yard, it is screened with landscaping, fences and/or low walls.
- C. Within the Village Center, there should be a coordinated streetscape theme that includes standardized lighting, signage, and landscaping.
- D. Urban open space should be designed as specific places, such as squares, plazas, village greens, small parks or playgrounds, with their edges defined by buildings.
- E. Storefronts should be built to the street, with vertical mixed uses and on-street parking combined with rear yard parking.
- F. Civic and institutional uses should be designed as part of a Mixed-Use Center rather than as isolated, stand-alone buildings. The Core area of the Village Center should contain some buildings that are mixed vertically in use, with retail at street level and office and residential uses located to the rear or on upper stories.



### **Pedestrian Amenities in Village Centers**

1. Provide a complete network of paths that interconnect building entrances, parking, transit stops, public sidewalks and crossings, adjacent properties, adjoining off-street paths, and other key destinations on or adjacent to the site.
2. Pedestrian circulation should be an integral part of the initial site layout. Organize the site so that the buildings frame and reinforce pedestrian circulation, and so that the pedestrians walk along building fronts rather than along or across parking lots and driveways. Also arrange buildings to create view corridors between pedestrian destinations within and adjacent to the site including building entrances, open space, and nearby public amenities including parks and greenways.
3. Pedestrian pathways should be provided from the street to the parking area between buildings, as necessary to ensure reasonably safe, direct, and convenient access to building entrances and off-street parking. They should be clearly defined and enjoyable to use. To aid pedestrian navigation and comfort, provide the following elements along paths:
  - Landscaping, such as rows of trees and shrubs, flowerbeds, and planters.
  - Pedestrian scaled lighting fixtures, such as short metal, concrete or plastic decorative lighted posts.
  - Small, color-coded way-finding signs, or a directory.
  - Vertical architectural elements, such as markers or arches.
  - Seating and resting spots.
  - Special paving.



*Illustration of a planned development or village showing a grocery store behind a large parking field with new liner outparcel buildings that improve the pedestrian realm and establish a sense of place for the area*





## 2.2 RURAL COMMERCIAL AND HIGHWAY COMMERCIAL DEVELOPMENT

*Rural Commercial Development is a mixed-use activity center in a rural setting consisting of scattered, small buildings) with an aggregate retail component of 15,000 square feet or less per zoning lot; buildings are clustered around a central public space or prominent intersection. Individual buildings at rural crossroads and along rural thoroughfares are similarly detailed.*

*Highway Commercial Center: A mixed use activity center for the general public with an aggregate retail component of 50,000 or less per zoning lot with the buildings clustered around a central public space, major intersection or corridor. Larger buildings would require a rezoning to a planned development.*

- A. New buildings should be consistent with the existing historic residential character and built fabric.
- B. Rural Commercial districts establish setbacks and lot sizes that are compatible with residential neighborhoods.
- C. Buildings should be residential in scale and character, with pitched roofs. New buildings generally should not exceed 2 stories.
- D. While Rural and Highway Commercial Center buildings typically are set back from the fronting thoroughfare, it should as minimal as possible, permit pedestrian access from the street while providing some convenience parking in the front yard.





## 2.3 RESIDENTIAL NEIGHBORHOOD SUBDIVISION

*A conventional single-family subdivision that is designed to be compact and pedestrian-friendly and built on an interconnected street pattern.*

### General Residential Development Principles

- A. Neighborhoods should be based upon overall density and minimum lot size. Within a given density, a range of housing could be provided within neighborhood including single family and duplexes.
- B. Homes within the neighborhood compliment one another in style and materials without being repetitive and monotonous. Consider the use of traditional southern architectural details such as front porches and stoops.
- C. Adjacent residential development should be linked by connecting streets and continuous walks, paths, trails, and open spaces.
- D. Parking lots, driveways, and garage doors are encouraged to be located at the side or rear of the dwelling.
- E. Preserve existing vegetation where practical. Preserve field-grown trees in parks in neighborhood open spaces.
- F. Useable open space is based upon square footage per lot versus a fixed percentage of developed space within each neighborhood. Useable open space shall be planned and improved, accessible and usable by persons living nearby. Improved shall mean cleared of underbrush and debris and may contain one or more of the following enhancements: landscaping, walls, fences, walks, statues, utilities, irrigation, fountains, ball fields, and/or playground equipment.
- G. Setbacks should be even and consistent though variation is encouraged where it would protect an important view corridor such as a stand of trees, a body of water or other environmental feature, or where it would create a useable open space such as a small square.





- H. Avoid streets that are long and wide to prevent speeding and reduce the impact of unnecessary paving on the environment.



*New residential neighborhoods should preserve existing vegetation, use traditional architectural styles or compatible design theme, and reduce the visual impact of the automobile to avoid the appearance of a placeless, suburban tract*

## 2.4 CLUSTER SUBDIVISION

The Cluster subdivision is an alternative to the conventional method of platting all available land into private lots by conserving a significant portion of the land (30% or greater) as permanently protected open space. The Development Type is similar to a conservation neighborhood which has been thoroughly documented by Randall Arendt in his book *Growing Greener: Putting Conservation into Local Plans and Ordinance* and is hereby incorporated by reference.

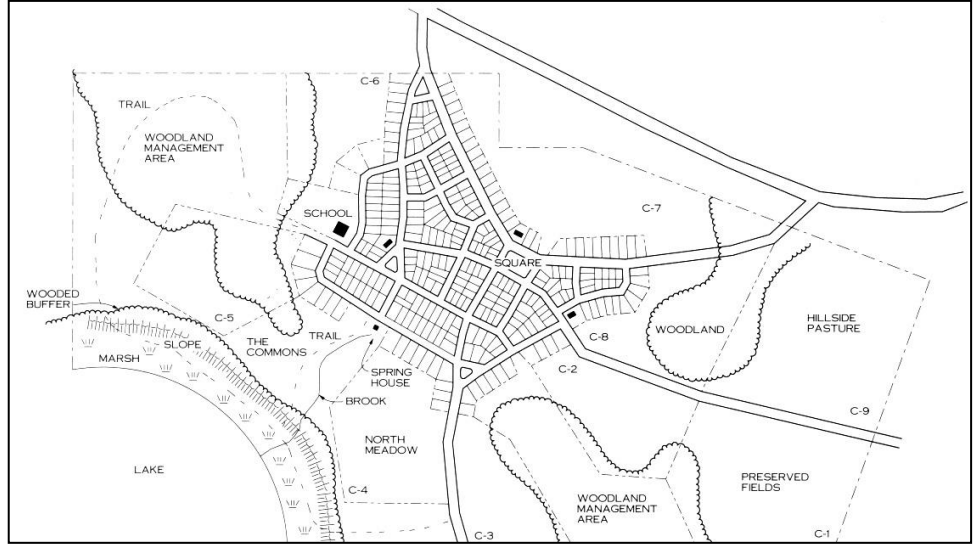
This method of neighborhood design generally follows the conventions of Residential Neighborhood development but is more appropriate in environmentally sensitive areas or where it is unlikely that public utilities will be efficiently provided. It differs from Residential Neighborhoods in that the protected open space must often serve as the primary connection between neighborhoods rather than the seamless connection of one neighborhood block to another.

The area to be conserved should include 25% Primary Conservation areas and 75% Secondary Conservation areas.

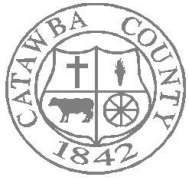
- **Primary Open Space Areas:** This land is prime development land including mature woodlands, hedgerows, large trees, prime farmland, natural meadows, upland habitats, historic buildings, geologic formations, and scenic views (particularly from public roads).
- **Secondary Open Space Areas:** Secondary open space areas have been determined as inappropriate for development because they contain otherwise unbuildable land in the form of federally-regulated streams and wetlands, floodplains, power lines, or slopes greater than 20%.



Diagram by Randall Areault. Source: *Architectural Graphic Standards*, 10<sup>th</sup> ed.



*A Cluster subdivision protecting natural resources on a site*



A range of 30-50% of the land is encouraged to be permanently conserved by easement on the title of the land. This land is not required to be publicly dedicated, as it may be held in private ownership by an individual, a homeowner's association, or a non-profit conservation land trust.

Density bonuses may be granted for the following additional provisions:

- Affordable Housing
- Public Dedication of Open Space above the minimum requirements



*A Cluster subdivision with open space and view corridors preserved*

**Prioritized List of Resources to be Conserved**

- Stream channels, floodplains, wet soils, swales, springs, and other lowland areas, including adjacent buffer areas that may be required to ensure their protection.
- Significant natural areas of species listed as endangered, threatened, or of special concern, such as those listed in the local natural inventories.
- Moderate to steep slopes, particularly those adjoining watercourses and ponds, where disturbance and resulting soil erosion and sedimentation could be detrimental to water quality.
- Healthy woodlands, particularly those performing important ecological functions such as stabilization and protection of streams, wetlands and wildlife habitats.
- Areas where precipitation is most likely to recharge local groundwater resources because of topographic and soil conditions affording high rates of infiltration and percolation.
- Hedgerows, groups of trees, large individual trees of botanic significance, and other vegetation features representing the site's rural past.
- Historic structures and sites.
- Visually prominent topographic features such as knolls, hilltops, and ridges, and scenic viewsheds as seen from public roads (particularly those with historic features).
- Existing trails connecting the tract to other locations in the jurisdiction.

