GASTONIA NC

*Great Place. Great People. Great Promise.*

# RESOURCE GUIDEBOOK

## *For Residential & Commercial Development*

*December 2011*

# TABLE OF CONTENTS


| | |
|---|---|
| Introduction | 1 |
| Sample Housing Types | 2 |
| Garage Placement & Design | 5 |
| Floor System Examples | 8 |
| Alleys | 10 |
| Open Space Examples | 11 |
| Radius to Improved Open Space | 13 |
| Trails | 14 |
| Sign Types | 16 |
| Street Cross Sections | 18 |
| Street Trees | 20 |
| Buffer Levels | 24 |
| Building Material Samples | 28 |
| Other Concepts from City Code | |
| Floodway & 100-Year Floodplain | 30 |
| Sight Distance Triangles | 33 |
| Parking Space Dimensions & Drive Aisles | 34 |
| Setbacks | 35 |

# Introduction

The Resource Guidebook was created in order to graphically illustrate and explain key points of the City of Gastonia Unified Development Ordinance (UDO) with a focus on Planned Residential Developments (PRD). It is intended to assist City Council, the Gastonia Planning Commission, the development community, residents and staff in understanding commonly used terms and concepts, using pictures and simple descriptions.

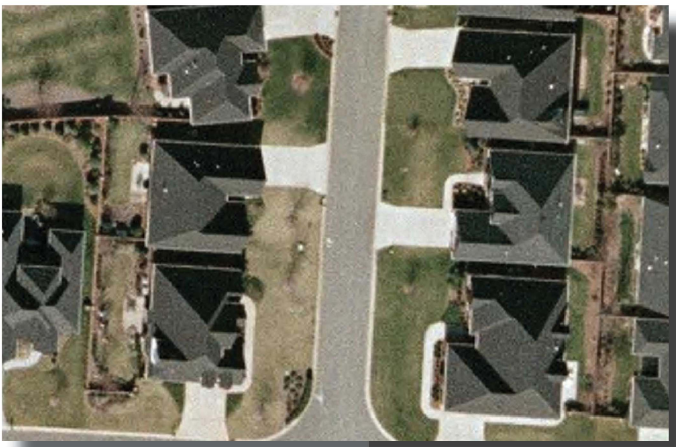
The Guidebook is general in nature and does not cover all development requirements. These are minimum standards and, in many instances, developers opt to exceed these standards. This Guidebook is not meant to be a substitute for adopted codes and ordinances or replace any existing development standards. Anyone wishing to develop or build within the city's zoning jurisdiction should consult applicable, adopted codes. An electronic copy of this Guidebook and the entire UDO are available online at www.cityofgastonia.com.

## Single-Family Detached

A single family detached home is roughly centered on the lot and has large front and rear yards and narrow side yards. The larger yards make it especially attractive to families with children.

## Patio House

The patio house is a single-family detached unit. It is built on a small lot, typically enclosed by walls which provide privacy. The patio house appeals to those who want privacy without the maintenance of a larger yard.



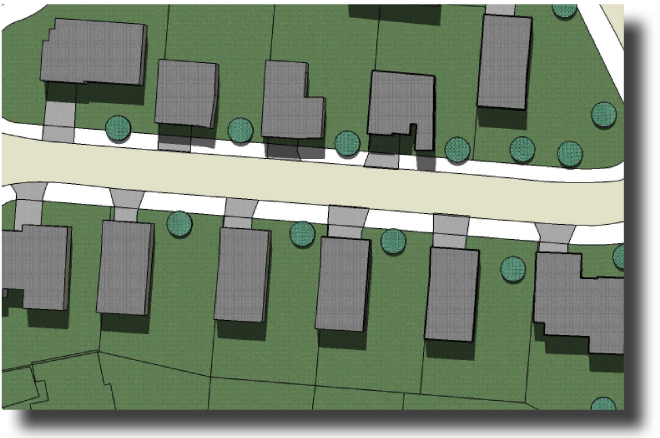
## SINGLE-FAMILY DETACHED

# Village House

The village house is placed close to the street to maximize the rear yard; alleys are encouraged to reduce the visual impact of cars on streets. The result is a lot which is smaller than that of the lot-line house.

# Lot-Line House

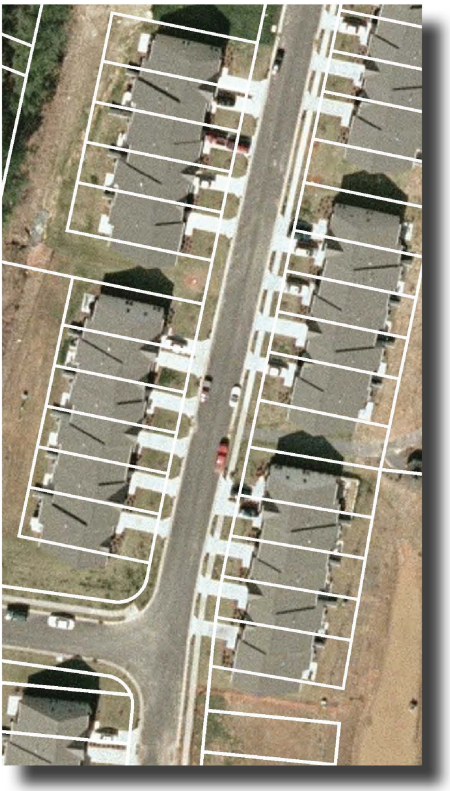
The lot-line house is a single-family detached unit which, instead of being centered on the lot, is placed against one of the side lot lines. This makes the side yard usable and requires less land than a house centered on its lot. The front yard, which is seldom used, may be substantially reduced.



## SINGLE-FAMILY ATTACHED

# Town House / Row House

The town house/row house is a form of single-family attached dwelling in which units share common side walls and are often designed in rows (although good design attempts to deemphasize the "lined up" appearance). Yard areas are small and privacy requires careful design.



