ARTICLE 1.

INTRODUCTION

SEC. 1.1. GENERAL PROVISIONS

1.1.1. Short Title

This Ordinance is known as the "Durham City-County Unified Development Ordinance," and may be referred to as "this or the UDO."

1.1.2. Purpose and Intent

A. The purpose of this UDO is to promote the health, safety and general welfare of the residents of Durham City and County.

B. This UDO contains regulations designed to:

1. Protect existing neighborhoods, preventing their decline and promoting their livability;
2. Address future needs, growth, and change in the jurisdiction;
3. Conserve land and water resources;
4. Preserve groundwater quality and supply;
5. Recognize geologic features, soil and topography;
6. Improve air quality;
7. Minimize congestion in the streets and reduce reliance on automobiles by providing options for walking, bicycling, and transit use;
8. Secure safety from fire and other dangers;
9. Provide adequate light and air;
10. Prevent overcrowding of land and undue concentrations of population;
11. Provide adequate transportation, water supplies, sewer service, schools, parks, open space, and public facilities;
12. Conserve the value of buildings;
13. Examine the most appropriate use of the land;
14. Regulate the location of business and industry;
15. Regulate the height and bulk of buildings;
16. Protect the capacity of floodways and non-encroachment areas in order to prevent loss or damage to homes or property;
17. Regulate the area of yards and open spaces for buildings;
18. Provide for the needs of agriculture;
19. Protect historic sites and areas;

20. Encourage an aesthetically attractive community;
21. Encourage the development of affordable housing;
22. Promote equity and socio-economic diversity; and
23. Prevent secondary effects from land uses that could negatively impact nearby land uses, consistent with prior ordinances restricting such uses and evidence supporting such restrictions.

C. The purpose of this UDO is also to provide for the orderly, efficient and economic development of the City and County by providing for:

1. The coordination of streets, highways and other public facilities within proposed subdivisions with existing or planned streets and highways or other public facilities;
2. The dedication or reservation of rights-of-way, easements or sites for streets, utilities, open space, recreation areas, and other public facilities;
3. The protection of historic resources and the natural environment; and
4. The distribution of population and traffic which avoids congestion and overcrowding and which creates conditions essential to public health, safety and the general welfare.

1.1.3. Authority

The authority to adopt and enforce this UDO is granted by the Charter of the City of Durham, by Chapter 160D of the North Carolina General Statutes as to the City and County of Durham, and any other applicable general or special statutes of the State of North Carolina including Chapter 4 of Title 15A of the North Carolina Administrative Code.

1.1.4. Jurisdiction

The provisions of this UDO apply to all properties within the jurisdiction of the County or the City and govern development and use of the land. No building may be erected or structurally altered or can any land development activity take place, unless it conforms to the provisions of this UDO. Uses of property are limited by the provisions of this UDO.

1.1.5. Relationship to Adopted Plans

The Comprehensive Plan adopted by the governing bodies indicates desired development at various levels of intensity. This UDO is intended to implement the Comprehensive Plan, therefore the Plan should be used as a guide for the application of this UDO to land within the areas covered, as well as for the provision of public services.

1.1.6. Minimum Requirements

The provisions of this UDO are intended to be minimum requirements. Where the provisions of this UDO impose greater restrictions than other ordinances, the provisions of this UDO prevail. Where the provisions of another ordinance impose greater restrictions, the other ordinance prevail.

1.1.7. Documents Incorporated by Reference

Unless otherwise stated within this UDO, references within this UDO to manuals, guides, and other similar documents refer to the most recent edition or version of the referenced document that has been accepted or adopted for usage by the entity, department, or agency charged with responsibility for the referenced document.

1.1.8. Conflict

These regulations are not intended to repeal, abrogate, annul or in any way impair or interfere with existing provisions of other public laws, ordinances, or regulations, except as specified in *Sec. 1.1.9, Effective Date*. Where these regulations conflict with other provisions of public law and regulations, the more stringent requirements will apply.

1.1.9. Effective Date

A. This UDO is effective within each jurisdiction as of January 1, 2006.

B. The provisions of *Sec. 1.1.11, Transitional Provisions*, govern the completion of approved permits, development plans, plats and other development-related approvals, or completed applications.

C. Vested rights is determined in accordance with *Sec. 8.2.21, Vested Rights*.

1.1.10. Severability

If any section or provision of this UDO is declared invalid, the remaining sections or provisions remain valid.

1.1.11. Transitional Provisions

A. Violations Continue

Any violation of a prior UDO provision will continue to be a violation under this UDO and be subject to penalties and enforcement under this UDO unless the use, development, or activity complies, in its entirety, with the provisions of this UDO.

B. Prior Nonconformities and Grandfathered Uses

Any use, plan, building, or lot that was nonconforming or grandfathered under the prior UDO will be considered a nonconformity under this UDO except as may be otherwise provided under *Sec. 8.3, Nonconformities*. The provisions of *Sec. 8.3, Nonconformities* are applicable to all nonconformities. Any use, site plan, building, or lot that was previously nonconforming or grandfathered, but becomes conforming as a result of the adoption of this UDO, will no longer be considered nonconforming, provided that all applicable provisions of this UDO are met.

C. Effect of this Ordinance on Approved Plans and on Completed Applications

1. Approved Site Plans, Plats, and Permits and Completed Applications

a. Completion of development under an approved site plan, preliminary plat, final plat, major or minor special use permit, or building permit (if none of the preceding approvals are required) is governed by the ordinance under which the approval was granted.

b. An application for a site plan, preliminary plat, final plat, major or minor special use permit, building permit (if none of the preceding approvals are required), or development plan associated with a zoning map change that was administratively determined to be substantially complete as of December 31, 2005, is governed by the ordinance in effect at the time of submission if it complied with the ordinance at that time. The expiration and continuing validity of any such site plan, plat, or permit is governed by the previous ordinance. The continuing validity of any such development plan is governed by *paragraph c.* below and *Sec. 8.2.5.L, Deviations from Approved Development Plans*.

c. For property with a development plan approved under an ordinance in effect prior to adoption of this UDO, an application for a site plan, preliminary plat, final plat, major or minor special use permit, or building permit (if none of the preceding approvals are required) that is substantially complete as of December 31, 2006 or within 2 years of the date of development plan approval, whichever is later, must conform to the approved development plan except that it must comply with the provisions of this UDO adopted for environmental purposes, including but not limited to *Article 7, Environmental Protection, Sec. 7.9, Sedimentation and Erosion Control*, and *Sec. 7.9, Sedimentation and Erosion Control*, and to all other applicable laws or ordinances adopted for environmental purposes.

2. Timely Submission of Information

Applicants who have substantially complete applications as provided above must comply with all requests for further information and submit all necessary revisions of submitted plans in a timely manner. *Sec. 8.2.2.D.7, Active Application Time Period* applies, and any new application must then conform with the provisions of this UDO.

D. Violations in Progress

The prosecution of violations which occurred under the prior UDO will continue until resolved.

E. Zoning District Name Changes

1. The zoning district names in effect prior to the effective date of this UDO are hereby converted, as shown on the following table. The addition of new zoning districts or the deletion of zoning districts subsequent to the original adoption of this UDO is not reflected in the following table.

2. Projects originally developed as R-20 Cluster Developments prior to 1994 that were converted to R-15 projects under the 1994 Zoning Ordinance will be designated as RS-20 developments with the adoption of this UDO.

3. All parcels zoned with development plans, both developed and undeveloped, will continue to carry the (D) designation. Deviations from such development plans will be governed by the provisions of 3.5.12, Deviations from Approved Development Plans.

1.1.12. Declaration of Emergency Waiver

The Planning Director can waive, suspend and/or cease enforcement of this UDO in accordance with an official declaration of emergency pursuant to Durham City Code of Ordinances Chapter 22; Durham County Code of Ordinances Chapter 10, Article III; and N.C. Gen. Stat. 166A.

SEC. 1.2. **ZONING DISTRICTS ESTABLISHED**

In order to accomplish the purpose of this UDO, the City and County are divided into the following zoning districts, as shown on the Official Zoning Map.

1. Residential Districts
R-A Residential Preserve
R-B Residential Suburban
R-C Manufactured Home Park
R-D Residential Neighborhood (-1, -2, and -3)
2. Residential Mixed Use Districts
RX-3 Residential Mixed Use 3
RX-5 Residential Mixed Use 5
RX-8 Residential Mixed Use 8
3. Commercial Mixed Use Districts
CX-3 Commercial Mixed Use 3
CX-5 Commercial Mixed Use 5
CX-8 Commercial Mixed Use 8
CX-20 Commercial Mixed Use 20
4. Commercial Districts
CN Commercial Neighborhoods
CG Commercial General
CH Commercial Heavy
5. Employment Districts
IX Industrial Mixed Use
IH Industrial Heavy
IU Innovation Urban
IC Innovation Campus
6. Institutional Districts
CIV Civic
7. Open Space Districts
CON Conservation
PK Park
8. Planned Districts
UC University and Campus (-A, -B)
PD Planned Development

SEC. 1.3. **ZONING DISTRICTS ESTABLISHED**

ARTICLE 2.

ZONING DISTRICTS

SEC. 2.1. GENERAL PROVISIONS

2.1.1. Zoning Districts Established

To be inserted

2.1.2. Applicability

To be inserted

SEC. 2.2. RESIDENTIAL DISTRICTS

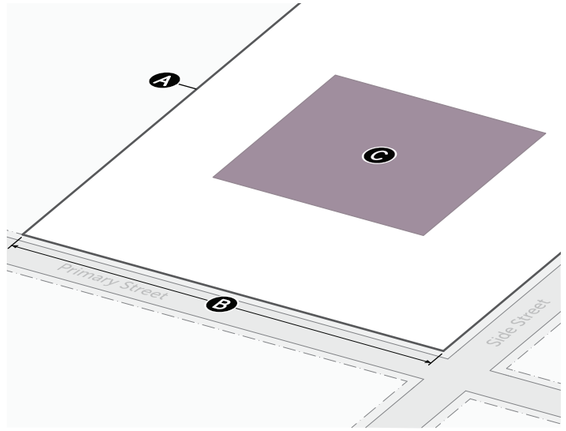
2.2.1. Summary of Districts

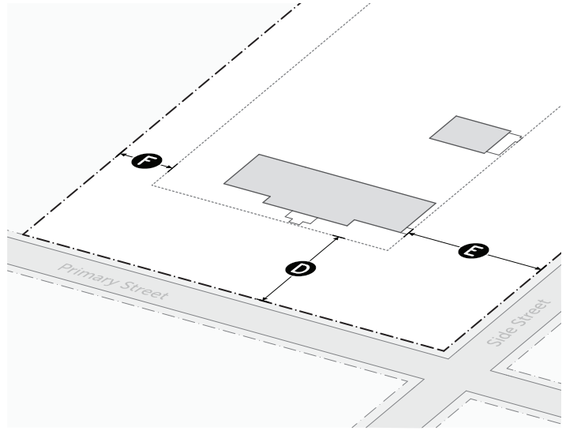
To be inserted

2.2.2. **R-A** RESIDENTIAL PRESERVE

R-A

A. Lot Standards

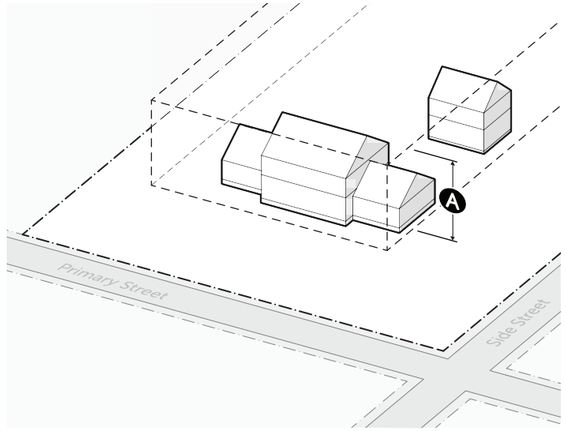




1. Lot Size	
A Area (min)	3 acres
B Width (min)	200’
2. Density	
Units per lot (max)	1 plus ADU
3. Coverage	
C Building coverage (max)	10%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	50’
E Side street (min)	50’
F Side (min)	25’
Rear (min)	50’
5. Build-to	
Primary Street (min)	n/a
Side Street (min)	n/a
6. Parking Location	
Street yard	Allowed
Side yard	Allowed
Rear yard	Allowed

B. Building Standards



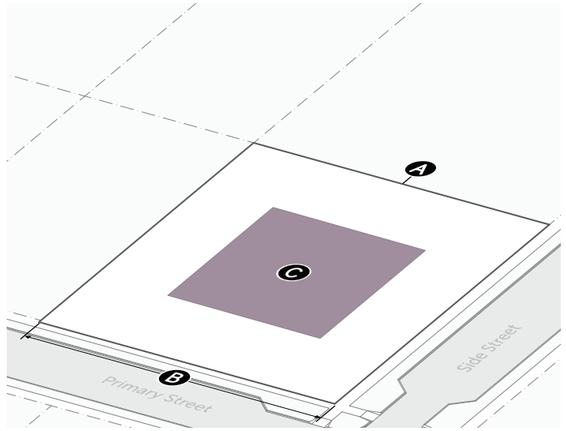
1. Massing	
A Height (max)	3 stories / 40’
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Ground story elevation (min/max)	n/a

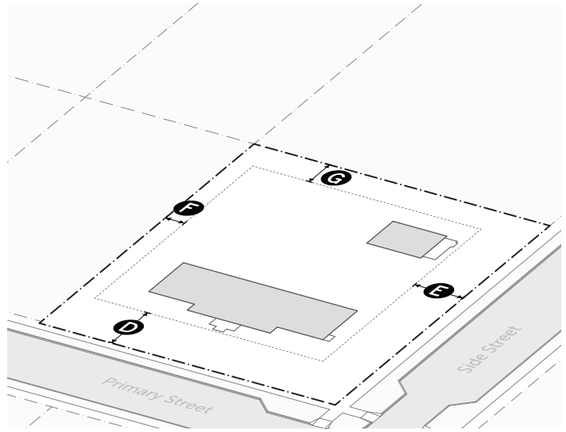
4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors	*Sec. XX.XX.*	
Street-facing entry spacing (max)	n/a	n/a

2.2.3. **R-B** RESIDENTIAL RURAL

R-B

A. Lot Standards

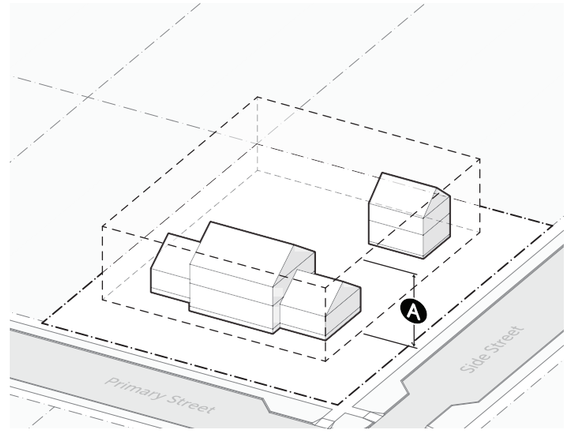




1. Lot Size	
A Area (min)	20,000 SF
B Width (min)	100’
2. Density	
Units per lot (max)	1 plus ADU
3. Coverage	
C Building coverage (max)	30%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	35’
E Side street (min)	35’
F Side (min)	12’
G Rear (min)	25’
5. Build-to	
Primary Street (min)	n/a
Side Street (min)	n/a
6. Parking Location	
Street yard	Allowed
Side yard	Allowed
Rear yard	Allowed

B. Building Standards



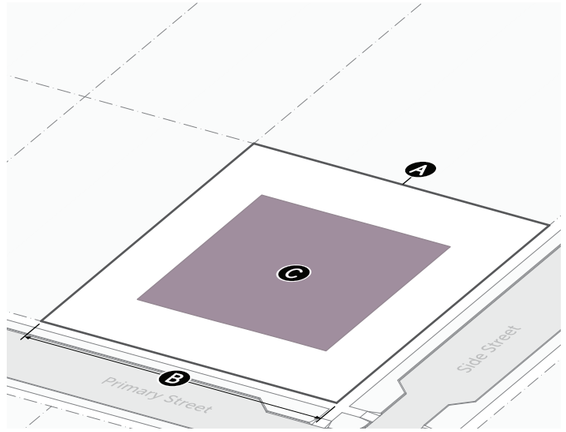
1. Massing	
A Height (max)	3 stories / 40’
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Ground story elevation (min/max)	n/a

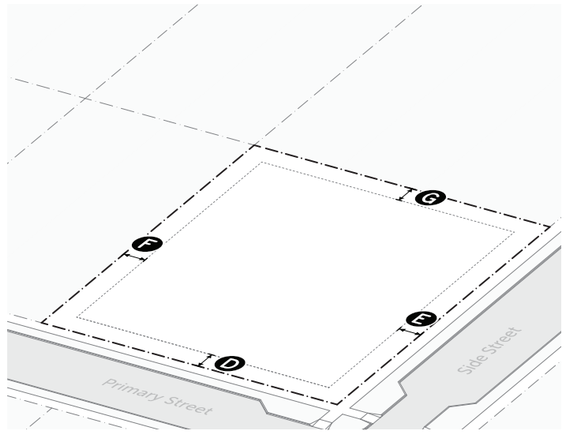
4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors	*Sec. XX.XX.*	
Street-facing entry spacing (max)	n/a	n/a

2.2.4. **R-C** MANUFACTURED HOME PARK

R-C

A. Lot Standards

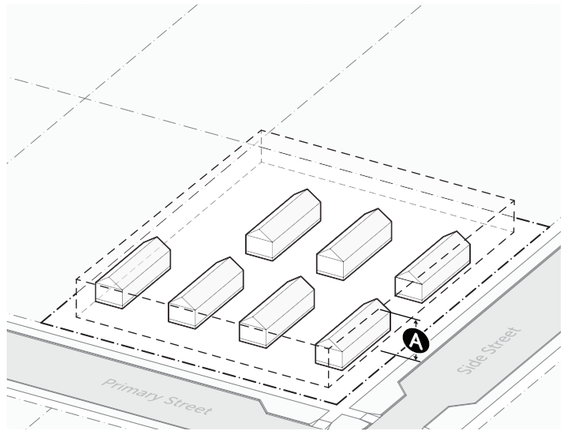


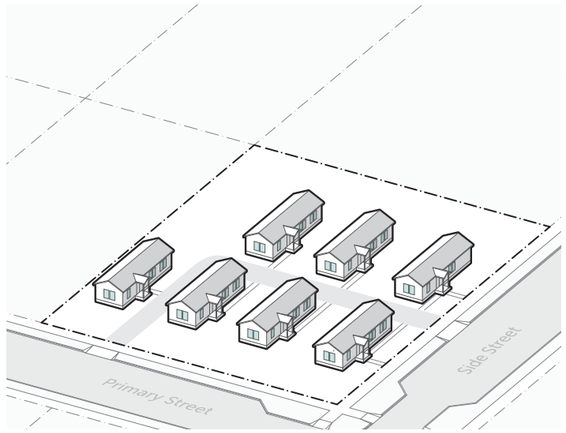


1. Site Size	
A Area (min)	15,000 SF
B Width (min)	100’
2. Density	
Units per lot (max)	n/a
3. Coverage	
C Building coverage (max)	50%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	10’
E Side street (min)	10’
F Side (min)	10’
G Rear (min)	10’
5. Build-to	
Primary Street (min)	n/a
Side Street (min)	n/a
6. Parking Location	
Street yard	Allowed
Side yard	Allowed
Rear yard	Allowed

B. Building Standards



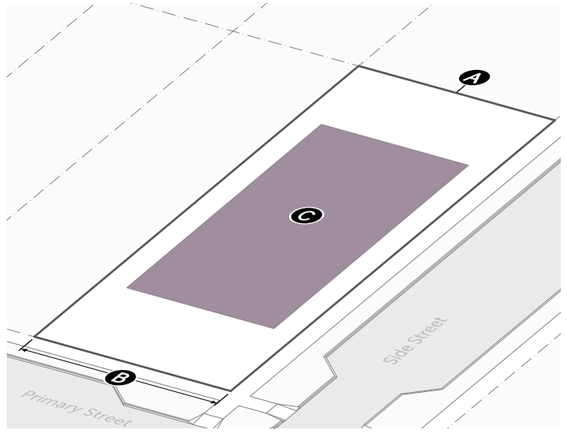


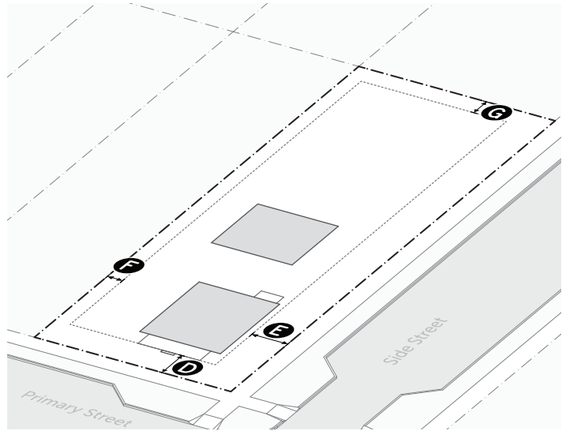
1. Massing	
A Height (max)	1 story / 18’
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Ground story elevation (min/max)	n/a

4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
Street-facing entry spacing (max)	n/a	n/a