*Adapted from Growing Greener: Putting Conservation into Local Plans and Ordinance by Randall Arendt.*



## GENERAL RURAL DEVELOPMENT PRINCIPLES

- A.** Preserve stone walls and hedgerows. These traditional landscape features define outdoor areas in a natural way and create corridors useful for wildlife. Using these features as property lines is often appropriate, as long as setback requirements do not result in constructing buildings in the middle of fields.
- B.** Avoid placing buildings in the middle of open fields. Place them either at the edges of fields or in cleared areas next to the fields. Septic systems and leach fields, however, may be located in fields.
- C.** Minimize clearing of vegetation at the edge of the road, clearing only as much as necessary to create a driveway entrance with adequate sight distance. Use curve in the driveway to increase the screening of buildings.
- D.** Site buildings so that they do not protrude above treetops and crestlines of hills seen from public places and roads. Use vegetation as a backdrop to reduce the prominence of the structure. Whenever possible, open up views by selectively cutting small trees and lower branches of large trees, rather than by clearing large areas or removing mature trees.
- E.** Minimize crossing of steep slopes with roads and driveways. When building on slopes, take advantage of the topography by building multi-level structures with entrances on more than one level (e.g. walk-out basements, garages under buildings), rather than grading the entire site flat. Use the flattest portions of the site for subsurface sewage disposal systems and parking areas. Use best management practices for erosion and sedimentation control, as recommended by the North Carolina Division of Natural Resources (NCDNR).

*Adapted from Rural Development Guidelines published by the New York Planning Federation*



### 3.0 ENVIRONMENTAL SUSTAINABILITY AND OPEN SPACE

All development should respect natural resources as an essential component of the human environment. The most sensitive landscape areas, both environmentally and visually, are steep slopes greater than 20%, watercourses, and floodplains. Any development in these areas should minimize intervention and maintain the natural condition except under extreme circumstances. Where practical, these features should be conserved as open space amenities and incorporated into the overall site design.

Environmental regulations in Catawba County are intended to protect the local ecosystem of the area's streams, maintain the storage capacity for the local stormwater system, and preserve wetland areas for the infiltration of groundwater.

Equally as important as the protection of the biological habitat is the improvement of the human habitat. While the human habitat desires natural passive open spaces such as large expanses of pristine wooded areas and streams, it must also be served with spaces that satisfy the daily needs of social interaction. These spaces are generally much smaller than greenways and parks and take the form of squares, courtyards, playgrounds, and plazas.

Natural or passive open spaces should be considered first for preservation during the development process, but not at the complete expense of active open space, which is essential for daily usage.

These guidelines therefore, intend to address a range of open spaces, from the watershed basin to the urban plaza. The varieties of open space are overlaid on top of one another with an increasingly complex ecosystem attributed to each.



Photo by Triangle Council of Governments



Two types of water-based open spaces ranging from rural to urban in detailing, both serving essential needs of the community.





More Rural

**Woodland:** An area in its natural forested condition that serves as a primary habitat for native plants and animals.

**Farmland:** An area of particular value for the cultivation of crops or the raising of livestock.

**Greenway:** A corridor that can encompass a trail for bicycles, hiking, equestrian activities or pedestrians consistent with standards adopted by North Carolina Division of Parks and Recreation and local communities. The trajectory of a greenway should lead through rural as well as urban areas, connecting the countryside to urban parks. The landscaping pattern should be appropriate to the location: naturalistic within the countryside, and formal within the neighborhoods.

**Meadow:** An area available for unstructured recreation outside of a neighborhood. A meadow is naturalistic, consisting of native plants, growing unchecked, and requiring minimal maintenance.

**Scenic Viewsheds:** Corridors along roadways that offer the visual aesthetic of the rural countryside while driving through an area.

**Park:** A large open area available for recreation, usually located at the neighborhood edge, and fronted by buildings. Its landscape comprises paved paths and trails, some open lawn, trees and open shelters, all naturalistically disposed and requiring limited maintenance.

**Sportsfield/Stadiums:** An open area or facility and its related ancillary buildings specifically designed and equipped for large-scale structured recreation. Such fields should be confined to the edges of neighborhoods as their size is disruptive to the fine-grained network which is required for pedestrian travel.

**Green:** A medium-sized public space available for unstructured recreation, circumscribed by building facades, its landscape consisting of grassy areas and trees, naturalistically disposed and requiring only limited maintenance.

**Square:** A public space, seldom larger than a block, at the intersection of important streets. A square is circumscribed spatially by frontages; its streetscape consists of paved walks, lawns, trees, and civic building all formally disposed and requiring substantial maintenance.

**Plaza:** A public space at the intersection of important streets set aside for civic purposes and commercial activities. A plaza is circumscribed by frontages; its landscape consists of durable pavement for parking and trees requiring little maintenance. Plazas may be used as parking lots during certain periods (i.e lunch time) with the paving not marked or detailed.

**Community Garden:** A grouping of garden plots available for small-scale cultivation, generally to residents of apartments or other dwelling types without private gardens. Community gardens should accommodate individual storage sheds. Community gardens are valuable for their recreational and communal role, similar to that of a club.

More Urban





**Close:** A small green area surrounded by a drive way providing vehicular access to several buildings, performing the same function as a cul-de-sac but creating a socially useful space. The width of the close must correspond to the standard turning radius requirement. A close may be built to economical driveway standards unless it is accessed regularly by utility vehicles.

**Playground:** A small open area specifically designed and equipped for the play of small children. A playground is usually fenced and may include an open shelter. Playgrounds should be interspersed within residential areas, a short walking distance from dwellings.

*Adapted from the Lexicon of the New Urbanism*



### 3.1 NATURAL OPEN SPACE

Natural open space that has local or regional significance has been carefully inventoried through the **Open Space for the Central Carolinas Framework Plan** process led by Voices and Choices of the Central Carolinas.

Based on this analysis and an on-going effort to further catalogue open spaces throughout the region, a combination of efforts should be undertaken to ensure their protection including right of first refusal options, conservation easements, purchase, and development dedication requirements

While cluster subdivision or residential neighborhoods are explicitly designed to conserve certain open space, other development types should attempt to maintain the same level of stewardship.

An essential component of the preservation of natural open space is to ensure that continuous open spaces are created in the regional framework rather than allowing fragmentation to degrade the habitat or ecosystem inherent to the area.

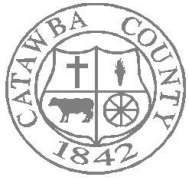


*The preservation of natural open space serves to maintain a feeling of community character and preserves valuable resources.*

#### Types of Natural Open Space

**Natural Habitat:** Lands that provide food, water, shelter, and breeding areas for native species. These lands provide enough protected area for the natural community of native species to thrive. This open space must include room for breeding, as well as sustainable sources of food, water, and shelter for native species.

**Wetlands and Floodplains:** Lands that soak up floodwaters and filter pollutants before they reach streams. Wetlands are frequently identified by the presence of standing water, but also by the presence of hydric soils (formed in wet conditions), or by the presence of wetlands-dependent plant or animal species. Floodplains are the flat or nearly flat area along a river or stream that are covered by water during a flood, and are often measured in terms of the size of the rainstorm producing the flooding (e.g. the 100-year floodplain is defined by flood levels produced by a 100-year storm). Buffers are naturally occurring vegetated stream banks.



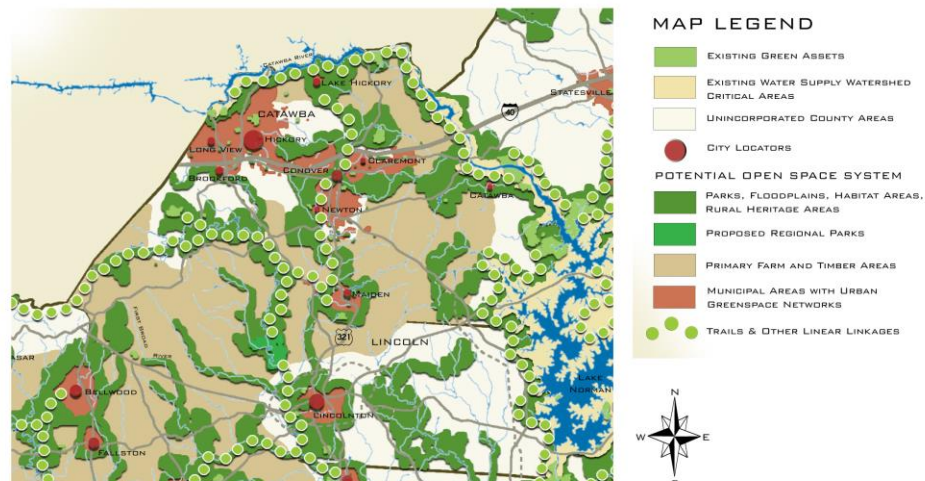
**Farmland and Timberlands:** Fields and forests that produce income from livestock, crops, and sustainable forestry. Farmland is land whose primary use is in actively managed agricultural production, including crops and livestock. It may also include land developed for support of agricultural production. Timberland is land whose primary use is in actively managed timber production. Farming and timbering are culturally and historically important open space uses that help our region maintain its sense of community, sense of place, and connection to the land.

**Rural Heritage and Scenic Areas:** Small towns and rural landscapes that characterize our Piedmont heritage. Our rural heritage includes rural open space, sometimes detailed with buildings and other manmade structures, that is reflective of historically rural lifestyles and occupations. It also includes the small towns closely linked to the surrounding farming communities and supported by a thriving manufacturing industry; this has been the Piedmont's uniquely characteristic development pattern for generations. Scenic areas are aesthetically pleasing areas that can be seen from a designated linear pathway, such as a road or trail, or from a designated point like a hilltop.



