

# DURHAM DESIGN MANUAL



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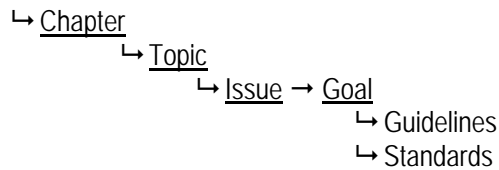
Appendix B: Streetscape Maintenance



## Organization

The main body of the manual is organized into three **chapters** that address particular design challenges for that general development type. The chapters are further broken down into broad **topics** that include specific design **issues**. Each design issue is phrased as a **goal** that the development must meet. Goals are followed by **guidelines**, **standards**, or both. Guidelines are suggested flexible ways to meet the stated goal, while standards are direct, concrete requirements of the goal. Graphic examples are included in some sections of the manual.

The following outline, with a corresponding example to the right, helps illustrate the manual's organization:



3-1	Downtown Design
3-1.1	Site
3-1.1.1	Sustainability (issue)
3-1.1.1a	"minimize land disturbance"
3-1.1.1f	"minimize erosion"

The main body of the manual is followed by a series of appendices that are aimed at supplementing the three design sections. Information contained in the appendices ranges from the technical (as in the glossary and recommended tree species list) to the interpretational (such as the elements of compatibility). Each appendix is intended to provide additional information or resources to help developments meet the stated design goals. As more information or clarification is needed, the appendices can also be expanded and revised as part of this document's evolution.

## USE OF THE DESIGN MANUAL

### Applicability

Since Durham is rich with a wide variety of development types, situations, and circumstances, this manual addresses development differently in its three sections. Each type of development is subject only to the sections and chapters that apply to it specifically.

There are several situations in which this Manual should be used to review projects. Within the Downtown Tier, projects shall be reviewed against *Chapter 1, Downtown Design District*, while projects in other areas, such as the Transitional Use Area (TUA) of the University and College District (UC) zoning, shall be reviewed using *Chapter 3, University-College Transitional Use Areas*.

*Chapter 1, Downtown Design District*, is only applicable for development requesting a modification to Downtown Design (DD) District standards. The reviews of these projects will focus on demonstration of equal or better performance to that which would normally result from the typical ordinance criteria. The standards of this chapter are not a check list, but rather a set of benchmarks that provide guidance for applicants and reviewers to ascertain the concept of better performance.

The standards in *Chapter 2, Downtown Streetscape*, are applicable to all streetscape development and improvements within the Downtown Tier.

*Chapter 3, University-College Transitional Use Areas* contains guidance on various special development situations that do not fit neatly into any single use classification. Development in areas that are specially designated must comply with the provisions of the chapter and is not subject to any other part of this manual. Special designation can occur through reference or by boundaries. A development may be under special designation if an adopted plan or ordinance references adherence to this design manual or by inclusion in a district denoted on the official Zoning Map.

### Design Approval

The mechanism for design approval may vary depending on the development type, zoning, and designation within a special district. For information regarding the application and approval processes in Durham consult the Unified Development Ordinance (UDO) or the City-County Planning Department.

CHAPTER 1: DOWNTOWN DESIGN

INTENT

SITE 1.1

- 1.1.1 Site Sustainability
- 1.1.2 Siting & Orientation
- 1.1.3 Views
- 1.1.4 Circulation
- 1.1.5 Surface Parking
- 1.1.6 Public Space
- 1.1.7 Public Art

ARCHITECTURE 1.2

- 1.2.1 Sustainable Architecture
- 1.2.2 Design Continuity
- 1.2.3 Scale and Materials
- 1.2.4 Facade Design
- 1.2.5 Architectural Features
- 1.2.6 Street Level Activity
- 1.2.7 Parking Structures

### INTENT

The following standards have been developed to aid both the private and public sector property owners, developers, architects, planners, engineers and landscape architects in understanding how to accomplish the goals and visions of the Downtown Master Plan in a comprehensive approach. The purpose of this chapter is to provide a broad framework to discern whether a project provides equal or better design when a variation from the ordinance requirements within the Downtown Design District is requested. These standards, in conjunction with the ordinance, will aid design decisions that shape what Downtown will look like and will offer a variety of opportunities for self-expression and individual responses to the existing resources and the context of Durham. Certain design styles, materials, and construction techniques that have been determined to be incompatible with the aesthetic and development goals for Durham will not be acceptable in future development.

#### *Key Objectives of Downtown Character:*

- *Encourage and facilitate historic preservation*
- *Initiate a comprehensive streetscape program*
- *Encourage compatible and quality design in new building and streetscape recommendations*
- *Design appropriate transitions between the core area and the surrounding neighborhoods.*
- *Utilize image and gateway features to establish a unique downtown identity*
- *Mitigate impacts from incompatible uses*
- *Promote effective business storefront signage, graphics and window displays*
- *Provide additional user-friendly amenities*

*-Downtown Durham Master Plan*

## 1.1.1 Site Sustainability

## SITE 1.1

### Goal

Design sustainable sites that minimize impact to the natural environment, reduce infrastructure costs, and preserve cultural and natural resources by incorporating them as project amenities.

### Standards

- a. Minimize land disturbance.
- b. The size, design, and orientation of buildings should be sensitive to the existing terrain.
- c. Reuse brownfields if economically feasible to repair environmental damage and reduce sprawl. Remediation must follow the EPA's Brownfield Redevelopment Program Requirements.
- d. Incorporate on-site drainage retention, such as bioswales or rain gardens, into the landscaping design for more efficient water use.
- e. Adaptive reuse of historic building stock is strongly encouraged.
- f. Mix at least three uses per block to encourage a variety of activity.
- g. Incorporate environmentally responsible building practices through compliance with *LEED® (Leadership in Energy and Environmental Design)* or the Triangle J Council of Governments' (TJCOG) *High Performance Guidelines*. See *Comprehensive Plan policy 4.2.5a*.
- h. Select sites to promote an even distribution of similar services and facilities, reduce redundant development, and sustain economic viability.
- i. Give preference to native, self-sustaining, low maintenance, drought tolerant, appropriately sized, and pest and disease resistant plant varieties.
- j. Use plant combinations and maintenance strategies that do not require routine chemicals, to reduce water pollution from pesticides, herbicides, and fertilizers.
- k. Use gray water for site irrigation when possible.
- l. Preserve natural areas or features, including mature specimen trees, by clustering development on site, locating structures on previously disturbed land, or employing zero lot-line development where appropriate.
- m. Preserve or incorporate historic structures, including local landmarks, structures in local historic districts, structures listed on the National Register of Historic Places or structures listed in *The Durham Architectural and Historic Inventory*, as part of the overall design concept.



*The adaptive reuse of brick warehouses provides unique residential opportunities in downtown.*

*NOTE: Refer to the Planning Department's Landscape Guidelines for lists of recommended and prohibited plants.*

SITE 1.1

1.1.2 Siting & Orientation

**Goal**

Ensure site and building design respect and take advantage of climatic conditions, existing neighborhood layout, and the orientation of adjacent buildings, streets, and pedestrian paths.

**Standards**

- a. Site buildings to reinforce important pedestrian routes by orienting plazas, building entries, and walks toward major walkways.
- b. Orient the long sides of buildings parallel to the street to reinforce the street pattern (whether curved or rectilinear) and minimize parking lot street frontage. Avoid locating structures where they will cut off important existing pedestrian paths.
- c. Site buildings to provide efficient connections with activity areas, pedestrian links, and public spaces.
- d. Site and building design should consider the impact of solar orientation and shade patterns on adjacent development and public spaces.
- e. Avoid locating service areas along major view corridors, or adjacent to residential or hotel buildings or useable public space.
- f. The recommended location for all utilities, equipment, and service and loading areas is to the rear or least pedestrian side of a building. Group utilities and services in a service court away from pedestrian view. Utilities and services include, but are not limited to, loading areas, parking lots, dumpsters, outdoor storage, utility meters, loudspeakers, HVAC and satellite equipment.
- g. For new development, install all on-site utilities underground where possible.



*A rear service alley provides deliver access and hides utility boxes and meters.*

### 1.1.3 Views

#### Goal

Protect important views to, from, and throughout Downtown through careful building and site arrangement.

#### Standards

- Preserve and accent views of landmarks and other structures that have been locally or nationally designated as historic along major streets. Locate buildings to create view corridors between pedestrian destinations including transit stops, major building entries, and public spaces.
- Arrange buildings on site to enhance or frame important views of buildings or vistas. Maintain important views with appropriate building height, orientation, offsets, step-backs and rooflines.
- Avoid aerial pedestrian bridges where they block important views.
- Articulate the tops of structures over 14 stories tall to add visual interest to the skyline. Avoid plain rectangular tops on buildings of this height or greater.



*Landmark views are important for way finding.*

### 1.1 SITE

### 1.1.4 Circulation

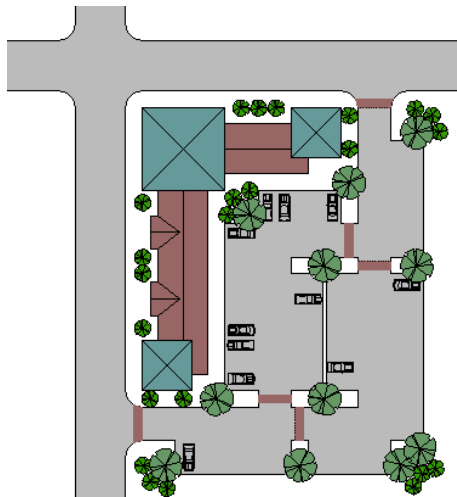
#### Goal

Design access and circulation systems to allow a wide range of efficient movement options and avoid vehicular, bicycle, and pedestrian conflicts.

#### Standards

- Give pedestrians and bicyclists the same importance as motor vehicles, and buffer them from the street where possible.
- On streets with high pedestrian usage, reduce vehicle speed using traffic calming measures.
- Limit the number of vehicular access points and avoid excess curb cuts. Share vehicular access with adjacent developments, and use alleys when feasible.
- Provide safe and convenient pedestrian access to and from buildings, streets, and parking. Connect new development to surrounding development and to nearby trails systems with sidewalks and paths.

SITE 1.1



*Parking remains accessible from the surrounding streets, though placing it behind the building minimizes its visual impact.*



*A large parking lot is broken up visually through the use of landscaped medians.*



*A street front parking lot is screened with decorative metal fencing, brick piers, and landscaping, aligned to match up with the existing street wall.*

1.1.5 Surface Parking

**Goal**

Reduce parking, especially as part of an amenity trade-off. Downtown parking areas should be safe, efficient, and convenient for users, yet visually unobtrusive to maintain the integrity of the urban street front. Design for surface parking should minimize the visual impact of a group of cars, and ensure safety and convenience for pedestrians and motorists alike.

**Standards**

- a. Provide on-street parking along with off-street parking as new developments are built and traffic improvements are implemented.
- b. Separate and/or terminate traffic and parking aisles with concrete or landscaped islands designed to preserve adequate sight and turning distances. Paint striping is not adequate.
- c. Group delivery and loading/unloading zones in service courts, away from pedestrian view.
- d. Share parking areas with adjacent developments that have different hours of operation.
- e. Incorporate transit stop areas, where applicable, as part of the overall site design. These should be located near the main entrance, rather than near the parking.
- f. Locate on-site parking to the rear or side of new development. In full block or through block applications, the preferred location for parking is in the center of the block or towards the least pedestrian oriented street.
- g. Minimize the street frontage of parking lots.
- h. Use curbs, wheel stops, fencing, or other barriers to protect landscaping and pedestrian paths.
- i. Use mitigating elements such as decorative fences, walls, plantings, and topographic features to screen parking lot edges and loading areas as well as to blend into the existing context.
- j. Emphasize parking entries and pedestrian crossings with textured, colored, or patterned paving to soften and break up their visual impact.
- k. Divide large parking areas into smaller areas inter-connected by landscaped aisles and medians that provide protected pedestrian access between buildings and parking.
- l. Provide landscape strips between parallel parking rows, which are wide enough to accommodate lighting, vehicle overhangs, plant material, and pedestrian walkways when appropriate.
- m. Incorporate trees throughout new and existing parking areas, both for their aesthetic qualities and for shade.
- n. If the surface parking is proposed have street frontages wider than 65 feet, a hard-surfaced, pedestrian path at least five feet wide, shall connect internal circulation to the sidewalk.

## 1.1.6 Public Space

## 1.1 SITE

**Goal**

Provide public spaces which are compatible and complimentary to the urban nature of Durham's downtown, and which provide connectivity and enjoyment for all users.