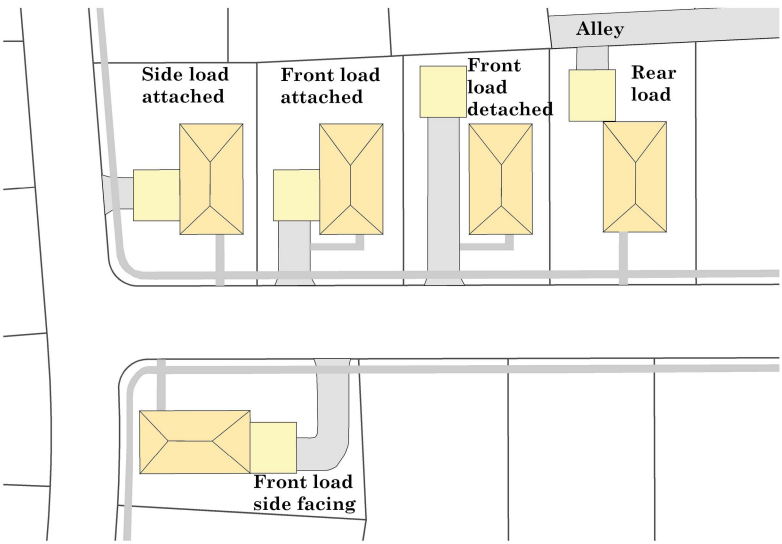
# Twin House

The twin house is an attached single-family house, which is connected along a common party wall to a similar unit. Each structure has only two dwellings. Space is saved by eliminating two side yards. A twin house is different than a duplex, in that a duplex is one structure divided into two living areas on one lot.

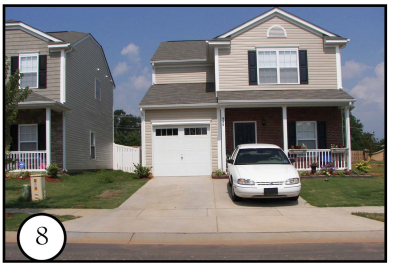
# GARAGE PLACEMENT & DESIGN

The design and placement of a garage is important to the overall street appearance. As a prominent feature of a house, a garage's appearance can dominate the entire front view of a house. The visual impact of garages can be reduced by the use of additional setback from the curb face where garage doors must face the street or by the use of side-facing or rear garages (including detached garages) where possible. Residential plans that feature attached garage designs whose entries are from the side ("side-loaded garages") are also encouraged. Rear alley loaded is ideal.

## Sample Garage Placement



# GARAGE DESIGN EXAMPLES



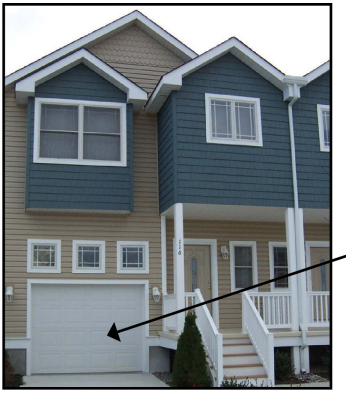

9

11

# GARAGE PLACEMENT & DESIGN

12

13

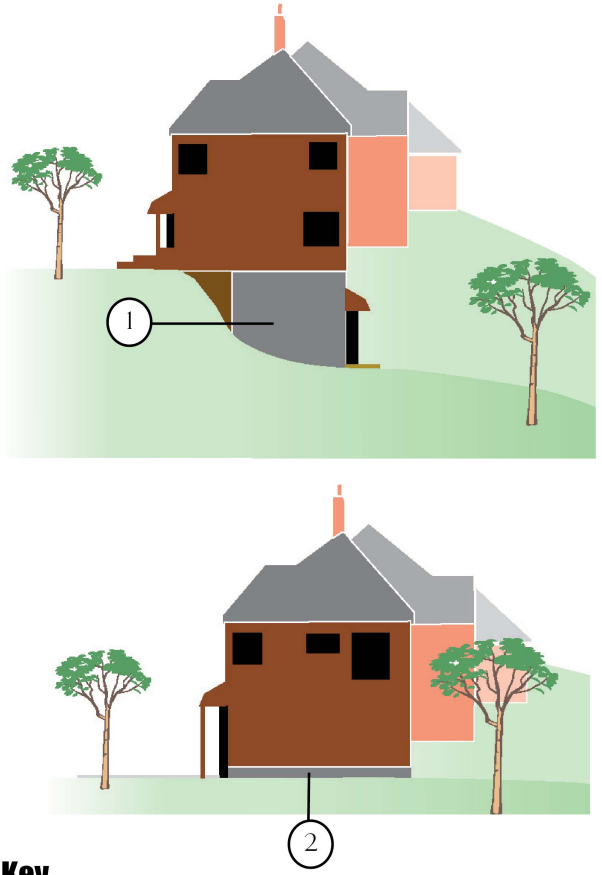


14

## Graphic Key

1. Carriage garage door
2. Divided garage and cornice
3. Detached garage in rear yard
4. Side loaded courtyard garage
5. Split garage
6. Windows & roofline over garage
7. Rear-loaded garage
8. One car garage
9. Minimum 50' wide lot needed for 1 car front loaded garage (PRDs post 3/2007)
10. Garage as primary feature
11. Minimum 60' wide lot needed for 2 car front loaded garage (PRDs post 3/2007)
12. Front loaded townhome
13. More than 2' above grade when setback is less than 20'; rear loaded
14. One car garage in townhome