*Protect important view corridors such as those that feature Catawba County's natural resources*

## VISION MAP 2020 Strategic Regional Open Space Framework *for the Central Carolinas*



*Map from **Open Space for the Central Carolinas The Framework Plan** showing open space in Catawba County and its connections to the greater region.*



### 3.2 GREENWAYS & MULTI-USE PATHS

Greenways are a major ecological and recreational resource. Greenways can also serve as important conservation corridors for wildlife, both flora and fauna. They also can play an important transportation function, especially in relation to bicycle use.

Greenways often include multi-use paths for pedestrians and bicyclists that are designed to meander through the region. The paths are often within greenways, but can leave those trajectories to enter street rights-of-way. Apart from stream corridors, a greenway network can comprise:

- Multi-use paths parallel to a thoroughfare;
- "Green Streets"- where pedestrian and bicycle paths are integrated into the streetscape;
- Public parks and open space;
- Conservation areas -- open spaces that are protected by contract, deed or covenant.

Greenway designs shall permit comfortable use by both bicyclists and pedestrians. Refer to the North Carolina Bicycle Facilities Planning and Design Guidelines for specific information on engineering details.

#### Greenway Trail General Design Guidelines

- A. Floodway Trails:** Multi-use trails within the floodway are designed to accommodate a variety of users including walkers, joggers, cyclists, and rollerbladers.
- B. Floodplain Trails:** These multi-use trails are positioned outside of the floodway, within the floodplain.
- C. Upland Trails:** Upland multi-use trails are positioned completely outside designated floodplains. The existing vegetation in the floodway shall remain intact. Upland trails provide the most habitat and water quality benefits.
- D. Boardwalk Trails:** Boardwalks, or wood surface trails, are typically required when crossing wetlands or other poorly drained areas. Boardwalk trails are composed of lumber or synthetic wood. Boardwalk trails may be a minimum of 4 foot wide.
- E. Drainage:** Greenways may have a cross slope of 2% to adequately provide for drainage. The slope should be in one direction instead of crowning. On curves, the cross slope should be towards the inside of the curve. In addition, to insure proper stormwater runoff and trail longevity, catch basins with drains and underground culverts may be required. Natural ground cover should be preserved on each side of the path for erosion control.



Photo by Triangle Council of Governments



- F. Bridges:** Railings or barriers on both sides of a bicycle path bridge should be a minimum of 54 inches high. Ends of railings must be offset away from the adjoining path to minimize the danger of cyclists running into them.
- G. Clearance:** The vertical clearance to obstructions should be 8 feet

minimum. 10 feet may be required for the passage of maintenance vehicles.

- H. Grades:** Long downhill grades should be avoided through careful planning. A 5% grade is the maximum grade recommended. Sustained grades should be limited to 2%.
- I.** The location of such paths should be field-located to minimize environmental impacts such as stream bank degradation and excessive clearing of vegetation in riparian buffers.
- J.** Where crossing of creeks is necessary, a bridge structure is superior to a culvert. A bridge allows the natural ecosystem to remain unimpeded under the crossing.





### 3.3 NEIGHBORHOOD OPEN SPACE

The design and location of neighborhood open space on a site is perhaps the most important determinant in a successful pedestrian environment.

All mixed-use and neighborhood development should provide useable open space. Examples of useable open space include: outdoor café or restaurant seating, a plaza with seating, a tot lot, a picnic area, or a wide arcade for strolling along store fronts. Public right-of-way, landscaping filled in around buildings and parking lots, and simple paths are not considered useable open space.



*Public open space should be surrounded by buildings or streets to keep them accessible and safe*

#### General Neighborhood Open Space Design Guidelines

Neighborhood open space should be planned and improved, accessible and usable by persons living nearby. Improved shall mean cleared of underbrush and debris and shall contain one or more of the following improvements: landscaping, walls, fences, walks, statues, fountains, ball fields, and/or playground equipment. The type and character of the open space should be influenced by the surrounding uses (e.g. retail, office) as well as by the prospective user groups e.g. workers, shoppers, youth).

- A. To ensure that neighborhood open space is well-used, it is essential to locate and design it carefully. The space should be located where it is visible and easily accessible from public areas (building entrances, sidewalks). Take views and sun exposure into account as well.
- B. New neighborhood open spaces should contain direct access from the adjacent streets. They should be open along the adjacent sidewalks and allow for multiple points of entry. They should also be visually permeable from the sidewalk, allowing passersby to see directly into the space. Playground equipment, statues, and fountains should be located toward the interior of squares and parks.
- C. Significant stands of trees, streambed areas, and other valuable topographic features should be preserved within the required open space areas where practical. Areas noted on the Small Area Plan as open space should be preserved and dedicated where practical and feasible and may be left





unimproved in accordance with the Plan.

- D. The space should be well-buffered from moving cars so that users can enjoy and relax in the space. The space may be visible from streets or internal drives but should not be wholly exposed to them. Partially enclose the space with building walls, freestanding walls, landscaping, raised planters, or on-street parking to help buffer it and create a comfortable "outdoor room".
- E. Public open space should be fronted by streets and buildings to encourage their use and patrol their safety.
- F. Publicly accessible places to sit in the public realm are important not only as basic amenities, but also in sponsoring casual social interaction. Seating can be both formal and informal, including both park benches on the tops of garden walls or monumental stairs at the entrance to public buildings.

### Required Open Space Dedication Standards

- **Residential Development:**
  - Residential conventional subdivisions of 25 lots or more, mixed use development that contains residential uses; and multi-family must comply with the neighborhood recreation/open space regulations at a rate of 2,500 square feet per dwelling unit.
- **Cluster Development:** The total area dedicated, as permanent open must make up at least 25% of the acreage of the subdivision. The wooded buffer must be connected to the open space within the subdivision.
- **Non-Residential Development:** There is no minimum area, however, all non-residential development that contains residential uses is subject to the residential development open space dedication standards.



### 3.4 SLOPES

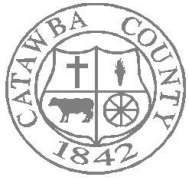
#### Hillside and Steep Slope Protection

*These guidelines encourage the developer to minimize the grading and site disturbance of steep slopes by limiting impervious surfaces and land disturbance in such areas, and by encouraging special construction techniques in steeply sloped areas in order to:*

- Protect water bodies (streams and lakes) and wetlands from the effects of erosion on water quality and water body integrity;
- Protect the plant and animal habitat of steep slopes from the effects of land disturbance; and
- Preserve the natural beauty and economic value of the County's wooded hillsides.

Slope Category	Illustration	Suggested Development Approaches
< 10%	<p>1.6' rise / 20' run = 8% slope</p>	No building limitations.
10 to 15%	<p>2.0' rise / 20' run = 10% slope</p>	Site preparation techniques should be utilized that minimize grading and site disturbance.
Greater than 15%, less than 25%	<p>3.0' rise / 20' run = 15% slope</p>	Building and site preparation should incorporate specialized site design techniques and approaches.
25% or higher	<p>5.0' rise / 20' run = 25% slope</p>	Generally unsuitable for development. Land disturbance should not exceed 25% of the area containing 25% or greater slopes. Disturbed areas, building and site preparation should utilize specialized site design techniques and approaches.

Construction activities on slopes greater than 15 percent are encouraged to follow specialized site design techniques and approaches:



- Exposed soil that is not under continuous construction should be revegetated with temporary or permanent vegetation so that the soil is not left exposed. If irrigation is not provided, then the exposed soil should be planted with a species that can survive without irrigation. Vegetative cover or any alternative cover (rock, masonry, etc.) must be maintained in perpetuity.
- A developer with a site containing cut and fill slopes exceeding a 25% slope should obtain certification by a qualified soils engineer or geologist that the slope will remain stable under foreseeable conditions. The certification would delineate any specific stabilization measures deemed necessary by the registered professional engineer, soils engineer or geologist.

### 3.5

#### TREE PRESERVATION

- *Catawba County contains a diversity and abundance of trees, shrubs and soils which provide economic value to the County and make it a desirable place for both residents and visitors;*
- *The appearance of the County from the public ways contributes to the economic prosperity of the County;*
- *Trees and other landscape elements help to naturally control flooding and erosion, moderate noise pollution, dust, and other airborne pollutants, moderate the County climate and shelter and feed its wildlife;*
- *Growth and development attracted to the County often necessitates the removal of trees, shrubs, and soils, thereby contributing to their depletion;*
- *Protection and management of these valuable assets and their habitat is necessary in order to protect the health, safety, and welfare of citizens in the County.*
- *Regulate the protection, installation, removal, and long-term management of trees, shrubs and soils in the County; and*
- *Encourage the proper protection and maintenance of existing trees, shrubs and soils on all public and some private lands.*

#### Tree Preservation Guidelines:

- A. Proposed development should be designed to maximize the preservation of existing healthy trees. Where protected trees exist, flexible approaches such as adjustments to lot layout, placement of buildings and paved surfaces and location of utilities should be pursued in order to save them.
- B. No soil disturbance from construction, trenching or grading, or paving, or storage of equipment or materials should take place within the critical root zone of any rare or specimen tree to be preserved.



- C. The preservation of contiguous stands of trees provides significant benefits exceeding the preservation of individual trees, including: increased survivability rates; more effective stormwater management; more effective protection of air quality; and preservation of biodiversity and a variety of plant species, including understory species. A “significant tree stand” means an area of contiguous wooded area greater than 1,000 square feet with a continuous canopy exceeding 30 feet in height and where over 50 percent of the trees with a DBH over 6-inches are hardwoods. To the extent practicable, significant tree stands should be preserved and incorporated into site design. Areas designated for preservation should be accompanied by protection devices during construction.