**Standards**

- a. Define public space with the surrounding buildings to create a sense of enclosure without compromising safety and visibility.
- b. Surround public space with active uses that generate pedestrian traffic, and connect the space to major activity centers or corridors.
- c. Design outdoor spaces with consideration to views and the nature of surrounding development.
- d. Site and landscape public spaces to maximize solar orientation, avoid building shadows during daily and seasonal use times, and provide summer shade and winter sun.
- e. Incorporate pavilions that provide protection from inclement weather without being completely enclosed.
- f. Design public spaces to allow for flexible use by groups of varying size.
- g. Incorporate or preserve existing canopy trees in public spaces and common areas.
- h. Avoid locating public space at street corners.
- i. Maintain visual openness along the street and sidewalk edge without completely exposing the site and its users. Avoid dense screening that secludes the interior, and provide multiple entry points into the space.
- j. When substantial grade changes separate a public space from the street level, incorporate elements such as wide, terraced stairs to openly connect the two.
- k. Public space shall be visible and have direct access from adjacent streets and surrounding buildings, and be connected by a pedestrian circulation system.
- l. At least half of the public space shall be at street level, or no more than three feet above or below street level.
- m. A path for pedestrian connectivity that is free of obstructions shall be provided.
- n. Street front plazas as part of a development shall drain internally rather than over the curb. Slope should be gentle and inlets arranged to become integral with the paving pattern.



*A well-defined courtyard feels enclosed and protected while remaining open to users.*



*An urban plaza should have direct access from surrounding streets and buildings and preferably be at street level.*

SITE 1.1

**1.1.7 Public Art**

**Goal**

Promote public art that is a fixed part of the site design and serves as an amenity for an allowed bonus or alternative in the design, such as for additional height.

**Standards**

- a. Public art provided shall be valued at a minimum of 7% of the cost of the bonus or alternative requested.
- b. Public art shall be permanent and include a maintenance agreement.
- c. Weathering effects shall be considered for material and placement. Materials shall be chosen for their quality and endurance.
- d. The scale and character of the art element needs to harmonize with its surroundings.
- e. Public art shall function as a cultural expression, and shall not serve as an advertisement or a sign.
- f. Community input shall be a component on the selection of the artist, design, and placement.
- g. Durham's culture and heritage shall be reflected in choice of artist, material, topic, or design.

## 1.2.1 Sustainable Architecture

## ARCHITECTURE 1.2

### Goal

Incorporate energy conservation, passive solar and shading design strategies, and the use of green building technologies and products into architectural designs.

### Standards

- a. Provide shading for east, west, and south facing glass to reduce heat gain.
- b. Provide landscaping, such as deciduous trees, that will reduce heat gain in the summer.
- c. Use on-site, non-polluting, renewable technologies for self-supply energy at a rate of 5% of projected energy used. Examples include solar, geothermal, wind, and biomass (biogas) systems.
- d. Use materials and assemblies that require minimum embodied energy. Utilize locally or regionally manufactured and available products.
- e. Utilize salvaged, refurbished, and post-consumer content building materials at a rate of 25% of the building and site development materials.
- a. Use rapidly renewable resources at a rate of 2% of the total materials value or certified wood, in accordance with the Forest Stewardship Council or equivalent, at a rate of 10% of the total materials value.
- f. Incorporate day lighting through clerestories, roof monitors, light shelves, or other technologies throughout 75% of the building footprint.
- g. Employ a waste reduction and management plan to redirect construction, demolition, and land clearing debris to be recycled back into the manufacturing process or into other uses. Use separate on-site dumpsters for the separation of construction debris.
- h. Provide cool roofs to reduce cooling loads.

### What is a “cool roof?”

Most roofs in the U.S. are dark colored and absorb a lot of heat, adding to cooling costs and the heat island effect. Cool roofs have high reflectance and emittance, meaning they absorb less heat because they reflect and re-radiate heat more than conventional dark roofs.



*A former garage leads a new life housing the offices and labs of a biotechnology*

ARCHITECTURE 1.2



*A residential adaptive reuse complex unites a variety of brick tobacco warehouses with consistent metal railing and canopy elements.*

1.2.2 Design Continuity

**Goal**

Design architecture according to a clear, well-articulated design concept.

**Standards**

- a. Use consistent materials, details, and elements to produce a continuous architectural expression and maintain design integrity in new building projects with multiple structures.
- b. Create a logical hierarchy of building forms through variations in massing.
- c. Design building elements such as parapet walls or screen walls as an integral part of the architecture, with similar materials and details of the primary structure. Finish minor architectural elements, such as downspouts and soffits, with materials and colors consistent with the overall architectural design.
- d. Exhibit design continuity between project phases. Each phase should attain visual completeness.
- e. Avoid designs which are awkward or incompatible with adjacent historic districts.
- f. Use complementary building styles, heights, massing, materials, details, and/or colors that are sensitive to the architectural character of adjacent historic structures or areas, when appropriate.
- g. Incorporate a level of detail consistent with that of the neighboring area to build on and preserve the existing character.
- h. Window muntins shall be true divided panes or a triple grid, simulated muntin system.

### 1.2.3 Scale and Materials

#### Goals

Design buildings that are appropriately scaled for their function and with respect to their context. Select compatible building materials and finishes that reinforce and build on the existing downtown character.

#### Standards

- a. Relate buildings to the human scale through the use of architectural elements, proportion, materials, and surface articulation.
- b. Relate to surrounding structures by aligning vertical or horizontal lines, by building to a compatible height, and by including compatible facade and fenestration details.
- c. For sites near residential districts outside the tier, create visual congruity through the arrangement of design elements and mass proportions. New construction should be compatible with other structures in the block. Where no structures exist in the block, structures in adjacent blocks and the residential district outside the tier should be used to determine compatibility.
- d. Total height of a building should be compatible with surrounding buildings. Buildings shall not be less than 75% of the average height of the buildings on the same block face.
- e. Select materials based on their compatibility with neighboring buildings and the appropriateness for their intended function. Dissimilar materials may be allowed when incorporating other characteristics (such as form, scale, details, and color) that make the building compatible with the context.
- f. Avoid repetitious changes in material, and multiple color schemes in buildings.
- g. Use low maintenance materials. For example, materials with integral color are preferred over those that require routine painting.
- h. Monolithic and large scale building materials, such as stucco and concrete panels, need special details at the street level to minimize the building's bulk and relate to the pedestrian.
- i. Reuse original building materials or components or use authentic replicas on renovations of historic structures. If neither original nor replica materials can be used then completely different materials and/or colors than the original structure shall be used to accentuate the difference between the old and the new.'
- j. Organize building facades to have a clear base, middle, and top. Accommodate additional building height in the middle section to preserve the pedestrian scale and urban proportions of the building.

## 1.2 ARCHITECTURE



*Street level massing remains low and pedestrian scaled to reduce the visual impact of the taller building component beyond.*



*The articulation of this long facade keeps a potentially monolithic building pedestrian scaled and inviting.*



*A contemporary ballpark uses traditional brick to reinforce the pedestrian scale, provide a low maintenance facade, and maintain continuity with historic tobacco warehouses across the street.*

## ARCHITECTURE 1.2



*Traditional facade details such as cornices, canopies, and recessed storefront entries, are reinterpreted in the design of this modern building.*



*The lower, street level stories are differentiated from the upper stories by materials, finishes, and the level of detail.*

### 1.2.4 Facade Design

#### Goal

Ensure facade design exhibits a unified architectural expression consistent with the design concept and complimentary to Downtown.

#### Standards

- a. Buildings should have highly articulated facades with details and elements that add interest at the pedestrian level.
- b. Incorporate traditional or contemporary interpretations of facade components such as parapet caps, cornices, storefronts, awnings, canopies, transoms, kick plates, and recessed entries into new construction to build on the existing downtown character.
- c. Large parapet walls should reflect the function behind them and should not be freestanding.
- d. Preserve original details from historic buildings by restoration or incorporation in other structures. Original details and ornamentation shall not be obscured from view or removed from the facades of historic buildings.
- e. Locate towers and other distinctive elements where buildings terminate street vistas or occupy prominent corners.
- f. Use entries that provide protection from the elements, with canopies, arcades, recesses, or roof overhangs to reinforce the pedestrian scale.
- g. Incorporate elements that provide a choice of weather protection in the building design. Allow for rain cover and solar access in or along pedestrian areas. Appropriate architectural elements for this purpose include a mixture of recesses, overhangs, awnings, and covered walks.

## 1.2.5 Architectural Features

### Goal

Design window and entry placement to enrich the architecture and neighboring environment and to provide an inviting street level presence. Provide attractive and interesting rooflines as part of a complete community skyline.

### Standards

- a. Locate windows to maximize the opportunity for occupant surveillance of areas such as entries, parking lots, and other public and semi-public spaces.
- b. Emphasize the distinction between the lower pedestrian level of a building and its upper internally focused uses through the proportion of building transparency. Windows at street level should be large, while the upper stories may appear more solid with smaller or less openings.
- c. Preserve the configuration and appearance of existing openings in historic buildings by installing replacement windows and doors of the same size, style and materials as the originals.
- d. Avoid closing original window or door openings in existing historic buildings. Restore previously infilled openings whenever possible.
- e. Avoid monotonous grids of repeated windows. The window pattern should add variety and interest to the architecture.
- f. Emphasize entries with architectural features, changes in the roofline, different massing, or unique materials.
- g. De-emphasize entries into service courts and design them to be minimally visible by pedestrians.
- h. Locate primary entries to new buildings close to or at grade directly opening onto the street. Avoid entries in interior lobbies.
- i. Maintain original building entries in historic structures.
- j. Enhance the character of the roofline through detailed cornice or eave treatments.
- k. Alternative uses for roofs, such as terraces and gardens are strongly encouraged.
- l. Vary the rooflines of large buildings to reduce their apparent scale.
- m. Roof penetrations shall be placed back from the main frontage of the roof and finished to match the roof color.
- n. Drainage from roofs, marquees and other architectural surfaces shall be piped directly into underground or surface retention structures.

## 1.2 ARCHITECTURE



*Large scale windows work well at street level, while the upper story windows are vertically proportioned and broken up to appear smaller and less horizontal.*



*A pedestrian scaled entry along the street stands out thanks to a contrast of materials and details.*



*A variety of roof forms help break up the mass of the building, making it appear as more than one structure. Roof details such as cornices, brackets, and deep overhangs.*

### ARCHITECTURE 1.2



*Ground floor dining spills out onto the sidewalk yet remains connected to the interior by large street level windows. Doorways orientated towards the street and have direct access from the sidewalk.*

### 1.2.6 Street Level Activity

#### Goal

Generate street level activity with pedestrian oriented design on all street fronts.

#### Standards

- a. Locate public or semi-public uses such as retail, entertainment, or dining venues on the ground floors of buildings.
- b. Activate building fronts with large street level openings that draw pedestrian attention.
- c. Expand indoor space into the outdoors, in the form of dining areas and merchandise and gallery displays, along plazas and walkways of sufficient width as to not disturb pedestrian flow.
- d. Open-air walkways between buildings are preferred as they are more visible and friendly than interior hallways, and provide additional store frontages.

## 1.2.7 Parking Structures

## ARCHITECTURE 1.2

### Goal

Ensure that the design of parking structures maintains and contributes to the integrity and safety of the pedestrian streetscape.

### Standard

- a. Use structured parking to conserve land and minimize environmental impacts.
- b. Design parking structure facades with architectural elements of appropriate proportions and materials to harmonize with the streetscape and nearby buildings.
- c. Design entries to be clearly visible and accessible. Building and circulation design shall direct pedestrians towards the pedestrian entrances and minimize the dominance of the vehicular entrance.
- d. Wrap the ground level of parking structures with retail or other activity generating uses, at least on the main street front side.
- e. Minimize the visual monotony of repetitive structural elements at ground level by varying the facade treatments from bay to bay, integrating planter walls, and/or incorporating landscaping along long undifferentiated expanses of wall.
- f. If less than 50% of the street frontage is wrapped with retail-oriented facades, additional landscaping shall be provided in that location to create a separation from the pedestrian use and the function of structured parking.
- g. Parking structure walls facing residential buildings should minimize openings to avoid noise and light impacts.
- h. Top level landscaping, such as trees and shrubs, and pedestrian elements, such as benches and tables, are encouraged.
- i. Parking structures shall include a high level of architectural detail at the pedestrian level. Architectural details may include elements such as trellises, awnings, planters, and landscaping, or street furnishings.
- j. Clearly delineate a distinct base, middle, and top for the parking structures. The upper levels of the building should appear to have less visual weight than those at street level.



*A windowed stair tower prominently occupies the corner of this parking garage, making it easy to both find the entry/exit and be seen inside.*



CHAPTER 2: DOWNTOWN STREETScape

INTENT

ROADWAYS & WALKS 2.1

FURNISHINGS 2.2

- 2.2.1 Incorporating Furnishings
- 2.2.2 Seating
- 2.2.3 Bicycle Racks
- 2.2.4 Trash & Recycling Receptacles
- 2.2.5 Bollards
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LANDSCAPING 2.3

- 2.3.1 Landscape Design
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LIGHTING 2.4

- 2.4.1 Illumination
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- 2.5.1 Transit Stops
- 2.5.2 Public Art
- 2.5.3 Fountains

WAYFINDING 2.6

### INTENT

Good design is a fundamental element in the success of any environment. The purpose of this design manual is to ensure quality development through the use of flexible, clear, and objective design guidance.