2.2.5. **R-D** RESIDENTIAL NEIGHBORHOOD-1

A. Lot Standards

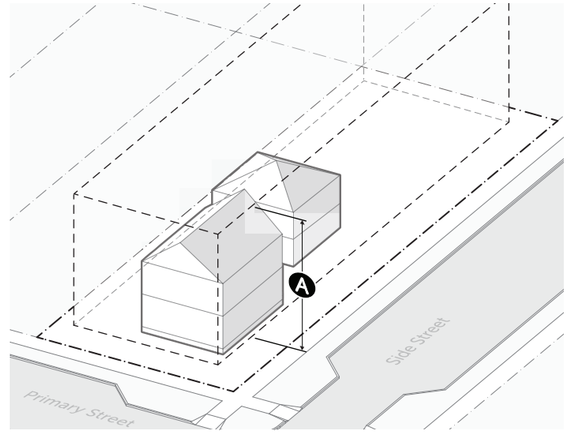


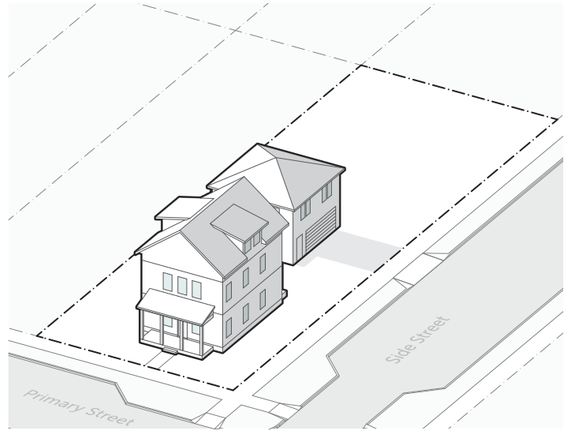


1. Lot Size	
A Area (min)	5,000 SF
B Width (min)	50’
2. Density	
Units per lot (max)	1 plus ADU
3. Coverage	
C Building coverage (max)	50%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	10’
E Side street (min)	10’
F Side (min)	5’
G Rear (min)	5’
Alley (min)	3’ or 20’
5. Build-to	
Primary Street (min)	n/a
Side Street (min)	n/a
6. Parking Location	
Street yard	Driveway only
Side yard	Allowed
Rear yard	Allowed

B. Building Standards



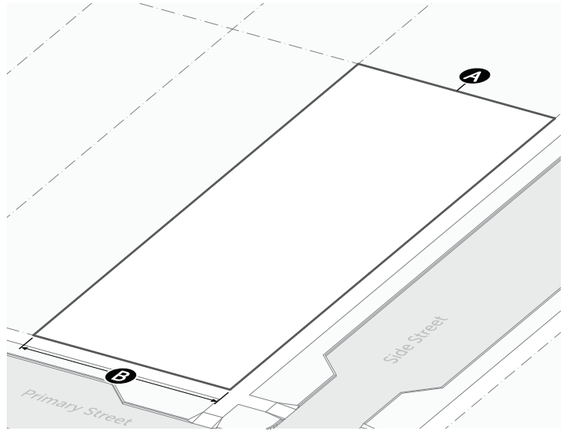


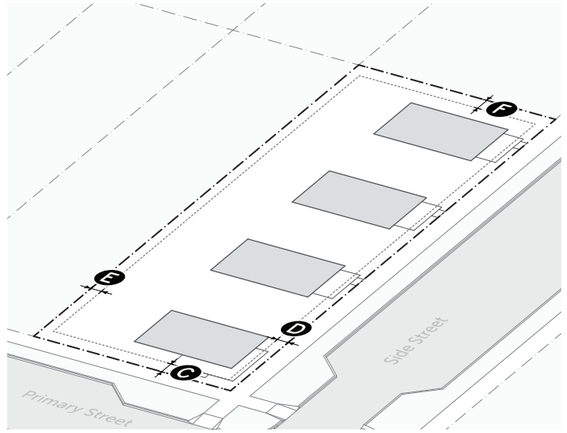
1. Massing	
A Height (max)	3 stories / 40’
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Ground story elevation (min/max)	n/a

4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
Street-facing entry spacing (max)	n/a	n/a

2.2.6. **R-D** RESIDENTIAL NEIGHBORHOOD-2

A. Lot Standards

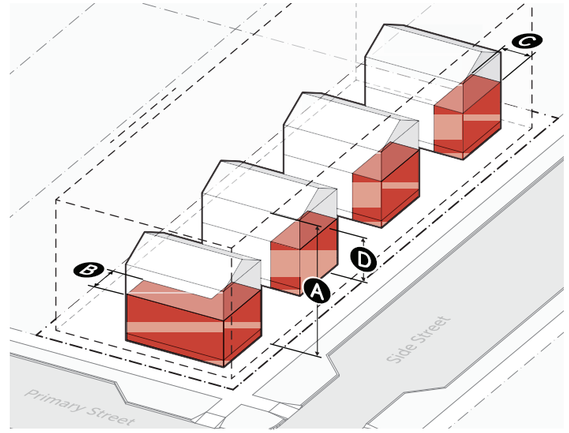


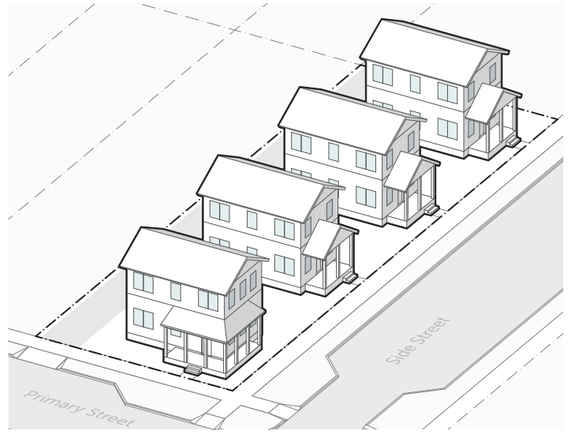


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	1/1,250 SF
3. Coverage	
Building coverage (max)	n/a
Amenity space (min)	n/a

4. Building Setbacks	
C Primary street (min)	5′
D Side street (min)	5′
E Side (min)	5′
F Rear (min)	5′
Alley (min)	3′ or 20′
5. Build-to	
Primary Street (min)	n/a
Side Street (min)	n/a
6. Parking Location	
Street yard	Driveway only
Side yard	Allowed
Rear yard	Allowed

B. Building Standards



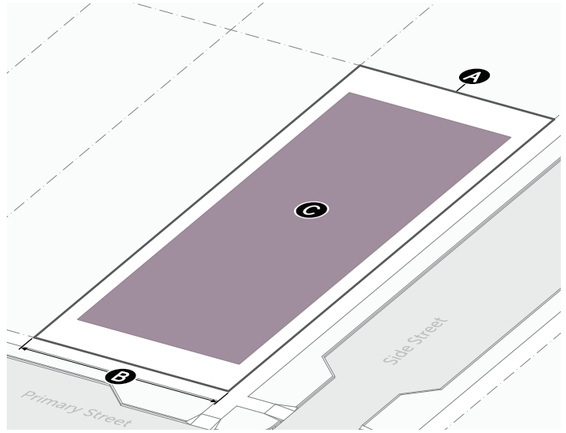


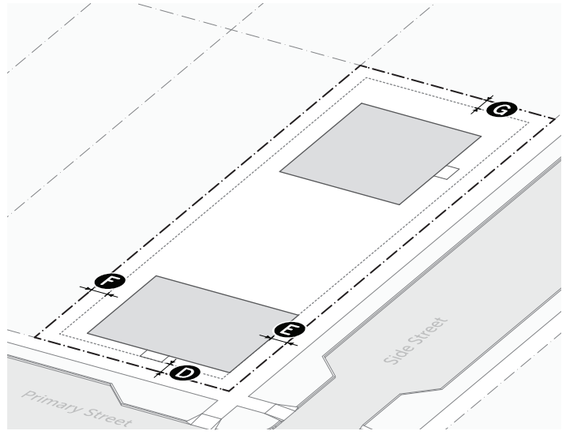
1. Massing	
A Height (max)	3 stories / 40′
Unit footprint (max)	800 SF
Unit size (max)	1,200 SF
2. Active Depth	
B Primary street (min)	9′
C Side street (min)	9′
3. Ground Story	
D Ground story height (min)	10′
Ground story elevation (min/max)	0′/3′

4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
Street-facing entry spacing (max)	n/a	n/a

2.2.7. **R-D** RESIDENTIAL NEIGHBORHOOD-3

A. Lot Standards

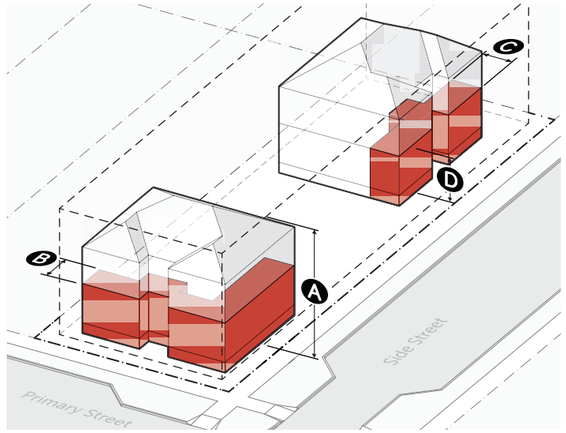


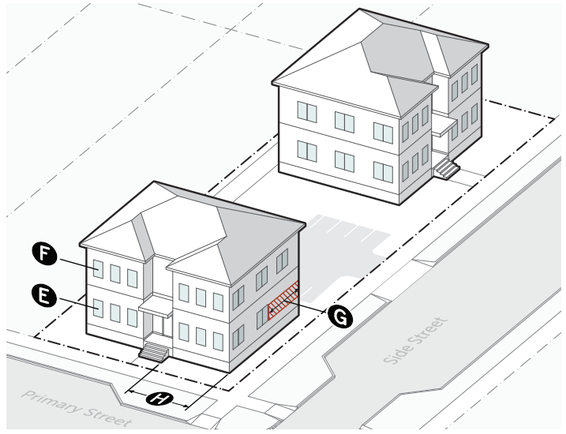


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	1/625 SF
3. Coverage	
C Building coverage (max)	70%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	5′
E Side street (min)	5′
F Side (min)	5′
G Rear (min)	5′
Alley (min)	3′ or 20′
5. Build-to	
Primary Street (min)	n/a
Side Street (min)	n/a
6. Parking Location	
Street yard	Driveway only
Side yard	Allowed
Rear yard	Allowed

B. Building Standards





1. Massing	
A Height (max)	3 stories / 40′
2. Active Depth	
B Primary street (min)	9′
C Side street (min)	9′
3. Ground Story	
D Ground story height (min)	9′
Ground story elevation (min/max)	0′/3′

4. Windows	Primary St.	Side St.
E Ground story (min)	20%	20%
F Upper story (min)	15%	15%
G Blank wall width (max)	10′	20′
5. Doors		
H Street-facing entry spacing (max)	75′	100′

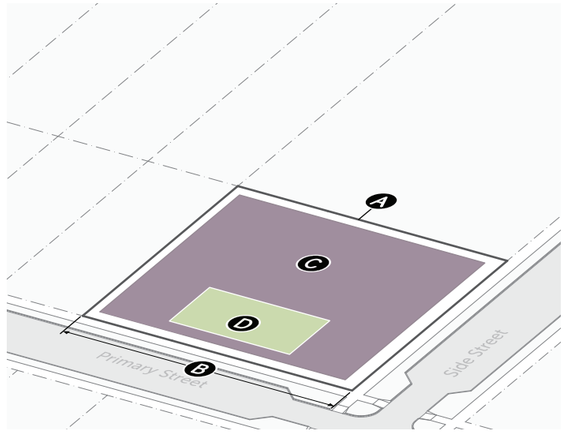
SEC. 2.3. RESIDENTIAL MIXED USE DISTRICTS

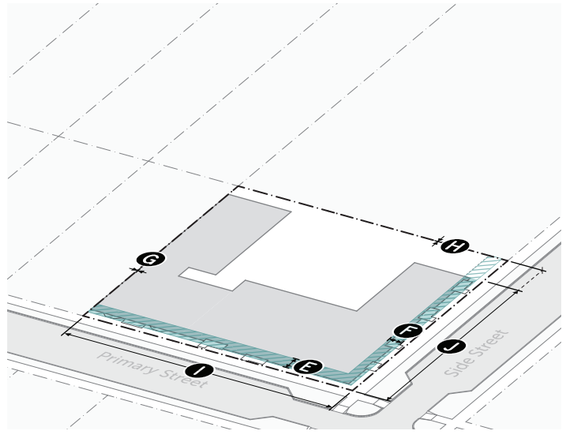
2.3.1. Summary of Districts

To be inserted

2.3.2. **RX-3** RESIDENTIAL MIXED USE 3

A. Lot Standards



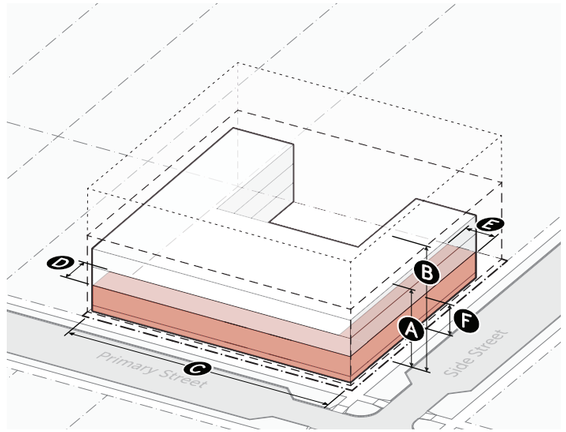


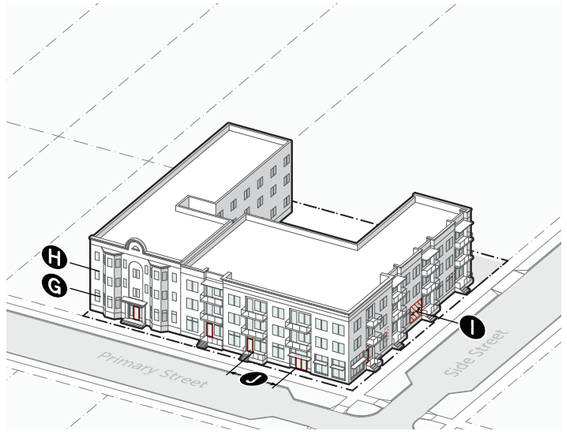
1. Lot Size	
Ⓐ Area (min)	0′
Ⓑ Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
Ⓒ Building coverage (max)	80%
Ⓓ Amenity space (min)	15%

4. Building Setbacks	
Ⓔ Primary street (min/max)	5′/20′
Ⓕ Side street (min/max)	5′/20′
Ⓖ Side (min)	0′
Ⓗ Rear (min)	0′
Alley (min)	3′
5. Build-to	
Ⓘ Primary street (min)	70%
Ⓙ Side street (min)	35%
6. Parking Location	
Parking between building and street	Not allowed

RX-3

B. Building Standards





1. Massing	
Height (max)	
Ⓐ Base	3 stories / 45′
Ⓑ Compact	5 stories / 70′
Affordable	Unlimited
Unit size (max)	
Base	n/a
Compact	450 SF
Affordable	n/a
Ⓒ Width (max)	175′
2. Active Depth	
Ⓓ Primary street (min)	9′
Ⓔ Side street (min)	9′
3. Ground Story	
Ⓕ Ground story height (min)	11′
Finished floor elevation (min/max)	-2/5′

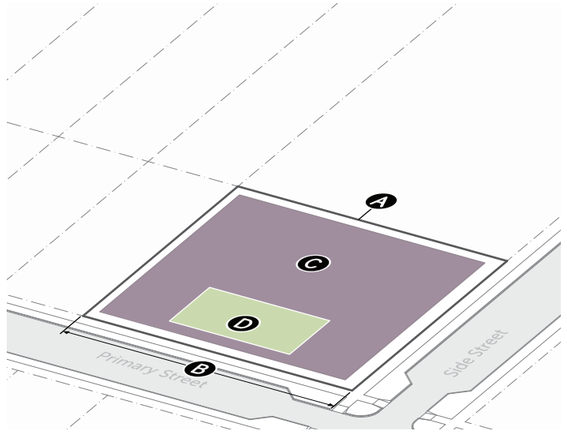
4. Windows	Primary St.	Side St.
Ⓖ Ground story (min)	30%	30%
Ⓗ Upper story (min)	15%	15%
Ⓘ Blank wall width (max)	20′	30′
5. Doors		
Ⓙ Street-facing entry spacing (max)	50′	75′

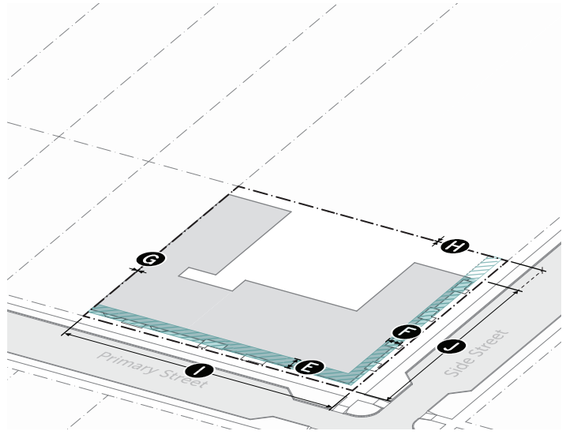
2.3.3. **RX-5** RESIDENTIAL MIXED USE 5

ARTICLE 2. ZONING DISTRICTS
RESIDENTIAL MIXED USE DISTRICTS

RX-5

A. Lot Standards

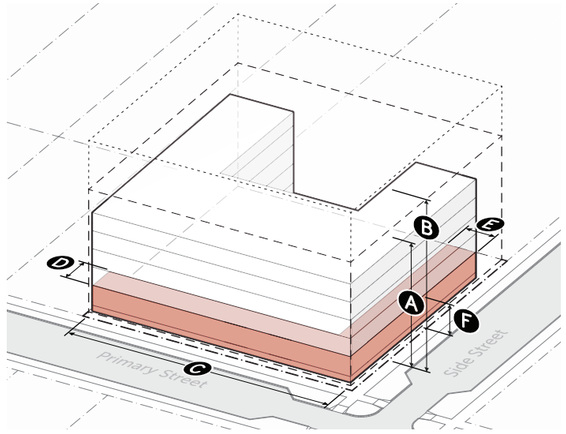




1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	80%
D Amenity space (min)	15%

4. Building Setbacks	
E Primary street (min/max)	5′/20′
F Side street (min/max)	5′/20′
G Side (min)	0′
H Rear (min)	0′
Alley (min)	3′
5. Build-to	
I Primary street (min)	70%
J Side street (min)	35%
6. Parking Location	
Parking between building and street	Not allowed

B. Building Standards



1. Massing	
Height (max)	
A Base	5 stories / 70′
B Compact	8 stories / 115′
Affordable	Unlimited
Unit size (max)	
Base	n/a
Compact	450 SF
Affordable	n/a
C Width (max)	225′
2. Active Depth	
D Primary street (min)	9′
E Side street (min)	9′
3. Ground Story	
F Ground story height (min)	11′
Finished floor elevation (min/max)	-2/5′

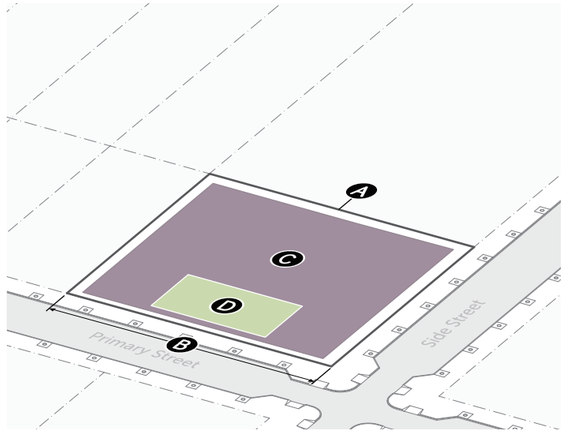
4. Windows	Primary St.	Side St.
G Ground story (min)	30%	30%
H Upper story (min)	15%	15%
I Blank wall width (max)	20′	30′
5. Doors		
J Street-facing entry spacing (max)	50′	75′

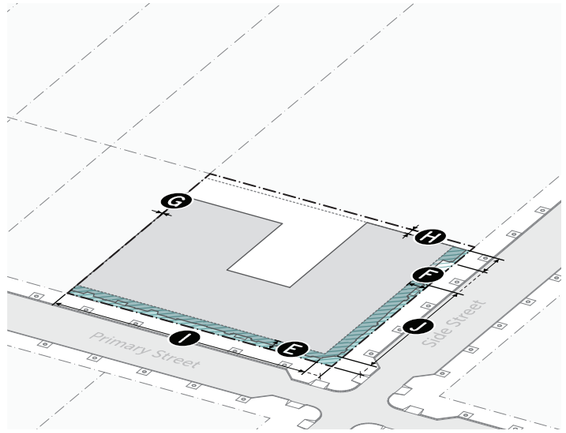
2.3.4. **RX-8** RESIDENTIAL MIXED USE 8

ARTICLE 2. ZONING DISTRICTS
RESIDENTIAL MIXED USE DISTRICTS

RX-8

A. Lot Standards

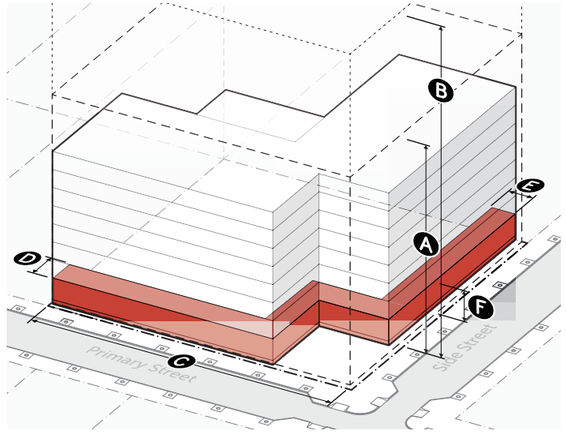




1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	80%
D Amenity space (min)	15%

4. Building Setbacks	
E Primary street (min/max)	5′/20′
F Side street (min/max)	5′/20′
G Side (min)	0′
H Rear (min)	0′
Alley (min)	3′
5. Build-to	
I Primary street (min)	70%
J Side street (min)	35%
6. Parking Location	
Parking between building and street	Not allowed

B. Building Standards



1. Massing	
Height (max)	
A Base	8 stories / 115′
B Compact	13 stories / 190′
Affordable	Unlimited
Unit size (max)	
Base	n/a
Compact	450 SF
Affordable	n/a
C Width (max)	250′
2. Active Depth	
D Primary street (min)	9′
E Side street (min)	9′
3. Ground Story	
F Ground story height (min)	11′
Finished floor elevation (min/max)	-2/5′

4. Windows	Primary St.	Side St.
G Ground story (min)	30%	30%
H Upper story (min)	15%	15%
I Blank wall width (max)	20′	30′
5. Doors		
J Street-facing entry spacing (max)	50′	75′