# FLOOR SYSTEM EXAMPLES




## Graphic Key

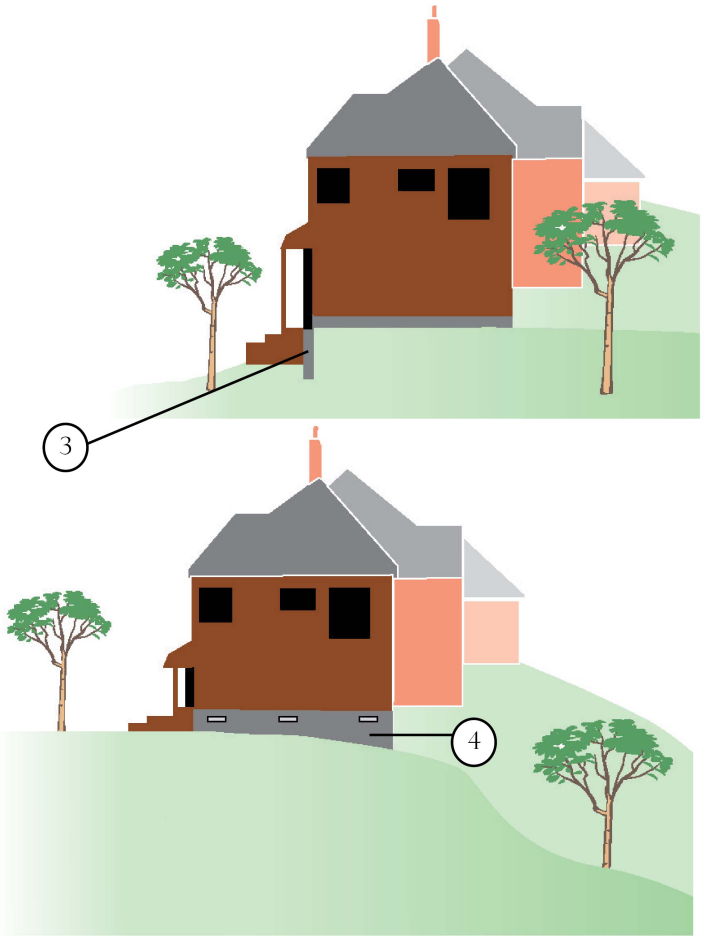
1. Basement - The lower story of a building below or partly below ground level in which a person can walk upright under all or part of the building.

2. Slab on grade - A type of foundation with a concrete floor which is placed directly on the soil. The edge of the slab is usually thicker and acts as the footing for the walls.

## FLOOR SYSTEM EXAMPLES

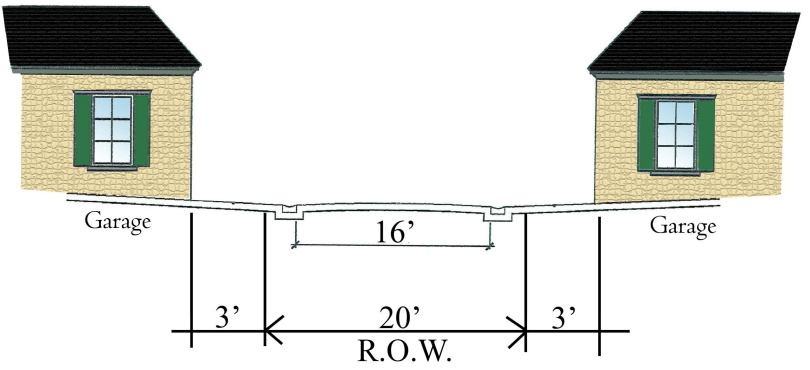
3 Stem wall - The small (usually **6 - 12** inches high), vertical, concrete extension of the slab foundation usually surrounding the perimeter and intended to keep exterior water/moisture from finding its way to the interior. Stem walls are often used in garages, where the slab floor is below exterior finished grade.

4 Crawl space - A shallow, unfinished space beneath the first floor of a house which has no basement, used for visual inspection and access to pipes and ducts.



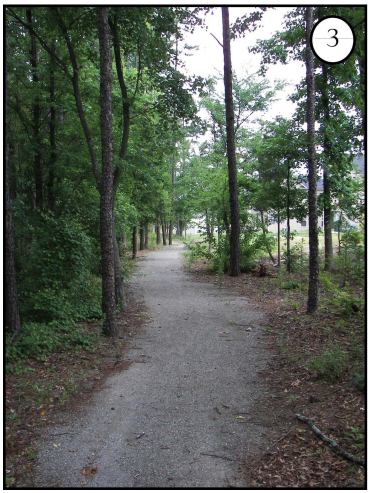
# ALLEYS

Public alleys may be utilized in residential neighborhoods to eliminate front yard driveways and provide an alternate space for underground utilities, solid waste storage and collection, and emergency vehicle access. Public alleys must have sixteen feet of pavement with a twenty-foot, public right-of-way, curbing on each side, and drainage as approved by the City of Gastonia. Garages with alley access must be set back **18'** from the alley right-of-way. When adequate, marked, on-street parking is available, the garage setback may be reduced to **3'**, with no parking between the alley and the garage (see graphic).



# Recreation areas & Usable Open Space

Improved open space can be used for recreation purposes such as pedestrian trails, swimming pools, tennis courts, or playgrounds. Recreation areas and usable natural areas are at least 1/4 acre in size.



## Graphic Key

1. Tot lot
2. Pocket park
3. Nature trail
4. Dog park
5. Pool amenity

## Natural Open Space

Common open spaces can provide visual or aesthetic qualities such as a nature preserve or a tree save. Natural open spaces are at least **1/2** acre in size, remain undisturbed and are not located on environmentally sensitive land.

**Graphic Key**

6 Nature preserve - community green

7 Tree save

# RADIUS TO OPEN SPACE

All property owners in planned residential developments shall have access to open space by means of a public or private street or a paved sidewalk, trail, or walkway in a publicly dedicated easement. All single family residential lots and attached dwelling units shall be within a 1/4 mile radius of improved open space.