The Durham Design Manual aims to cultivate downtown streetscapes which are attractive, visually interesting, aesthetically vibrant, and diverse. . The standards within Chapter 2: Downtown Streetscapes apply to all projects within the Downtown Tier, and promote visual harmony in the public realm through a variety of creative design solutions and alternatives. The ambition of these standards is to create a hierarchy of transportation which includes the pedestrian as well as motorized and non-motorized vehicular elements

## 2.1 Roadways &amp; Walks

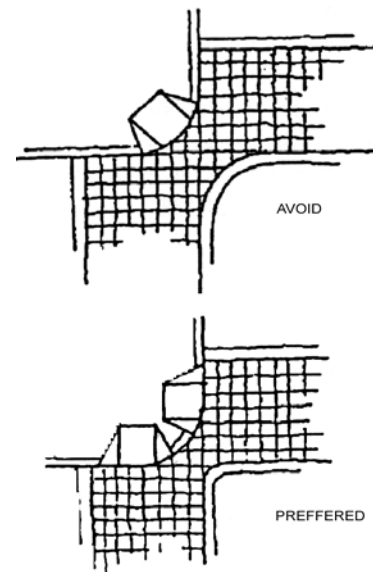
## ROADWAYS &amp; WALKS 2.1

**Goal**

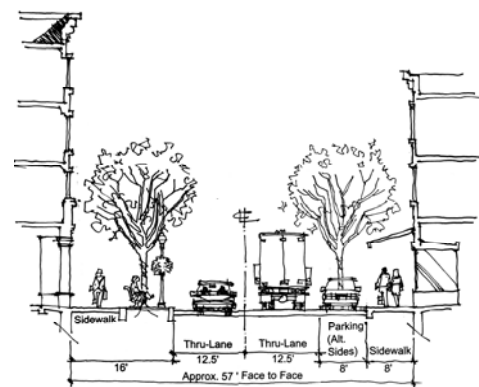
Apply pedestrian paving along the streets to define functional zones or areas and to distinguish between public sidewalks and private areas. Incorporate safe and convenient bicycle circulation as an integral part of the Downtown streetscapes.

**Standards**

- a. The paving of streetscape intersections should reflect the intensity of vehicular traffic.
- b. On-street parking lanes shall be demarcated, and occasionally broken up by bulb-outs for plantings and mid-block crossings subject to City of Durham Public Works review and approval, and/or NCDOT approval where applicable.
- c. Crosswalk pavement shall contrast with adjacent street pavement, be highlighted along the corridor, and be consistent throughout Downtown.
- d. Crosswalks shall be a minimum of 10 feet wide with textured borders on each side of a patterned concrete or asphalt infill. Borders on the intersection side of the crosswalk shall be one foot wide and borders on the street side of the crosswalk shall be two feet wide.
- e. Surface finishes shall be slip-resistant in all conditions.
- f. Extruded asphalt or concrete ribbon curbing is not allowed.
- g. Walkways should connect to adjacent properties and nearby trails to promote pedestrian connectivity.
- h. Use a change of materials to add visual interest along large or long walkway areas.
- i. Use brick pavers at the focal points of streetscapes and sidewalks to indicate The Downtown District (also see Issue 2.6, Wayfinding, of this Chapter). The standard Downtown sidewalk shall be natural concrete with red brick pavers installed along the street side of the walk in a stacked bond course. Asphalt may be used in off-street applications, such as trails.
- j. Sidewalks through open spaces or parks shall have a minimum width of eight feet to accommodate cyclists. Sidewalks less than eight feet wide should not allow bicycle traffic.
- k. At a minimum, an 11-14 foot wide exterior traffic lane should allow for cyclists and automobiles where possible. An 11-foot lane is only acceptable where speeds are 35 mph or less.
- l. Storm sewer grating shall be flush with the street surface and perpendicular to the curb.
- m. Use curbs to separate vehicular and pedestrian spaces, as well as to channel surface water to drainage structures.



*Accessible curb cuts.*



*Typical Downtown street cross section.*

## 2.2 FURNISHINGS

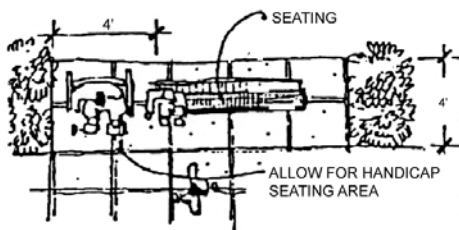
### 2.2.1 Incorporating Furnishings

#### Goal

Incorporate site furnishings throughout the Downtown since they play an important role in the overall visual quality and identity of the streetscape.

#### Standards

- a. Site furnishings should be universally accessible.
- b. Avoid sidewalk clutter, such as freestanding newspaper racks, in the clear zone.
- c. Furnishings should be compatible with the characteristics of the Downtown and the other site elements of the corridor.
- d. Furnishings shall be durable and of high quality and should require as little maintenance as possible.
- e. Recommended materials include aluminum, stainless steel, and cast iron, finished with polyester based paint.
- f. Combine streetscape furnishings to create pleasant, comfortable places to stop out of the path of pedestrian traffic. Locate furnishings in areas that take advantage of significant levels of activity to allow for natural surveillance of the area.
- g. Concentrate special elements at entrance nodes, neighborhood gateways, intersections, and within linear parks and open space opportunities within the Downtown.
- h. Streetscape furnishings and street trees along streets with parallel parking should be located to accommodate the overhang of vehicles in the process of parking and the door swing of the vehicle stopped at the curb. Place furnishings and trees 18 to 24 inches from the curb,
- i. Artist designed practical elements, such as bicycle racks or groundscape motifs, are encouraged. Also see Issue 2.5.2, Public Art, of this chapter, for additional public art standards.



*Include universally accessible seating areas.*



*Combine streetscape furnishings to create comfortable spaces out of the flow of pedestrian traffic.*

## 2.2.2 Seating

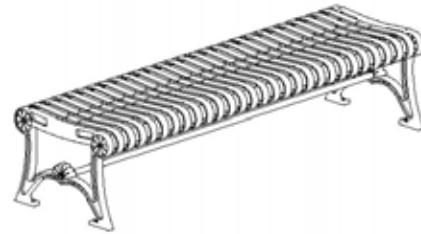
### Goal

Integrate convenient seating into the streetscape design throughout Downtown to provide places to sit, people watch, admire the surroundings, rest, and wait for buses.

### Standards

- Provide a variety of seating along the streetscape corridors and in pocket parks and plazas. Concentrate seating at pedestrian congregation points and transit stops for maximum use and security.
- Use heavy cast aluminum and cast iron as seating materials. Finishes of a durable polyester polymer based coating in black semi-gloss finish are required to ensure longevity and minimize deterioration.
- Throughout Downtown use the DuMor Bench 92 or DuMor Bench 58 with center armrest or equal in black finish.
- Seating in parks and plazas should incorporate a tabletop and be universally accessible. Use the Keystone Ridge Saxony Square Pedestal Table and Seats with Back SY6-2SQ or equal in black finish.

## FURNISHINGS 2.2



*DuMor Bench 92*



*DuMor Bench 58*



*Keystone Ridge Saxony Table Set*

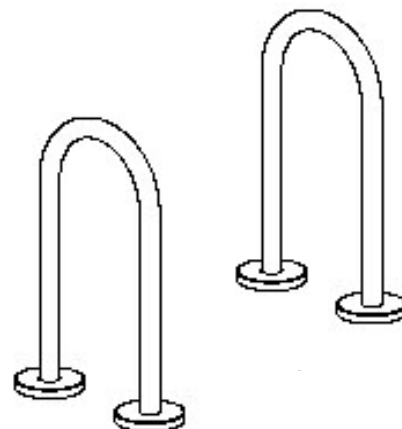
## 2.2.3 Bicycle Racks

### Goal

Provide bicycle racks in applicable areas throughout Downtown to allow cyclists to lock their bikes and participate in the area's activities

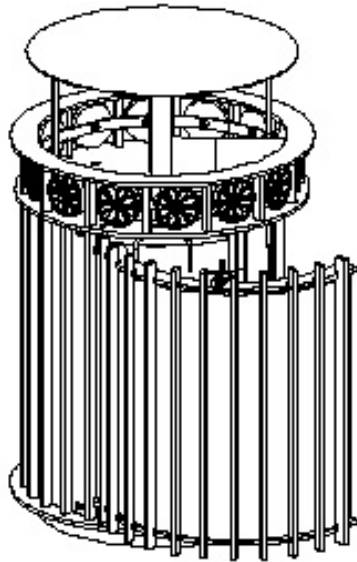
### Standards

- Simplicity in bicycle rack design is encouraged. Racks should have minimal visual impact unless they are designed as functional art objects. Unique and creative bicycle racks are encouraged in areas of special interest.
- Bicycle racks may be integrated with light standards or with other site elements to reduce their occurrence and visual impact.
- Recommended materials for bicycle racks include heavy gauge welded steel and aluminum. All parts shall be finished with a black semi-gloss polyester powder coat finish. Suggested bicycle racks are those of a u-shaped tubular design such as DuMor 83 or equal.
- Locate bike racks in destination areas and areas of high activity to discourage thefts and to provide opportunities for their surveillance.



*DuMor Bike Rack 83*

2.2 FURNISHINGS



32-gallon DuMor Receptacle 102

2.2.4 Trash & Recycling Receptacles

**Goal**

Select receptacles to be complementary to other streetscape furnishings, and be simple in design to minimize their visual impact on the streetscape.

**Standards**

- a. Receptacles for trash and recyclables should be conveniently located along the streetscape and in all pedestrian gathering spaces, yet be visually unobtrusive.
- b. Priority locations for recycling containers include near restaurants, in parks, at bus stops, in areas of concentrated commercial activity, and along major pedestrian routes.
- c. Use the 32-gallon DuMor Receptacle 102 with bonnet or equal throughout Downtown. These receptacles may be fitted for trash only or trash and recycling use.
- d. Receptacles shall have regular and frequent pickup. Depending on the pickup schedule, receptacles may have to be waterproofed against rain.
- e. Lids should be used as a means to control unpleasant odors in the heat and as a deterrent for animals and for rain protection.

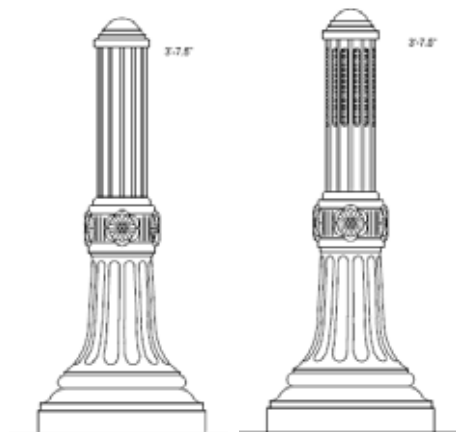
2.2.5 Bollards

**Goal**

Design bollards to be both functional and aesthetically pleasing, with their main purpose being to discourage vehicular intrusion into a pedestrian area.

**Standards**

- a. Use the North Yorkshire dome-topped cast aluminum bollard by Holophane in black finish (unlighted model BOL/NY44/17/DT-CA/BK; lighted model BOL/NY44/17/DT/L-CA/BK). Other types of bollards are acceptable for temporary applications only.
- b. Bollards shall be 30-45" in height and be anchored to the ground. Removable bollards to allow vehicular access are allowed provided that they are sleeved and have a locking mechanism.
- c. Location of bollard shall consider emergency access. Removable bollards should be considered for these applications or where accesses are closed off for special events.



Unlighted (left) and lighted (right) North Yorkshire bollards by Holophane

**2.2.6 Planters & Flower Pots**

## FURNISHINGS 2.2

**Goal**

Incorporate planters and flower pots to visually enhance a space and provide areas for landscape relief, as well as to reduce or the architecture.

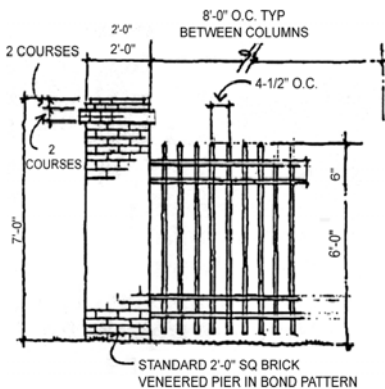
**Standards**

- a. A variety of plant material is encouraged for use in planters: annuals, perennials, herbs, shrubs of appropriate size, or any combination are acceptable options. Provide planters with irrigation and drainage.
- b. When planters are incorporated into architectural design, their drainage shall be tied into the structure's roof drains. In this enclosed bottom application, the use of a lightweight soil-free growing medium combined with soil filters and lightweight drainage layers will be necessary.
- c. All planters shall be waterproofed, and have a porous material over the drain hole to prevent the soil from leaking out.
- d. Use the round Galveston planter by Dura Art Stone with a heavy sandblast terra cotta finish (in various sizes).

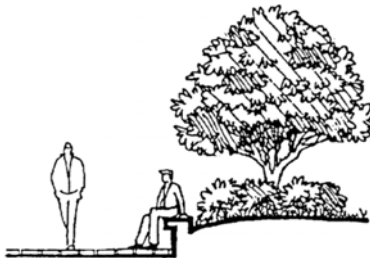


*Round Galveston Planter by Dura Art Stone*

2.2 FURNISHINGS



*Tubular steel fence panel with pickets combined with brick columns.*



*Well-proportioned low seating walls are encouraged, especially when combined with plant material and berms.*



*Brick piers mark the opening in the decorative metal fence and relate it to the surrounding architecture. Landscaping on the street side of the fence adds variety and color.*

2.2.7 Fences & Walls

**Goal**

Employ fences and walls to separate uses, define entrances, create overlooks, facilitate views, screen unsightly views, and provide safety and security in the Downtown. Use walls and columns to provide physical barriers and act as seating.