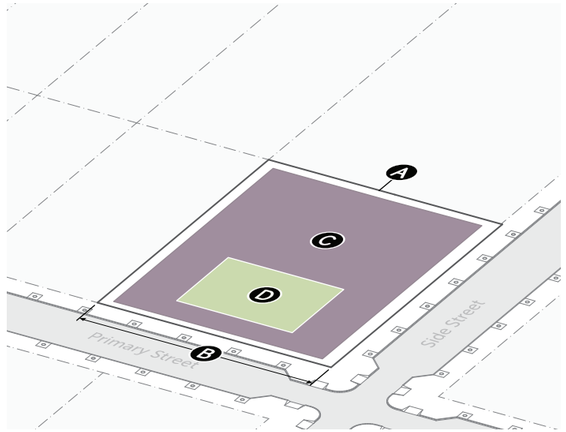
SEC. 2.4. COMMERCIAL MIXED USE DISTRICTS

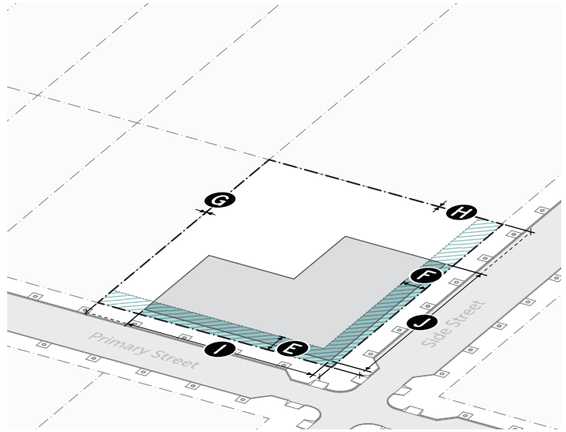
2.4.1. Summary of Districts

To be inserted

2.4.2. **CX-3** COMMERCIAL MIXED USE 3

A. Lot Standards



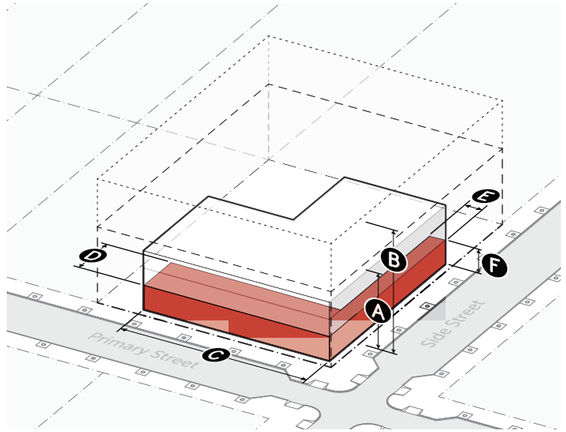


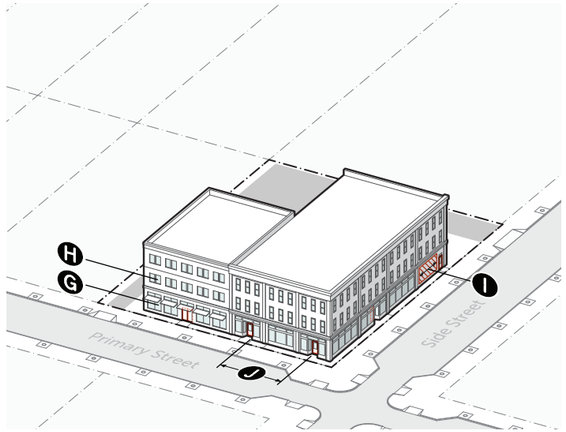
1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	80%
D Amenity space (min)	15%

4. Building Setbacks	
E Primary street (min/max)	0′/20′
F Side street (min/max)	0′/20′
G Side (min)	0′
H Rear (min)	0′
Alley (min)	3′
5. Build-to	
I Primary street (min)	80%
J Side street (min)	40%
6. Parking Location	
Parking between building and street	Not allowed

CX-3

B. Building Standards



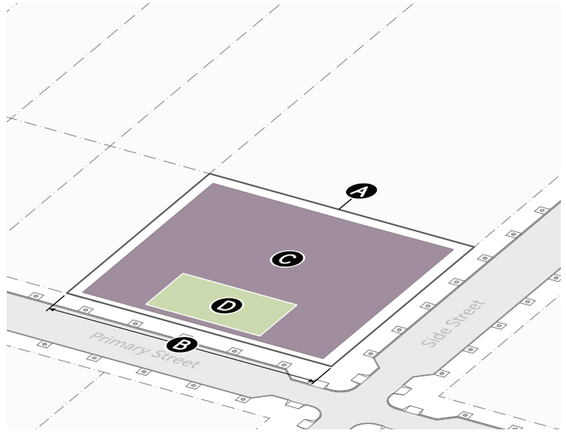


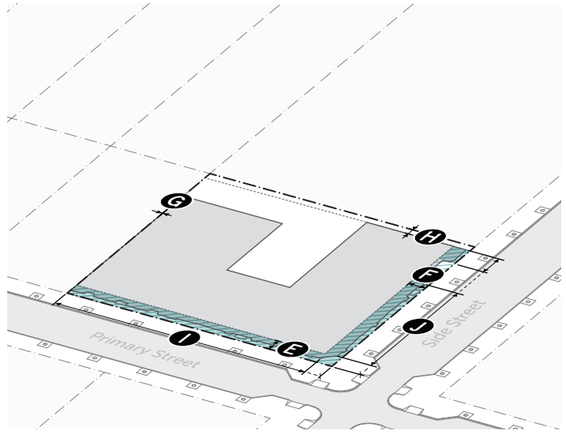
1. Massing	
Height (max)	
A Base	3 stories / 45′
B Compact	5 stories / 70′
Affordable	Unlimited
Unit size (max)	
Base	n/a
Compact	450 SF
Affordable	n/a
C Width (max)	175′
2. Active Depth	
D Primary street (min)	20′
E Side street (min)	9′
3. Ground Story	
F Ground story height (min)	
Residential	11′
Nonresidential	14′
Finished floor elevation (min/max)	-2/5′

	Primary St.	Side St.
4. Windows		
G Ground story (min)		
Residential	30%	30%
Nonresidential	50%	50%
H Upper story (min)	15%	15%
I Blank wall width (max)	15′	25′
5. Doors		
J Street-facing entry spacing (max)	40′	60′

2.4.3. **CX-5** COMMERCIAL MIXED USE 5

A. Lot Standards



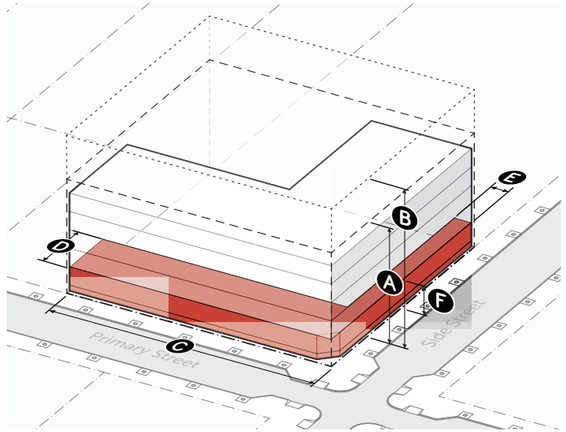


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	80%
D Amenity space (min)	15%

4. Building Setbacks	
E Primary street (min/max)	0′/20′
F Side street (min/max)	0′/20′
G Side (min)	0′
H Rear (min)	0′
Alley (min)	3′
5. Build-to	
I Primary street (min)	80%
J Side street (min)	40%
6. Parking Location	
Parking between building and street	Not allowed

CX-5

B. Building Standards

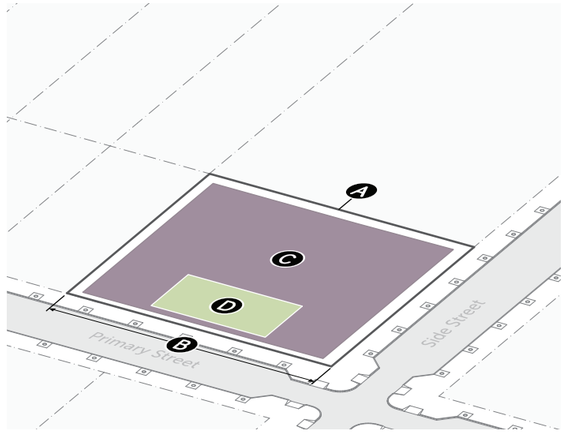


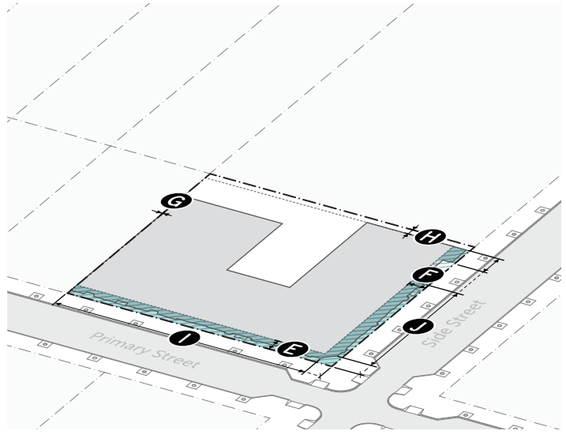
1. Massing	
Height (max)	
A Base	5 stories / 70′
B Compact	8 stories / 115′
Affordable	Unlimited
Unit size (max)	
Base	n/a
Compact	450 SF
Affordable	n/a
C Width (max)	225′
2. Active Depth	
D Primary street (min)	20′
E Side street (min)	9′
3. Ground Story	
F Ground story height (min)	
Residential	11′
Nonresidential	14′
Finished floor elevation (min/max)	-2/5′

4. Windows	Primary St.	Side St.
G Ground story (min)		
Residential	30%	30%
Nonresidential	50%	50%
H Upper story (min)	15%	15%
I Blank wall width (max)	15′	25′
5. Doors		
J Street-facing entry spacing (max)	40′	60′

2.4.4. **CX-8** COMMERCIAL MIXED USE 8

A. Lot Standards

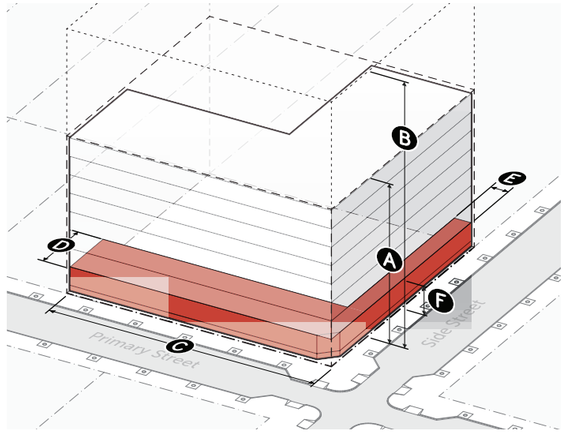




1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	80%
D Amenity space (min)	15%

4. Building Setbacks	
E Primary street (min/max)	0′/20′
F Side street (min/max)	0′/20′
G Side (min)	0′
H Rear (min)	0′
Alley (min)	3′
5. Build-to	
I Primary street (min)	80%
J Side street (min)	40%
6. Parking Location	
Parking between building and street	Not allowed

B. Building Standards

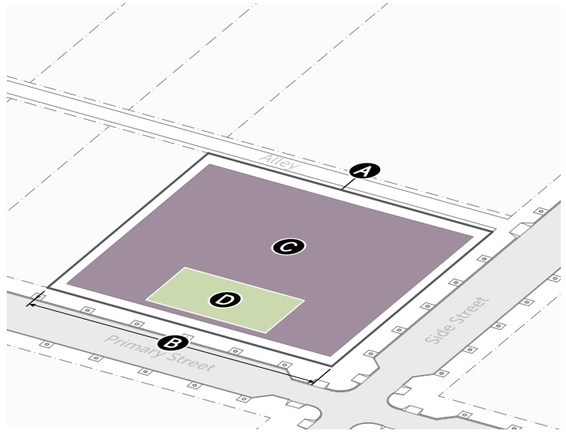


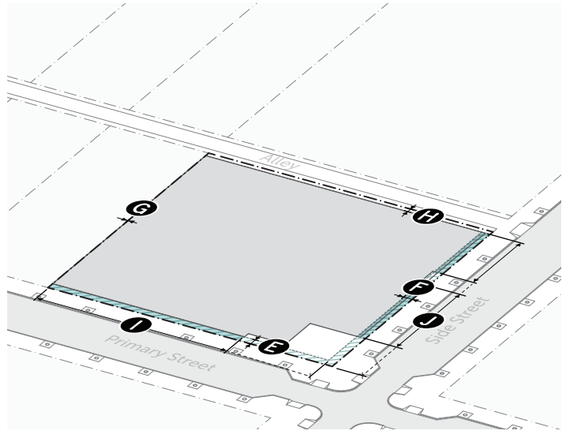
1. Massing	
Height (max)	
A Base	8 stories / 115′
B Compact	13 stories / 190′
Affordable	Unlimited
Unit size (max)	
Base	n/a
Compact	450 SF
Affordable	n/a
C Width (max)	250′
2. Active Depth	
D Primary street (min)	20′
E Side street (min)	9′
3. Ground Story	
F Ground story height (min)	
Residential	11′
Nonresidential	14′
Finished floor elevation (min/max)	-2/5′

4. Windows	Primary St.	Side St.
G Ground story (min)		
Residential	30%	30%
Nonresidential	50%	50%
H Upper story (min)	15%	15%
I Blank wall width (max)	15′	25′
5. Doors		
J Street-facing entry spacing (max)	40′	60′

2.4.5. **CX-20** COMMERCIAL MIXED USE 20

A. Lot Standards



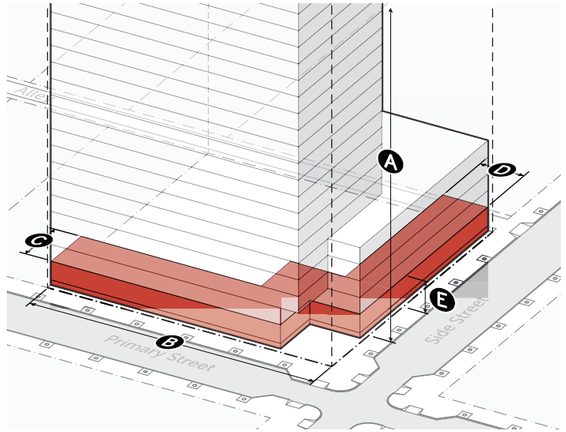


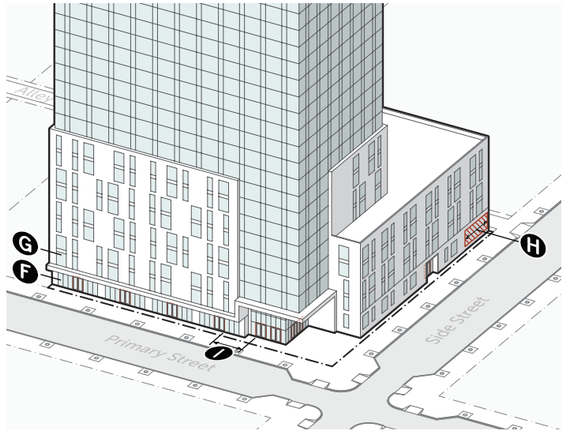
1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	80%
D Amenity space (min)	15%

4. Building Setbacks	
E Primary street (min/max)	0′/20′
F Side street (min/max)	0′/20′
G Side (min)	0′
H Rear (min)	0′
Alley (min)	3′
5. Build-to	
I Primary street (min)	80%
J Side street (min)	80%
6. Parking Location	
Parking between building and street	Not allowed

CX-20

B. Building Standards





1. Massing	
Height (max)	
A Base	20 stories / 300′
Compact	30 stories / 450′
Affordable	Unlimited
Unit size (max)	
Base	n/a
Compact	450 SF
Affordable	n/a
B Width (max)	300′
2. Active Depth	
C Primary street (min)	30′
D Side street (min)	30′
3. Ground Story	
E Ground story height (min)	15′
Finished floor elevation (min/max)	-2/5′

4. Windows	Primary St.	Side St.
F Ground story (min)	60%	60%
G Upper story (min)	15%	15%
H Blank wall width (max)	15′	15′
5. Doors		
I Street-facing entry spacing (max)	40′	40′

SEC. 2.5. COMMERCIAL DISTRICTS

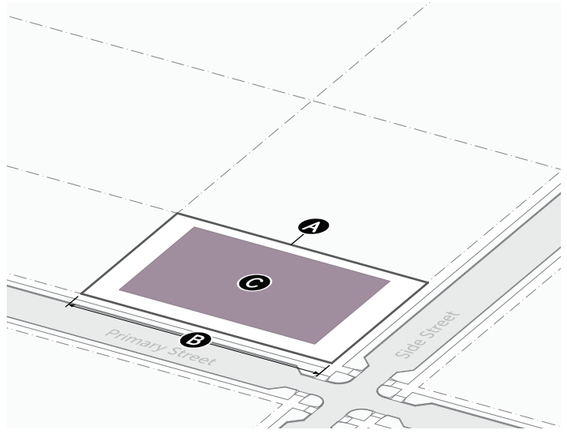
2.5.1. Summary of Districts

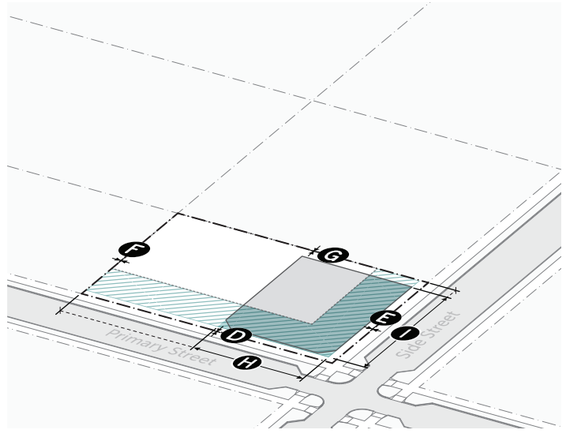
To be inserted

2.5.2. **CN** COMMERCIAL NEIGHBORHOOD

CN

A. Lot Standards

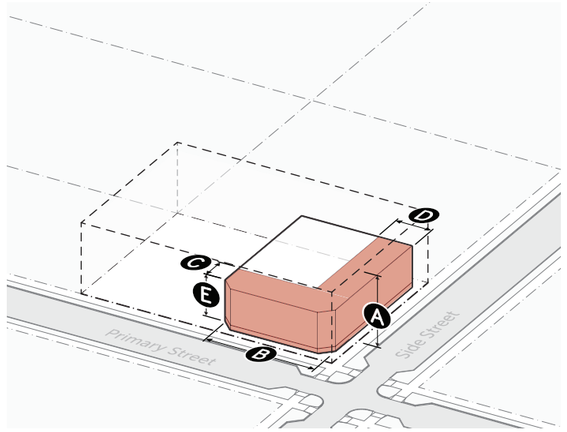


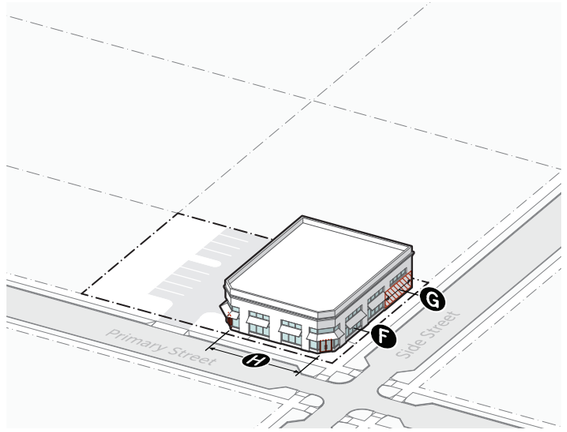


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	60%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min/max)	5′/30′
E Side street (min/max)	5′/30′
F Side (min)	0′
G Rear (min)	0′
Alley (min)	3′
5. Build-to	
H Primary street (min)	40%
I Side street (min)	40%
6. Parking Location	
Parking between building and street	Not allowed

B. Building Standards





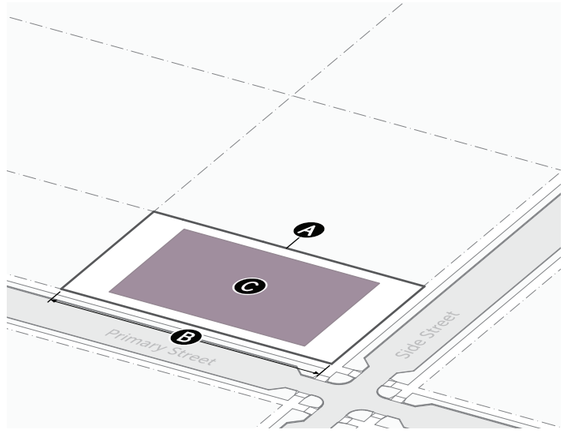
1. Massing	
A Height (max)	3 stories / 45′
Unit size (max)	n/a
B Width (max)	175′
2. Active Depth	
C Primary street (min)	20′
D Side street (min)	20′
3. Ground Story	
E Ground story height (min)	12′
Finished floor elevation (min/max)	-2/5′

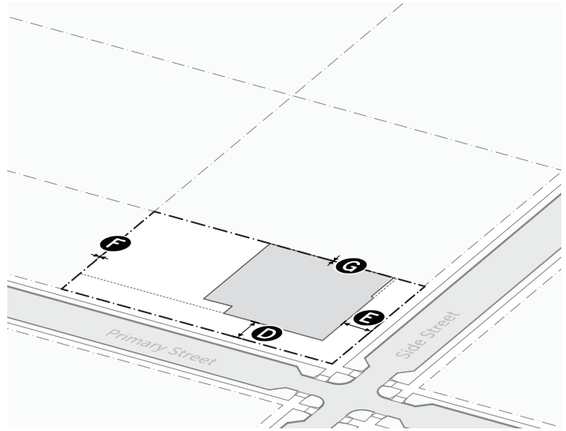
4. Windows	Primary St.	Side St.
F Ground story (min)	50%	30%
Upper story (min)	15%	15%
G Blank wall width (max)	20′	35′
5. Doors		
H Street-facing entry spacing (max)	60′	100′