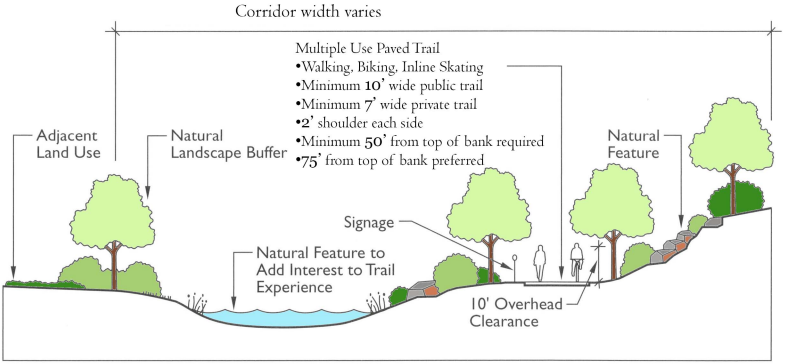
**SAMPLE**
**1/4 mile to improved open space**

- sample lot
- 1/4 mile buffer of sample lot
- improved open space
- subdivision
- parcels
- parks

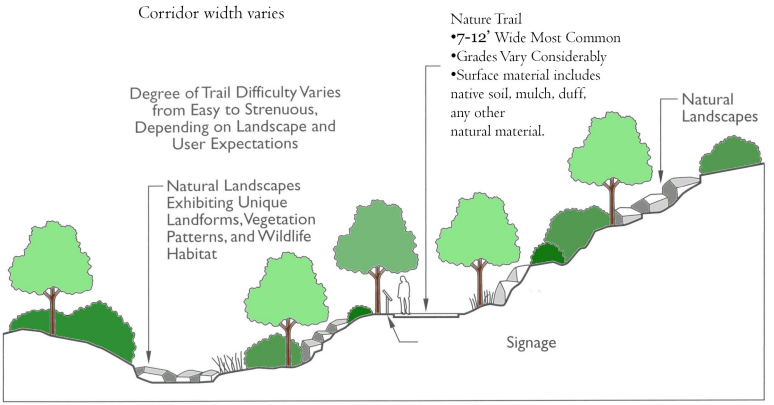
# TRAILS

A public, multi-use trail considered as an "improved open space trail" must be a minimum of **10'** wide. This width is necessary to accommodate two-way bicycle and pedestrian traffic on the prepared trail tread. Surface materials may include asphalt or concrete or other hard-surface material approved by the City of Gastonia and must meet the NDCOT Bike Design Guidelines. The trail must also meet the requirements as specified in the "Improved Open Space Trail" diagram below. A private, "improved open space trail" must be at least **7'** wide. A "nature trail," noted as different from an "improved open space trail" in the bottom diagram, can be included in residential developments, however, they are not counted towards open space requirements.