**Standards**

- a. Design walls, fences, enclosures, and similar site elements to be compatible with the architecture of the main building and the overall character of Downtown.
- b. Materials and detailing shall provide maximum durability.
- c. Fencing with opacity of 65 percent or greater shall be limited in height to 42 inches when located on the street side of buildings or along public sidewalks or easements, unless they are screening ground level utilities.
- d. Decorative metal fencing (traditional picket style) is preferred in areas where transparency is desired and security is necessary. Tubular steel and aluminum are both acceptable materials.
- e. Powder coated paint in black semi-gloss finish shall be used on all types of metal fencing.
- f. Introduce columns along the streetscape to identify entries and intersection corners, break up long segments of fencing, and act as backdrops for signage.
- g. Screening walls should not be obtrusive. Height and proximity of the wall to the used area should not be imposing. Columns may be of a larger scale since they act as a focal point in most instances. Columns used in conjunction with fencing should be scaled to correspond to each other.
- h. Locate plant material intermittently along long wall or fence expanses to soften their appearance and visual impact and provide visual relief.

**2.2.8 Traffic Signals**

## FURNISHINGS 2.2

**Goal**

Replace traffic signals on overhead wiring with mast arms that extend out over the traffic lanes to improve the visual quality of the Downtown streetscapes.

**Standards**

- a. Mast arms should incorporate as many nearby streetscape elements as possible, including lighting, signage, and other street amenities in accordance with City standards.
- b. Mast arms shall be in scale with the streetscape and readily visible, but not dominating.
- c. Mast arms shall consist of a smooth signal arm mounted on a 16-fluted pole with the Huntington base by Valmont or equal. The Memphis teardrop luminaire on the Atlanta cross-arm, both by Holophane or equal, shall be used atop the mast arm's pole. The mast arm specification, including pole and luminaire height and arm length, should be confirmed through the City of Durham's Transportation Department.

## 2.3 LANDSCAPING

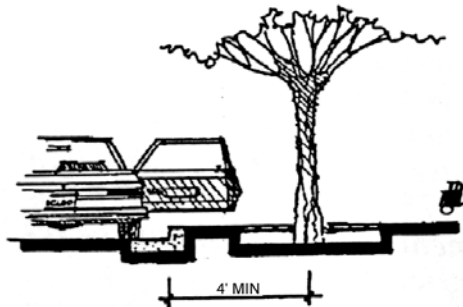
### 2.3.1 Landscape Design

#### Goal

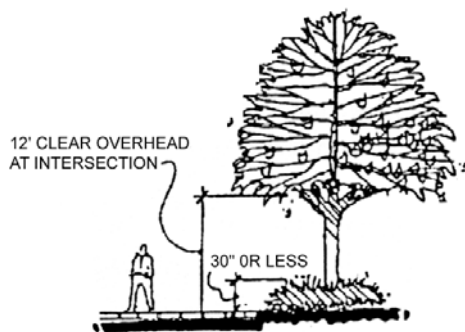
Design landscaping to contribute to the livability of the environment, modify the climate for the user, screen, enclose, or emphasize views, help to direct user circulation, and when sensitively located, help to avoid security problems.

#### Standards

- a. Planting should be used in conjunction with physical screening to soften service and parking areas visible from the streetscape.
- b. Plant materials should provide shade in the summer and create sun pockets in the winter. Tree placement should be planned with daily and yearly sun patterns in mind and adjacent building facade locations.
- c. On streets with continuous block faces, trees should be planted in front of party wall joints.
- d. Avoid planting a single dominant species.
- e. Streetscape plantings should be diverse in terms of placement, yet simple in terms of palette.
- f. Plantings along streets with parallel parking should consider the door swing of a vehicle stopped at the curb. Plant material shall not interfere with easy door opening.
- g. Plantings may be concentrated at intersections, so long as sight distance triangles are clear.
- h. Canopy species shall be selected to provide continuity for podium height.
- i. Planting areas shall drain within themselves, not onto paved pedestrian surfaces. Underground drainage piping from planters and yard inlets should tie into storm sewer lines.
- j. Incorporate Crime Prevention Through Environmental Design (CPTED) principles in landscape design.



*Plantings along roadways should consider the door swing of a vehicle stopped at the curb.*



*Maintain visibility through plantings to ensure pedestrian and vehicular safety.*

### 2.3.2 Composition & Materials

## LANDSCAPING 2.3

#### Goal

Select and arrange plant material and other landscaping elements to add variety and visual interest while maintaining a unified streetscape image. Promote the installation of streetscape plantings of the highest caliber to ensure a healthy and attractive urban landscape.

#### Standards

- a. In any plant composition, there should be a predominance of material, color, or texture to provide unity.
- b. Accent material, used in mass or singularly, should be introduced to play against the dominant material and create contrast.
- c. Flowering trees are encouraged in areas of special focus. Since most flowering trees are also deciduous to varying degrees, they should not be used for screening or where maintenance is a problem.
- d. Avoid the use of plants that routinely release juicy berries; give preference to plants with persistent fruits.
- e. Below eye level, shrubs and ground covers are encouraged, as they contribute to the variety and interest of the landscape through contrasting variations in form, texture, and seasonal color displays.
- f. Ground cover plants are encouraged to provide a visual richness, especially when viewed up close.
- g. Species should be selected which are heat and drought tolerant, adapted to zone 8 conditions, and have form and growth characteristics which allow them to contribute to the landscape with minimal maintenance.
- h. All plant material shall meet or exceed standards set by the American Association of Nurserymen, Inc., in the Durham Landscape Guidelines and in Article 9 of the Unified Development Ordinance.

2.3 LANDSCAPING

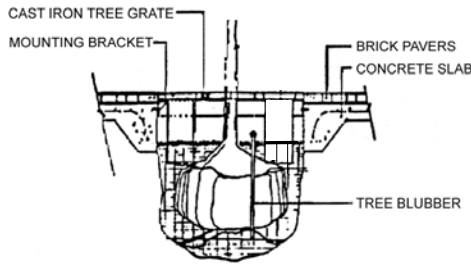
2.3.3 Plant Installation

Goal

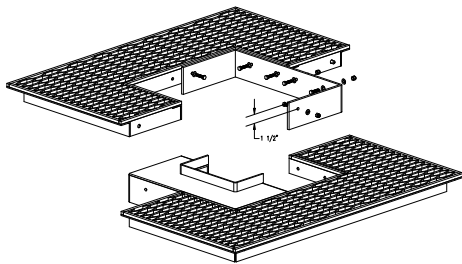
Ensure a long lived of urban tree canopy through the installation of appropriate planting systems, which protect the root structure of the tree, especially in paved areas with heavy pedestrian traffic.

Standards

- a. Trees and other landscaping should be concentrated to create focal points as well as given priority locations in front of or near residential units.
- b. Street trees and other canopy trees in the downtown landscape require special consideration to ensure adequate rooting. A minimum rooting area of 1,000 cubic feet is recommended. Root pathways, sylvacells and structural soils should be used to provide compatibility with root growth while maintaining pavement integrity.
- c. Porous pavement such as paver systems on sand are encouraged, especially in tight areas around canopy trees.
- d. Pavement suspension systems are highly recommended for tree plantings. Suspension systems consist of a below grade metal tree grate (with an expandable opening) which supports modular or otherwise porous paving at the sidewalk level. The Paver-Grate™ Suspension System, or equal is recommended.
- e. Use tree grates with openings small enough to be walkable (no greater that 1/2" in any direction). Grates shall be removable to eliminate trash that accumulates underneath.
- f. Avoid the combination of container grown and balled and burlapped plants in the same planting area, as the container grown plants will out compete the others.
- g. Avoid placing light fixtures and other utilities within close proximity to street trees.



*Metal tree grate installation.*



*Paver-Grate™ Suspension System.*

## 2.4.1 Illumination

## LIGHTING 2.4

### Goal

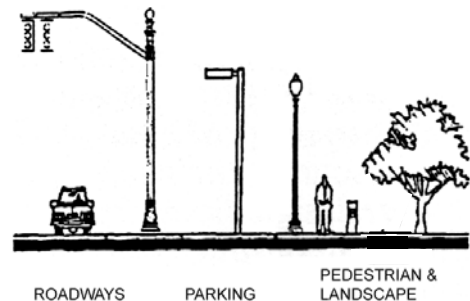
Use streetscape lighting to provide appropriate light for vehicular and pedestrian safety throughout the Downtown.

### Standards

- a. Lighting should provide a sense of security for pedestrians walking along the streetscapes at night.
- b. Lighting sources along the sidewalks and roadways should be bright and numerous enough to avoid the creation of dark spaces which could be perceived as threatening.
- c. Lighting should be hierarchical. Fixtures should vary in type and intensity based on the corridor and its primary function.
- d. Control light to avoid glare and minimize unwanted light trespass onto adjacent properties.
- e. Consider the proper relation between the scale of a fixture and the function of the corridor. In general, primary vehicular areas will have higher mounting heights than pedestrian areas, in accordance with the City of Durham, Duke Energy, and NCDOT regulations.
- f. The use of timer-activated photocells is required for all lighting to reduce the cost of operation.
- g. Pedestrian lights shall be spaced appropriately to provide adequate lighting along street level walkways. Pedestrian lighting may be required on one, both, or alternating sides of the street.
- h. Lock box outlet receptacles shall be included at the base of poles for holiday lighting if in accordance with City of Durham policy.
- i. Lighting may not be permanently or temporarily attached to, wrapped around, or aimed up at trees. These lighting techniques interrupt the natural photoperiod of trees and can cause girdling.
- j. Acceptable accent lighting options, in lieu of tree lighting, include architectural lighting which highlights features without uplighting structures, heavy duty light strands which outline structures, special lighting at fountains and public artworks, bollard lights at seating areas and bicycle racks, and low-voltage decorative landscape lighting whose only underground component is wiring and does not aim light upward.



*Streetscape lighting should provide for pedestrian safety and aesthetics.*



*The light fixture should be proportioned to correspond to the scale of the function it serves.*

2.4 LIGHTING

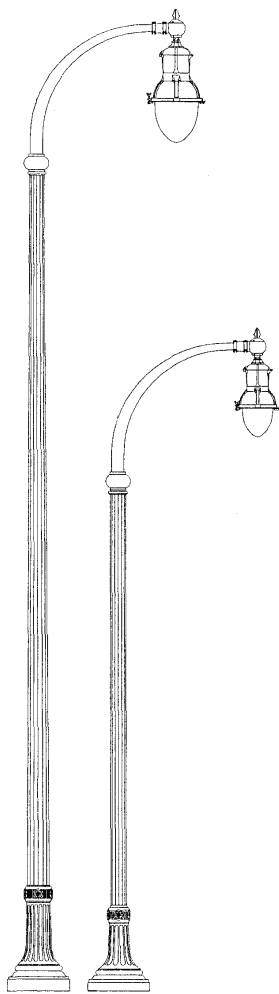
2.4.2 Light Fixture Selection

**Goal**

Elevate the aesthetic quality of streets through the selection of appropriate light fixtures.

**Standards**

- a. Fixture size should be in proportion to the height of its pole to avoid awkward proportions.
- b. Light fixtures and poles should be timeless in style, reflecting a sense of permanence.
- c. Fixtures should be both economical and durable, of heavy weather quality, and U.L. rated for wet locations.
- d. Metal halide is recommended in people spaces because it illuminates with very true colors.
- e. Mercury vapor, incandescent, L.E.D, and halogen are acceptable light sources, and should be used primarily in low voltage situations where efficiency is not critical, or to accent landscape material because of its ability to emphasize green foliage.
- f. During daylight hours, lighting fixtures should blend into the landscape and coordinate with other site furnishings.
- g. Coordinate site lighting elements for uniformity within a development. Such elements may include light poles, bases, lamps, bollards, and building mounted fixtures.
- h. Design lighting within parking structures to avoid off-site views of long lines of exposed fluorescent tubes.
- i. Light fixtures shall consist of the Memphis teardrop luminaire on the Atlanta cross-arm, mounted on the North Yorkshire pole all by Holophane or equal. Refer to the City of Durham's Street Light Administrator for the specifications, including mounting heights.
- j. Light fixtures and poles outside the right of way shall be consistent with Issue 2.5.1, Illumination, of this chapter. Although aluminum, cast iron, and concrete are appropriate material choices, cast aluminum is recommended for its low maintenance, long life, and pleasing aesthetics. Cast aluminum fixture fittings shall be stainless steel.
- k. The lighting source and output choice is dependent on the City of Durham, Duke Energy, and NCDOT.
- l. All poles and fixtures, including existing highway and thematic poles, shall have a uniform black semi-gloss finish.
- m. All fixtures shall be fully shielded to direct light downward. Uplighting is not allowed.