2.5.3. **CG** COMMERCIAL GENERAL

CG

A. Lot Standards

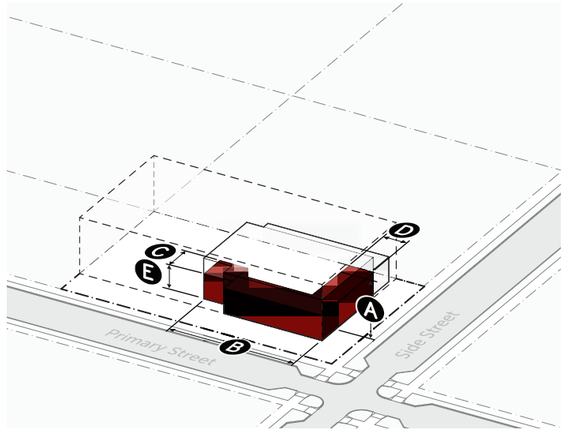


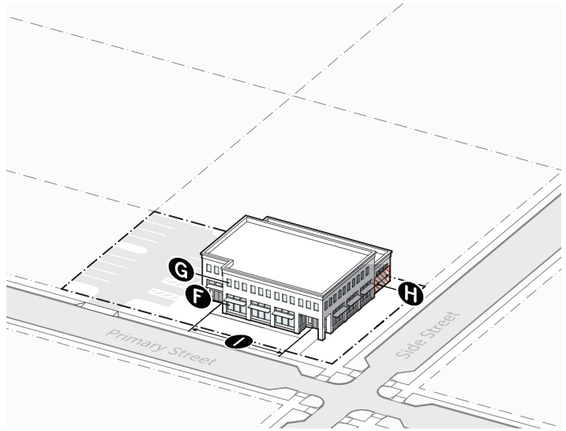


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	60%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	10′
E Side street (min)	10′
F Side (min)	0′
G Rear (min)	0′
Alley (min)	3′
5. Build-to	
Primary street (min)	n/a
Side street (min)	n/a
6. Parking Location	
Parking between building and street	Allowed

B. Building Standards





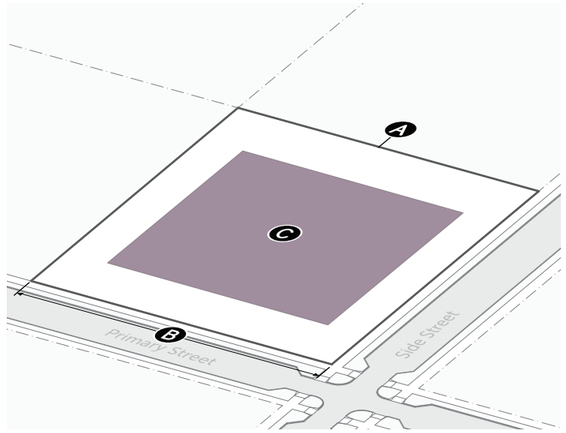
1. Massing	
A Height (max)	5 stories / 70′
Unit size (max)	n/a
B Width (max)	300′
2. Active Depth	
C Primary street (min)	20′
D Side street (min)	20′
3. Ground Story	
E Ground story height (min)	12′
Finished floor elevation (min/max)	-2/5′

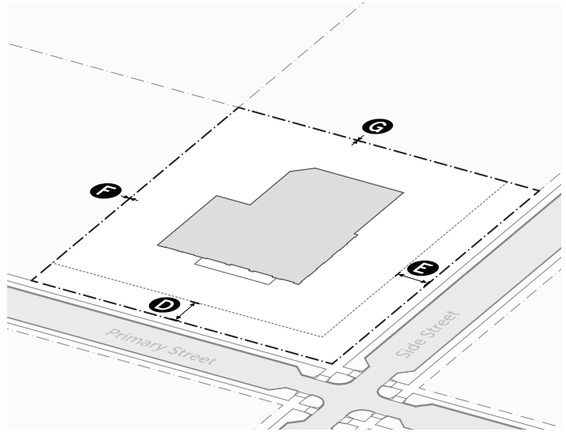
4. Windows	Primary St.	Side St.
F Ground story (min)	50%	30%
G Upper story (min)	15%	15%
H Blank wall width (max)	25′	40′
5. Doors		
I Street-facing entry spacing (max)	100′	n/a

2.5.4. **CH** COMMERCIAL HEAVY

CH

A. Lot Standards

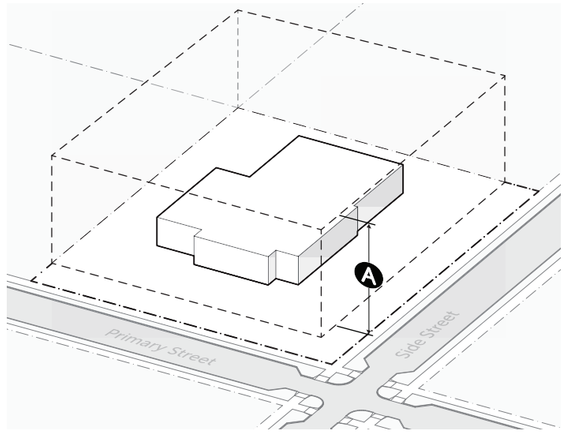


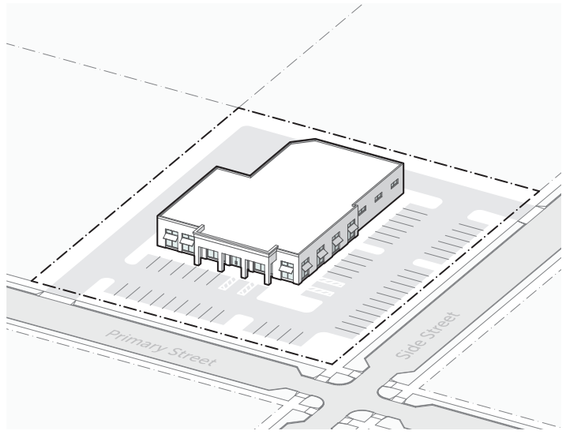


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	60%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	20′
E Side street (min)	20′
F Side (min)	0′
G Rear (min)	0′
Alley (min)	3′
5. Build-to	
Primary street (min)	n/a
Side street (min)	n/a
6. Parking Location	
Parking between building and street	Allowed

B. Building Standards





1. Massing	
A Height (max)	5 stories / 70′
Unit size (max)	n/a
Width (max)	n/a
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Finished floor elevation (min/max)	n/a

4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
Street-facing entry spacing (max)	n/a	n/a

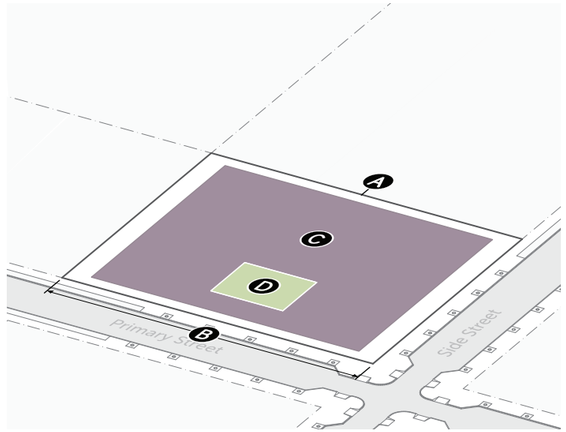
SEC. 2.6. EMPLOYMENT DISTRICTS

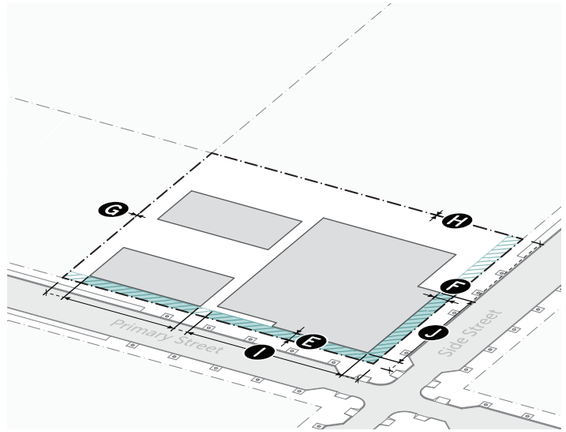
2.6.1. Summary of Districts

To be inserted

2.6.2. **IX** INDUSTRIAL MIXED USE

A. Lot Standards

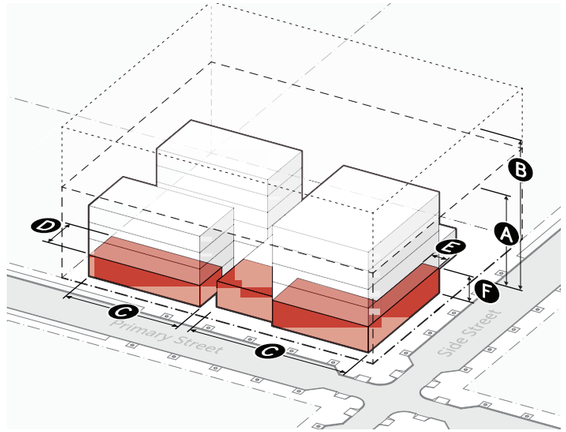


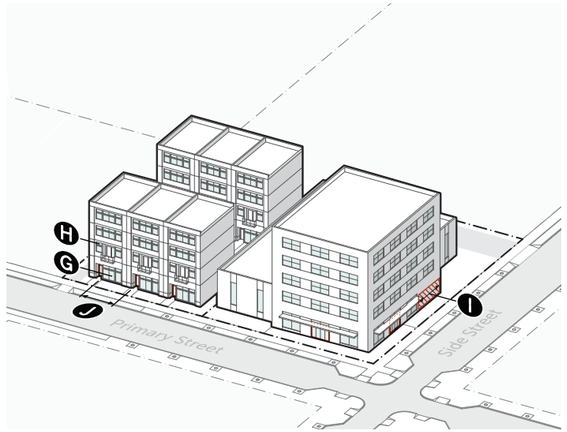


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	80%
D Amenity space (min)	15%

4. Building Setbacks	
E Primary street (min/max)	0′/20′
F Side street (min/max)	0′/20′
G Side (min)	0′
H Rear (min)	0′
Alley (min)	3′
5. Build-to	
I Primary street (min)	70%
J Side street (min)	35%
6. Parking Location	
Parking between building and street	Not allowed

B. Building Standards





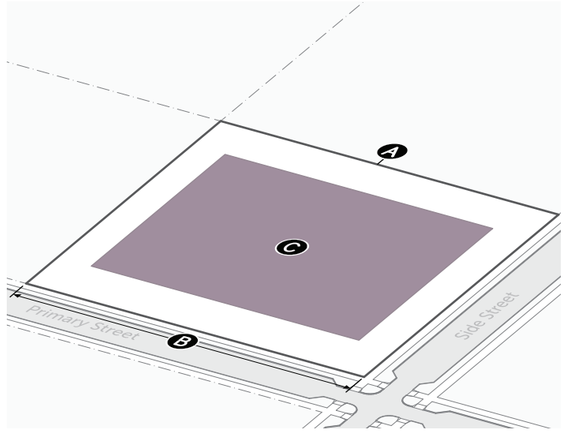
1. Massing	
Height (max)	
A Base	5 stories / 70′
B Compact	8 stories / 115′
Affordable	Unlimited
Unit size (max)	
Base	n/a
Compact	450 SF
Affordable	n/a
C Width (max)	250′
2. Active Depth	
D Primary street (min)	20′
E Side street (min)	9′
3. Ground Story	
F Ground story height (min)	
Residential	11′
Nonresidential	14′
Finished floor elevation (min/max)	-2/5′

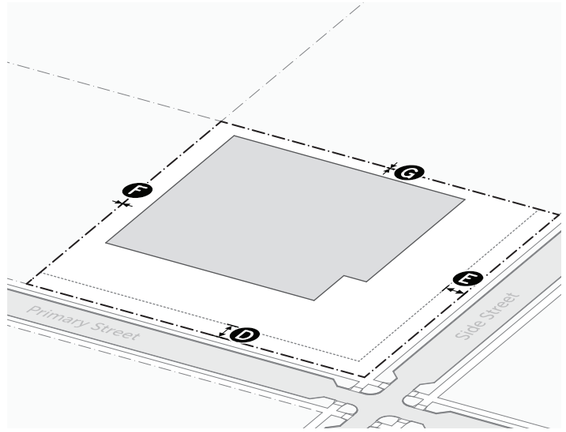
4. Windows	Primary St.	Side St.
G Ground story (min)		
Residential	30%	30%
Nonresidential	40%	30%
H Upper story (min)	15%	15%
I Blank wall width (max)	20′	30′
5. Doors		
J Street-facing entry spacing (max)	75′	100′

2.6.3. **IH** INDUSTRIAL HEAVY

IH

A. Lot Standards

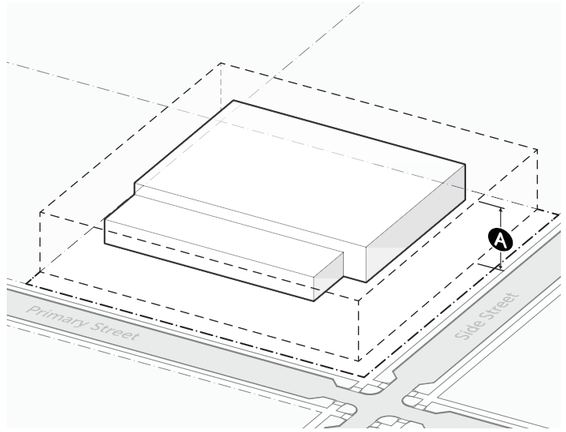


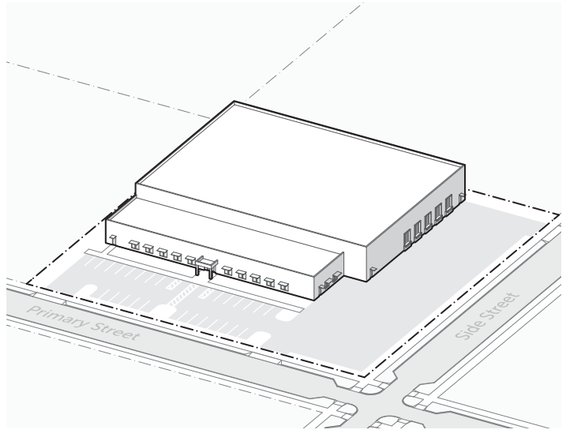


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	60%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	30′
E Side street (min)	30′
F Side (min)	0′
G Rear (min)	0′
Alley (min)	3′
5. Build-to	
Primary street (min)	n/a
Side street (min)	n/a
6. Parking Location	
Parking between building and street	Allowed

B. Building Standards





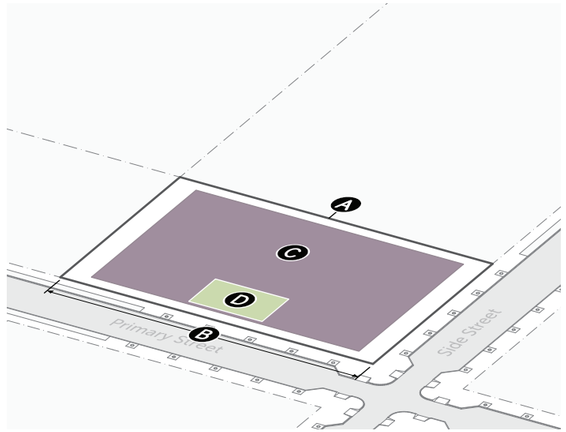
1. Massing	
A Height (max)	5 stories / 70′
Unit size (max)	n/a
Width (max)	n/a
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Finished floor elevation (min/max)	n/a

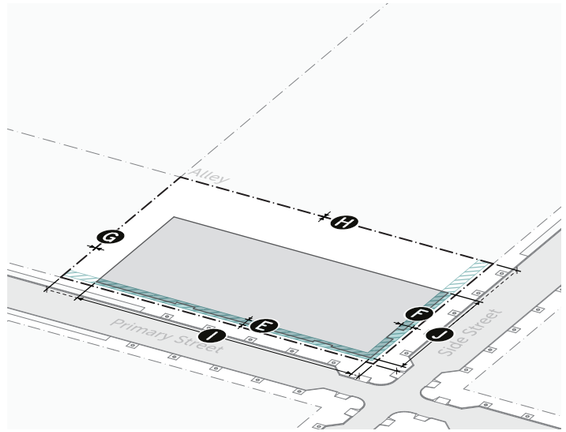
4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
Street-facing entry spacing (max)	n/a	n/a

2.6.4. **IU** INNOVATION URBAN

IU

A. Lot Standards

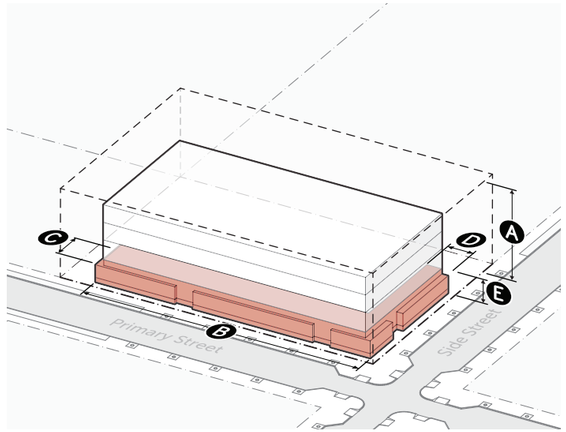


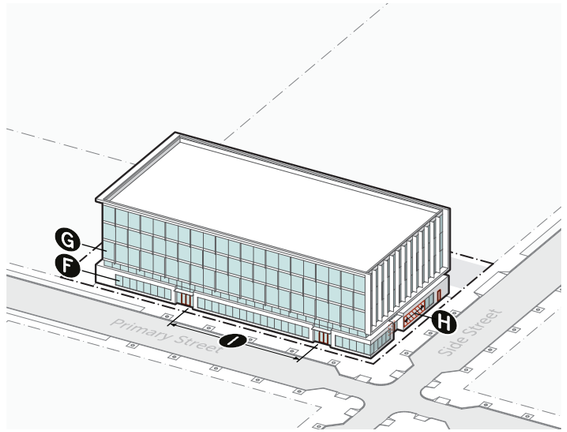


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	80%
D Amenity space (min)	15%

4. Building Setbacks	
E Primary street (min/max)	0′/20′
F Side street (min/max)	0′/20′
G Side (min)	0′
H Rear (min)	0′
Alley (min)	3′
5. Build-to	
I Primary street (min)	70%
J Side street (min)	35%
6. Parking Location	
Parking between building and street	Not allowed

B. Building Standards





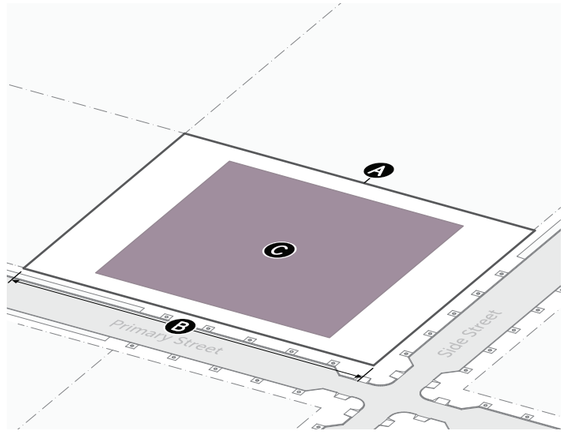
1. Massing	
A Height (max)	5 stories / 70′
Unit size (max)	n/a
B Width (max)	250′
2. Active Depth	
C Primary street (min)	20′
D Side street (min)	20′
3. Ground Story	
E Ground story height (min)	14′
Finished floor elevation (min/max)	-2/5′

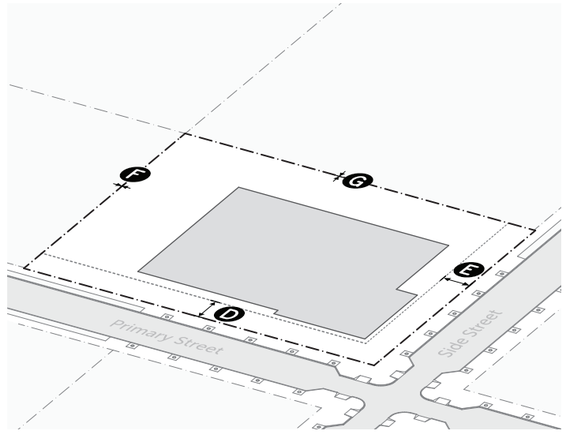
4. Windows	Primary St.	Side St.
F Ground story (min)	40%	30%
G Upper story (min)	15%	15%
H Blank wall width (max)	20′	30′
5. Doors		
I Street-facing entry spacing (max)	75′	100′

2.6.5. **IC** INNOVATION CAMPUS

IC

A. Lot Standards

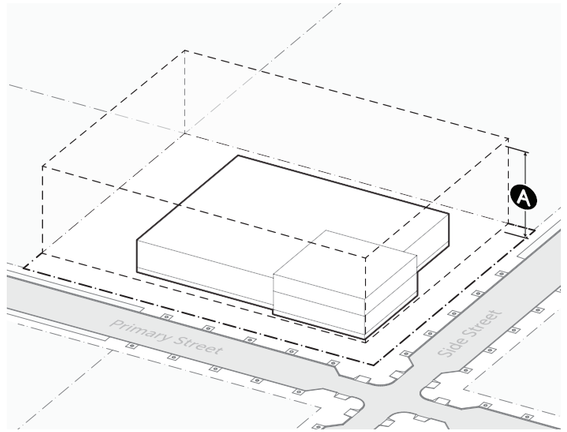


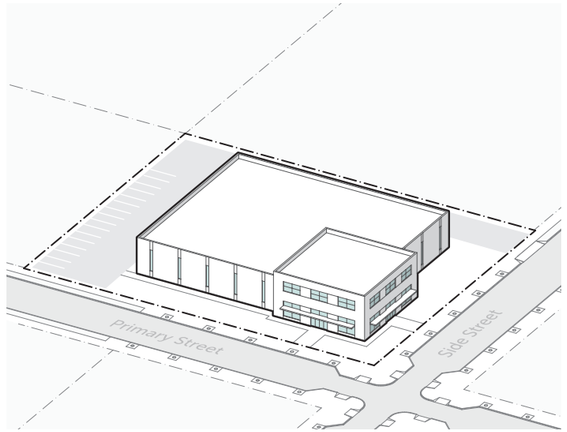


1. Lot Size	
Ⓐ Area (min)	0′
Ⓑ Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
Ⓒ Building coverage (max)	60%
Amenity space (min)	n/a