## Improved Open Space Trail (minimum requirements)

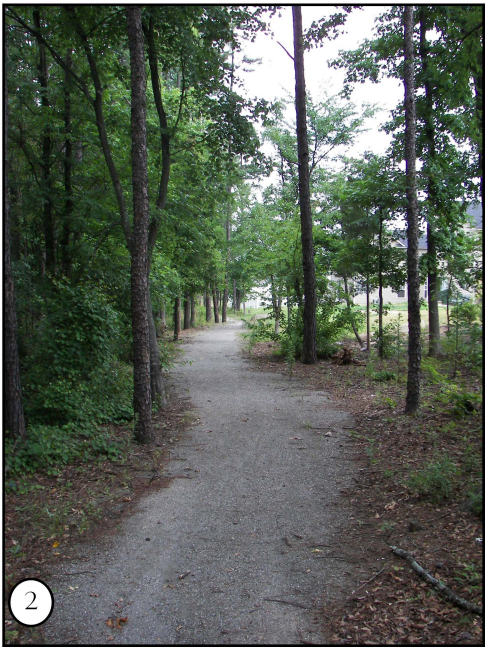



## Nature Trails (not counted as improved open space)

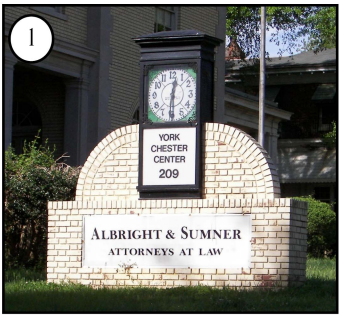


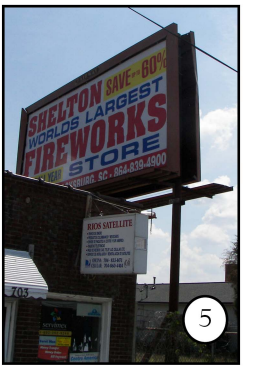
## Graphic Key

1. Improved open space trail
2. Nature trail



# SAMPLE SIGN TYPES

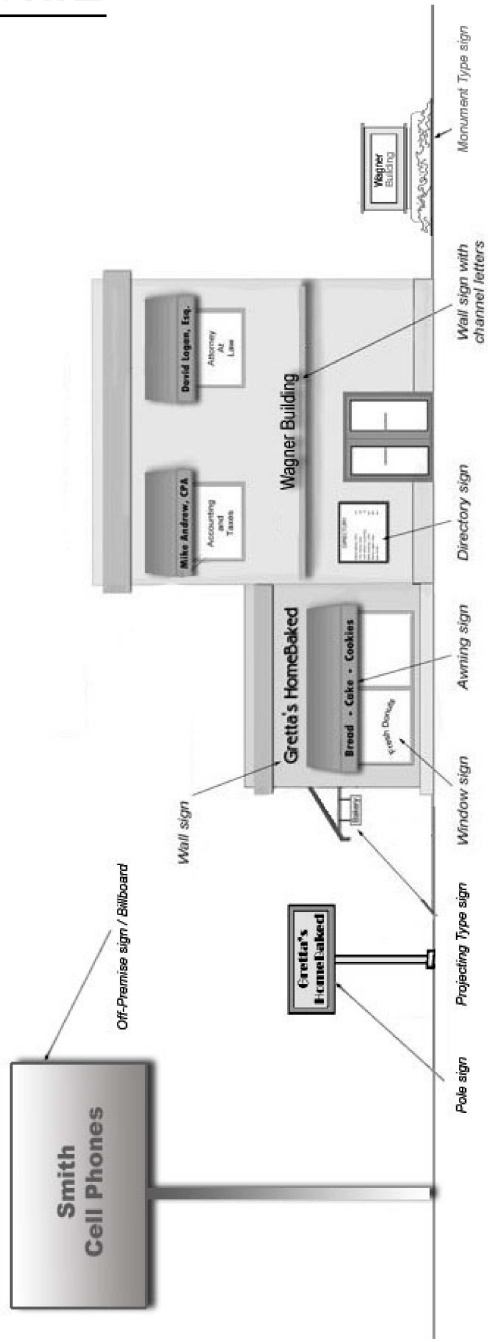




## Graphic Key

1. Monument type
2. Projecting type
3. Awning sign
4. Pole sign
5. Off-premise sign/billboard
6. Wall-mounted sign

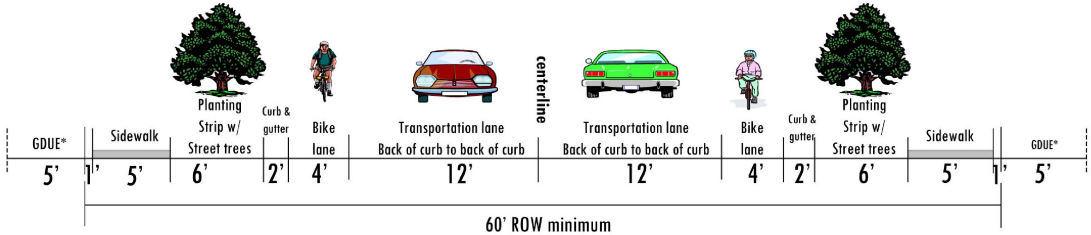
# SAMPLE SIGN TYPES



On-street bike lanes bring enormous benefits to both the cycling and non-cycling public. Bike lanes improve safety for all users by providing a distance buffer between vehicles and pedestrians on the sidewalk. Bike lanes also help motorists to be aware of the presence of bicyclists and their right to be on the road. Bike lanes are encouraged on new and reconstructed major and minor thoroughfares.

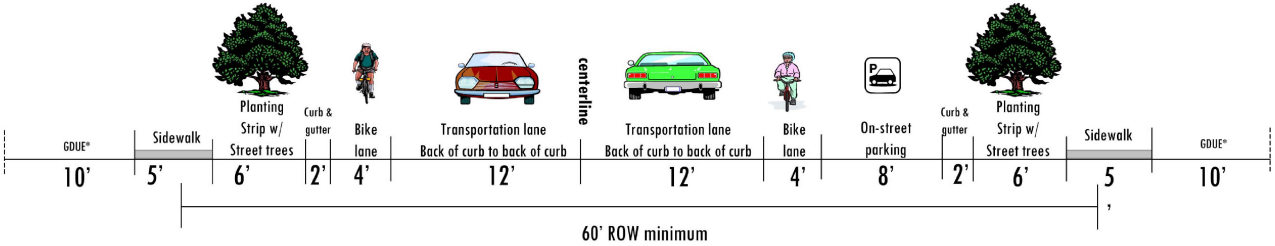
Pedestrian-friendly streets are designed to be more accommodating to pedestrian traffic than are conventionally designed streets. Pedestrian traffic here includes bicyclists, the physically handicapped, transit users and those of all ages on foot. Pedestrian-friendly streets are becoming a popular design strategy for creating walkable neighborhoods, new or retrofitted. Sidewalks are required on both sides of residential streets within a Planned Residential Development (PRD) and must be separated from the curb by a 6' (minimum) planting strip.

**Option A - 60' ROW *(with a general drainage and utility easement on each side)***
**Option B - 50' ROW *(with a general drainage and utility easement on each side)* when no bike lanes included**




*GDUE = general drainage & utility easement
Parking prohibited on both sides
Garages setback 40' from right-of-way (to allow for ample parking in driveways)

**Option C - 60' ROW *(with a 10' general drainage and utility easement on each side)***




*GDUE = general drainage & utility easement
Parking permitted on one side

NC Department of Environment and Natural Resources
Division of Forest Resources

# RECOMMENDED STREET TREES FOR NORTH CAROLINA

Below is a list of recommended street trees for North Carolina. Special attention has been given to species with the ability to handle air pollution and heat stress involved with urban environments. Other environmental tolerances and sensitivities are listed below. Be aware that some site preparation may be necessary to ensure tree survival, proper soil and water conditions are necessary for any species to survive. This does not mean that pruning and other kinds of maintenance won't be required during the life of the tree. Also, be aware that species listed as large trees will require more growing space to remain healthy (both below and above ground), for they will have larger root systems and wider crowns. Species listed as small trees are particularly useful when utility lines are present. Many of the species listed below have multiple cultivars available for purchase, please be sure to choose the correct one for the site.