*Light fixture configurations for downtown. For mounting heights and specifications refer to the City of Durham's Street Light Administrator.*

## 2.5.1 Transit Stops

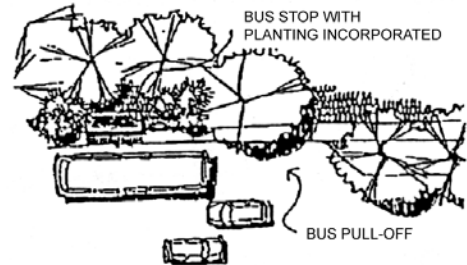
## SPECIAL FEATURES 2.5

### Goal

Incorporate transit stops as integral and attractive streetscape elements.

### Standards

- Locate transit stops near activity zones, especially near the commercial and institutional uses.
- Locate transit stops near major building entries and provide convenient pedestrian access between transit stops and building entries as part of the overall pedestrian circulation network.
- Transit stops shall be consistent in design throughout Downtown, be compatible with the overall streetscape, and have a standard theme to promote instant recognition.
- Transit stop facilities shall include, at a minimum: shelter from the rain and sun, seating, lighting and good visibility for easy surveillance.
- Site transit stop shelters to minimize interference with pedestrian flow along the street.



*Incorporate bus stops into the overall streetscape design.*

## 2.5.2 Public Art

### Goal

Encourage the inclusion of public art in the streetscape, such as plazas, parks, major intersections or courtyards.

### Standards

- Areas targeted for public art placement as recommended by the Master Plan include intersections, especially at Five Points, public/private "pocket" parks and plazas and other focal points.
- The need for durability is of prime importance. Materials that weather gracefully are the only ones that should be considered.
- Public art in the streetscape should be visible from the street and promote pedestrian interest.
- Artist designed practical elements, such as benches, bollards, or other streetscape furnishings, are encouraged.
- Public art in the streetscape should also fulfill the Standards d-g, found in Issue 1.1.7, Public Art, of this Manual.

## 2.5 SPECIAL FEATURES

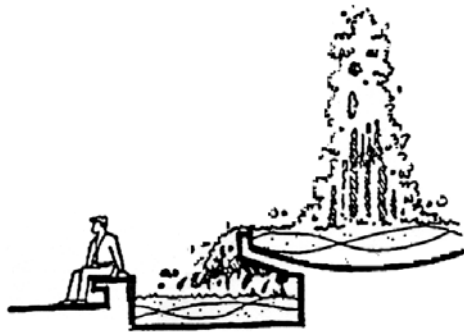
### 2.5.3 Fountains

#### Goal

Use pools and fountains to mask noise, direct attention, cool small areas, create focal points, add valuable accents to the setting, provide a sense of refreshment and relaxation, and create other positive images.

#### Standards

- a. Fountain design should consider, among other characteristics, the size of effect versus the size of the space, and the distance of the viewer to the water. Design should remain visually appealing when the fountain is not functioning.
- b. Fountains should be designed to convert into landscape planters or another use when not in permanent use.
- c. Fountain mechanical equipment shall be remote and completely unobtrusive. Durable, solid materials shall be used for housing mechanical equipment.
- d. Display fountains used as focal points shall be placed to avoid interference with circulation.
- e. Reclaimed water shall be used.



*Fountains can direct attention to and create a positive image for an area.*

2.6 Wayfinding

WAYFINDING 2.6

**Goal**

Use signage and graphics to functionally communicate information while aesthetically tying into surrounding site elements as well as the whole of the Downtown.

**Standards**

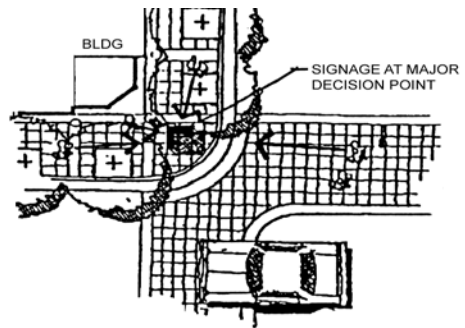
- a. The same palette of colors should be used for all the sign faces and standards throughout the streetscapes.
- b. Lettering should generally appear in the same place on all signs, to communicate a consistent graphic system.
- c. Symbols, logos, and graphic devices such as arrows should also be consistent among all the signage types.
- d. Use one basic typeface and boldness for sign lettering.
- e. Use horizontal lettering because it is more easily readable than vertical type.
- f. Sign backgrounds and images shall have enough contrast to be readable. Framing and bases shall be black to match light posts.
- g. Major informational and directional signs shall be lit at night, or at least be reflective.
- h. Written messages on streetscape signage shall be brief and concise, using as few words as possible.
- i. To increase readability, use as many graphic symbols as possible in place of words.
- j. Place signage in locations that maximizes its visibility to the intended users while remaining an unobtrusive integral streetscape element.
- k. Signage should be consistently sited throughout the Downtown streets.
- l. Integrate streetscape signage with the surrounding site elements when possible. Combine more than one sign at a location into one assembly of signage.
- m. Site signs to ensure readability by providing a clear line of vision and approach from all angles.
- n. Locate signage at critical decision points or major user decision points. Position signs to not obscure views of traffic for pedestrians and motorists at key access points.

**Downtown Signage Colors by District**

DOWNTOWN DISTRICT	PANTONE® COLOR
City Center	PMS 272C
Government Services	PMS 625C
Central Park	PMS 173C
Bull Durham	PMS 131C
Brightleaf	PMS 2718C
Warehouse	PMS 689C



*The type and style of graphics should be oriented to the type of viewer and use.*





INTENT

SITE 3.1

3.1.1 Siting & Orientation

3.1.2 Parking Lot Design

ARCHITECTURE 3.2

3.2.1 Architectural Integrity

3.2.2 Context & Character

3.2.3 Massing & Scale

3.2.4 Building Materials & Colors

3.2.5 Facade Design

3.2.6 Fenestration

3.2.7 Building Entrances

3.2.8 Roofs & Rooflines

3.2.9 Accessory Structures

3.2.10 Utilities & Service Areas

STREETSCAPE 3.3

3.3.1 Landscape Design

3.3.2 Landscape Materials

3.3.3 Landscape Installation

3.3.4 Sustainable Streetscapes

3.3.5 Retaining Walls & Fences

3.3.6 Streetscape Furnishings

3.3.7 Sidewalks and Paths

3.3.8 Streetscape Accessibility

3.3.9 Bicycle Facilities

3.3.10 Transit Stops

3.3.11 Streetscape Lighting



**University-College Zoning District****INTENT**

The University-College (UC) Zoning District established by Durham's development regulations is intended to allow college and university campuses to expand while protecting the character of the surrounding neighborhoods. The UC District is divided into two parts, the Internal Campus and the Transitional Use Area (TUA), which have different effects on nearby non-UC properties.

In order to reflect this differing level of impact, the Internal Campus development standards are more general and flexible, while the TUA standards are more specific and detailed.

TUAs are designed to establish standards at edges of campus areas to minimize any adverse impacts of proposed development on adjacent non-university properties. These standards are applicable to a 150-foot wide area at the boundaries of the UC District.

The guidelines and standards contained in this chapter are intended to supplement the district requirements for the TUAs, providing even more detailed direction on issues such as compatible architecture and streetscape continuity. The Internal Campus is not subject to any additional design regulation.

### INTENT

#### Neighborhood Compatibility vs. Campus Consistency

While the goal of TUA development should be to respect and achieve compatibility with the adjacent existing area, there should also be an emphasis on maintaining the unique identity of the college or university. Development in TUAs should balance compatibility with the non-UC neighbors with campus consistency.

New TUA development should first be designed as a part of the campus, and secondly as a part of the surrounding neighborhood. Design priority should be placed on achieving continuity with the internal campus, with neighborhood compatibility being a secondary requirement.

Designs in contrast to the neighboring non-UC context may be allowed if distinguishing trademark features or details common to the campus are incorporated and compatibility with the neighbors is achieved by alternate means.

Streetscapes in the TUAs should be consistent with the unique look and standards of each campus. This consistency applies not only to individual institutions, but also to any distinct campuses they may contain.

### 3.1.1 Siting & Orientation

### SITE 3.1

#### Goal:

Ensure site and building design respect existing neighborhood layout, and the orientation of adjacent buildings, streets, and pedestrian paths.

#### Guidelines:

- a. Site buildings to reinforce important pedestrian routes by orienting plazas, building entries, and walks toward major walkways. Avoid locating structures where they will cut off important existing pedestrian paths.
- b. Avoid closed courtyards and small secluded green spaces. Provide street visibility in and out of small or secluded open public spaces.

#### Standards:

- c. Orient buildings to reinforce the street pattern, whether curved or rectilinear.
- d. Site buildings to maintain appropriate street wall proportions. Maintain a height to width ratio between opposing buildings that is consistent with the rest of the street.
- e. Site structures with their front facades aligned to the established building line.
- f. At intersections, site buildings directly on the corner. Parking, loading, and service areas may not be located at corners.
- g. Locate service areas and unsightly and noisy elements at the rear of buildings, away from the street, and screen them with landscaping or architectural elements. These elements should not be visible from the adjacent non-UC properties. Unsightly and noisy elements include, but are not limited to, loading areas, parking lots, dumpsters, outdoor storage, utility meters, loudspeakers, guard dogs, HVAC and satellite equipment. See also 3.2.10.
- h. Site dormitories and fraternity and sorority houses to minimize noise impacts on the surrounding neighborhood. These facilities shall not be located adjacent to existing non-UC single-family residential structures.



*Structures should align to an established building line.*

### 3.1 SITE

#### 3.1.2 Parking Lot Design

**Goal:**

Promote contextually appropriate parking lot design to minimize glare and the visual impact of a group of cars, and ensure safety and convenience for pedestrians and motorists alike.

**Guidelines:**

- a. Use mitigating elements such as decorative fences, walls, plantings, and topographic features to screen parking lot edges and loading areas, as well as to blend these features into the existing neighborhood fabric. Such elements should align with the street wall or sidewalk.
- b. Divide large parking areas into smaller areas inter-connected by landscaped aisles and medians that provide protected pedestrian access between buildings and parking.
- c. Landscape strips are encouraged between parallel parking rows, and should be wide enough to accommodate lighting, vehicle overhangs, plant material, and pedestrian walkways when appropriate.



*A large parking lot is broken up visually through the use of landscaped medians.*

**Standards:**

- d. Minimize the number of curb cuts onto neighborhood streets by sharing access drives and interconnecting parking areas.
- e. Where applicable, maintain the existing street wall at parking areas through the use of fences, walls, tree rows, hedges, or any combination.
- f. Use curbs, wheel stops, fencing, or other barriers to protect landscaping and pedestrian paths.
- g. Locate lockable bicycle parking close to building entries in safe, convenient, and visible yet unobtrusive locations. Install curb ramps near racks for easy access.

### 3.2.1 Architectural Integrity

## ARCHITECTURE 3.2

#### Goal:

Design architecture according to a clear, well-articulated design concept.

#### Guidelines:

- Design building elements such as parapet walls or screen walls as an integral part of the architecture, with similar materials and details of the primary structure.
- Details of all architectural elements visible to the public (e.g., soffits, downspouts) should be finished in a manner consistent with the building's overall design.
- Building design should incorporate elements that provide a choice of weather protection, allowing for rain cover and solar access in pedestrian areas. Appropriate architectural elements for this purpose include a mixture of recesses, overhangs, awnings, and covered walks.
- Design multiple buildings on the same street to create a cohesive appearance.
- Avoid historic replication or misrepresentation, considering basic elements such as scale, massing, and materials instead.



*A new entry canopy provides weather protection while clearly differentiating itself as a modern addition to the old brick structure.*

### 3.2.2 Context & Character

#### Goal:

Ensure architectural designs are compatible with the character of the surrounding non-UC area and complement the existing campus buildings, landscape, and streetscape.

#### Guidelines:

- Building designs should be consistent with the dominant architectural character of the campus, but may use complementary building styles, heights, massing, forms, materials, details, and colors, which are sensitive to and compatible with the surrounding non-UC area.
- To build on and preserve the existing character of an area, architectural designs should incorporate the same level of detail that pervades the neighboring area.
- Development adjacent to historic districts should avoid incompatible design solutions.
- Buildings may be designed to contrast with the predominant neighborhood character or architectural style if they incorporate other characteristics of the surrounding architecture, such as massing, rhythm, details or fenestration patterns.



*A new lecture hall (left) is designed to blend with the existing architectural character of the campus.*

### 3.2 ARCHITECTURE

#### 3.2.3 Massing & Scale

**Goal:**

Design buildings that are appropriately scaled for their function and with respect to their context.

**Guidelines:**

- a. Building height should generally relate to and align with neighboring structures.
- b. Incorporate the vertical and horizontal lines of adjacent buildings, where appropriate.
- c. Tall buildings are most appropriate where they may provide visual interest, frame view corridors, or relate to larger scaled structures. If the surrounding non-UC area is low-rise, a transition to taller internal campus buildings is required in the TUA.
- d. Where building massing varies from the surroundings, compatibility may be achieved through fenestration and bay patterns and street level details.
- e. Design buildings with an architectural and urban scale compatible with the neighboring area.
- f. Buildings should relate to the human scale through the use of architectural elements, proportion, materials, and surface articulation.