4. Building Setbacks	
Ⓓ Primary street (min)	30′
Ⓔ Side street (min)	30′
Ⓕ Side (min)	0′
Ⓖ Rear (min)	0′
Alley (min)	3′
5. Build-to	
Primary street (min)	n/a
Side street (min)	n/a
6. Parking Location	
Parking between building and street	Allowed

B. Building Standards





1. Massing	
Ⓐ Height (max)	5 stories / 70′
Unit size (max)	n/a
Width (max)	n/a
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Finished floor elevation (min/max)	n/a

4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
Street-facing entry spacing (max)	n/a	n/a

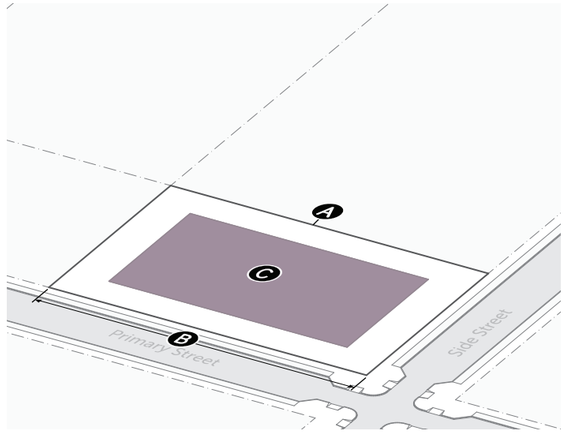
SEC. 2.7. INSTITUTIONAL DISTRICTS

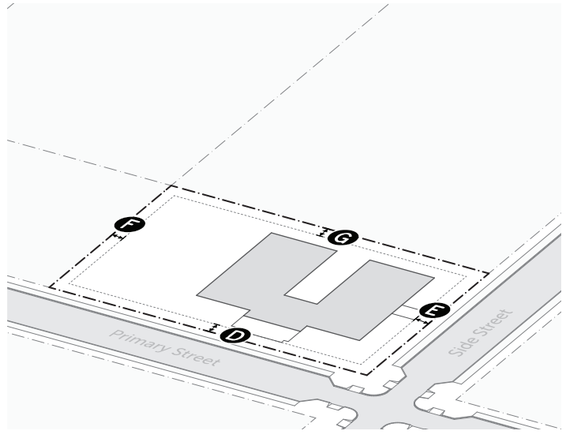
2.7.1. Summary of Districts

To be inserted

2.7.2. **CIV** CIVIC

A. Lot Standards



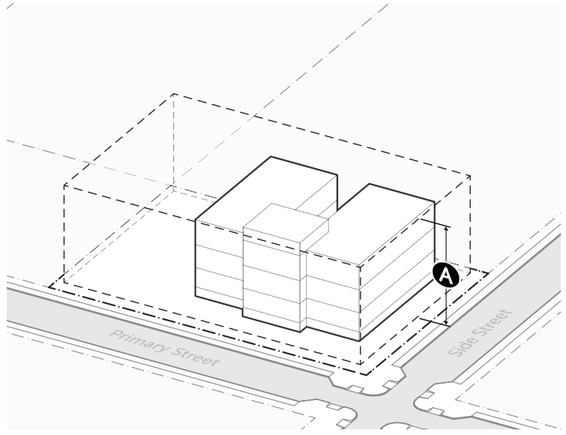


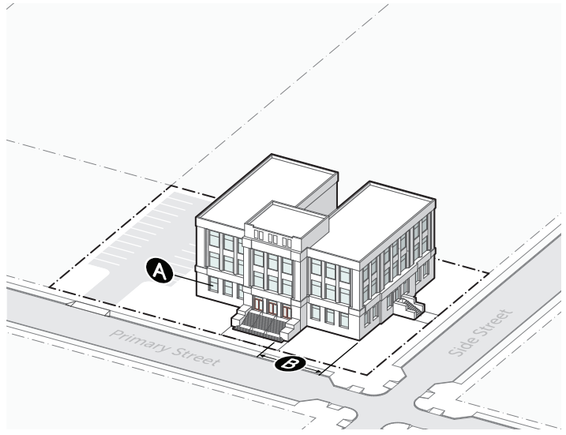
1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	60%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	10′
E Side street (min)	10′
F Side (min)	10′
G Rear (min)	10′
Alley (min)	10′
5. Build-to	
Primary street (min)	n/a
Side street (min)	n/a
6. Parking Location	
Parking between building and street	Allowed

CIV

B. Building Standards





1. Massing	
A Height (max)	Height of abutting district
Unit size (max)	n/a
Width (max)	n/a
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Finished floor elevation (min/max)	n/a

4. Windows	Primary St.	Side St.
A Ground story (min)	20%	20%
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
B Street-facing entry spacing (max)	200′	n/a

2.7.3. **UC** UNIVERSITY CAMPUS

To be inserted

ARTICLE 2. ZONING DISTRICTS
INSTITUTIONAL DISTRICTS

DRAFT | SEPTEMBER 30, 2024

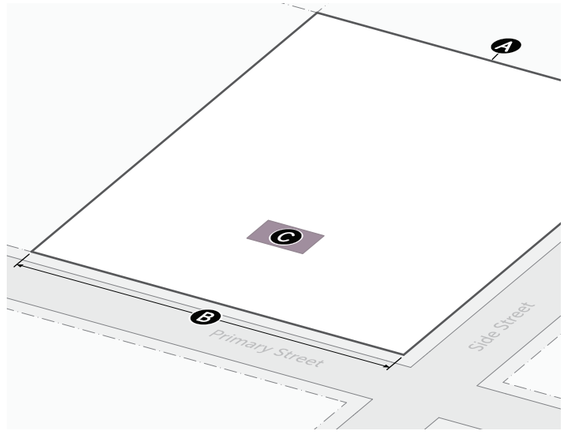
SEC. 2.8. OPEN SPACE DISTRICTS

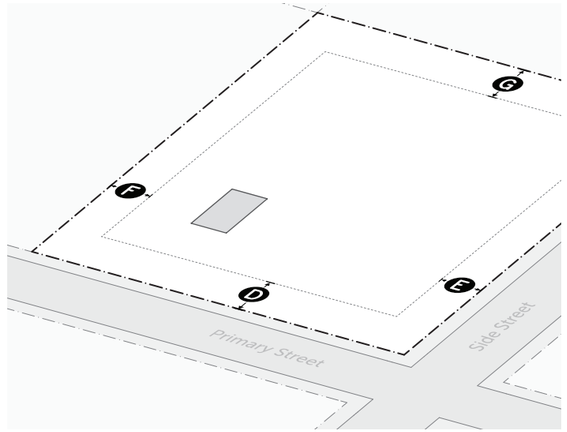
2.8.1. Summary of Districts

To be inserted

2.8.2. **CON** CONSERVATION

A. Lot Standards



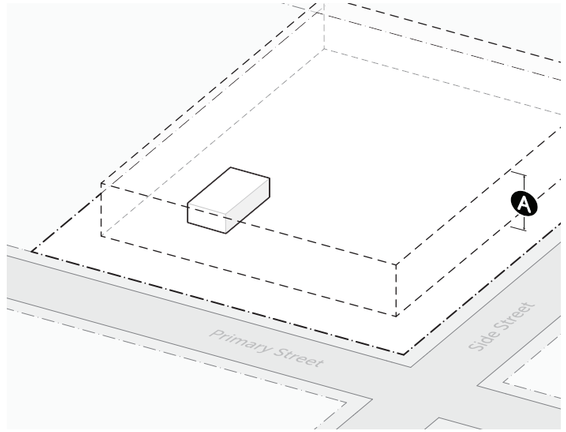


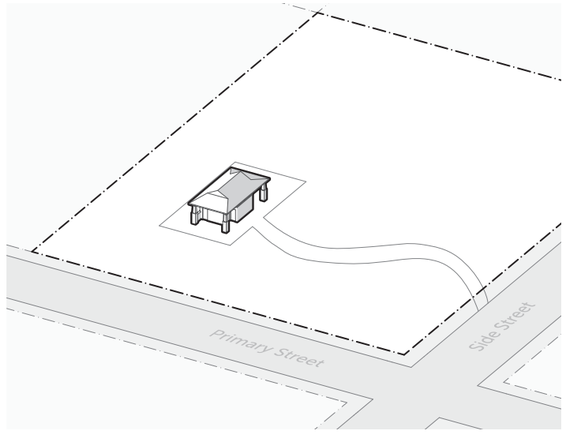
1. Lot Size	
A Area (min)	2 acres
B Width (min)	100’
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	5%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	30’
E Side street (min)	30’
F Side (min)	30’
G Rear (min)	30’
Alley (min)	30’
5. Build-to	
Primary street (min)	n/a
Side street (min)	n/a
6. Parking Location	
Parking between building and street	Allowed

CON

B. Building Standards





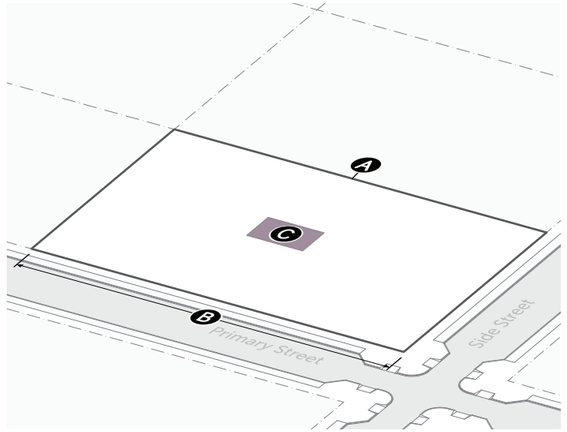
1. Massing	
A Height (max)	35’
Unit size (max)	n/a
Width (max)	n/a
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Finished floor elevation (min/max)	n/a

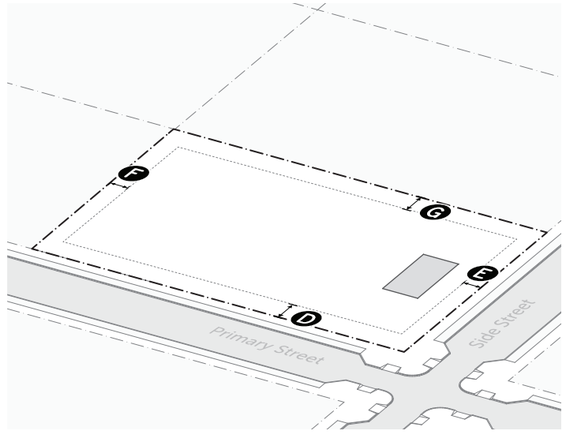
4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
Street-facing entry spacing (max)	n/a	n/a

2.8.3. **PK** PARK

PK

A. Lot Standards

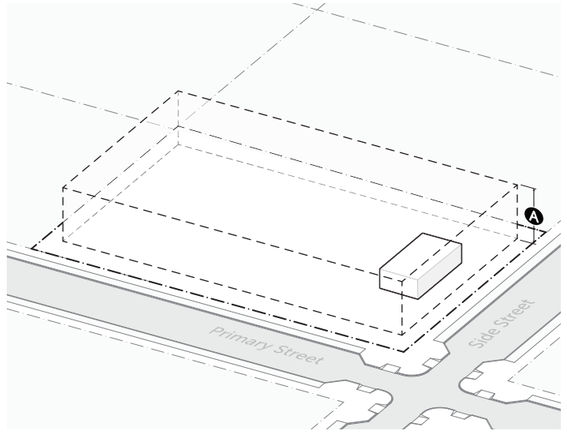


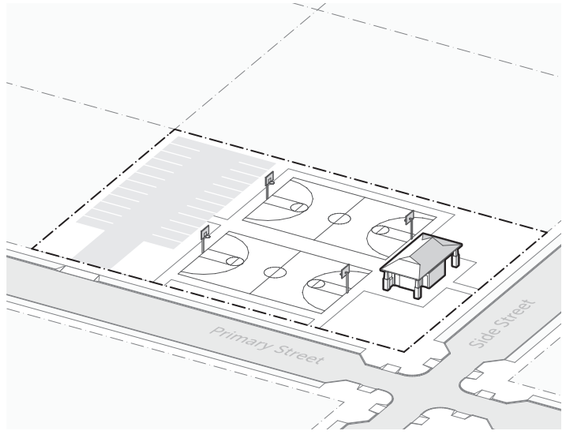


1. Lot Size	
A Area (min)	0′
B Width (min)	0′
2. Density	
Units per lot area (max)	n/a
3. Coverage	
C Building coverage (max)	15%
Amenity space (min)	n/a

4. Building Setbacks	
D Primary street (min)	10′
E Side street (min)	10′
F Side (min)	10′
G Rear (min)	10′
Alley (min)	10′
5. Build-to	
Primary street (min)	n/a
Side street (min)	n/a
6. Parking Location	
Parking between building and street	Allowed

B. Building Standards





1. Massing	
A Height (max)	35′
Unit size (max)	n/a
Width (max)	n/a
2. Active Depth	
Primary street (min)	n/a
Side street (min)	n/a
3. Ground Story	
Ground story height (min)	n/a
Finished floor elevation (min/max)	n/a

4. Windows	Primary St.	Side St.
Ground story (min)	n/a	n/a
Upper story (min)	n/a	n/a
Blank wall width (max)	n/a	n/a
5. Doors		
Street-facing entry spacing (max)	n/a	n/a

SEC. 2.9. RULES OF INTERPRETATION

2.9.1. General Terms and Designations

A. Intent

To provide a set of general terms and designations, including definitions and standards, for terminology primarily used in this Article. Definitions and standards for terms used more broadly throughout the Code are found in Article 10. Definitions.

B. Street Designation

1. Primary and Side Street Designations

a. All streets abutting a lot must be designated as either a primary street or side street.

b. When a lot abuts only one street, the street is considered a primary street.

c. A lot abutting multiple streets must designate at least one as a primary street.

d. A lot may abut more than one primary street.

e. For lots that abut multiple streets, the Administrator will determine primary streets using the following criteria listed from most important to less important:

i. The street or streets with the highest classification;

ii. The established orientation of the block;

iii. The street abutting the longest face of the block; and

iv. The street parallel to an alley within the block.

f. Any street not designated as a primary street is a side street.

C. Lot Line Designation

1. General

a. Lot lines are designated for lots only, lot lines are not designated for sublots.

b. Each lot line must have one of the following designations and no lot line may have more than one of the following designations:

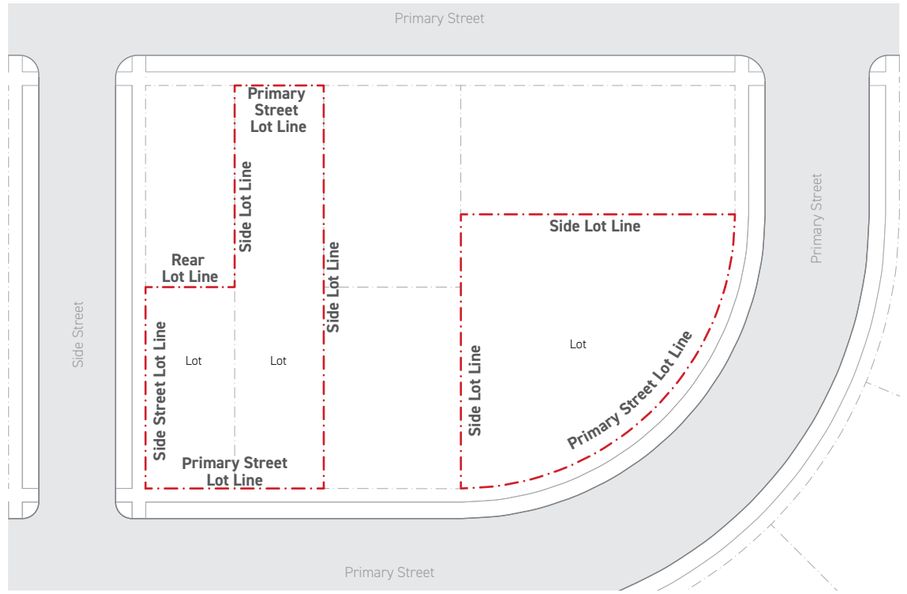
i. Primary street lot line;

ii. Side street lot line;

iii. Alley lot line;

iv. Rear lot line; or

v. Side lot line.



c. Primary street lot line and side street lot line designations apply to public and private streets. Alley lot line designation applies to public and private alleys.

d. In addition to any other designation, lot lines may also serve as one of the following categories:

i. Street lot line; or

ii. Common lot line.

2. Primary Street Lot Line

Any lot line that abuts a primary street.

a. Each lot must have at least one primary street lot line. A lot may have more than one primary street lot line.

b. A lot line abutting a park, open space, river, trail, or pedestrian path may serve as a primary street lot line.

c. Once designated for a lot, a primary street lot line cannot be changed (e.g., a primary street lot line cannot, for the purposes of subsequent development, be re-designated as a side street lot line) unless all standards of the applicable zoning district are met based on the proposed change in street lot line designation.

3. Side Street Lot Line

Any lot line that abuts a side street. Any street lot line that is not a primary street lot line is considered a side street lot line.

4. Alley Lot Line

Any lot line that abuts an alley. Even when a lot line qualifies as a rear lot line or side lot line, all lot lines that abut an alley are considered an alley lot line.

5. Rear Lot Line

Any lot line that does not abut a street or alley and is opposite and most distant from a primary street lot line.

a. A lot may have no more than one rear lot line.

b. In the case of a lot that fronts two streets on opposite sides, a lot may have no rear lot line.

c. Where no lot line is clearly opposite to the primary street lot line or where there are multiple primary street lot lines, the lot line having the highest portion of its length serving as the rear lot line of abutting lots is the rear lot line.

6. Side Lot Line

Any lot line other than a primary street, side street, rear, or alley lot line.

7. Street Lot Line

Any lot line that abuts a street. Street lot lines include all primary street lot lines and side street lot lines.

8. Common Lot Line

Any lot line shared by two or more lots. All side and rear lot lines that do not abut a street or alley will be common lot lines.

D. Yard Designation

1. General

a. Yards are designated on lots only, yards are not designated on sublots.

b. All portions of a lot between the facade of a building and a property line will fall within one of the following yard designations: front yard, side street yard, side yard, or rear yard.

c. No portion of a lot may have more than one yard designation.

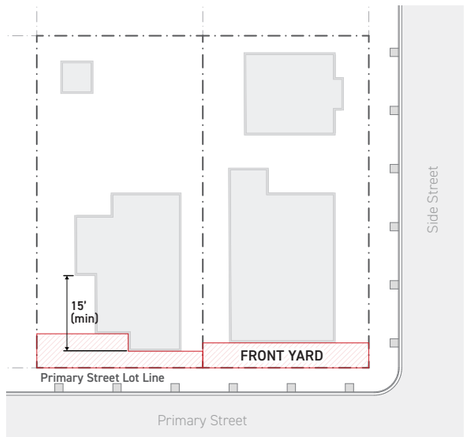
d. Yard designations are determined in the following order: (1) front yard, (2) side street yard, if any; (3) rear yard, if any; and (4) side yards, if any.

2. Front Yard

All portions of a lot between a primary street lot line and a primary structure facing a primary street lot line extending the full width of the lot.

a. A front yard does not include a building facade set back more than 15 feet from the primary building's street-facing facade.

b. Any portion of a lot that is designated as a front yard may not be designated as any other yard.



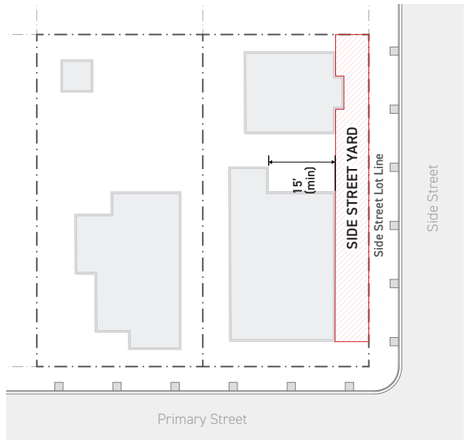
3. Side Street Yard

All portions of a lot between a side street lot line and a primary structure facing a side street lot line extending the full depth of the lot.

a. A side street yard does not include any building facade set back more than 15 feet from the primary building's street-facing facade.

b. For portions of the lot where no primary structure abuts the side street yard, the side street yard includes only portions of the lot included in the side street setback, see XXX. Building Setbacks.

c. A side street yard does not include any portion of a lot that may be designated as a front yard.

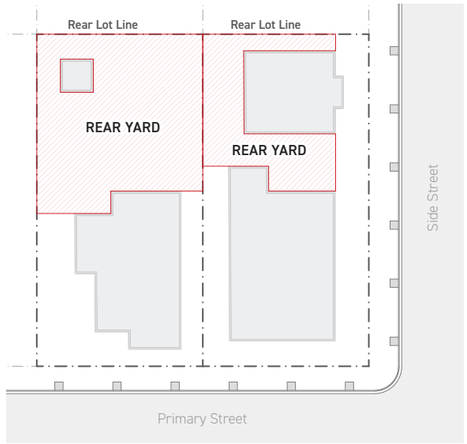


4. Rear Yard

All portions of a lot between a rear lot line and a primary structure facing the rear lot line for the full width of the lot.

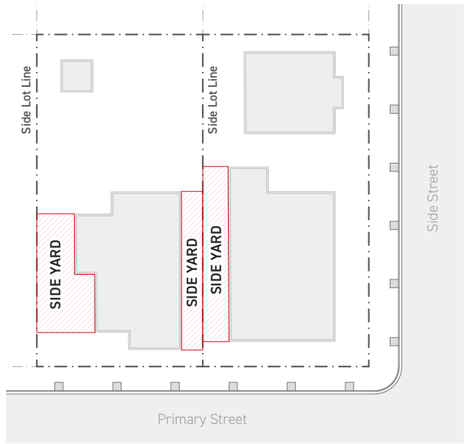
a. A rear yard does not include any portion of a lot that may be designated as a front yard or side street yard.

b. Any portion of a lot that is designated as a rear yard may not be designated as a side yard.