| LARGE TREES: Mature height greater than 50 feet tall | | | | | | | |
|---|---|---|---|---|---|---|---|
| TREE SPECIES | SHAPE | GROWTH RATE | | | VISUAL | ENVIRONMENTAL | PROBLEMS |
| Common Name | | Slow | Medium | Fast | INTEREST | TOLERANCE | |
| Hardy rubber tree | Rounded | • | | | | Drought | |
| Green ash | Rounded | | • | | | High pH/Salt/Drought/ Compaction | Numerous seeds can be problematic on females |
| Thornless honeylocust | Rounded | | • | | | Wet soils/Drought/Salt/ High pH/Compaction | Plant bugs, mites, webworm |
| Kentucky coffeetree | Rounded | | • | | | Drought/Salt/High pH | Pods may be problematic; Needs adequate growing space |
| Sweetgum | Pyramidal | | • | | | Wet soils | Needs adequate growing space; Fruit litter may be problem, '*Rotundiloba*' may be alternative |
| Dawn redwood | Pyramidal | | • | | | Wet soils/High pH | |
| Black gum | Pyramidal | | • | | | Acid soils | |
| London planetree | Rounded | | | • | | Compaction/Drought/ Salt | Adequate space; Anthracnose can be problem. |
| Swamp white oak | Rounded | • | | | | Wet soils/Drought/Salt/ Compaction | Acorn litter. Requires ample space and acid soil |
| Shingle oak | Rounded | | • | | | Dry soils | |

## Large Trees

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Swamp white oak | Rounded | • | | | | Wet soils/Drought/Salt/ Compaction | Acorn litter. Requires ample space and acid soil |
| Shingle oak | Rounded | | • | | | Dry soils | |
| Overcup oak | Rounded | | • | | | Wet soils | |
| Pin oak | Pyramidal | | • | | | Wide range of soils | Adequate space |
| Willow oak | Pyramidal | | | • | | Wet or Dry sites/ Compaction | |
| Northern red oak | Rounded | | | • | | Drought/Compaction/ Salt | Acorn litter |
| Shumard oak | Rounded | | • | | | Drought/Compaction/ Salt | Acorn litter |
| Live oak | Rounded | • | | | | Wet soils/Compaction/ Salt | |
| Japanese pagodatree | Rounded | | • | | | Drought/Compaction/ Salt | Litter problems; Canker can be a problem |
| Baldcypress | Pyramidal | | • | | | Wet soils/Compaction | |
| Silver linden | Rounded | | • | | | Drought/Salt/pH adaptable/Compaction | Aphids |
| Lacebark elm | Rounded | | • | | | Drought/Salt/pH adaptable/Compaction | |
| Japanese zelkova | Rounded | | • | | | Drought/pH adaptable/Compaction | Narrow crotch angle susceptible to splitting |

Key: Fall Leaf Color

Flower Color

| MEDIUM TREES: Mature height between 35 feet and 50 feet tall | | | | | | | |
|---|---|---|---|---|---|---|---|
| TREE SPECIES | SHAPE | GROWTH RATE | | | VISUAL | ENVIRONMENTAL | PROBLEMS |
| Common Name | | Slow | Medium | Fast | INTEREST | TOLERANCE | |
| Red maple | Rounded | | • | | | Wet soils/compaction | Tends to have cankers under heavy stress; Over planted. |
| Horsechestnut | Rounded | • | | | | PH adaptable/salt tolerant/compaction | Susceptible to leaf blotch and scorch |
| Red horsechestnut | Rounded | • | | | | Compaction/acidic soil | |
| European hornbeam | Narrow | | • | | | Dry soils/pH adaptable | |
| American hornbeam | Pyramidal | • | | | | Acidic soils | Sensitive to drought and compacted soils |
| Sugar hackberry | Rounded | | • | | | Wet soils/compaction /salt | Intolerant of high pH |
| Turkish filbert | Narrow | | • | | | Drought/pH adaptable | |
| Easter redcedar | Pyramidal | | • | | | Drought/High pH/ Compaction/Salt | |
| Goldenraintree | Rounded | | • | | | Drought/Salt/High pH | |
| Amur corktree | Rounded | | • | | | Drought/Wet soils/pH adaptable | Fruit may be a problem on females |
| Sargent cherry | Narrow | | | • | | Drought/Salt/Acid soils | Avoid poorly drained sites. Japanese beetles |

| SMALL TREES: Mature height less than 35 feet tall (suitable for planting under utility wires) | | | | | | | |
|---|---|---|---|---|---|---|---|
| TREE SPECIES | SHAPE | GROWTH RATE | | | VISUAL | ENVIRONMENTAL | PROBLEMS |
| Common Name | | Slow | Medium | Fast | INTEREST | TOLERANCE | |
| Hedge maple | Rounded | • | | | | High pH/Drought/ compaction | |
| Serviceberry | Rounded | | • | | | | Specify tree form. Good alternative to crapemyrtle. |
| Eastern redbud | Rounded | | | • | | pH adaptable | |
| Chinese fringetree | Rounded | • | | | | | |
| Kousa dogwood | Rounded | • | | | | Acidic soils | |
| Green hawthorn | Rounded | | • | | | PH adaptable/ Drought/Wet soils | |
| Carolina silverbell | Rounded | | • | | | Acid soils | Specify tree form. Good alternative to crapemyrtle. |
| Crapemyrtle | Rounded | | | • | | Wet soils | Over planted and often unnecessarily topped. |
| Amur maackia | Rounded | • | | | | Drought/pH adaptable | |
| Flowering crabapple | Rounded | | • | | | Wide range of soils/Salt/ Compaction | Specify tree form; fruit litter problem; scab is a problem for many species |
| Chinese pistache | Rounded | | • | | | High pH | |
| Carolina Cherrylaruel | Pyramidal | | | • | | Drought/pH adaptable | Avoid poorly drained sites |
| Chokecherry | Narrow | | | • | | Drought/Salt | Avoid poorly drained sites |
| Japanese tree lilac | Pyramidal | | • | | | Drought/pH adaptable | |