*An unassuming office building---on the edge of campus---is designed with a scale and massing typical of residential architecture.*

**Standards:**

- g. Maintain consistent massing and perceived building height at the street level, regardless of the overall bulk or height of the building.
- h. Avoid large unarticulated monolithic buildings. Break down the apparent scale of buildings with facades exceeding 50 feet in length by the articulation of separate volumes into a coherent, hierarchical architectural composition. See also Standard 3.2.5g.

### 3.2.4 Building Materials & Colors

## ARCHITECTURE 3.2

#### Goal:

Select compatible building materials and finishes that reinforce the existing campus identity while preserving the non-UC neighborhood character.

#### Guidelines:

- a. Incorporate traditional building materials in buildings that are adjacent to historic structures.
- b. Select materials based on their compatibility with adjoining buildings and the appropriateness for their intended function.
- c. Contrasting materials may be allowed when incorporating other characteristics (such as form, scale, details, and color) that make the building compatible with the area.
- d. Avoid frequent changes in material and color schemes in buildings.
- e. Low maintenance materials are encouraged. For example, materials with integral color are preferred over materials that require routine painting.
- f. Building materials should relate to the human scale (examples include modular units such as brick and stone). Monolithic and large scale building materials, such as stucco and concrete panels, will need special details at the street level to minimize the building's bulk and relate to the pedestrian.

#### Standards:

- g. Building finishes and colors should blend with the existing architectural fabric of either the campus or the surrounding non-UC neighborhood.
- h. Material and/or color changes should occur at a change of plane. Structures should not have material or color changes at their outside corners to avoid the appearance of thinness and artificiality.



*A massive wall's scale is reduced through changes in material. A monolithic concrete wall is detailed with insets to give relief to an otherwise blank wall.*

### 3.2 ARCHITECTURE



*A modern building design uses traditional gothic design elements to blend with the existing Gothic Style campus. The corner tower is located on a prominent intersection, and makes the building easy to see on approach.*



*A highly articulated facade includes changes in wall planes, bump outs, recesses, varying heights, and coordinated railing details. The varied arrangement of these elements reduces the apparent size of an otherwise long wall and adds interest to the street. Consistency in materials and colors helps keep the facade composition unified.*

#### 3.2.5 Facade Design

##### Goal:

Ensure facade design exhibits a unified architectural expression complementary to the surrounding non-UC neighborhood.

##### Guidelines:

- a. Design all building elevations to create a complete multi-sided architectural expression. Avoid creating a "back" to the building.
- b. All building elevations should exhibit architectural consistency in their colors, materials and detailing, acting as a single cohesive structure.
- c. The use of facade components such as those found in nearby structures is highly encouraged.
- d. Avoid false or decorative facade treatments that use unrelated materials or details.
- e. Large parapet walls should reflect the function behind them and should not be freestanding.
- f. Towers and other similar distinctive elements are encouraged where buildings terminate street vistas or occupy prominent corners.

##### Standards:

- g. Long, continuous, undifferentiated, monotonous wall planes, especially those without fenestration are strongly discouraged along public streets. They may however, be placed along alleys and service lanes/courts, away from public view. No street level, streetfront wall should remain unpierced by a window or functional public access, such as a door or passageway, for more than 20 feet. See also Standard 3.2.3h of this chapter.
- h. Building bays or sections shall be proportioned to appear more vertical than horizontal.
- i. Drive-up windows shall not be allowed.

### 3.2.6 Fenestration

## ARCHITECTURE 3.2

#### Goal:

Design window and door placement to enrich the campus architecture and the neighboring non-UC environment.

#### Guidelines:

- The design of windows and doors should be consistent and compatible with the context.
- Avoid monotonous grids of repeated windows. The window pattern should add variety and interest to the architecture.
- Locate windows to maximize the opportunity for occupant surveillance of areas such as entries, parking lots, and other public and semi-public spaces.

#### Standards:

- Windows shall be proportioned to appear vertical, even when combined to form horizontal window bands.
- Window muntins shall be true divided panes or fixed both on the interior and exterior surfaces.
- Shutters shall be sized and shaped to match the associated openings.



*A variety of window treatments and patterns adds interest to a large building facade.*

### 3.2.7 Building Entrances

#### Goal:

Provide highly visible and inviting building entries.

#### Guidelines:

- Entries that provide protection from the elements, with canopies, arcades, recesses, or roof overhangs, are encouraged, as they also reinforce the pedestrian scale.
- Breezeways that connect the street with internal campus areas are encouraged, and should be designed with similar importance as other entryways.
- Entries into service courts should be de-emphasized, and designed to be minimally visible by pedestrians.

#### Standards:

- Buildings, other than retail, shall have a direct orientation and entryway facing a street.
- Retail establishments shall have entrances that are oriented only towards the internal campus.
- Clearly define primary building entrances, and emphasize them with architectural features, changes in the roofline, different massing, or unique materials.



*A generous covered entry is both functional and easily recognizable. Lighting on either side of the entry further emphasizes the portal at night.*

### 3.2 ARCHITECTURE



*The varied roofline conceals rooftop equipment from view and helps to reduce the bulk of the building.*

#### 3.2.8 Roofs & Rooflines

**Goal:**

Provide attractive and interesting rooflines that are compatible with the neighborhood skyline.

**Guidelines:**

- a. Roof features and parapets should complement the character of adjacent areas.
- b. High reflectance/low emissivity roofing is strongly encouraged.

**Standards:**

- c. Roof and parapet design shall completely screen rooftop equipment from view by pedestrians or neighboring building occupants.
- d. Vary the rooflines of large buildings to reduce their apparent scale.
- e. Roof penetrations should be placed back from the main frontage of the roof and finished to match the roof color.
- f. Roof forms shall be designed to match or be similar in pitch, materials, and/or colors to the dominant roof style of the campus or surrounding non-UC area.

#### 3.2.9 Accessory Structures

**Goal:**

Coordinate accessory structures with main buildings and incorporate into the overall design concept.

**Guidelines:**

- a. Design accessory structures such as ATM's, food stands, kiosks, trash enclosures, storage areas, and utility buildings to directly relate in material, character and detail to the primary structure(s) or development.
- b. Locate accessory structures to complement the overall site plan, and as to not create pedestrian or vehicular conflicts on site.
- c. Accessory structures that are intended for pedestrian use should be sited in areas of good visibility to ensure the safety of the users.
- d. Accessory structures situated along pedestrian paths should be designed to be human scale both in massing and details.
- e. Accessory structures such as ATM's and food and newspaper stands should provide trash receptacles to ensure that wind blown debris is contained.



*A gazebo-like structure marks the entry to a campus building with similar materials and details as the main structure. The gateway's details are pedestrian scaled and it is clearly visible on its open corner of a prominent intersection.*

## 3.2.10 Utility &amp; Service Areas

## ARCHITECTURE 3.2

**Goal:**

Position services, including equipment, recycling, trash, utility, and delivery areas, to minimize their view and noise from nearby non-UC properties.

**Guidelines:**

- a. Locate, design, and/or screen building services to minimize their audible and visual impact on streets and neighboring properties.
- b. Avoid locating service areas along major view corridors, or adjacent to residential buildings or useable open space.
- c. Locate and screen utility boxes, meters, and surface transformer switching pads to minimize their visual impact. Coordinate their location with the respective utility company early in the design process.
- d. Outdoor storage is strongly discouraged.
- e. Provide a screened, dedicated recycling storage area with the appropriate access for collection vehicles. Such an area may be located adjacent to the refuse storage, but the enclosure must be large enough to accommodate both activities.

**Standards:**

- f. Group utilities in a service court away from the street front and out of pedestrian view. The recommended location for all utilities, equipment, and service and loading areas is to the least visible side of a building.
- g. For new development, install all on-site utilities underground where possible.
- h. All rooftop equipment including, but not limited to, telecommunications, satellite, HVAC, and elevator equipment shall be screened from view, in a manner consistent with and integral to the architecture.
- i. Loading docks and service areas should not be sited on the street side of a building, and should be screened from pedestrian view with architectural or landscaping elements.
- j. Refuse enclosures shall be screened from view on all sides with a six to eight foot high opaque screen of coordinated building materials or landscaping.



*A decorative brick wall is used to screen a large pad of ground mounted mechanical equipment.*



*A dumpster is completely hidden by a combination of landscaping and wooden doors.*



*A street side hedge screens a transformer and other utilities from pedestrian view. The openly accessible side is oriented towards the least used pedestrian route.*



### 3.3.1 Landscape Design

## STREETSCAPE 3.3

#### Goal:

Develop attractive, high quality, maintainable landscapes that are integrated with the architecture, and streetscape.

#### Guidelines:

- a. The landscape design should create interest, add variety, provide focal points, and frame views.
- b. A consistent, but varied, palette of plant materials is encouraged as a unifying framework, providing design continuity and street cohesion.
- c. Optimize plant selection and location. Position deciduous plants to block the summer sun but admit it in winter. Tree placement should be planned with daily and yearly sun patterns in mind and adjacent building facade locations.
- d. Planting should be used in conjunction with physical screening to soften service and parking areas visible from the streetscape.

#### Standards:

- e. Landscape materials shall be appropriate in scale and nature to the site and architecture. Street trees shall be of the same species as the dominant street tree in the surrounding neighborhood, or a species similar in growth habits, canopy density, and mature size.
- f. Landscape design, including the arrangement of street trees, shall follow the dominant pattern along the existing streetscape.
- g. Use live plant material as ground cover, except in high traffic areas, where decorative paving is preferred.
- h. The landscape design should help direct circulation, and shall not obstruct pedestrian or motor vehicle sightlines, or interfere with parking and circulation patterns.
- i. Coordinate landscaping to avoid interference with utilities, driveways, clearance zones, or site lighting.
- j. Plantings along streets with parallel parking should consider the door swing of a vehicle stopped at the curb. Plant material shall not interfere with easy door opening.



*A clear sight triangle is maintained through the use of low growing groundcover, while taller landscape materials add definition to the intersection at each corner.*

### 3.3 STREETSAPES

#### 3.3.2 Landscape Materials

**Goal:**

Select and arrange plant material and other landscaping elements to add variety and visual interest while maintaining a unified streetscape image.

**Guidelines:**

- a. In any plant composition, there should be a predominance of material, color, or texture to provide unity.
- b. Accent material, used in mass or singularly, should be introduced to play against the dominant material and create contrast.
- c. Flowering trees are encouraged in areas of special focus. Since most flowering trees are also deciduous to varying degrees, they should not be used for screening or where maintenance is a problem.
- d. Avoid the use of plants that routinely release juicy berries. Such plants may be acceptable in a park setting but are not appropriate for streetscapes or walkways. Give preference to plants with persistent fruits to ease maintenance and minimize negative impacts.
- e. Below eye level, shrubs and ground covers are encouraged, as they contribute to the variety and interest of the landscape through contrasting variations in form, texture, and seasonal color displays.
- f. Ground cover plants, which form low, spreading mats that require little maintenance, are encouraged to provide a visual richness, especially when viewed up close.
- g. Under-planted ground covers as well as other under-story plantings are not recommended beneath trees. The avoidance of under-planting minimizes the competition of roots for water and nutrients in a confined space.
- h. Materials such as bark chips, rock, and stone or masonry slabs should complement the plantings.



*A colorful flower bed accents a gateway at the edge of campus.*

### 3.3.3 Landscape Installation

### STREETSCAPE 3.3

#### Goal:

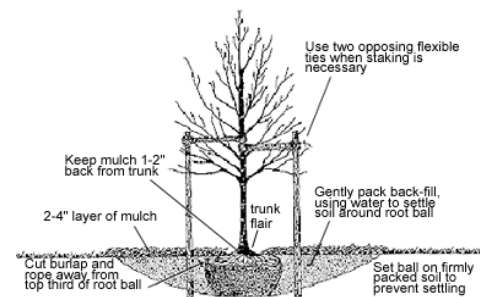
Follow sound horticultural practices to ensure the health and longevity of plant material, thus enhancing the visual character of the neighborhood streetscape.

#### Guidelines:

- Trees along the streetscape should be planted in a manner consistent with the dominant planter type (whether a tree grate installation, or in planting beds or strips), so that consistency is maintained along the streetscapes.
- Adjacent trees (and multiple plantings) should share root zones when possible. Use a continuous planting strip as opposed to individual tree pits. Where access between trees is desired, porous materials may be used as paving.
- Avoid the combination of container grown and balled and burlapped plants in the same planting area, as the container grown plants will out-compete the others.
- Avoid the combination of plants with differing cultural requirements in the same planting area.

#### Standards:

- Provide adequate root space for plants, and avoid planting competing plants together.
- For tree planting, refer to the guidelines outlined by the City of Durham Public Works Department.
- Planting areas shall drain within themselves, not onto paved pedestrian surfaces. Underground drainage piping from planters and yard inlets should tie into storm sewer lines, where possible.
- Apply two to four inches of mulch to conserve moisture, restore soil fertility, and reduce the need for fertilizers. Mulching techniques should be appropriate to the plant type and location.
- Curbs, tree guards, or other appropriate elements should protect landscape materials, which may be susceptible to damage by pedestrian or motor traffic.
- Tree plantings in paved areas shall be accommodated with porous surrounding surfaces that allow water to reach the roots of the plantings. All tree grates and porous paver systems shall meet ADA standards.
- All plant material shall meet or exceed standards set by the American Association of Nurserymen, Inc. (A copy of these standards is available for viewing in the Durham City-County Planning Department.)