#### 4.0 CONNECTIVITY AND CIRCULATION

These Design Guidelines encourage the development of a network of interconnecting streets that work to disperse traffic while connecting and integrating neighborhoods throughout the County. Equally as important, these Design Guidelines encourage the development of a network of pedestrian paths, sidewalks and bicycle lanes that provide an attractive and safe mode of travel for pedestrians and cyclists.

Street designs in this Area should permit the comfortable use of streets and roads by cars, bicyclists, and pedestrians. Pavement widths, design speeds, and the number of vehicle lanes should be minimized without compromising safety. The specific design of any given street must consider the building which fronts on the street and the relationship of the street to the State’s street and road network.

##### 4.1 ACCESS MANAGEMENT

The control of driveways and other curb cuts through a comprehensive access management program should be a high priority to maintain the efficient operation of the corridor; thereby, securing the long-term infrastructure investment. The following standards are based upon NC DOT standards as well as best practices for corridors similar to those found throughout Catawba County.



- A. Within the Mixed Use Corridor – Overlay (MUC-O) and 321-ED Overlay District driveways shall be limited in accordance with the following standards. Where the NC DOT Driveway Manual conflicts, the stricter of the two standards should prevail.

<u>Frontage (feet)</u>	<u>Number of Driveways Allowed</u>
≤ 500	1
501-999	2
≥1000	3

<u>Development Type</u>	<u>Minimum Spacing (feet)</u>
Mixed Use-Commercial	400 – External 200 - Internal

- B. The minimum distance between a driveway and an intersection shall meet the NC DOT driveway standards.

#### 4.2 CONNECTIVITY

Traffic studies have shown that highly connected street networks provide much greater traffic throughput and mobility for a community, at less cost. A high degree of connectivity should occur not only at the level of arterials, but also on collector, local and other secondary roads. Such connectivity vastly improves a street network's performance. The street pattern should not force short trips of one or two miles onto arterials; it should be possible to make trips of this sort by using collector or other secondary streets. With a highly connected street network, cross-county trips should be possible using fairly direct secondary roads.

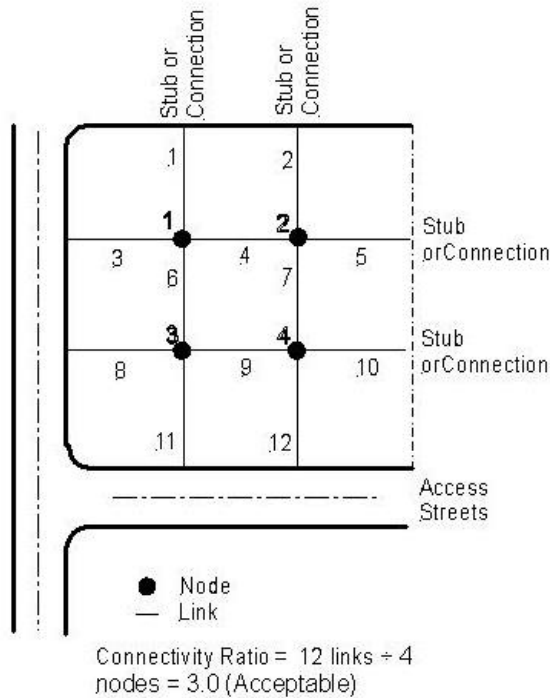


*A graphic from the Town of Cary, NC Code that illustrates a connectivity index of 1.2 (links are shown as circles and nodes are shown as stars). The illustration has 11 links and 9 nodes for an index of  $11 / 9 = 1.2$*



Improving connectivity and limiting cul-de-sacs result in improved mobility for both automobiles and pedestrians, decreased service delivery costs through improved routing options, and improved water pressure and maintenance from the ability to loop lines through a development rather than have to rely on less efficient dead-end pipe runs.

Streets within a proposed subdivision are encouraged to have a connectivity ratio of not less than the amount designated in table below. The “connectivity ratio” is the number of street links divided by the number of nodes. A “link” is each portion of a street defined by a node at both ends or at one end. A “node” is the intersection of two (2) or more streets, a cul-de-sac head or a dead-end. Connections with existing streets and stub outs to adjacent properties to accommodate future street connections are not considered nodes.



**Connectivity Ratio**

Type of Subdivision	Ratio
Residential Neighborhood or Village Center	1.5
Non-residential subdivision	1.0





## General Connectivity Principles

- A.** Good transportation design requires the development of a network of interconnecting streets that disperse traffic and support transit options while connecting and integrating neighborhoods with the existing urban fabric of surrounding areas. A network of narrower streets with reduced curb radii slows and disperses traffic, and provides a pedestrian-friendly atmosphere.
- B.** The maximum block length should be no more than 1000 feet. Shorter blocks of between 200 feet and 400 feet are strongly encouraged in order to create a better pedestrian-scaled environment.
- C.** Cul-de-sacs should be used where severe topography or existing built land uses make connection impossible.
- D.** The street layout in any subdivision should conform to the arrangement, width and location of public streets indicated on the regulating Thoroughfare Plan for the area. Streets not indicated on that plan should be designed and located to:
  - connect to existing and proposed streets in adjacent developments wherever possible;
  - relate to the topography;
  - preserve natural features such as streams and tree growth;
  - provide for adequate public safety and convenience.
- E.** In neighborhoods with a low Connectivity Index, pedestrian and/or bicycle path connections should be installed to supplement the street system by linking dead-end streets.
- F.** Where adjoining areas are not subdivided, the arrangement of streets in the development must provide for the projection of streets stubbing to adjoining unsubdivided areas. Where stub out roads are required, the road must be constructed to NCDOT standards to the adjoining property line. Continuation of an existing street is not required, or projection of a new street is not required, where it would cause a street to project into a floodplain, topography constraints, other natural features or where other limitations would prohibit the practical connectivity.
- G** Whenever possible, internal access drives should be located to join together existing public streets and/or connect to adjacent private drives, so that the internal circulation functions as an integral part of the surrounding transportation network.
- H.** Provide at least one vehicular link to each abutting property to the extent practical. part of the connection or maintain the potential for a future link.

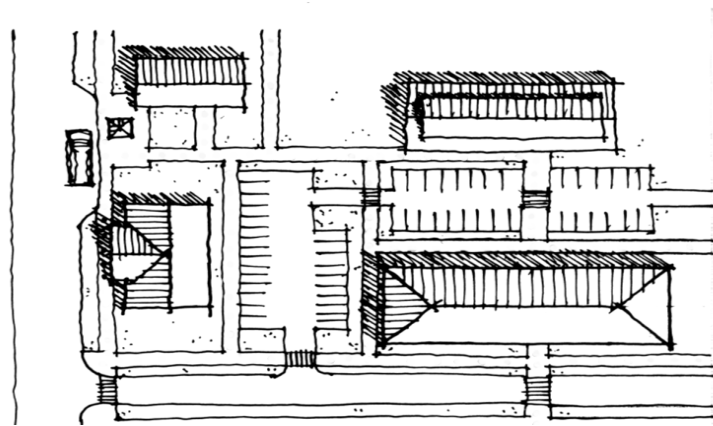


I. Should provide pedestrian and bicycle links to each adjacent nonresidential property (in addition to the public sidewalk). They should be highly visible and conveniently located. Avoid steps; provide curb ramps to accommodate wheelchairs, bicyclists, and baby strollers. If no

immediate benefit can be derived from the pedestrian link, maintain the potential at-grade link and provide a construction easement to the adjoining property.

### 4.3 THOROUGHFARE DESIGN

Major Thoroughfares are generally not corridors where the automobile and pedestrian activity overlap though all modes should be accommodated in the public right-of-way.



*Provide vehicular and non-vehicular connections wherever practical*

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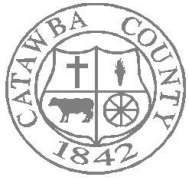
Minor Thoroughfares however, can often accommodate a vibrant pedestrian realm along with street parking.

When planned and adopted on the Thoroughfare Plan, these corridors should be protected during development process and new

development should share in the reservation of right-of-way and construction investments for additional lanes.

Major and Minor Thoroughfares should be attractively designed as they often serve as gateways into Village Centers, commercial corridors and residential subdivisions.

- A. The layout of any subdivision or other development project should provide corridors for those larger roads in accordance with the rights-of way specified on the official Thoroughfare Plan.
- B. Roadway-center two-way turning lanes should be avoided. If a turning lane is necessary, a single-direction turn lane is desired. Center two-way turn lanes are undesirable because they:
  - pose traffic hazards due to head-on conflicts and illegal use of the turn lane as a merging lane for vehicles turning left out of fronting property;
  - pose increased traffic risks for pedestrians crossing the roadway;
  - create a needlessly wide curb-to-curb expanse of pavement which detracts from the townscape; and



- have the undesired side-effect of encouraging the progression of commercial strip development along the arterial.

**C.** Multi-lane Thoroughfares should include planted center medians. Planted medians are desired because they:

- enhance the overall community appearance, raising property values and improving the community's economic attractiveness;
- can have a psychological effect on drivers that may result in less speeding;
- help to impede the progression of future strip commercial development along the arterial;
- provide practical relief to pedestrians and cyclists by providing a mid-point refuge at crossing points; and
- can improve traffic safety by creating a barrier to head-on collisions.



*Provide medians in all multi-lane thoroughfares*

**D.** Medians may also be advisable on roadway sections where homes front onto the thoroughfare. Although such a median would prevent left-out turning movements from driveways in the homes fronting on the road, as long as an acceptable alternative route exists for the homeowner, the median may be preferable to a two-way turn lane. The median can:

- lower traffic speeds and provide a crossing island for residents (both of which improve safety)
- prevent conversion of the road into strip commercial uses (saving the neighborhood)
- provide an attractive streetscape that can raise property values.