5. Side Yard

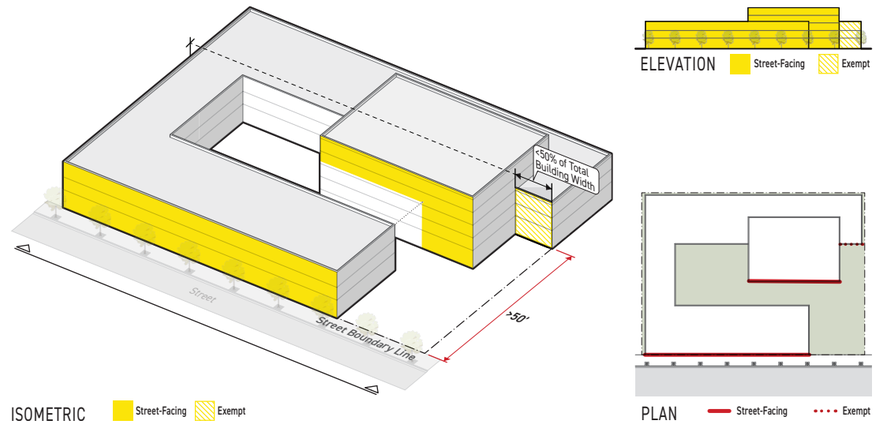
All portions of a lot between a side lot line and a primary structure. Portions of a lot that do not meet the yard designation criteria for any other yard are designated as side yard.



E. Street-Facing Building Facades

The portions of a building facade (when projected parallel to the street) with no permanent structure located between the building facade and the primary or side street lot line.

1. Building facades located more than 50 feet behind the primary or side street lot line are exempt from any street-facing requirements, provided the cumulative width of the exempted facade is no wider than 50% of the total building width.



2.9.2. Lot Size

A. Area

The total square footage within the boundaries of a lot.

1. Intent

To help ensure newly established lots are generally consistent with desirable development patterns in the neighborhood and within the same zoning district.

2. Applicability

a. The minimum lot area requirement applies to lots approved and recorded on or after the effective date of this Code.

b. Any use allowed in the zoning district may be established on a lot lawfully created and recorded before the effective date of this Code, regardless of size of the lot, provided, that all other requirements of this Code are met.

c. Where sublots are allowed, lot area is calculated for each lot, not individual sublots.

3. Standards

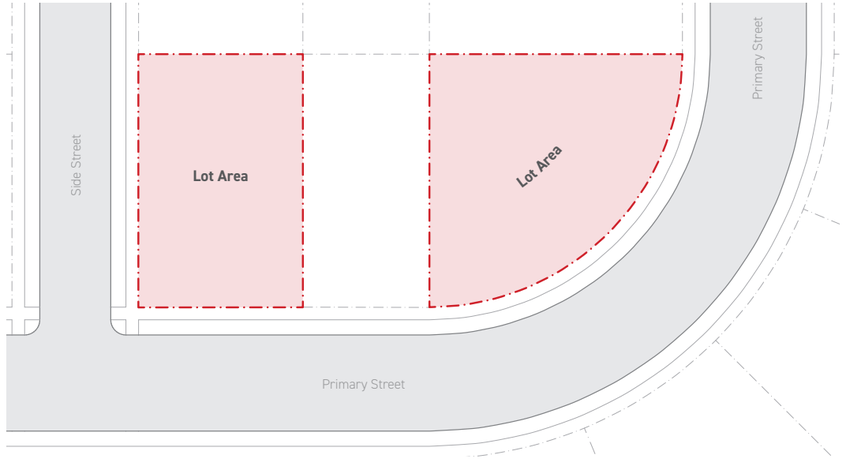
Every lot must have an area no less than the minimum lot area required by the zoning district.

4. Measurement

a. Lot area is measured as the total land area within the boundaries of a lot.

b. Lot area includes all portions of a lot allocated for required easements.

c. Lot area does not include portions of a lot required for land dedicated to public use.



B. Width

The length of primary street lot lines bounding a lot.

1. Intent

To help ensure newly established lots are generally consistent with desirable development patterns in the neighborhood and within the same zoning district, and to help ensure safe and adequate vehicular access to and from a lot.

2. Applicability

a. The minimum width requirement applies to lots approved and recorded on or after the effective date of this Code.

b. Any use allowed in the zoning district may be established on a lot approved and recorded before the effective date of this Code, regardless of the width of the lot, provided, that all other requirements of this Code are met.

c. Where sublots are allowed, lot width is calculated for each lot, not individual sublots.

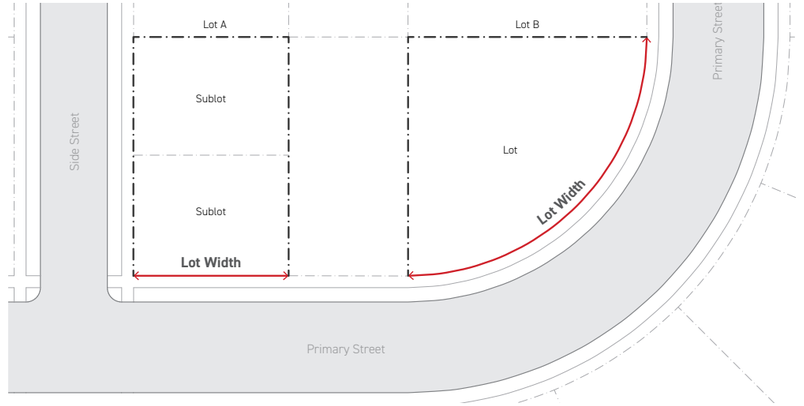
3. Standards

Every lot must have an area no less than the minimum lot width required by the zoning district.

4. Measurement

a. Lot width is measured following the geometry of all primary street lot lines that bound the lot.

b. Where a lot has 2 or more primary street lot lines facing different streets, all primary street lot lines must meet the minimum width standard.



2.9.3. Density

A. Dwellings per Lot

The maximum number of dwelling units allowed on a lot.

1. Intent

To promote a full range of housing choices and ensure the number of dwelling units permitted on a lot is aligned with the zoning district intentions and is physically compatible with the lot itself.

2. Applicability

a. The limitation on the number of dwelling units per lot applies to all lots.

b. Where sublots are permitted, density is calculated for each lot, not individual sublots.

3. Standards

a. A lot cannot exceed the maximum number of dwelling units allowed by the zoning district.

b. Dwelling units may be detached or attached.

2.9.4. Coverage

A. Building Coverage

The percentage of lot area that is covered by buildings or structures.

1. Intent

To help preserve open area and reduce the bulk of buildings by limiting the amount of buildings or structures that cover a lot.

2. Applicability

a. The maximum building coverage requirements apply to all lots.

b. Where sublots are allowed, building coverage is calculated for the lot, not individual sublots.

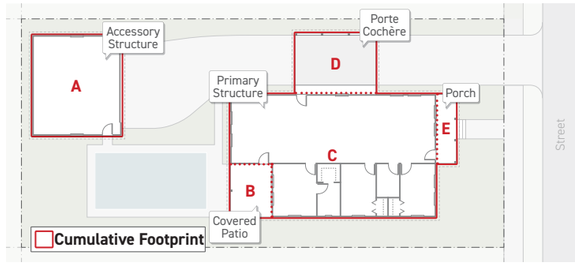
3. Standards

Buildings or covered structures on a lot cannot have a cumulative area in excess of the maximum building coverage allowed by the zoning district.

4. Measurement

a. Building coverage is measured cumulatively for the entire lot.

b. Building coverage is measured by dividing the building footprint of all covered buildings and structures on the lot by the lot area.



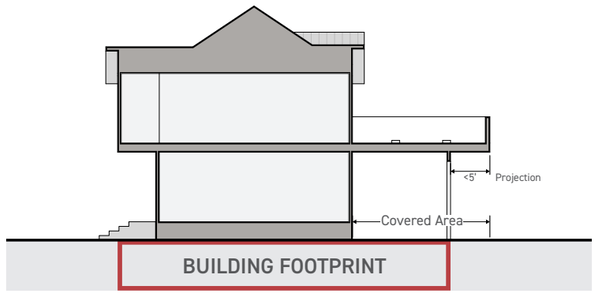
Area **A**
\+ Area **B**
\+ Area **C**
\+ Area **D**
\+ Area **E**

Cumulative Structure Footprint

(Cumulative Structure Footprint)
÷
(Total Lot Area)

Building Coverage

c. The calculation of the building footprint does not include portions of architectural projections (including roof overhangs and projected balconies) that are less than 5 feet from the nearest wall, column, spanning beam, or other structural element carrying gravity loads to the ground.



B. Outdoor Amenity Space

An outdoor area on a lot designated to be used for active or passive recreation.

1. Intent

a. To help provide adequate recreation and open space areas for developments, and to ensure such spaces are accessible, usable, and safe; and

b. To encourage high-quality, pedestrian-oriented, and publicly accessible gathering spaces along the street.

2. Applicability

a. The outdoor amenity space requirements apply to all lots.

b. Where the calculation of outdoor amenity space requires less than 400 square feet, no amenity space is required.

c. Where sublots are allowed, outdoor amenity space is calculated for each lot, not individual sublots.

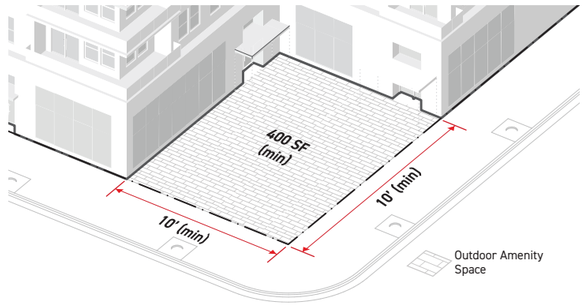
3. Standards

a. General

i. The cumulative area of outdoor amenity space provided on a lot cannot be less than required by the zoning district.

ii. The required amenity space is classified as either Common Outdoor Amenity Space or Pedestrian Outdoor Amenity Space (see XXX. Outdoor Amenity Space), and must meet the standards according to the classification.

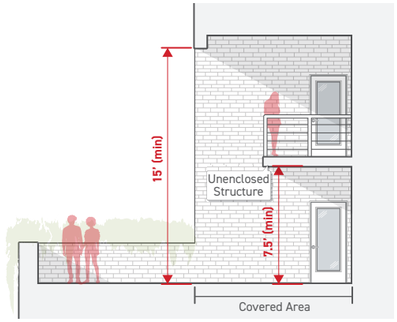
iii. Each outdoor amenity space must have a minimum area of 400 square feet, and no horizontal dimension of less than 10 feet, measured perpendicular to any boundary of the space.



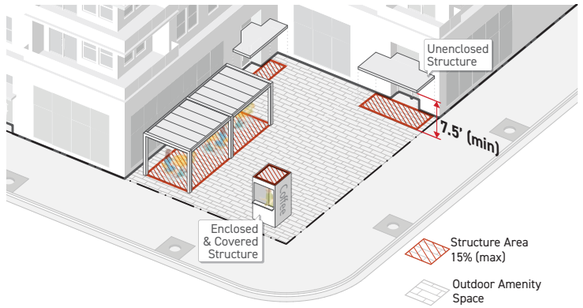
iv. Outdoor amenity space can be covered but cannot be enclosed.

v. Outdoor amenity space that is covered must have a minimum clear height of 15 feet.

vi. No portion of an outdoor amenity space can have a clear height of less than 7.5 feet.



vii. Enclosed accessory structures and roofed accessory structures are allowed within an outdoor amenity space provided they cover a cumulative area no greater than 25% of the outdoor amenity space area.



viii. A minimum of 20% of the total area of each outdoor amenity space must be planted area and meet the requirements of XXX. Landscaping.

ix. For every 400 square feet of outdoor amenity space, two permanent or movable seats must be provided. Two linear feet of bench or seat wall are counted as 1 seat.

b. Common Outdoor Amenity Space

Type of outdoor amenity space generally reserved for use by building occupants and may not be accessible to the public. Examples include roof decks, pool amenity areas, and courtyards.

Common outdoor amenity space must meet all of the general standards for outdoor amenity space in addition to the following requirements:

i. Each square foot of common outdoor amenity space provided counts as 1 square foot of required outdoor amenity space.

ii. Common outdoor amenity space must be made available to all occupants of a building, at no cost, during the hours of operation of the building. The space may not be permanently

reserved or in any way exclude any occupant during the time it is required to be made available to all occupants.

iii. Building facades adjacent to common outdoor amenity space must have a minimum transparency of 15% for each story.

iv. Common outdoor amenity space cannot be located in a required transition setback based on the requirements of XXX. Transitions.

c. Pedestrian Outdoor Amenity Space

Type of outdoor amenity space that is publicly accessible and located in close proximity to the public sidewalk. Examples include patios and plazas.

Pedestrian outdoor amenity space must meet all of the general standards for outdoor amenity space in addition to the following requirements:

i. Each square foot of pedestrian outdoor amenity space provided counts as 2 square feet of required outdoor amenity space.

ii. A minimum of 25% of the pedestrian outdoor amenity space perimeter must abut and be directly accessible from the sidewalk along a primary or side street.

iii. Pedestrian outdoor amenity space cannot be separated from this public sidewalk by any structure for more than 40% of the width of the amenity space, with the exception of a wall or fence 42 inches in height or the maximum height specified by the zoning district, whichever is less. The allowed wall or fence must provide openings for pedestrian access at least once every 35 feet.

iv. The finished floor or ground surface of a pedestrian outdoor amenity space must be located either at the same grade as the sidewalk, or within the minimum and maximum finished floor elevations specified by the zoning district (see Sec. XXX. Finished Floor Elevation).

v. All building facades facing pedestrian outdoor amenity space must meet the transparency (XXX. Transparency) and entrances (XXX. Entrances) standards required by the zoning district for the applicable primary or side street frontage.

vi. Mechanical and utility equipment cannot be located within a pedestrian outdoor amenity space, or between a pedestrian outdoor amenity space and an adjacent building facade.

4. Measurement

The minimum required outdoor amenity space is calculated by multiplying the total lot area by the minimum outdoor amenity space percentage specified by the zoning district.

2.9.5. Building Setbacks

The area on a lot not intended for buildings and structures. Includes primary street setbacks, side street setbacks, side setbacks, rear setbacks, and alley setbacks.

A. Intent

To provide open areas on a site and help reduce the impact of buildings or structures on abutting sidewalks and neighboring development.

B. Applicability

1. The building setback requirements apply to all lots.
2. Where sublots are allowed, building setbacks apply only to the perimeter edges of a lot. Building setbacks do not apply to individual sublots.

C. Standards

1. Minimum Setbacks

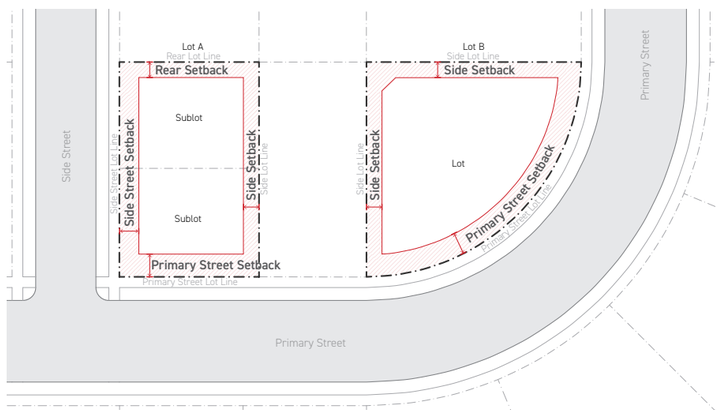
All buildings and structures on a lot must be located at or behind the minimum building setback specified by the zoning district, unless listed as an exception below.

2. Maximum Setbacks

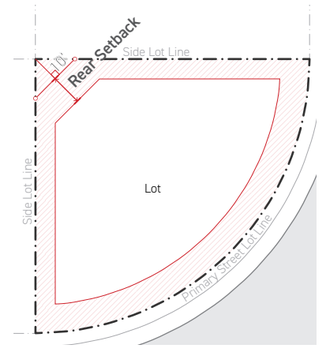
Zoning districts with a build-to width requirement have a required maximum setback, in addition to a required minimum building setback. In these districts, a certain portion of the building must be located at or in front of the maximum building setback specified by the district. For requirements related to the build-to width, see XXX. Build-to.

D. Measurement

1. All building setbacks are measured perpendicular to the applicable lot line.
2. Where a lot line abuts an access easement, the setback may be measured from the interior edge of the easement rather than the lot line.



3. Primary street setback is measured from the primary street lot line.
4. Side street setback is measured from the side street lot line.
5. Rear setback is measured from the rear lot line.
   a. For determining the rear setback for a triangular or gore-shaped lot, the rear lot line is measured from a 10-foot wide line, parallel to the primary street lot line that intersects two side lots lines at its endpoints.
   b. For instances where the primary street lot line is not straight, the rear lot line must be parallel to a line connecting the end points of the primary street lot line.



6. Alley setback is measured from the alley lot line.

E. Exceptions

1. Limited Encroachments

The following are allowed to encroach beyond the building setback up to the minimum distance from the lot line specified below. The encroachments only apply when the zoning district's setbacks are equal to or larger than the allowed encroachment setbacks specified below.

		SETBACK		
		Primary St. / Side St.	Side / Rear	Alley
Architectural Details	*XXX.*			
Encroachment (max)		2'	2'	2'
Distance from lot line (min)		0'	2'	1.5'
Roof Projections	*XXX.*			
Encroachment (max)		2.5'	2.5'	2.5'
Distance from lot line (min)		0'	2'	1.5'
Unenclosed Structures: Ground Story	*XXX.*			
Encroachment (max)		8'	3'	3'
Distance from lot line (min)		0'	2'	0'
Unenclosed Structures: Upper Story	*XXX.*			
Encroachment (max)		5'	3'	5'
Distance from lot line (min)		0'	2'	1.5'
Enclosed Structures	*XXX.*			
Encroachment (max)		2.5'	1.5'	2.5'
Distance from lot line (min)		0'	2'	1.5'
Mechanical and Electrical Equipment	*XXX.*			
Ground Mounted				
Encroachment (max)		not allowed	2.5'	2.5'
Distance from lot line (min)		--	2.5'	2'
Wall Mounted				
Encroachment (max)		not allowed	1.5'	1.5'
Distance from lot line (min)		--	2.5'	2'
Waste Enclosure	*XXX.*			
Encroachment (max)		not allowed	5'	5'
Distance from lot line (min)		--	5'	5'
Signs		see *XXX.* Signs		

2. Unlimited Encroachments

The following may encroach into a required setback to the extent necessary to perform their proper function:

a. Accessibility ramps and lifts and fire escapes;

b. Covered structures located entirely below grade. Examples include footings, cellars, basements, storm water storage, and cisterns;

c. Sidewalks, multi-use paths, ramps, driveways, patios, and decks 2.5 feet in height or less, measured from finished grade;

d. Fences and walls;

e. Plants. Examples include trees, shrubs, flowers, herbs, vegetables, grasses, ferns, mosses, and associated planters and raised planting beds, if applicable;

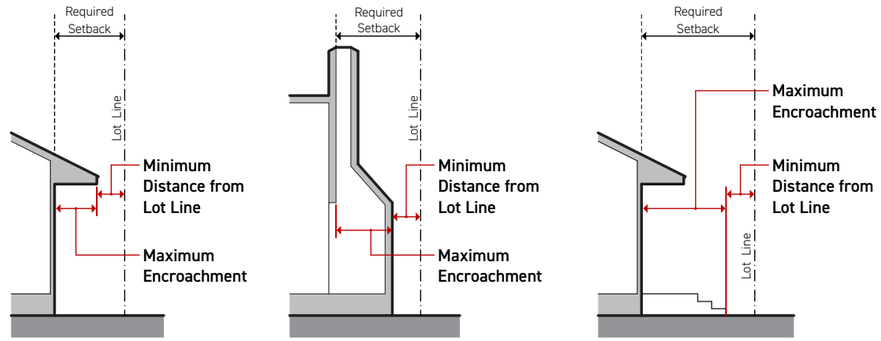
f. Low impact development (LID) stormwater devices approved by the City; and

g. Permanent or movable furniture. Examples include benches, tables, and bike and scooter parking racks.

3. Measurement of Encroachments

a. Encroachment is measured as the horizontal distance from the edge of the area where structures are restricted.

b. Distance from lot line is measured as the horizontal distance from a lot line. Distance from lot line is measured toward the interior of the lot line along the full perimeter of the lot line.



2.9.6. Build-To

The amount of building that occupies the build-to zone relative to the width of the lots at the street lot line.

A. Intent

To regulate the placement of buildings so that buildings frame the public realm with a consistent street wall.

B. Applicability

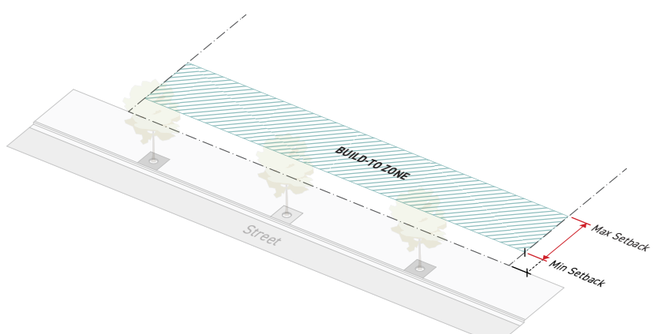
1. The build-to applies to all lots.
2. The build-to requirements apply to the ground story of the building only. The ground story is determined according to XXX. Height.
3. Where sublots are allowed, the build-to is calculated for each lot, not individual sublots.
4. For through lots, the Administrator may waive or vary the build-to requirement for one of the street lot lines. The Administrator will consider the following standards when making the decision to waive or vary the requirement for one street lot line:
   a. The proposed number and arrangement of units on the lot to determine if meeting the build-to width requirement is practical for all street lot lines; and
   b. The prevailing pattern of development on the surrounding parcels to determine which street must meet the build-to requirement and which street can waive or vary the requirement.

C. Standards

1. General

a. The build-to zone is the area on the lot between the minimum and maximum building setbacks, for the full width of the lot.

b. The build-to zone is measured from the primary or side street lot line. The build-to zone starts at the minimum building setback and extends to the maximum building setback.