*Tree planting diagram*

### 3.3 STREETScape

#### 3.3.4 Sustainable Streetscapes

**Goal:**

Incorporate xeriscape principles and water pollution reduction strategies into the overall streetscape design.

**Guidelines:**

- a. Give preference to native, self-sustaining, low maintenance, drought tolerant, and pest and disease resistant plant varieties.
- b. The planting of invasive species is not permitted. Refer to the Planning Department for a list of banned and discouraged invasive plants.
- c. Use plant combinations and maintenance strategies that do not require routine chemicals, to reduce water pollution from pesticides, herbicides, and fertilizers.
- d. Group plants with similar water needs together, and locate them appropriately on site to ease maintenance.
- e. Reduce lawns and opt for low maintenance plants, thus reducing chemical and mower pollution, and energy, water, and maintenance costs.
- f. Install gravel, sand, pavers, and other porous surfaces when possible to allow water infiltration, thereby reducing non-point source pollutants and minimizing erosion.
- g. Amend soil with compost or other organic matter in lieu of peat moss, a non-renewable resource.

#### 3.3.5 Streetscape Furnishings

**Goal:**

Incorporate furnishings along the streetscapes to add to the functionality and character of the campus area.

**Guidelines:**

- a. Furnishings along TUA perimeter streets should be of a style and color to coordinate with other campus furnishings or details.
- b. Streetscape furnishings including, but not limited to, benches, lighting, waste receptacles, planters, signage and kiosks should be designed to coordinate together and reinforce the campus character.



*Historically styled street lights and coordinating metal bollards help define this campus streetscape.*

## 3.3.6 Retaining Walls &amp; Fences

## STREETSCAPE 3.3

**Goal:**

Ensure that the design of walls, fences, enclosures, and similar site elements is compatible with the architecture of the main building, and the overall character of the surrounding neighborhood.

**Guidelines:**

- a. Retaining walls and fences should be considered an extension of the adjacent structure or architectural element, and the materials should be compatible. Fencing can be accomplished in the form of a planter wall or as an extension of an architectural wall feature.
- b. The height, length, and visual impact of retaining walls and screen walls should be visually minimized through the use of landscaping elements. Locate plant material intermittently along long wall or fence expanses to soften their appearance and provide visual relief along the streetscape.
- c. In highly visible public areas where fencing is needed, decorative metal fencing is encouraged.
- d. Whenever possible, combine fences with other elements such as columns and walls.
- e. Locate fences to be sensitive to the surrounding area.

**Standards:**

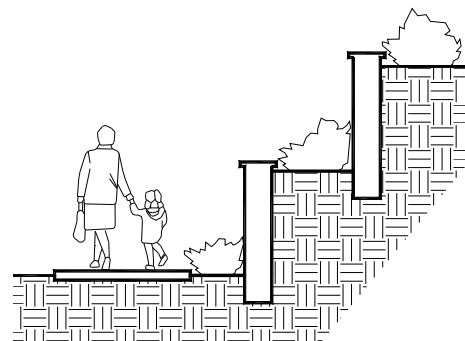
- f. Retaining walls and walls that extend out from a structure, as in the case of screening service areas, shall be compatible with the building style, color, and materials, or with the style, color, and materials that is unique and characteristic of the campus.
- g. Terrace retaining walls that require a height over four feet.
- h. Walls and fences should minimize visual monotony through changes in plane, height, texture, material, finish, or significant landscape massing. Interest and variety can be provided through the use of offsets, pilasters, columns, and insets, as well as through the artful combination of architectural materials.
- i. Chain link fencing (with or without any type of inserts), razor wire, and barbed wire are not permitted along the streetscape.



*A stone pier marks a campus entryway using the university's signature material.*



*Decorative metal fencing is combined with a low brick wall and piers to create an attractive street edge.*



*Retaining walls over four feet high are made more attractive and pedestrian friendly through the use of terraces and landscaping.*

### 3.3 STREETScape

#### 3.3.7 Sidewalks and Paths

**Goal:**

Use pedestrian paving to define uses along the streets, and distinguish between public sidewalks and private areas.

**Guidelines:**

- a. Sidewalks must be designed to last over time, and require minimal maintenance.
- b. The color, pattern, and texture of streetscape sidewalks should reflect an area's use. Greater degrees of detail and richness of material are more appropriate at focal points and intersections, while simple, consistent, homogenous materials are more conducive to movement.
- c. Walkways should connect to adjacent non-UC properties and nearby trails to promote pedestrian connectivity.
- d. Use a change of materials to add visual interest along large or long walkway areas.

**Standards:**

- e. Provide pedestrian paths and walks to connect campus perimeter sidewalks with internal campus circulation systems.
- f. Sidewalk materials and colors should either be consistent with the neighborhood or with the unique character of the campus.
- g. Surface finishes shall be slip-resistant in all conditions.
- h. Sidewalk slopes shall not exceed five percent with cross slopes not exceeding two percent.
- i. On roadways that are pedestrian dominant, a minimum eight-foot wide sidewalk is recommended to accommodate greater foot traffic.
- j. When possible, sidewalks through open space or parks shall have a minimum width of eight feet to accommodate cyclists. Sidewalks less than eight feet wide should not allow bicycle traffic as part of their use.



*A break in a perimeter wall links a crosswalk and sidewalk to the internal campus walkway system.*

### 3.3.8 Streetscape Accessibility

### STREETSCAPE 3.3

#### Goal:

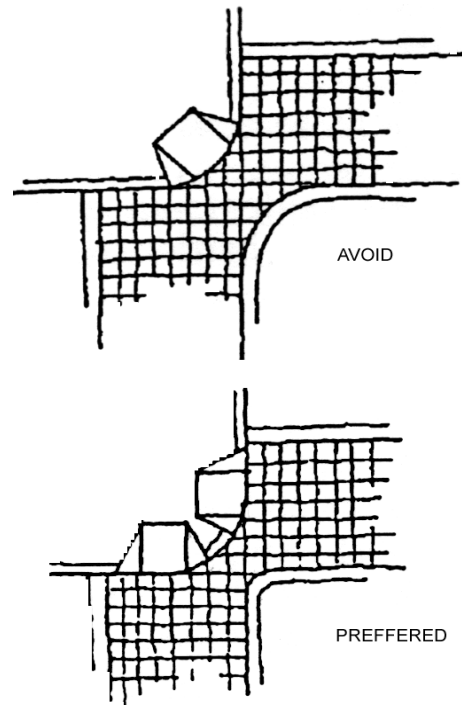
All pedestrian walks must be barrier-free at intersections.

#### Guidelines:

- a. Ramps should be integrated into the surrounding site elements and not added as an accessory feature.

#### Standards:

- b. The surface finish and color of ramps shall be distinct from other paved surfaces to communicate a change of grade to the user. Concrete ramps are preferred.
- c. Surface finishes and materials shall be slip-resistant under all conditions.
- d. Where sidewalks intersect curbed roadways, drop curbs shall be provided. If space permits, the grade of the entire walk should be dropped to meet the grade of the roadway.
- e. The sides of the ramps shall be tapered according to code to provide minimum obstruction for sidewalk traffic.
- f. Ramps that direct users toward the center of an intersection are not to be used. Ramps shall be located at each crosswalk section. All crosswalks should conform to standards set by the City of Durham and applicable ADA codes.
- g. Mid-block crosswalks shall not be used across streets that divide campus areas from non-UC areas.
- h. Ramps shall provide top and bottom landings with slopes not to exceed two percent. The ramp slope must not exceed limits set by the governing codes or Durham City Standards.



*Accessible curb cuts*

### 3.3 STREETScape

#### 3.3.9 Bicycle Facilities

**Goal:**

Provide bicycle racks around campus perimeters to allow cyclists to park and lock their bikes.

**Guidelines:**

- a. Bicycle racks should be installed at logical locations such as entrances to buildings.
- b. Racks may be located along the streetscape when the sidewalk is wide enough to accommodate their placement without interfering with pedestrian passage or landscaping.
- c. Sculptural bike racks that represent a unique aspect, characteristic, or symbol of the campus are encouraged.

**Standards:**

- d. Bicycle parking shall meet the Design Standards for Bicycle Parking of the City of Durham Zoning Ordinance.
- e. Locate bike racks in areas of high activity to discourage thefts and to provide opportunities for their surveillance.
- f. Situate bike racks outside of pedestrian paths.

#### 3.3.10 Transit Stops

**Goal:**

Incorporate transportation stops as integral and attractive streetscape elements.

**Guidelines:**

- a. Locate transit stops near activity zones, especially near entrances to campus.
- b. Locate transit stops near major building entries and provide convenient pedestrian access between transit stops and building entries as part of the overall pedestrian circulation network.
- c. Reduce and consolidate the number of stops.

**Standards:**

- d. Transit stops shall be consistent in design throughout the campus vicinity, and be compatible with the overall neighborhood streetscape.
- e. Transit stop facilities shall include, at a minimum: shelter from the rain and sun, seating, lighting and good visibility for easy surveillance.
- f. Site transit stop shelters to minimize interference with pedestrian flow along the street.
- g. Include curb cuts at transit stops for accessibility.



*On a campus where stone is the predominant material, a modern transit stop is made compatible with the overall aesthetics through the use of an ashlar stone base. The stop provides shelter, is easily accessible, and includes seating and a waste receptacle.*

### 3.3.11 Streetscape Lighting

## STREETSCAPE 3.3

#### Goal:

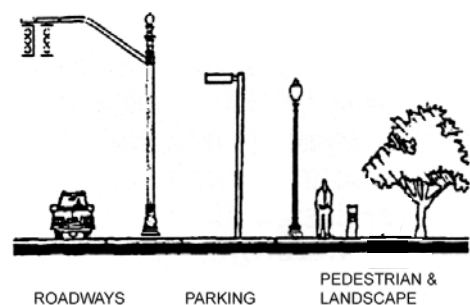
Use streetscape lighting to provide appropriate light for vehicular and pedestrian safety throughout the campus perimeter.

#### Guidelines:

- a. Lighting should provide a sense of security for pedestrians. Lighting sources along the sidewalks and roadways should be bright and frequent enough to avoid the creation of dark spaces which could be perceived as threatening.
- b. Lighting should be hierarchical. Fixtures should vary in type and intensity based on the corridor and its function.
- c. Light fixtures and poles should be consistent in style, finish, and height to existing surrounding fixtures.
- d. Coordinate site lighting elements for uniformity within the campus. Such elements may include light poles, bases, lamps, bollards, and building mounted fixtures.

#### Standards:

- e. Consider the proper relation between the scale of a fixture and the function of the corridor. In general, primary vehicular areas will have higher mounting heights than pedestrian areas, in accordance with the City of Durham Street Lighting Policy, AASHTO standards, Duke Power, and NCDOT regulations.
- f. The use of timer-activated photocells is required for all lighting to reduce the cost of operation.
- g. All poles and fixtures, including existing highway and thematic poles, shall have a uniform finish, consistent with the dominant fixture color of the campus or neighborhood.
- h. All fixtures shall be fully shielded to direct light downward. Uplighting is not allowed.
- i. Lighting may not be permanently or temporarily attached to or wrapped around trees. These lighting techniques can cause girdling.
- j. Acceptable accent lighting options include architectural lighting that highlights features without uplighting structures, heavy duty light strands that outline structures, special lighting at fountains and public artworks, bollard lights at seating areas and bicycle racks, and low-voltage decorative landscape lighting whose only underground component is wiring.



*The light fixture should be proportioned to correspond to the scale of the function it serves.*



APPENDIX A

Glossary of Terms

APPENDIX B

Streetscape Maintenance



## A

## GLOSSARY

**Accessory Structure**

A structure that exists on the same lot with the principal structure and is customarily subordinate to or incidental to the principal structure.

**Adaptive Re-Use**

A preservation strategy for older or historic properties in which the structure is renovated to accommodate a use different from the original intention.

**Architectural Expression**

A built representation that manifests, embodies, or symbolizes something.

**Architectural Fabric**

The structures that make up an area, such as a street, neighborhood, city, or region.

**Articulation**

An emphasis given to architectural elements (including windows, balconies, porches, entries, etc.) to create a complimentary rhythm or pattern; modulation of building facades, massing, and detail to create variety.

**Atria**

A rectangular shaped open patio around which a structure is built; a many-storied court in a building usually with a skylight.

## B

**Berm**

A mound or wall of earth usually placed against a building wall for stabilization or insulation.

**Bollard**

A short post used in series to delimit an area or exclude vehicles.

**Breezeway**

A roofed open passage connecting two buildings or halves of a building.

**Brownfield**

Abandoned or under-used industrial (or commercial) land where expansion or redevelopment is complicated by real or perceived environmental contamination.

## GLOSSARY

**Buffer**

A portion of property designated to mitigate impacts between land uses or transportation routes, or to protect water features from pollutants.

**C****Canopy Tree**

A tree generally having a straight trunk and a broad, spreading crown. Usually refers to large deciduous trees that form a canopy, providing shade.