- E. New road construction and road widening projects involving arterials, major thoroughfares, and the collector street network should include wide outside or striped lanes for bicycles where recommended in the small area plans.



*Install bike lanes as wide outside lanes as shown above or as a separate facility*

**F. Recommended Streetscape:**

All multi-family or non-residential development should provide the following improvements across the road frontage and interior streets:

- Street trees must be planted as follows:

- (1) Three shade trees are required for every 100 linear feet of lot frontage.
- (2) Each tree, at the time of installation, shall have a clear trunk height of at least 5 feet and a minimum caliper DBH of 2 inches. The tree must be a minimum 15-gallon container size or balled and burlapped at time of planting. An appropriate mulch bed must be provided around the tree.
- (3) A shade tree should achieve a mature height of over 20 feet and a mature spread of at least 15 feet. Mature height should be no less than 20 feet unless overhead utilities are in the planting area.



In addition all planned developments, mixed-use corridors and village centers must provide the following:

- 3-5 foot landscape strip between the curb and multi-use path
- 5 foot wide multi-use path
- 10 foot (minimum) landscape strip behind the sidewalk
- Canopy Trees planted 40 feet on-center on both sides of the multi-use path staggered every 20 feet (Where aerial utility lines prohibit the installation of Canopy Trees, Small Maturing Trees may be substituted)

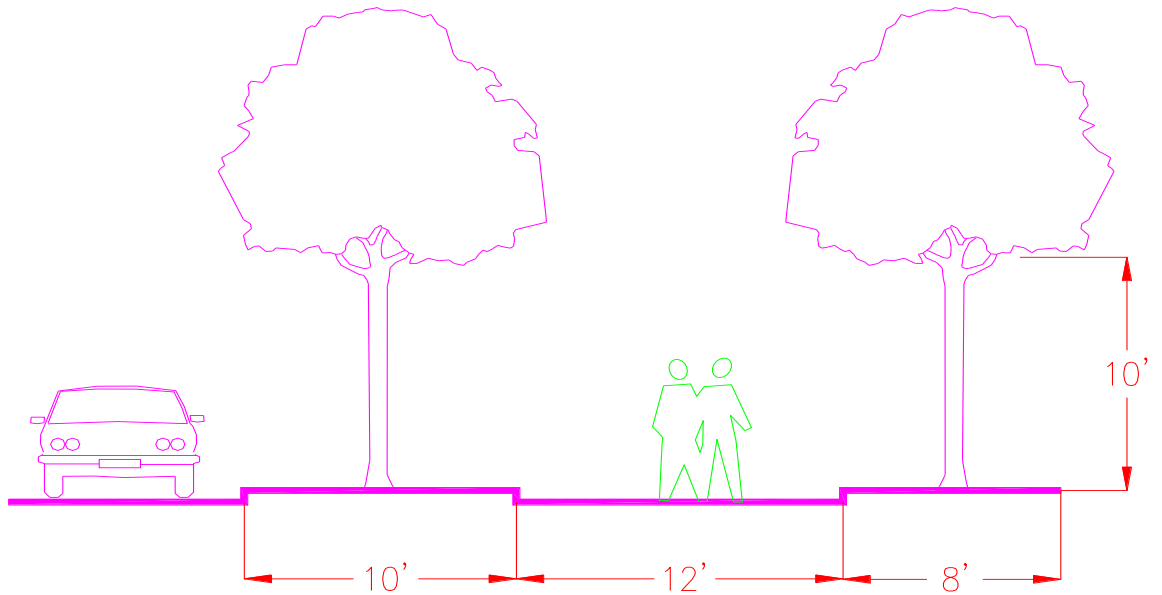
#### 4.4 NEIGHBORHOOD STREET DESIGN

3-5'

5'

10'





**A. Sidewalks:** Where sidewalks are required by the Unified Development Ordinance they should be constructed along one side of all streets using concrete, brick pavers, or a similar material. Residential sidewalks shall be a minimum of 5 feet in width.



*Sidewalks are encouraged on both sides of the public streets, however only one side is required based on the UDO regulations. Streets should have sidewalks on both sides of the street. The above illustration depicts a typical sidewalk and landscape area.*

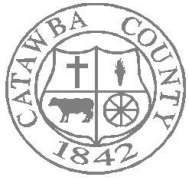


- B. Street Trees/Planting Strips:** The photograph below depicts a typical street tree and planting strip area.



*Plant street trees between the curb and the sidewalk*

- C. Street Width:** Where permitted, use the NC DOT Traditional Neighborhood Street Design Guidelines Manual in lieu of the typical street section. This Manual recommends the use of narrow streets as an alternative to conventional street sections to minimize the amount of pavement impact stormwater runoff and reduce the potential for speeding within neighborhoods.
- D. Street Locations:** Wherever possible, street locations should account for difficult topographical conditions, paralleling excessive contours to avoid excessive cuts and fills and the destruction of significant trees and vegetation outside of street-rights-of way on adjacent lands.
- E. Traffic Calming:** The use of traffic calming devices such as raised intersections, landscaping bulb-outs, and traffic circles are encouraged as alternatives to conventional traffic control measures.
- F. Curbs and Drainage:** Curbs, if provided should be constructed in accordance with NC DOT Standards. Vertical face curbing is required along all streets with on-street parking and around all required landscaping areas and parking lots. Mountable curbing is permitted around center medians, roundabouts, and other features in order to facilitate the infrequent use by vehicles with larger turning radii. Valley curbing is permitted along streets which serve homes with front-loaded off-street parking or that have infrequent on-street parking. Drainage may be provided using curb and gutter piped systems within Villages, Residential Neighborhood designs and Planned Developments along all streets except along parkways that may use open swales. All drainage grates, if provided, must be safe for bicyclists (grating must be perpendicular or diagonal to the street centerline).



**H. Geometric Design:** For lower speed streets (less than 25 mph posted speed) curb radii and street centerline radii are encouraged to be reduced in accordance with the Institute for Transportation Engineers-Traditional Neighborhood Development Street Design Guidelines, 1997.



*Avoid unnecessarily wide streets devoid of vegetation such as those shown in the images above to encourage pedestrian usage and reduce neighborhood speeding. Instead, use narrow streets with street trees as shown below.*



## 5.0 SITE DESIGN

A primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use. Streets lined by buildings rather than parking lots are more interesting to move along, especially for pedestrians and provide a safer environment.



## 5.1 GENERAL SITE DESIGN

### A. Locate Buildings Close to the Street:

Locate buildings close to the pedestrian street when developing as a Village Center, Planned Development or Mixed Use, with off-street parking encouraged to be located to the rear or side of buildings.



- B. Corner lots:** If the building is located at a street intersection, place the main building, or part of the building, at the corner. Parking, loading or service should not be located at an intersection.

*Place buildings adjacent to corners and parking to the side or rear*

- C. Adjacent Lots:** For similarly zoned properties, try to match the grade of abutting properties where the properties meet. If there is a significant grade difference, create an attractive transition, using creative grading and landscaping or a decorative retaining wall. Be sure to incorporate vehicular and pedestrian cross-access. Avoid using a blank or unscreened concrete retaining wall or a rock-covered slope.

- D. Underground Wiring:** To reduce the visual impact of overhead wiring, utility services must be located underground for all new residential subdivisions and non-residential development.

- E. Street Vistas:** Important street vistas (such as along gateways and primary pedestrian streets) should terminate in a focal point, such as a building or other architectural or natural feature.



*Terminate important views with prominent architecture and/or landscaping*





## 5.2 PARKING

### A. Location of Parking Areas:

Parking lots should be located to the side or behind buildings or in the interior of a block whenever possible. Off-street parking spaces, including all areas for maneuvering, must be located solely on private property and not use public property or public rights-of-way. In addition, off-street parking:

- a. If located in the front of the building, parking must be outside of the required setback; or
- b. If located in the rear of the building, parking may be located within the required setback; or
- c. If located on the side of the building, parking may be located within the required setback unless the side is adjacent to a street.
- d. A reduction in interior landscape islands is provided when parking is located outside of the public view.

**B. Circulation Drives:** Along thoroughfares, a circulation drive may be permitted around the front of the building but may not encroach into the front setback or any required landscape area. If provided, this drive should be designed to be the minimal width required and should be constructed using alternative paving treatments such as pavers or stamped concrete.



*Circulation drives, if provided, should be minimized and treated with pedestrian-scaled materials*



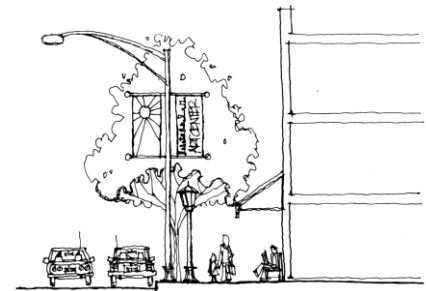


- C. **Connectivity:** Adjacent lots should be interconnected except in the case of existing steep topography between the sites.
- D. Shared parking is allowed in the UDO and is encouraged in order to reduce unnecessary hard surface parking areas.

### 5.3 LIGHTING

Decorative lighting should be provided as a means of providing a safe and visible pedestrian realm as well as establishing a theme or character for a street in a village center or planned development. The use of decorative light fixtures along with a coordinated signage and banner program create a lively pedestrian environment.

- A. Use a low intensity of high-quality light, which will provide good, uniform visibility while avoiding light pollution. All fixtures should be partial or full-cutoff only.
- B. Use decorative bases, posts, luminaries, and bollards in lieu of standard wood poles.
- C. A lighting program should consider the illumination of sidewalks and other multi-use pathways using low intensity fixtures that provide an even distribution of light while avoiding areas of intense shadows.
- D. To consolidate the number of fixtures placed within the right-of-way, consider the co-location of light fixtures along with other streetscape elements on single poles (i.e. street lighting, pedestrian lighting, and banners).
- E. A substantial amount of lighting for pedestrians should be provided from the storefronts using either indirect illumination from within the building or direct illumination under canopies or awnings.