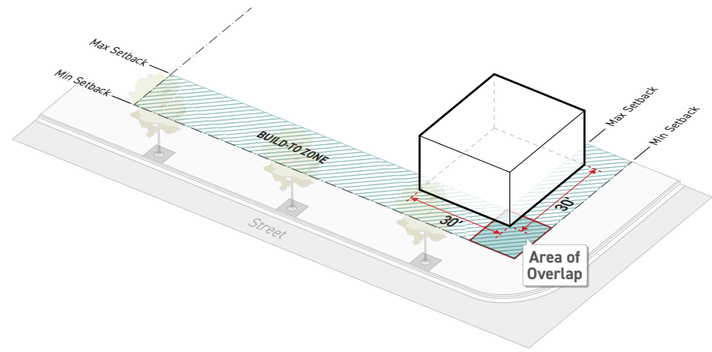


c. No building or portion of a building facade can be located outside of the build-to zone, until the build-to requirement for the lot, as specified for the zoning district, has been met.

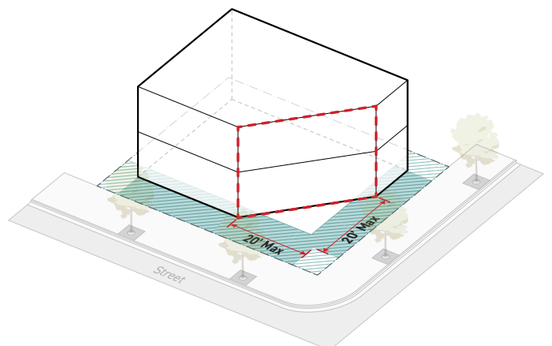
d. Once the minimum build-to requirement has been met, buildings and structures may be located in the area behind the maximum building setback.

2. Corner Lots

a. On corner lots where both streets have build-to width requirements, a building must occupy the portion of the area where the two intersecting build-to zones overlap. The building must occupy the build-to zones for both streets lot lines for a minimum of 30 feet from the corner. The minimum requirement is measured starting at the edge of the building occupying the area of overlap and moving away from the corner, parallel to the street lot line. This counts toward the required build-to width for both street lot lines.



b. A chamfered corner no more than 20 feet in width along both street lot lines qualifies as a building in the build-to zone even where it extends outside of the build-to zone. Chamfered corner width is measured parallel to the street lot line.

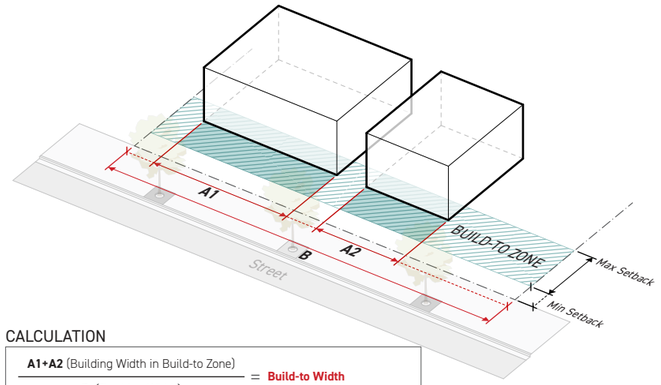


c. Corner lot standards do not apply when a pedestrian outdoor amenity space occupies the same portion of the area of overlap and is being used to count toward the build-to requirement.

D. Measurement

1. The build-to is a percentage measured as the sum of all building facades occupying the build-to zone, divided by the total lot width.

2. The build-to is calculated separately along each street lot line where a build-to is required.



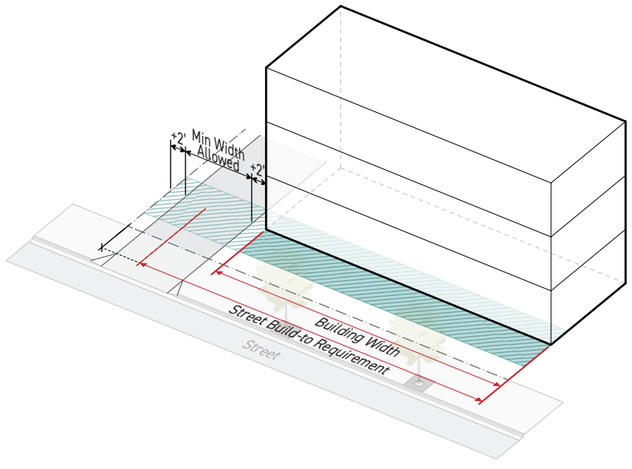
CALCULATION

$$\frac{\textbf{A1+A2}\ \text{(Building Width in Build-to Zone)}}{\textbf{B}\ \text{(Total Lot Width)}} = \textbf{Build-to Width}$$

E. Exceptions

1. Vehicular Access Allowance

Where vehicular access is allowed from a street and providing access prevents a building from meeting the build-to requirement, a reduced build-to width may be allowed by the Administrator, provided the portion of the lot in the build-to zone used for vehicle access is no wider than the minimum required driveway width plus an additional 4 feet of width for clearance. See XXX. Vehicle Access.



2. Tree Preservation Allowance

Where the preservation of a tree with 15" diameter breast height (DBH) or greater prevents a building from meeting the build-to requirement, a reduced build-to width may be allowed by the Administrator. The build-to can only be reduced to the extent necessary to preserve the tree and prevent damage from construction, according to the standards in XXX. Tree Preservation and Replacement.

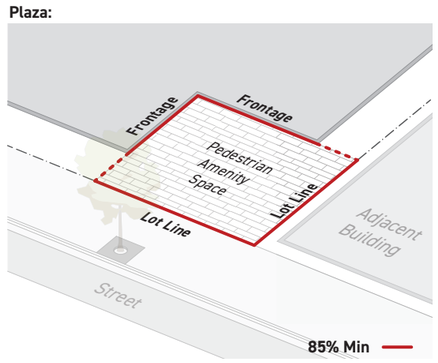
3. Pedestrian Outdoor Amenity Space Allowance

Space meeting the requirements for pedestrian outdoor amenity space (XXX. Outdoor Amenity Space) may be provided as a substitute for the build-to requirement, provided the following standards are met:

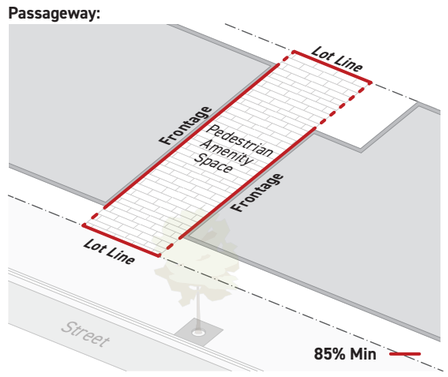
a. A minimum of 85% of the pedestrian outdoor amenity space perimeter must abut either a lot line or a facade meeting the standards of the zoning district specified for the abutting street lot line.

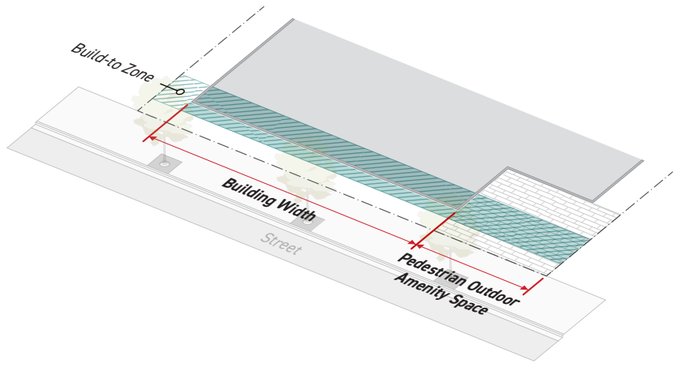
b. Where pedestrian outdoor amenity space abuts multiple street lot lines, the standards specified for the street lot line that abuts the pedestrian outdoor amenity space for the greatest length applies.

Plaza:



Passageway:





2.9.7. Parking Location

A. In a Required Yard

1. Intent

To minimize the visual impact of parked cars from the public realm.

2. Applicability

The parking location limitations apply to all zoning lots.

3. Standards

a. When provided, on-site parking is only allowed in a yard as specified by the zoning district.

b. When no parking is allowed in a street yard, no portion of a designated on-site parking space is allowed in the front yard. A driveway that meets the requirements of XXX. Vehicle Access is allowed, however, it cannot be used for permanent on-site parking.

c. When parking is allowed in a side street yard, parking is only allowed on a driveway that meets the requirements of XXX, Vehicle Access.

d. In a side yard, a driveway is allowed in one side yard only and the continuation of that side yard into the front yard or rear yard to the property line.

e. See XXX for additional parking and parking area requirements.

4. Measurement

For determination of a front yard, side street yard, side yard or rear yard, see XXX. Yards.

B. Between the Building and Street

1. Intent

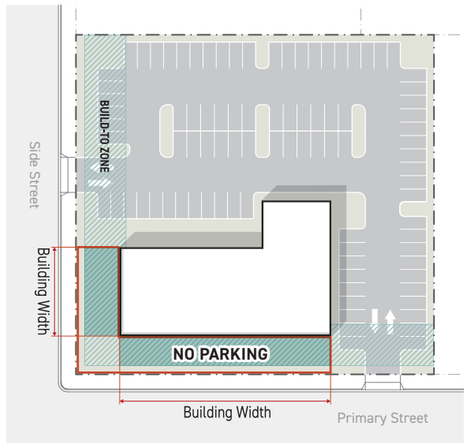
To minimize the impact of auto-dominated areas on the public realm and to promote a comfortable, safe, engaging and attractive streetscape with active uses and landscaping along the public realm.

2. Applicability

The parking location limitations apply to all zoning lots.

3. Standards

a. No parking or area designed for use by a motor vehicle use can be located between the portion of a building used to meet the build-to requirement and the street, when specified by the zoning district.



b. All parking lots and other areas designed for use by a motor vehicles that abut the primary or side street lot line must be screened in accordance with XXX. Frontage Screens.

c. See XXX for additional parking and parking area requirements.

4. Measurement

For determination of build-to see XXX. Build-to.

2.9.8. Massing

A. Building Height

The vertical dimension of a building or structure measured in feet and stories.

1. Intent

To help provide adequate light, air, safety, and to protect the visual character of an area and the interests of the general public.

2. Applicability

Building height limitations apply to all lots in all zoning districts.

3. Standards

No building, portion of a building or structure can exceed the maximum height in number of feet or stories allowed in the zoning district, unless listed as an exception in XXX.

4. Measurement

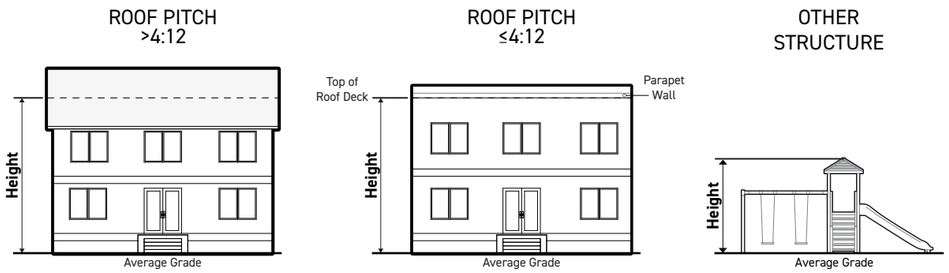
a. Maximum Height in Feet

Height in feet is the number of feet from average grade to:

i. The mid-point of the roof, for a building with a roof having a pitch greater than 4:12;

ii. The top of the roof deck, for a building with roof having a pitch of 4:12 and less; and

iii. The topmost point of the structure, for all other structures.



b. Average Grade

The elevation from which building and structure heights are measured.

i. General

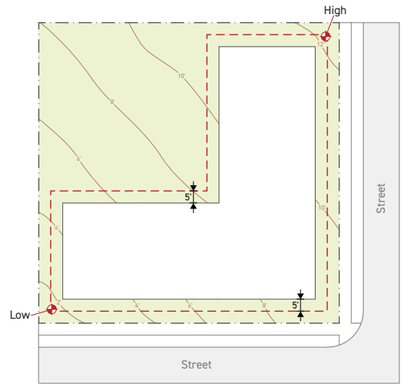
Average grade may be established either of the following ways:

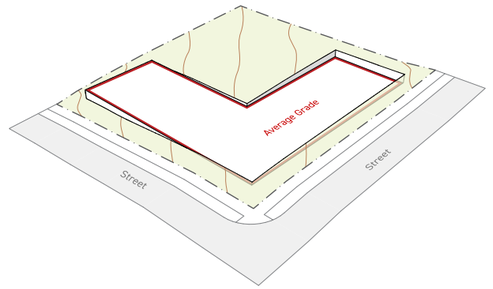
a). For a full building; or

b). For each building module established by ground story modules.

ii. Full Building Method

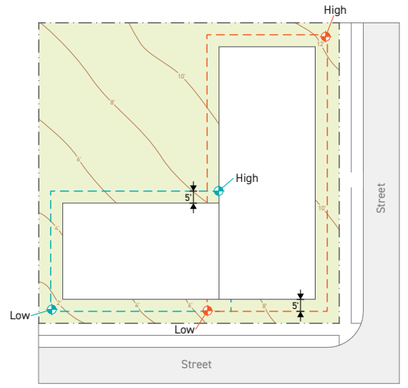
For the full building method, average grade is calculated by averaging the highest and lowest elevation of existing grade within 5 feet of the building perimeter.

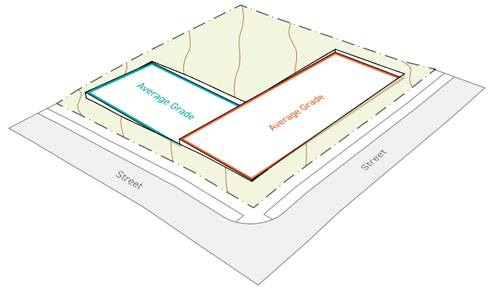




iii. Building Module Method

For the building module method, average grade is calculated independent for each building module by averaging the highest and lowest elevation of existing grade within 5 feet of the perimeter of each building module.





c. Maximum Height in Stories

i. Height in stories is measured as the number of stories above finished grade. The ground story and all upper stories are included in the calculation of maximum height in stories.

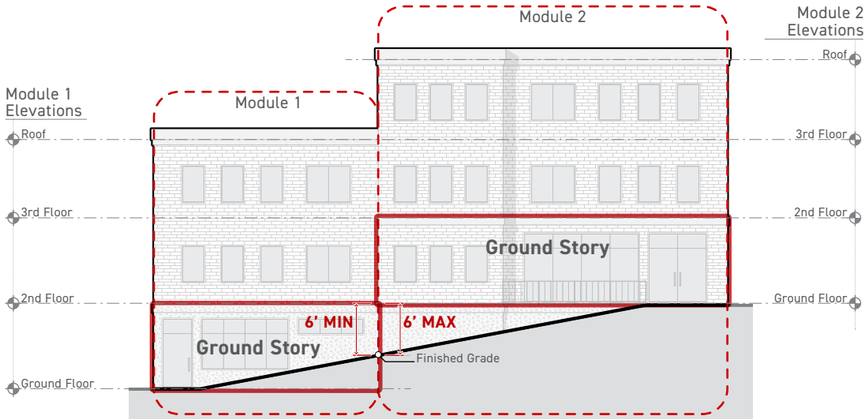
ii. A story is the part of a building included between the surface of one floor and the surface of the next floor above, or if there is no floor above, then the ceiling next above.

iii. Basements and mezzanines do not count as a story.

iv. The ground story (or first story) of a building is determined as follows:

a). The first (facade) story that is exposed a minimum of 6 feet above finished grade along the full width of the applicable building facade.

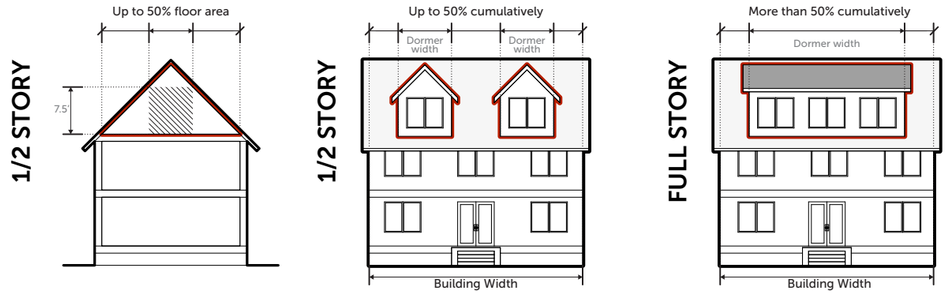
b). The finished floor of a ground story can be no higher than 6 feet above finished grade for any portion of the building perimeter. This may mean the ground story may change within the same building.



v. The topmost story of a building is not counted as a full story and is counted as a half story when:

a). It is completely within the roof form of the building and less than 50% of the floor area has a clear height of more than 7.5 feet, measured from the finished floor to the finished ceiling; or

b). Dormers do not exceed more than 50% of the front, rear or side building length.



5. Exceptions

The following encroachments are allowed to extend beyond the maximum height limit, as specified below:

		District Height (max)		
		Up to 40'	Between 40' & 70'	More than 70'
Architectural Elements	*XXX.*			
Encroachment (max)		5'	10'	15'
Setback from roof edge (min)		0'	0'	0'
Safety Barriers	*XXX.*			
Encroachment (max)		6'	6'	6'
Setback from roof edge (min)		0'	0'	0'
Vertical Circulation	*XXX.*			
Encroachment (max)		14'	14'	14'
Setback from roof edge (min)		5'	5'	5'
Unenclosed Structures	*XXX.*			
Encroachment (max)		10'	10'	10
Setback from roof edge (min)		5'	5'	5'
Mechanical and Electrical Equipment	*XXX.*			
Encroachment (max)		3'	5'	10'
Setback from roof edge (min)		5'	5'	5'
Flatwork	*XXX.*			
Encroachment (max)		2.5'	2.5'	2.5'
Setback from roof edge (min)		1'	1'	
Vegetation	*XXX.*			
Encroachment (max)		unlimited	unlimited	unlimited
Setback from roof edge (min)		1'	1'	1'
Signs		see *XXX.*. Signs		

B. Building Width

The horizontal width of a building parallel to the street.

1. Intent

a. To promote fine-grained patterns of development and prevent long buildings that are significantly out of context with the City's traditional patterns of development by breaking wide buildings into multiple, clearly distinguished building widths.

b. To encourage larger projects to provide open space for pedestrians and recreation.

2. Applicability

a. Building width requirements apply to all street-facing building facades.

b. Building width requirements apply only to portions of buildings located above the maximum finished floor elevation (XXX. Finished Floor Elevation) required by the zoning district.

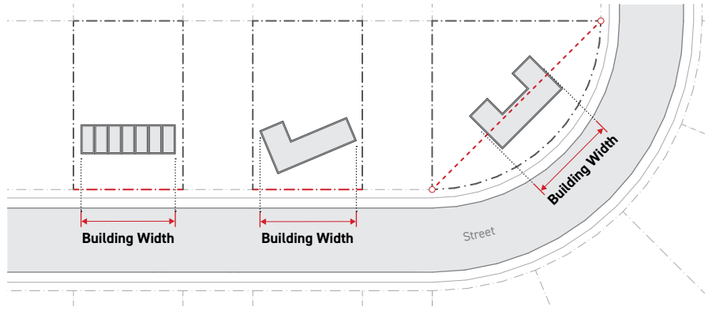
3. Standards

a. No building located on a lot may be wider than the maximum building width allowed by the zoning district.

b. Two buildings can abut one another provided that they have no shared components and are structurally independent from one another.

4. Measurement

Building width is measured horizontally and parallel to each abutting primary street or side street lot line from one end of a building to the opposite end.



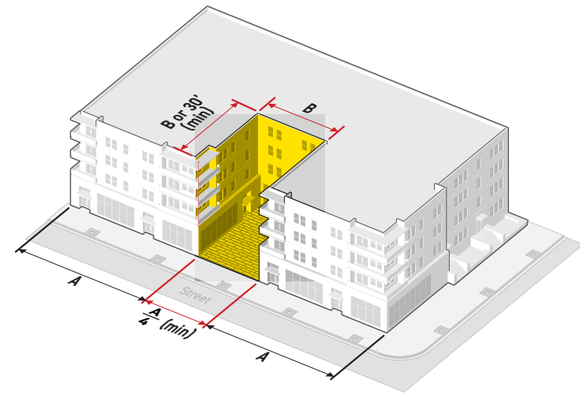
5. Exceptions

An open space meeting the following standards may be used to establish a continuous structure as effectively separate buildings for the purpose of meeting a maximum building width requirement:

a. A maximum of one open space exception is allowed for each building.

b. The width of the open space must be no less than 1/4 the width of the widest adjacent building width provided.

c. The depth of the open space must be at least equal to the width of the open space or 30 feet, whichever is less.



d. The open space must meet the standards in XXX. Outdoor Amenity Space.

2.9.9. Active Depth

The horizontal depth of a building that must contain active spaces.

A. Intent

To help minimize the impact of inactive spaces on the public realm and to promote a comfortable, safe, engaging, and attractive build environment.

B. Applicability

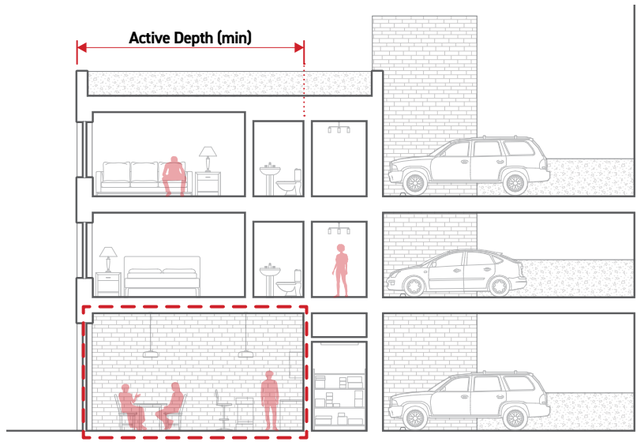
1. Active depth standards apply to the portions of a building used to meet the minimum build-to width requirement. See XXX. Build-to.
2. Active depth applies to the ground story only - see XXX.

C. Standards

1. Applicable portions of a building must provide the minimum active depth required by the zoning district.
2. No more than 20% of the floor area of the required active depth may be used for inactive spaces such as storage, hallways, stairwells, and equipment rooms.
3. Parking spaces and motor vehicle use areas are not allowed in any portion of the required active depth.