Key: Fall Leaf Color

Flower Color

## TYPE A BUFFER:
## Between office/commercial and residential uses (mature depictions)

### MINIMUM TYPE A LANDSCAPED BUFFER

CROSS-SECTION




**Required plant units per 100 feet**

3 canopy trees
3 understory trees
20 shrubs




PLAN VIEW

# TYPE B BUFFER:
# Between residential and office uses (mature depictions)

# TYPE C BUFFER:
Between residential and commercial uses (mature depictions)

## Minimum Type C Landscaped Buffer

### Cross-Section




**Required plant units per 100 feet**

4 canopy trees
3 understory trees
35 shrubs

### Plan View




## With Wall, Fence or Berm

### Cross-Section




**Required plant units per 100 feet**

5 canopy trees
4 understory trees
30 shrubs

### Plan View




**Required plant units per 100 feet**

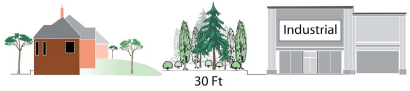
5 canopy trees
4 understory trees
30 shrubs

### Plan View

# TYPE D BUFFER:
## Between residential and industrial uses (mature depictions)

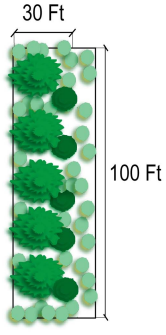
### Minimum Type D Landscaped Buffer

Cross-Section




**Required plant units per 100 feet**

5 canopy trees
4 understory trees
35 shrubs



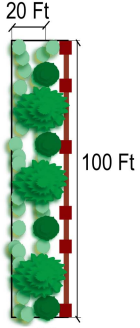

Plan View

### With Wall, Fence or Berm

Cross-Section

**Required plant units per 100 feet**

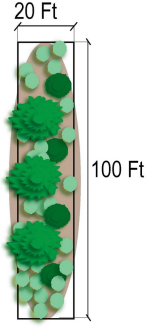
6 canopy trees
5 understory trees
40 shrubs



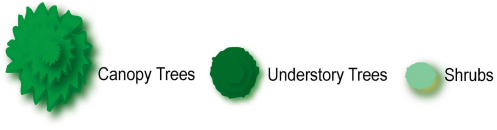

Plan View

**Required plant units per 100 feet**

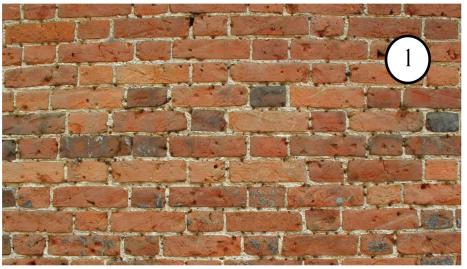
6 canopy trees
5 understory trees
40 shrubs

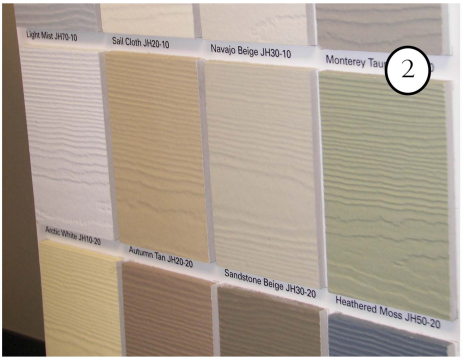


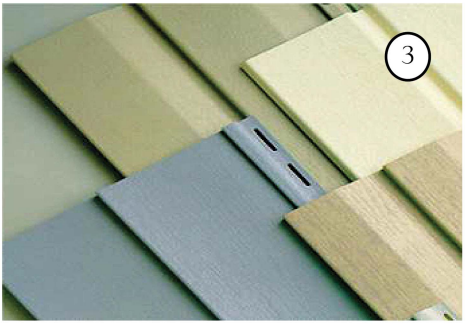

Plan View



# BUILDING MATERIAL SAMPLES

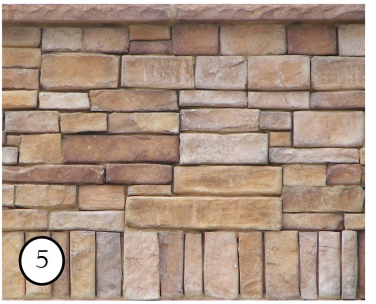


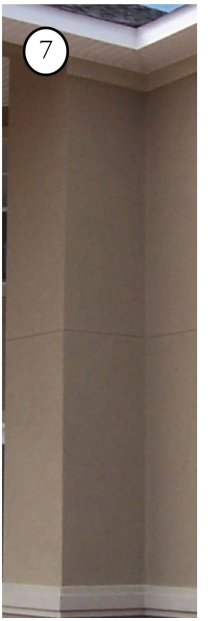



## Graphic Key

1. Brick
2. Fiber cement (Hardi Plank®)
3. Vinyl siding
4. Wood siding
5. Stone
6. Vinyl shakes
7. Stucco





## OTHER CONCEPTS FROM THE CITY CODE

FEMA
FLOODWAY
100 year flood elevation
2 foot
CREEK
100-year flood plain
The natural flood plain is the flat land surrounding the creek that is prone to flooding.
There is a 1% chance that a flood could reach the 100 year flood elevation in a given year.
The 100 year flood plain is the area contained underneath the 100 year flood elevation.
Current zoning ordinance requires finished floor elevation to be two feet above the 100 year flood elevation.