**CFC (Chlorofluorocarbon)**

Any of several simple gaseous compounds that contain carbon, chlorine, fluorine, and sometimes hydrogen, that are used as refrigerants, cleaning solvents, and aerosol propellants and in the manufacture of plastic foams, and that are suspected to be a major cause of stratospheric ozone depletion.

**Character**

The impression or appearance of a place, which is comprised of typical and distinguishing features that give it a sense of unique identity.

**Chicane**

Physical constrictions, of at least three to a set, built at the curbside of the roadway to create a 45° bend in a formerly straight street. Cars are forced to negotiate this narrowed roadway in a snake-like manner. The same effect can be achieved by alternative street parking from one side to another.

**Choker**

A physical constriction built at the curbside of a roadway effectively reducing the width of the travel lane.

**Circulation**

The orderly movement by people or vehicles through a system, such as a street grid, parking lot, or trail.

**Clerestory**

A vertical element of glazing at the roof level of a structure.

**Clustering**

The practice of grouping structures on lots with smaller dimensions than normally permitted within a zoning district in exchange for the provision of permanent open space within the same development.

**Courtyard**

An open space enclosed wholly or partly by buildings or circumscribed by a single building.

## D

## GLOSSARY

**Daylighting**

Daylighting is the controlled admission of natural light into a space through windows to reduce or eliminate electric lighting.

**Design Concept** An abstract or generic design idea generally containing the overall intent of the design.

**Detention Basin**

A basin (usually designed as a pond) built to store stream flow or surface water runoff, and to control the release of such stored water.

**Downspout**

A vertical pipe used to drain rainwater from a roof.

## E

**Elevation**

An exterior vertical wall plane of a structure, especially as depicted in a two-dimensional drawing.

**Embodied Energy**

The energy required to make and transport materials and equipment regardless of the energy they (or the final products they may become) will consume over their lifetime.

## F

**Facade**

Any face of a building, also called an elevation.

**Fenestration**

The arrangement, proportioning, and design of windows and doors in a building.

## G

**Galleria**

A roofed and usually glass-enclosed promenade or court.

**Gateway**

A passage into or out of a specific area denoted and emphasized by a special treatment of the passageway.

## GLOSSARY

**Geometric Basin**

A water run-off collection basin that is clearly man-made in appearance, taking on a distinct geometric form. Geometric basins are usually constructed out of concrete.

**Glare**

An interference with visual performance caused by direct or reflected light.

**Grading**

The manipulation of the topography into a coordinated system that accommodates buildings and roadways, and directs water away from areas that should be kept dry.

**Gray Water**

Wastewater that is devoid of fecal contamination and originates from sinks, showers, and other related sources. It can be used for irrigation after simple filtration.

**Green Design/Building**

Design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants in the following areas:

- sustainable site planning;
- safeguarding water and water efficiency;
- energy efficiency and renewable energy;
- conservation of materials and resources;
- and indoor environmental air quality.

(As defined by the U.S Green Building Council.)

**Greenfield**

Land that is essentially in its natural state with no construction or improvements to disrupt its original ecosystem.

**H****Human Scale**

A size relative to the human body.

**HVAC**

Acronym for heating, venting, and air conditioning.

**I****Infrastructure**

The system of resources and public works of a country, state, or region necessary as an underlying foundation for development.

**Invasive Species**

Plants, animals, and microbes not native to a region which, when introduced either accidentally or intentionally, out-compete native species for available resources, reproduce prolifically, and dominate regions and ecosystems.

**L****Lifespan (of structures)**

The period of time when factors including maintenance, operating, repair and/or reconstruction costs are less than the cost of building a similar new building and are not outweighed by a demand for more flexible space.

**Light Pollution**

Excess brightness in the sky resulting from direct and indirect lighting above urban areas. Light pollution disrupts biological cycles in plants and animals, having a negative impact on the urban ecology, and makes it more difficult for astronomers to discern elements of the night sky.

**Light Shelf**

A horizontally placed light reflector, usually used to bounce light deep into a space and/or avoid glare.

**Light Trespass**

The encroachment of light into an unwanted space, such as a neighboring property.

**M****Massing**

The size, expanse, and bulk of a building, especially with reference to how it is shaped or formed.

**N****Native Plants**

Plants that have evolved over thousands of years in a particular region, adapting to the geography, hydrology, and climate of that region.

GLOSSARY

**Non-Point Source (NPS) Pollutants**

Pollutants such as fertilizers, herbicides, insecticides, oil, grease, sediment, salt, bacteria, and toxic chemicals, which unlike pollutants from industrial and sewage treatment plants, come from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away pollutants, depositing them into lakes, rivers, wetlands, coastal waters, and even underground sources of drinking water.

**O**

**Open Space**

Areas of a development that allow for light, air, wildlife habitat, and for scenic and recreational use, including areas designed to enhance the privacy or appearance of a development. Private open space is open space that is owned by a corporation, individual, or homeowners association. Public open space is usually owned by a governmental jurisdiction or a non-profit entity.

**Orientation**

The directional placement of a structure or element in relation to the setting, street, and other structures.

**P**

**Parapet**

A low guarding wall at the edge of a point of sudden drop, such as a roof, terrace, balcony, or bridge.

**Passive Design**

An approach to architectural and site design that aims to minimize heat loss in winter and heat gain in summer, and use light efficiently without relying on mechanical or electrical systems.

**Persistent**

Said of leaves that are evergreen and of flower parts and fruits that remain attached to the plant for protracted lengths of time.

**Pilaster**

An upright architectural member, rectangular in plan and structurally a pier but treated as a column that usually projects a third of its width or less from the wall.

**Plaza**

A public square in a city or town or an open area usually located near urban buildings and often featuring walkways, landscaping, places to sit, and sometimes shops.

## Q

**Queue**

A waiting line of people or vehicles.

## R

**Riparian**

Relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater.

**Roof Monitor**

A multi-sided clerestory, often used in series to admit sunlight from various directions at the roof level of a structure.

**Roundabout**

A type of traffic circle in which vehicles are slowed as they approach triangular diverter islands at the intersection. Vehicles yield to traffic in the circle, and a constant flow is maintained.

**Rhythm**

The regular pattern or repetition of elements. The recurrence of architectural features such as windows and other details, especially in the façade of a building.

## S

**Scale**

A distinctive relative size, extent, or degree.

**Screen**

A device or partition used to conceal, protect, or decorate. Plant materials and other landscape or architectural elements used separately or in combination to obscure views.

**Setback**

The distance between a property line and a building or structure.

**Service Court**

An enclosed or semi-enclosed area housing utilities and/or service functions of a building. It is typically formed by surrounding an area by buildings, or fencing in an area adjacent to a building. It is usually spacious enough to accommodate various services, deliveries, or maintenance functions at once.

## GLOSSARY

## GLOSSARY

**Sign Program**

A signage plan that acts as a framework, guiding aspects such as size, location, materials, colors, and other issues of general appearance to create a cohesive system of uniform signs.

**Scupper**

An opening in the wall of a building through which water can drain from a floor or flat roof.

**Solar Access**

Freedom or ability to obtain or make use of natural sunlight; generally refers to not being deprived of sun by obstacles such as nearby buildings.

**Solar Orientation**

The position relative to the sun; generally described using the cardinal directions.

**Speed Bumps/Humps**

Raised pavement undulations (with a parabolic top) in the roadway, which extend across the travel lane(s) perpendicular to the direction of traffic flow.

**Street Wall**

The implicit line created by the facades of adjacent structures.

**Streetscape**

The appearance or view of an entire street or street network in general, including sidewalks, utilities, landscaping, street furniture, and the structures that make up the street wall.

**Sustainable Architecture**

An architectural movement, which aims to preserve environmental quality through designs that emphasizes sustainability, recycling, and passive strategies.

**Sustainable Design**

A design ideal that aims to achieve an ongoing and maintainable balance between the resources consumed and created.

**T****Thermal Bridge**

A highly conductive building element that penetrates through a non-conductive element (such as insulation) to the building envelope. A thermal bridge bypasses and negates the insulation, allowing heat transfer from the inside to the outside and vice versa.

**Thermal Buffer**

A space or element, located between the exterior and another space, which acts to reduce the heating and cooling load on the other space.

**Traffic Calming**

A technique used to slow, and control vehicular traffic in an effort to ensure safety.

**Traffic Circle**

A design that provides circular, counter-clockwise movement through an intersection by allowing approaching vehicles to yield and merge into traffic in the circle. This type of intersection is designed to have continuous flow, and usually has a raised landscaped area in the center.

**Transit**

The local transportation of people by public means of conveyance, such as by bus or rail system.

**U****Urban Park**

A piece of ground in a city or town kept and maintained for ornament and recreation.

**Urban Public Space**

Public space provided and designed for the purpose of public congregation in an urban area. Examples of urban public spaces include plazas, urban parks, gallerias, atria, courtyards, breezeways, and even public streets that are closed for a gathering function. Such spaces, whether privately or publicly accessible, have distinct urban characteristics including coordinated streetscape paving, seating, and lighting, direct access from the street or sidewalk level, and siting within a zone of pedestrian activity.

**W****Water-Wise**

A water-conserving landscape or landscaping method.

**Watershed**

A region or area bounded peripherally by a divide and draining ultimately to a particular watercourse or body of water.

**Wetland**

An inland or coastal area that is periodically flooded or immersed in fresh or saline water. Land or areas (as tidal flats or swamps) containing much soil moisture.

GLOSSARY

Z

**Zero Lot-Line**

A development in which one or more detached dwelling units abuts at least one property line. This definition does not include townhouses.

## STREETSCAPE MAINTENANCE

A regular schedule should be established and adhered to in monitoring the condition of streetscape elements along Downtown Durham. At a minimum, the following should occur:

**1 Paving**

1. Repair or replace cracked, broken, or missing paving at sidewalks, streets, crosswalks, and curbs. Such cracks or broken pavement can create a hazard to public safety.
2. Sidewalks should be kept clear of deleterious materials (especially invasive plant materials) and all walks and plazas should be kept clear and trash picked up as needed. Sidewalks should also be power washed on a regular basis.
3. Concrete joints should be properly maintained and caulking replaced as needed.

**2 Walls & Columns**

1. Maintain brick, stone or concrete walls and columns in good condition. Missing units or cracks should be replaced or repaired. Mortar and caulking shall be repointed or replaced as needed.
2. Walls and columns should be kept clean from graffiti, paint and other markings at all times.

**3 Metals**

1. Maintain all metal fabricated street furnishings, fencing, railings, kiosks, etc. in good repair and condition. Painted surfaces should be repainted if scratched, chipped, or painted with graffiti. Broken or dented parts should be replaced or repaired within 30 days of being damaged.

**4 Trash Removal**

1. A regular schedule should be established and adhered to for trash pick-up and removal.

## STREETSCAPE MAINTENANCE

**5 Plant Materials**

1. Plant materials should be guaranteed for one year after installation. Any plant that dies or becomes diseased during the one-year period should be replaced.
2. Water, but do not over water any plant.
3. Perform any needed maintenance of planting beds, planter boxes or tree pits, including, but not limited to: cleaning, weeding, pruning, spraying, mulching, and replacement of grates or paving materials.
4. Plants should be trimmed to preserve their health and vigor, as well as their natural and aesthetic form, through the removal of: dead, damaged, or diseased wood/limbs, rubbing branches, dense interior growth.
5. When necessary remove the grates, previous paving material, or other material installed in a planting bed to perform necessary maintenance on the roots of the tree.
6. Trees should be properly staked and guyed during the one-year guarantee period after which time staking and guying materials should be removed. Watering basins should be formed around the base of each tree and be maintained throughout the guarantee period.
7. Do not attach anything to trees.
8. Plant growth should be sprayed as necessary to prevent disease or insect damage.
9. Check mulch mediums in spring and autumn to determine if replenishment is necessary. Maintain depth of mulch at 3 inches.
10. A regular fertilization schedule should be established and adhered to for all plant materials.
11. Trees and other plant materials within the public R.O.W. should be kept and maintained in such a manner as not to endanger, interfere, or otherwise conflict with requirements for safe public use.
12. Perform any needed maintenance on sod or other lawn areas, including, but not limited to: cleaning, mowing, weeding, spraying, fertilizing, aerating, dethatching, and watering.

**6 Irrigation**

1. Irrigation system should be properly checked and pressurized at spring start-up.
2. Irrigation system should be monitored and adjusted as necessary during the season.
3. Irrigation system should be properly shut down and winterized at the end of the season.
4. Sprinkler heads should be properly maintained. Heads should be replaced immediately upon report of any damage, broken heads, leaks, etc.

**7 Lighting**

1. Lighting controls, timers, photocells, etc. should be maintained in good operating condition.
2. Replace damaged or missing light poles or any part immediately following damage.
3. Replace burned out bulbs or lamps within 10 days of being burned out.
4. Perform any needed maintenance work, cleaning, painting as needed to maintain a clean appearance.
5. Provide continuous electrical service to the pedestrian lighting at all times.
6. Maintain all light and traffic signalization poles in good repair and condition. Painted surfaces should be repainted if scratched, chipped or painted with graffiti. Broken parts or dents should be replaced or repaired within 30 days of being damaged.

## STREETSCAPE MAINTENANCE |