*Lighting should be provided for the street, the sidewalk, and the storefront.*



## 5.4 SUPPLEMENTAL LANDSCAPING

The appropriate use of existing and supplemental landscaping fosters unity of design for new development and blends new development with the natural landscape. Quality landscaping is an essential component of the built form of the Village and Planned Development.

A. Existing landscaping should be retained where possible. Do not assume mass clearing is preferable simply because it may be easiest.

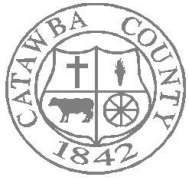
B. The corners of street intersections, particularly gateways and site entries (entries from both street and sidewalk) should be distinguished by special landscape treatments: flower displays, specimen trees and shrubs, accent rocks, low walls, signage, decorative lighting, sculpture, architectural elements, and/or special paving. Features for vehicular entry points must meet the NC DOT's sight triangle requirements.



*The use of supplemental landscaping can greatly improve the aesthetic appeal of a development*

C. Fences are recommended only where they are of complimentary design, materials and construction. Fences should supplement the existing and/or required plantings. The use of chain link fences is prohibited for the purpose of screening.

D. Consider utilizing drought tolerant plants and other xeriscape techniques. These include: amending the soil, mulching, grouping plants by water need, and utilizing water-efficient irrigation equipment and schedules.



## 5.5 SERVICE AND UTILITIES

**A.** Locate trash storage, loading, and truck parking to minimize visibility from the street/sidewalk and building entrances. Avoid locating service and loading areas along important view corridors. Since delivery and trash trucks can be noisy, also do not locate service areas adjacent to residential units, hotel rooms, and useable open space.

**B.** All exterior trash receptacles should be screened from public view on three sides; and, on the fourth side, by a gate that also screens the receptacles from view. The enclosure should be made of materials and colors compatible with that of the principal structure(s).



*A properly screened dumpster using durable materials matching the principal building*

**C.** Screen loading docks and truck parking from public view using building mass, freestanding walls, and/or landscaping.

**D.** Consult with the utility companies early in the design process about the location of utility boxes and meters. Ensure that all utility equipment is located, sized, and designed to be as inconspicuous as possible. All utilities, both new and existing, should be placed underground in conduits and vaults. All utility services shall be underground.

**E.** Encourage HVAC equipment to be located at rear of building or, since it can be noisy, adjacent to public open spaces. In addition, locate all building-mounted, non-street utility meters and service equipment to the side or rear of the building. Screen all rooftop equipment from public view.

**F.** Include areas for storage and collection of recyclables.



**6.0 BUILDING DESIGN**

**6.1 SPECIAL DISTRICTS, OVERLAYS AND PLANNED DEVELOPMENT DESIGN STANDARDS**

**A. Street Walls:** The first floors of all buildings should be designed to encourage and complement pedestrian-style interest and activity by incorporating the following elements:

1. The first floor of all buildings fronting directly on a street should include transparent windows and doors arranged so that the uses inside are visible from and/or accessible to the street on at least 40 percent of the length of the first floor building elevation along the first floor street frontage.

2. Expanses of blank walls should not exceed 20 feet in length. (A "blank wall" facade that does not contain transparent windows or doors.)

3. Ventilation grates or emergency exit doors located at the first floor level in building facade, which are oriented to public street, shall be decorative.



*Visually reduce large expanses of wall with windows and/or doors.*

the any

**B. Building Entrances:** A primary entrance facade shall be oriented toward the street, be designed for the pedestrian, and be distinguishable from the rest of the building. Such entrances shall be designed to convey their prominence on the fronting facade. Use any of the following: canopies or porticos, roof overhangs, recesses/projections, arcades; raised corniced parapets over the door, peaked roof forms, arches, outdoor patios; display windows, special architectural features, and changes in the roof line to emphasize building entrances. Additional entrances may be oriented toward side or rear parking lots. Service entrances for shipping and receiving shall be oriented away from the public street.

**C. Roof Pitch:**

Roof pitches less than 3/12 and flat roofs will require a parapet wall. A pitched roof shall be profiled by eaves a minimum of 6 inches from the building face or with a gutter. Roof forms should be architecturally compatible with existing, adjacent, or surrounding structures.

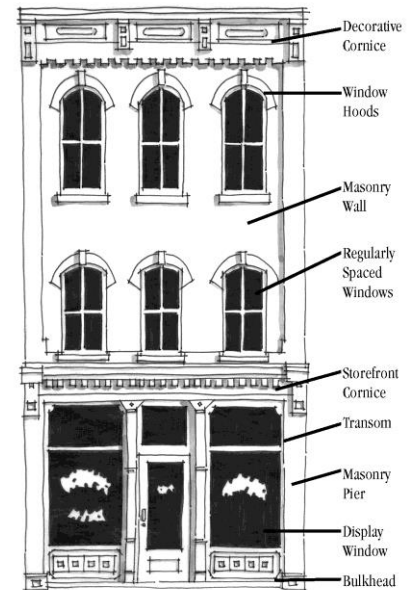


*Buildings with pitched roofs should provide eaves*



#### D. Facade Treatment

- Architectural elements like windows and doors, bulkheads, masonry piers, transoms, cornice lines, window hoods, awnings, canopies, and other similar details shall be used on all facades facing public rights-of-way.
- Building wall offsets, including projections, recesses, and changes in floor level must be used in order to: add architectural interest and variety; relieve the visual effect of a single, long wall; and subdivide the wall into human size proportions. Similarly, roofline offsets must be provided to lend architectural interest and variety to the massing of a building and to relieve the effect of a single, long roof.



- The ground level of the building must offer pedestrian interest along sidewalks and paths. This includes windows, entrances, and architectural details. Incidental signage on buildings, awnings, and ornamentation is encouraged.
- Decorative cornices are encouraged for buildings with a flat roof. Alternatively, eaves shall be provided with a pitched roof.
- To encourage a pedestrian-friendly environment, a building should include windows, doors, columns, eaves, parapets, comprising not less than 30% of the wall area facing the public right-of-way. The use of tinted street level windows should be avoided where feasible. Refer to the UDO for wall length requirements relating to relief and projection segments.

**E. Building Wall Materials:** Building walls within Special, Overlays and Planned Development Districts shall be brick, stone, marble, woods, fiber cement products, such as hardiboard, textured vinyl and stucco, or other materials similar in appearance and durability. A decorative split-face masonry product is permissible. Metal should be used only as an accent or roofing material, not as a primary façade treatment. All accessory buildings shall be clad in materials similar in appearance to the principal structure. Metal may be used as accent features rather than primary wall or surface material.





- F. **Color:** The use of natural tints of materials such as reds, browns, tans, grays, and greens as primary colors is encouraged. Save bright colors for use on awnings and signs on commercial buildings. Brighter palettes of colors can be employed on residential buildings.

## 6.2 MULTI-FAMILY DESIGN STANDARDS

- A. Useable porches and stoops should form a predominate motif of the building design and be located on the front and/or side of the building. Useable front porches are at least 6 feet deep and extend more than 50% of the facade.

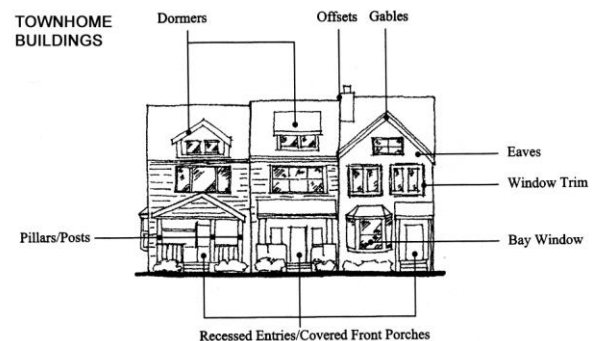
- B. Residential building entrances should be raised above the sidewalk a minimum of 2 feet to reinforce a privacy zone and distinguish them from the commercial entrances.



*Raise residential building entries above street level to create privacy.*

- C. Front-loaded garages, where constructed, should be at least 10 feet behind the primary plane of the front façade of the residential structure.
- D. All building elevations visible from the street should provide doors, porches, balconies, and/or windows. This standard applies to each full and partial building story.
- E. All multi-family buildings should provide detailed design along all elevations. Detailed design should be provided by using at least three (3) of the following architectural features on all elevations as appropriate for the proposed building type and style (may vary features on rear/side/front elevations):

- Dormers
- Gables
- Recessed entries
- Covered porch entries
- Cupolas or towers
- Pillars or posts
- Eaves (minimum 6 inch projection)
- Off-sets in building face or roof (minimum 16 inches)

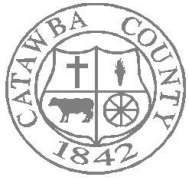




- Window trim (minimum 4 inches wide)
- Bay windows
- Balconies
- Decorative patterns on exterior finish (e.g. scales/shingles, wainscoting, ornamentation, and similar features)
- Decorative cornices and roof lines (for flat roofs)



- F. Main roofs on residential buildings should be symmetrical gables or hips.
- G. Windows, doors, columns, eaves, parapets, and other building components should be proportional to the overall scale of the building. Windows should be vertically proportioned wherever possible. Also, to the extent possible, upper story windows shall be vertically aligned with the location of windows and doors on the ground level.
- H. **Building Wall Materials:** Residential building walls should be wood clapboard, wood shingle, wood drop siding, wood board and batten, cementitious fiber board, brick, stone, or materials similar in appearance and durability. Accessory buildings with a floor area greater than 150 square feet should be clad in materials similar in appearance to the principal structure.
- I. **Roof Materials:** Roofs should be clad in wood shingles, standing seam metal, terne, slate, dimensional asphalt shingles or similar material.