# FLOODWAY & 100 YEAR FLOODPLAIN

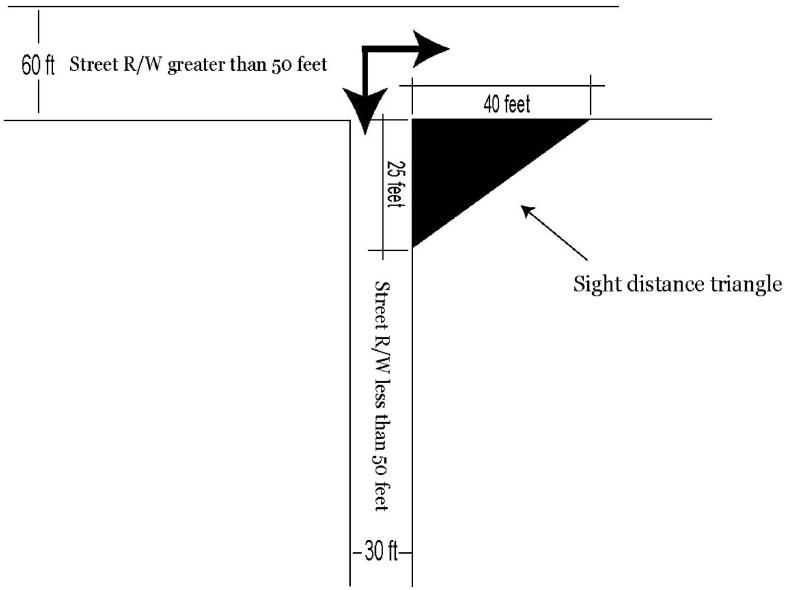
Example: FEMA Floodway

# FLOODWAY & 100 YEAR FLOODPLAIN

Example: City of Gastonia "No Rise" Policy

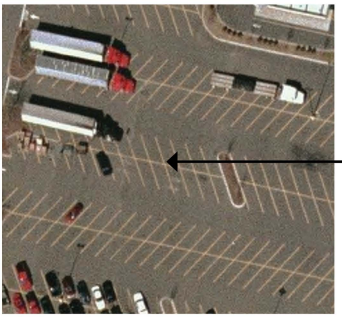
## SIGHT DISTANCE TRIANGLES

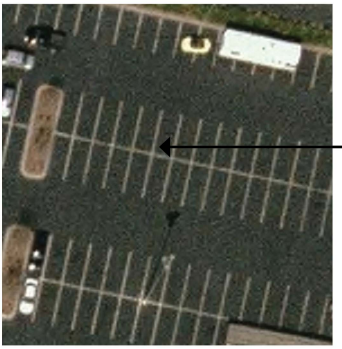
Sight distance is the distance one can view along an unobstructed line of sight. Motorists approaching intersections need appropriate sight distances, unobstructed by trees or signs, to safely make turns and to confidently pass through an intersection.

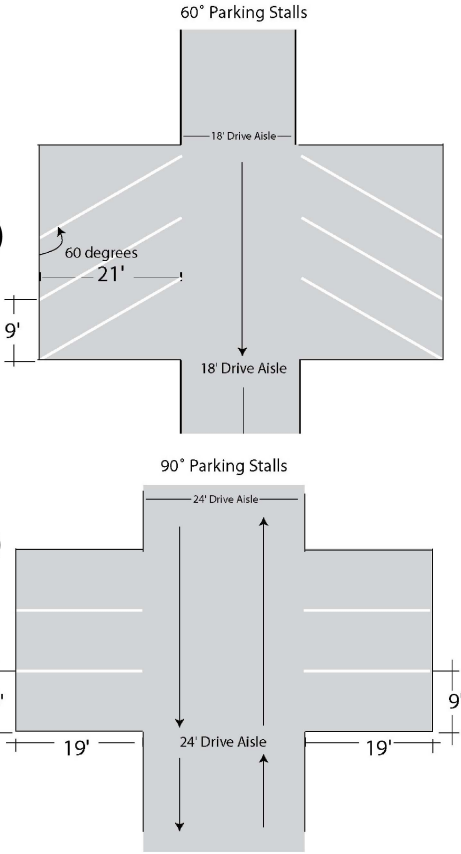


# PARKING SPACE DIMENSIONS AND DRIVE AISLES

Typical parking lot dimensions contain a rectangular area with **90°** angles of at least **19** feet long and **9** feet wide. If the angle of parking is **60°**, the rectangular area is **21** feet long by **9** feet wide. Typical drive aisles for **2** way traffic is **24** feet and **18** feet for one-way traffic.





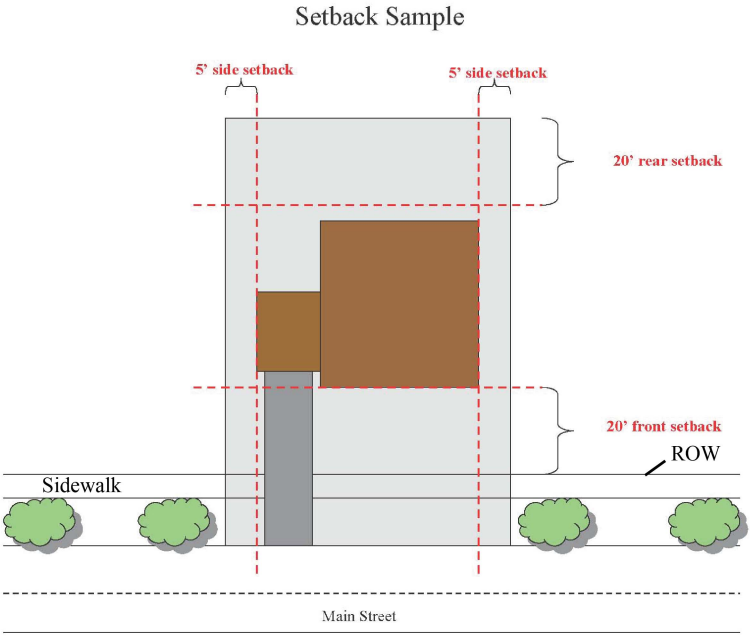



## Graphic Key

1. 60° angled parking
2. 90° angled parking

## SETBACKS

Setbacks include front, rear and side-yard setbacks. When density is higher, setbacks are typically smaller. Setbacks are closely linked to density and massing considerations.



www.cityofgastonia.com

City of Gastonia Development Services Department: 704-854-6652