**7.0 SUPPLEMENTAL PHOTOGRAPHS, DRAWINGS, ILLUSTRATIONS AND TABLES (note: additional visuals to be added)**

**7.1 ACCESS**

- Access – shared
- Access points – for waterway traffic
- Access points – for traffic

**7.2 AWNING MATERIALS AND LOCATION**



*Awnings of all kinds can provide a variety of color, protection, enclosure, and interest to a commercial facade.*

**7.3 BIG BOX DESIGN**

**Front Facade**



**Great Facade Breakups, Looks Like "Downtown"  
Lots of Windows, Awnings, Varying Brick Types, etc..**

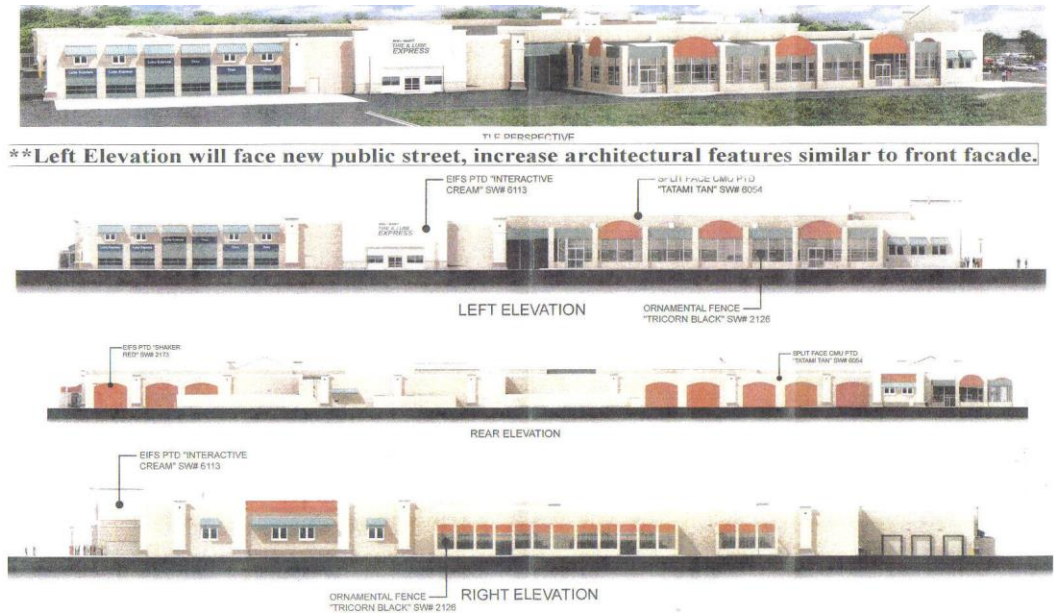


**Reduced Signage  
Pergolas and Rock Wall  
@ Front Pedestrian  
Plazas**

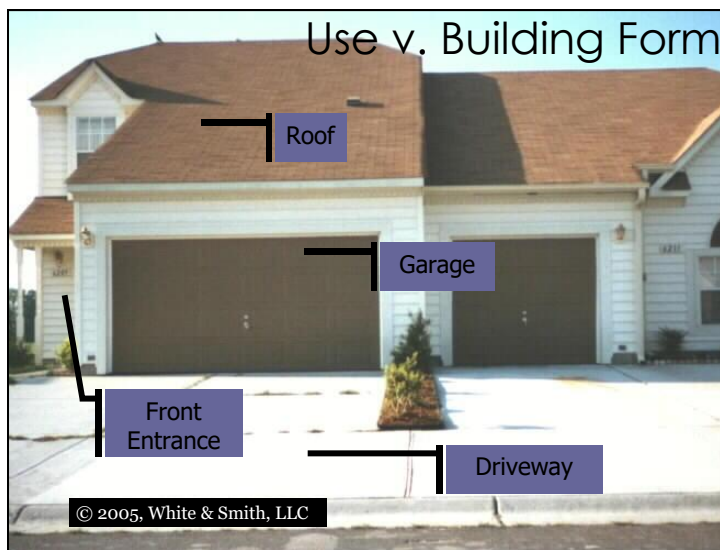




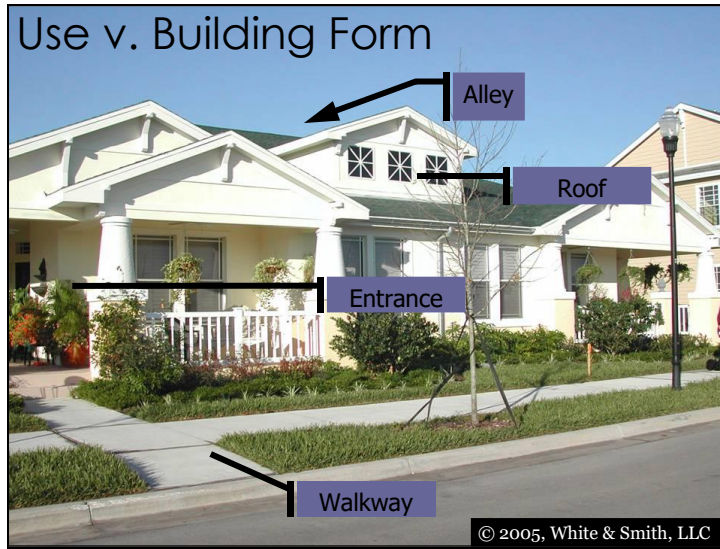
Rear architectural features:



7.4 BUILDING FACADE SETBACK RELIEF:







### 7.5 COMMON OPEN SPACE:



*Natural areas can be preserved as a focal point for developments*



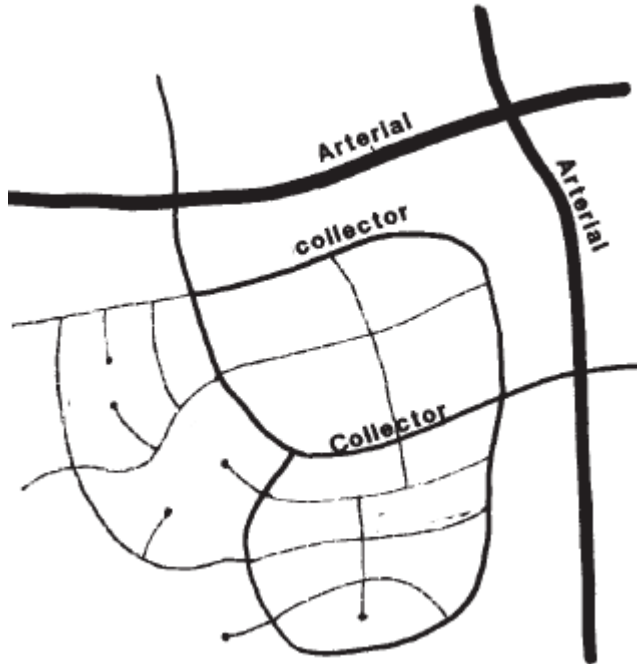


7.6 COMMUNITY PATHWAYS:



*Walking paths that are not along streets can make direct connections between destinations. Note that this path is paved and well lit for safety.*

7.7 CONNECTIVITY:



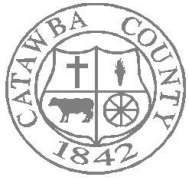
A highly connected development with multiple collectors and local streets



Design walkways that connect the neighborhood with community centers.



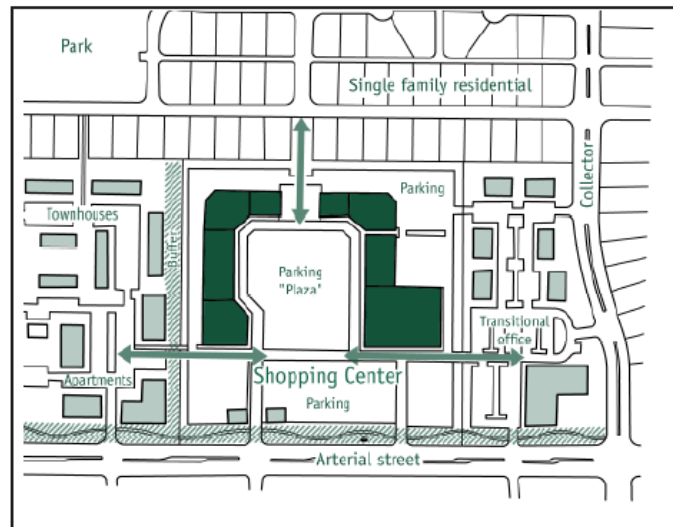
Visual and physical connections are made between this shopping center and the neighboring residential development (a) in the distance.



*Pedestrian connections are made to large office developments (a) from a nearby hotel.*



*This connection to adjoining development also includes outdoor cafes (a), further encouraging pedestrian activity.*



*Plan developments with sidewalk, street and open space connections.*



## 7.8 LANDSCAPING:

- Landscaping – driveways
- Landscaping entranceways



Divide streets with landscaped medians.

- Landscaping - foundation plantings
- Landscaping – internal parking area

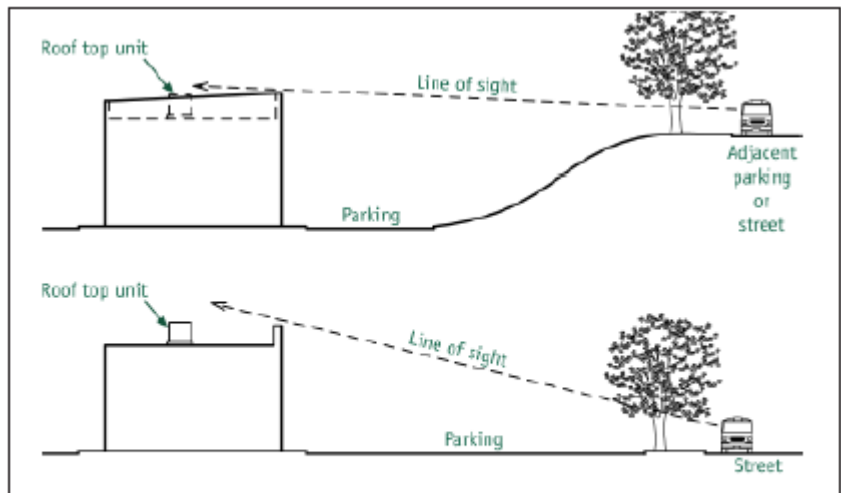
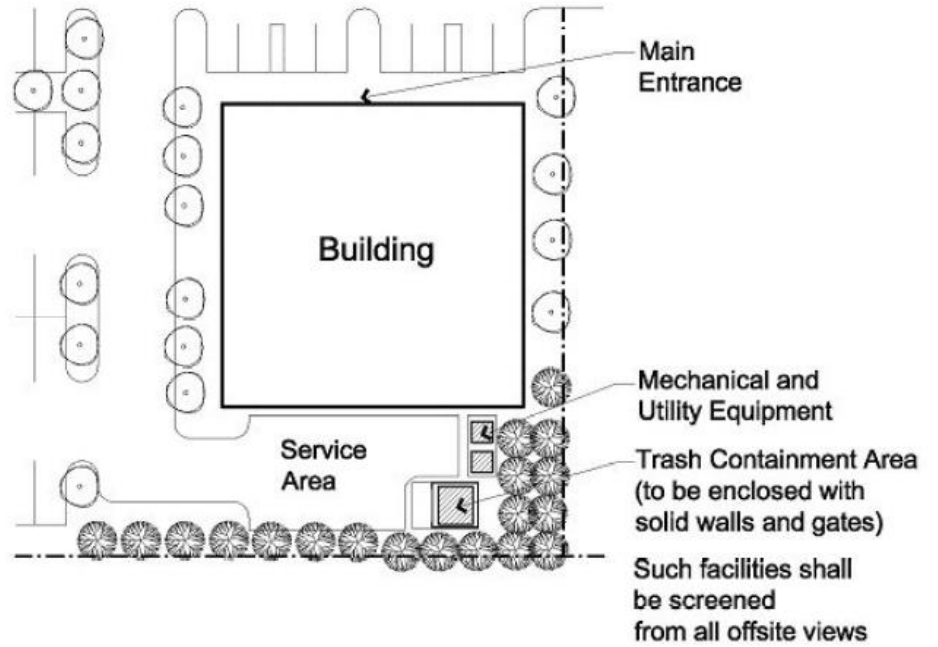


*The use of mature landscaping and topography reduce the impact of parking in this large lot.*





■ Landscaping/screening – mechanical units



*Place noise-generating utilities on roof tops. Screen them from view along major thoroughfares and from neighborhoods and parking lots.*

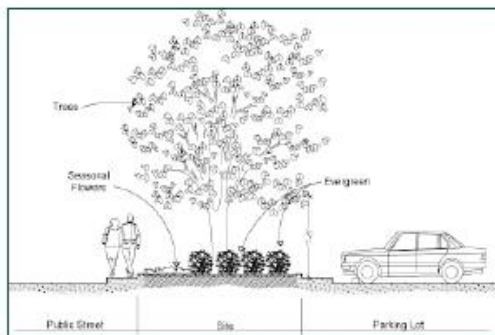




- Landscaping – perimeter buffer of parcel



- Landscaping – perimeter for parking facilities



*Trees and shrubs screen parking from the street and provide a pleasant pedestrian environment.*

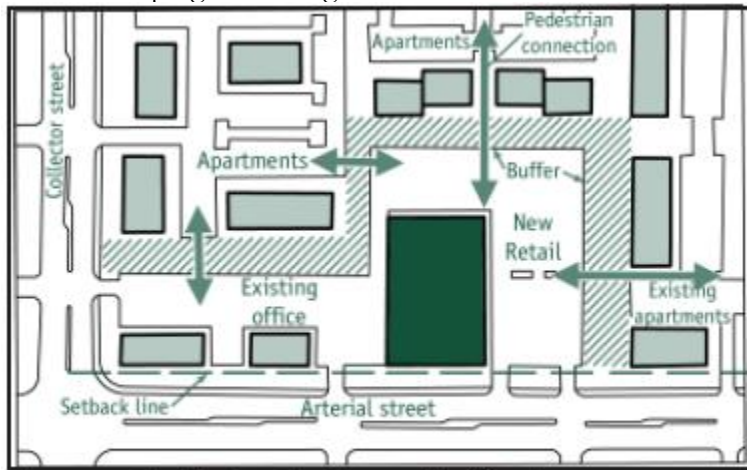


- Landscaping – street trees

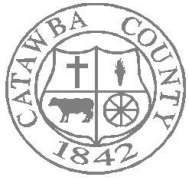


*Young trees planted in this new subdivision will provide a shade canopy in years to come.*

- Landscaping/screening – within buffer area



*An example of using landscaped buffers between different uses while maintaining connectivity.*



**7.9 LOADING & SERVICE AREAS (SCREENED):**



Example of the semi-translucent wall screening used to screen loading dock.



*This landscaped berm screens these loading docks.*



**7.10 PARKING – OFF STREET AND SHARED:**

See Table 44-534-1 for parking standards



*This illustration shows a shopping Center with overflow parking to the side and rear.*



*This office park has parking between the buildings and street, but it is well landscaped.*



*Sidewalks and landscaping reduce the impact of a large parking area and provide pleasant connections between uses. (The lot is also directly across from the building in the photo at left.)*





## 7.11 PEDESTRIAN ACCESS, CROSSWALKS AND AMENITIES:

- Pedestrian amenities



Pedestrian open space in residential areas provides a recreation and gathering area.

- Pedestrian crosswalks



*Drive aisles are narrow where pedestrian crosswalks occur (top) and sidewalks are provided in residential areas (bottom).*





Crosswalks are particularly important in shopping center parking lots.

- Pedestrian access areas





■ Pedestrian sidewalks



Sidewalks through parking lots add safety for pedestrians.

**7.12 ROOF - MATERIAL AND COLOR:**

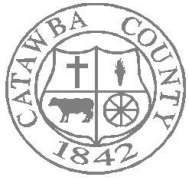


*This development employs a variety of forms with the same roof material to give it continuity.*

**7.13 SIGNS:**



*Monument signs along corridors are sized to be viewed from automobiles travelling at a moderate speed.*



- Sign – buildings & walls



*Large building signs should be well integrated into the architecture. They are scaled primarily for lower speed automobile traffic.*



*Small hanging and wall signs are designed for pedestrians.*



*These smaller wall signs are designed for pedestrians and very low speed automobiles.*

- Sign – design sketch
- Sign – location of existing signs on lot & building(s)



- Sign – new sign location, size & height
- Sign – surface area
- Signalization (existing and proposed)



**7.14 SOLID WASTE STORAGE AREA (CENTRAL AND SCREENED):**

Construct trash enclosures out of the same materials and using similar design elements as the main building.



**7.15 STORMWATER RETENTION:**

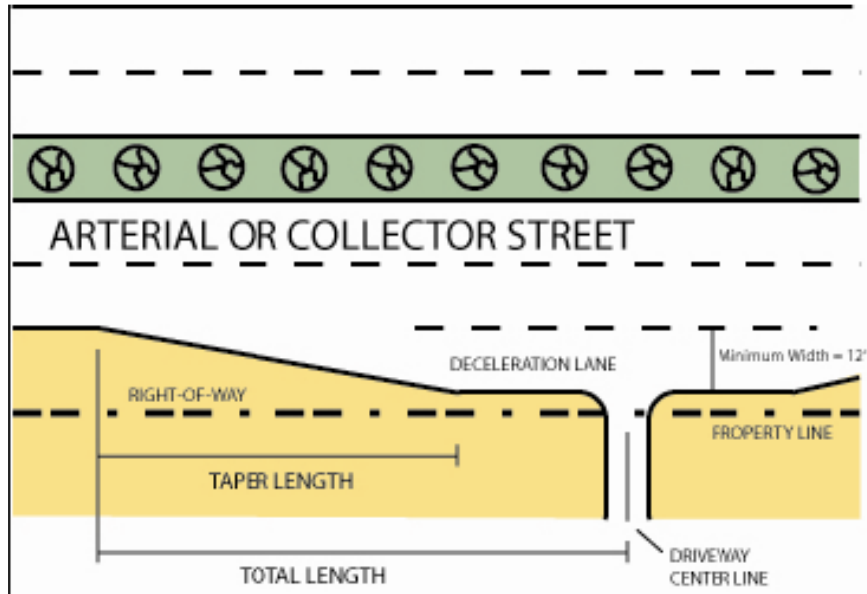


This attractive development encircles a stormwater management pond





**7.16 TRAFFIC IMPROVEMENTS – OFF SITE (DECELERATION OR TURNS LANES, ETC.):**

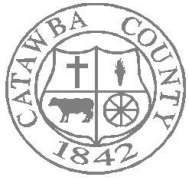


**7.17 WETLANDS:**



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