D. Measurement

Active depth is measured from the front building facade inward to the interior of the building.



2.9.10. Ground Story

A. Ground Story Height

The floor-to-floor height of the story of a building.

1. Intent

To promote high-quality ground-story spaces that are adaptable and appropriate to their intended use and surrounding context.

2. Applicability

a. The ground story height standards apply to all buildings that contain habitable space on the ground story.

b. Where a zoning district regulates ground story height differently for residential and nonresidential uses, residential standards apply to all residential uses, and nonresidential standards apply to nonresidential uses.

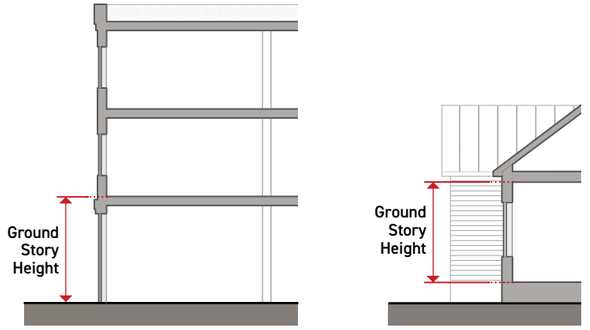
3. Standards

Ground story height can be no lower than the minimum ground story height required by the zoning district.

4. Measurement

a. Ground story height is measured from the top of the finished floor of the ground story to the top of the finished floor of the story above.

b. Where there is no story above, ground story height is measured from the top of the finished floor to the bottom of the roof structure above.



B. Finished Floor Elevation

The height of the finished floor associated with the story of a building having its finished floor elevation nearest to finished grade.

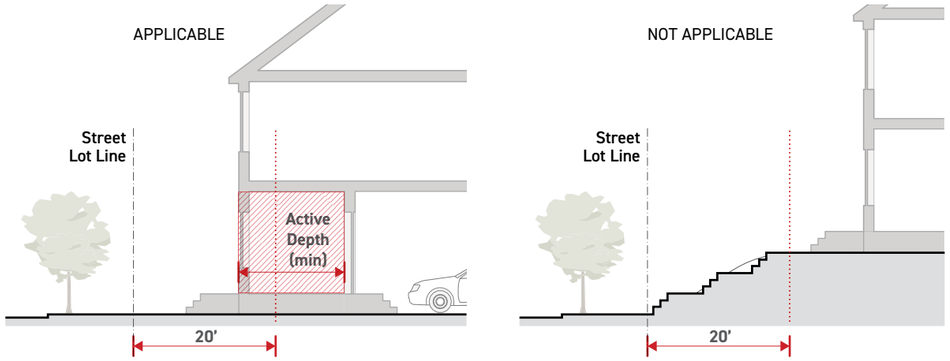
1. Intent

To promote "eyes" on the street, increase the perception of safety and encourage visual connections between the public realm and the exterior of a building.

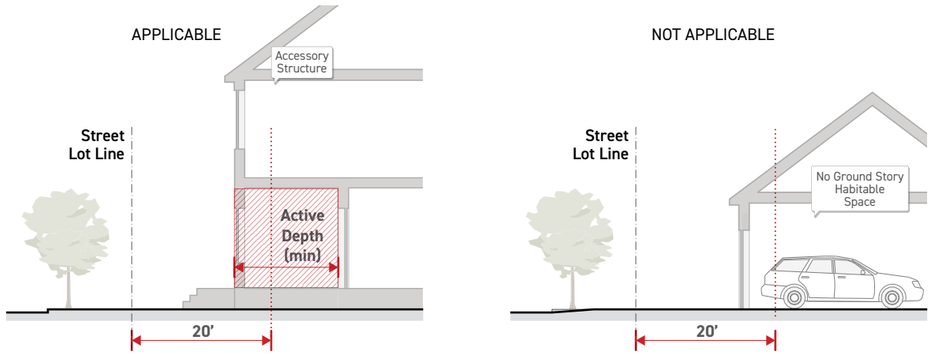
2. Applicability

a. The finished floor elevation standards apply to all buildings that contain habitable space on the ground story and that are located within 20 feet of a primary street or side street lot line.

b. Where a zoning district regulates active depth, the finished floor elevation standards apply only to the required ground floor active depth.



c. The finished floor elevation standards do not apply to accessory structures, unless the ground story of the accessory structure contains active spaces for a dwelling unit.



d. Where a zoning district regulates finished floor elevation differently for residential and nonresidential uses, residential standards apply to all residential uses, and nonresidential standards apply to nonresidential uses.

3. Standards

a. All applicable ground stories must have a finished floor surface meeting the following standards:

i. An elevation no lower than the minimum finished floor elevation required by the zoning district.

ii. An elevation no higher than the maximum finished floor elevation required by the zoning district.

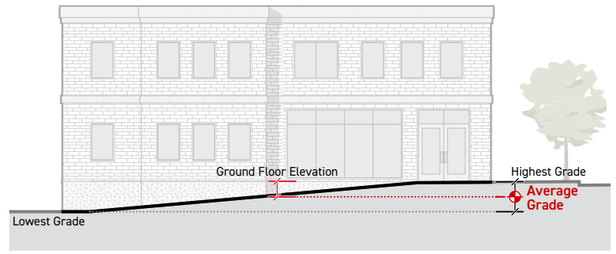
b. Finished floor elevation for nonresidential floor area in a residential building, such as a lobby, gym, or office, may be reduced to 0 feet.

4. Measurement

a. Finished floor elevation is measured from average grade to the top of the finished floor of the ground story.

b. On corner sites, for the purpose of determining finished floor elevation, average grade must be established independently for each street-facing building facade.

c. Average grade is measured according to XXX. Average Grade.



2.9.11. Windows

A. Ground Story and Upper Story Transparency

The amount of transparent area on a building facade.

1. Intent

To help provide visual interest along the public realm by encouraging visual connections between the public realm and the interior of a building.

2. Applicability

Ground story and upper story transparency standards apply to primary and side street-facing building facades only. The ground story is determined according to XXX. Height. Stories above the ground story are considered an upper story.

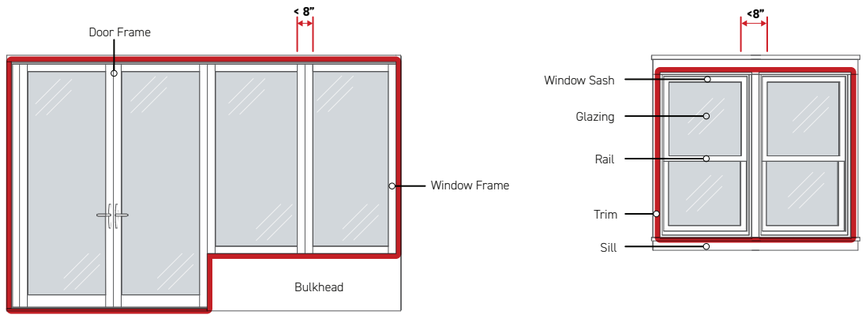
3. Standards

a. Ground and upper story building facades must meet the minimum transparency of the zoning district.

b. To be considered transparent area, window and door glazing must meet the following requirements:

	Visible Light Transmittance	External Reflectance
Ground story	More than 60%	Less than 20%
Upper story	More than 30%	Less than 40%

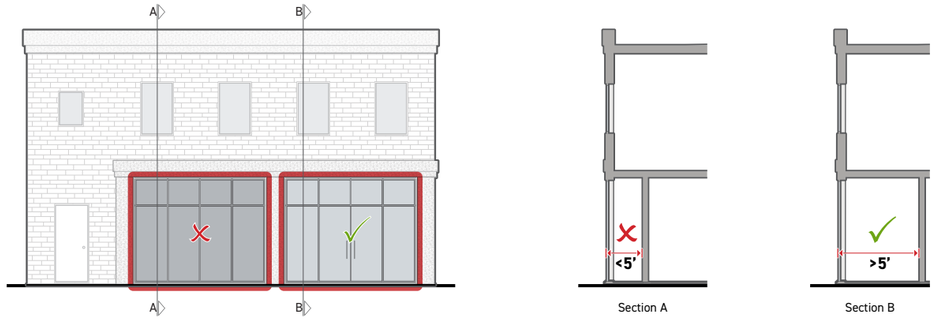
c. Muntins, mullions, window sashes, window and door frames, or window and door trim that are integral to window and door assemblies that are less than 8 inches wide may be considered transparent when calculating required percentages.



d. Windows and doors used to meet the transparency requirements may be temporarily covered by operable window treatments, such as curtains or blinds.

e. Windows and doors obscured by fixed exterior facade screens may count toward transparent area, provided no more than 25% of the total transparent area is covered for any individual window or door opening counting toward transparent area.

f. Interior walls and other permanent interior visual obstructions cannot be located within 5 feet of the window or door opening used to meet the transparency requirement.



i. Ground story windows and doors obscured by interior security gates, window signs, and window displays located less than 5 feet from the window opening may count toward transparent area, provided no more than 25% of the total transparent area is covered for any individual window or door opening counting toward transparent area.

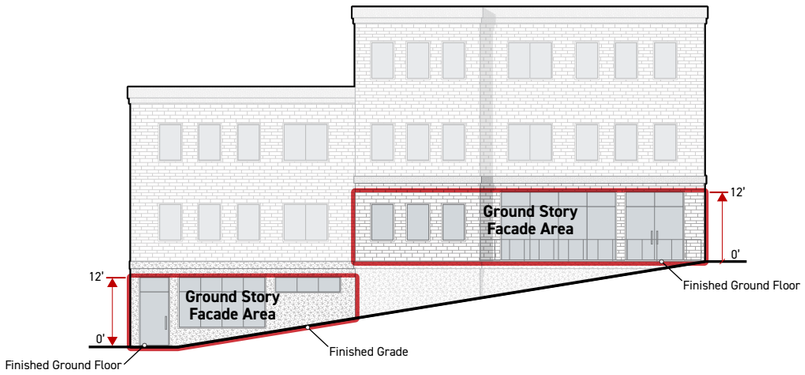
4. Measurement

a. Ground Story

i. General

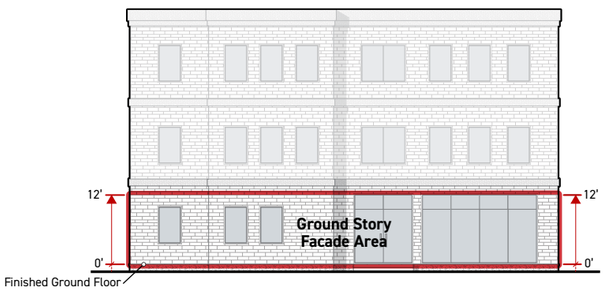
a). Ground story transparency is measured as a percentage calculated as the sum of all facade area meeting the measurement requirements for transparency, divided by the total applicable facade area.

b). No portion of a ground story located below finished grade is included in ground story facade area.



ii. Commercial Ground Story Transparency

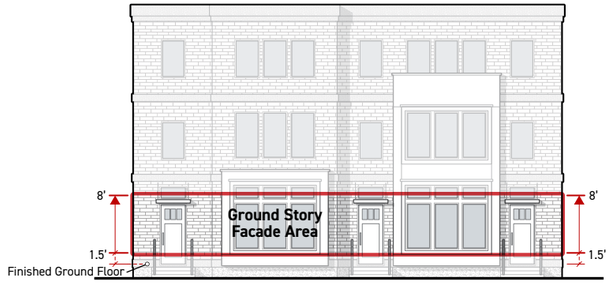
a). For the purpose of calculating transparency, commercial ground story facade area is measured between 0 and 12 feet above the top of the ground story finished floor elevation.



b). If the ground story height is less than 12 feet, ground story facade area is measured between the top of the finished floor of the ground story and the top of the finished floor of the story above. When there is no story above, it is measured to the bottom of the roof structure above.

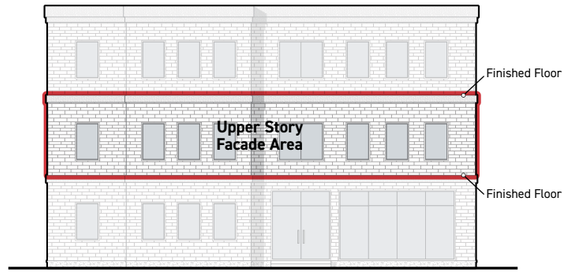
iii. Residential and Non-Commercial Ground Floor Transparency

Ground story facade area is measured between 1.5 and 8 feet above the top of the ground story finished floor elevation.



b. Upper Stories

i. For the purpose of calculating upper story transparency, upper story facade area is measured as the portion of the facade area between the top of the finished floor for that story and the top of the finished floor above. When there is no story above, it is measured to the bottom of the roof structure above.



ii. Upper story transparency is measured separately for each individual story of a building facade above the ground floor.

B. Blank Wall Width

The width of ground story facades and foundation walls without window or door openings.

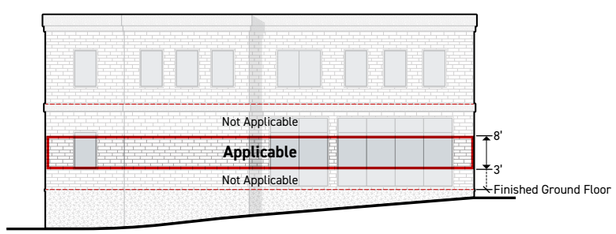
1. Intent

To provide visual interest and activation along the public realm by limiting the area without visual or physical connections between the public realm and the interior of a building.

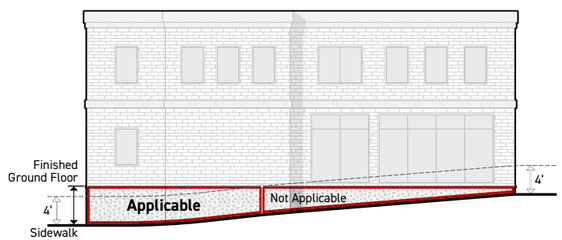
2. Applicability

Blank wall standards apply to the following:

a. Street-facing facades between 3 and 8 feet from the finished floor elevation of the ground story, measured vertically.



b. All portions of foundation walls on street-facing building facades that are exposed 4 feet in height or greater above finished grade. If foundation walls are set back more than 10 feet from a sidewalk, exposed height is measured from the lowest elevation of finished grade within 5 feet, measured from and perpendicular to the foundation wall.



3. Standards

a. General

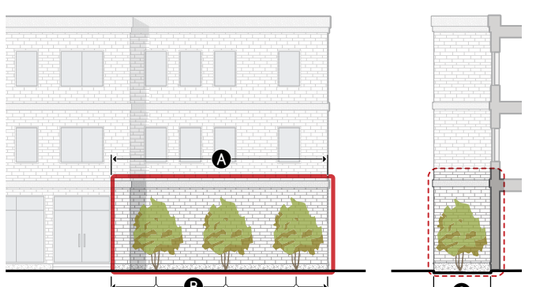
Windows and doors meeting the standards of XXX. Ground Story and Upper Story Transparency on ground story facades or foundation walls may be separated by a distance no greater than the maximum blank wall width specified by the zoning district.

b. Ground Story Facade Blank Wall Treatments

Ground story facades that exceed the maximum allowed blank wall width may apply one or more of the following blank wall treatments and increase the allowed blank wall width by 100%.

SMALL OR MEDIUM TREES

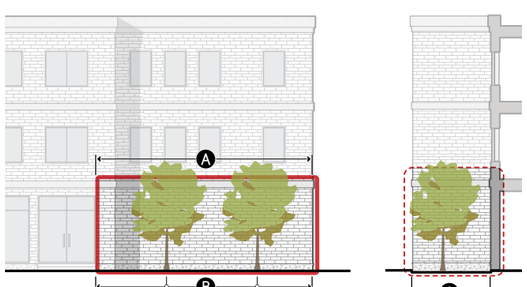
Small trees planted between a ground story facade with no window or door openings and the public realm.



DIMENSIONAL STANDARDS	
A Treatment width (min % of blank wall width)	100%
Tree type	Small or Medium
B Planting frequency (min avg.)	5 per 100'
C Planting area depth (min)	7'

LARGE TREES

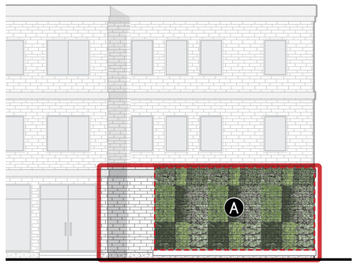
Large trees planted between a ground story facade with no window or door openings and the public realm.

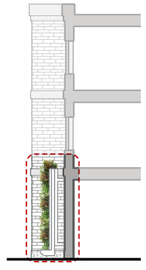


DIMENSIONAL STANDARDS	
A Treatment width (min % of blank wall width)	100%
Tree type	Large
B Planting frequency (min avg.)	3 per 100'
C Planting area depth (min)	15'

LIVING WALL

A permanently fixed assembly located between a ground story facade with no window or door openings and the public realm that supports plants, their growing medium, and irrigation.

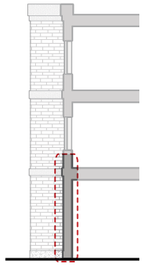




DIMENSIONAL STANDARDS	
A Treatment area (min % of blank facade area)	75%

PUBLIC ART

A noncommercial image attached to the blank wall and is sufficiently different from the building facade. Public art must be reviewed by the Administrator to confirm any mural or art display is not considered a sign.



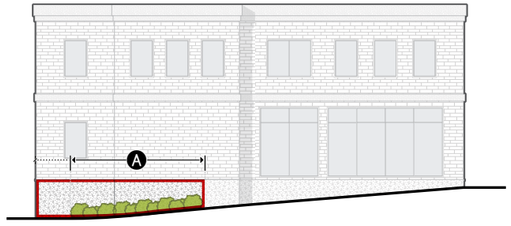
DIMENSIONAL STANDARDS	
A Treatment area (min % of blank facade area)	75%

c. Blank Foundation Wall Treatments

Foundation walls that exceed the maximum allowed blank wall width may apply one or more of the following blank foundation wall treatments and increase the allowed blank wall width by 100%.

FOUNDATION PLANTING

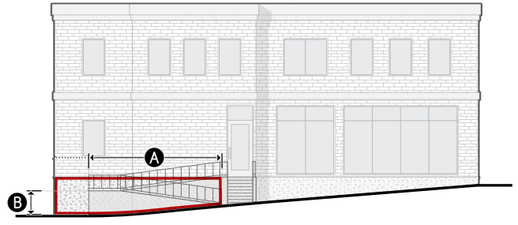
Screening plants located between a foundation wall with no window or door openings and the public realm.



DIMENSIONAL STANDARDS	
A Treatment width (min % of blank wall width)	75%
Plant type	Screening plant
Planting frequency (min avg.)	3 per 10’
Planting area depth (min)	3’

PEDESTRIAN ACCESS

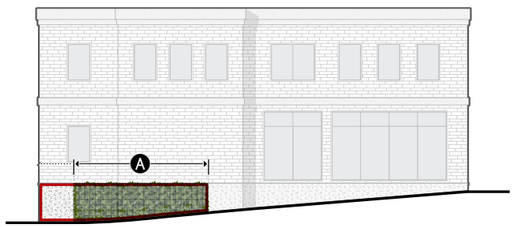
Stairs or ramps providing pedestrian access to a street-facing entrance located between a foundation wall with no window or door openings and the public realm.



DIMENSIONAL STANDARDS	
A Treatment width (min % of blank wall width)	75%
B Height above sidewalk (max)	4’

LIVING WALL

A structure permanently attached to a foundation wall with no window or door openings that supports climbing plants.



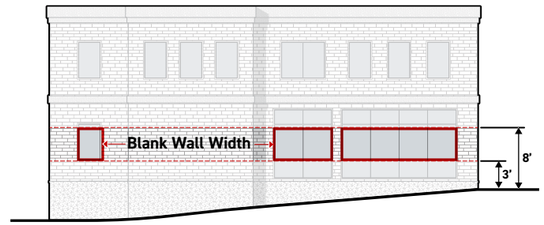
DIMENSIONAL STANDARDS	
Ⓐ Treatment area (min % of blank foundation wall area)	75%
Planting area depth (min)	1.5’

4. Measurement

a. Ground Story Facade Blank Wall

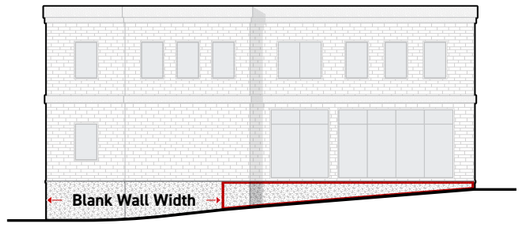
i. Blank wall width is measured horizontally along a street lot line for any width of ground story facade that does not include transparency between 3 and 8 feet above finished floor elevation.

ii. Blank wall width is measured from the edge of a window or door to the edge of an adjacent window or door, or to the edge of the building.



b. Blank Foundation Wall Width

Blank wall width is measured horizontally and parallel to the street lot line from edge of transparent area to edge of transparent area, and edge of transparent area to edge of the foundation wall.



5. Blank Wall Treatments

a. Treatment Width

Minimum treatment width is measured as a percentage, calculated as the cumulative width of blank wall treatments divided by the total length of blank wall width.

b. Treatment Area

Minimum treatment area is measured as a percentage, calculated as the cumulative area of blank wall treatments divided by the total applicable facade area within the blank wall width.

c. Tree Type

See XXX. Landscaping for small or medium and large tree planting requirements.

d. Plant Type

See XXX. Landscaping for screening plant planting requirements.

e. Planting Frequency

Planting frequency is measured as a ratio of the minimum number of plants required along the total length of the blank wall width. A minimum of one plant of the required plant type must be provided regardless of the width of blank wall treatment.

f. Planting Area Depth

Minimum planting area depth is measured as the horizontal dimension of growing medium at the narrowest point, measured perpendicular to the applicable street lot line. The planting area must be open to the sky for at least the required planting area depth.

g. Height Above Sidewalk

i. Height above sidewalk is measured vertically from adjacent sidewalk grade to the topmost point of the blank wall treatment.

ii. For foundation walls located more than 10 feet from the sidewalk, maximum height above sidewalk is measured from the lowest elevation of finished grade to within 5 feet, measured from and perpendicular to the foundation wall, to the topmost point of the blank wall treatment.

h. Foundation Wall Reveal

Foundation wall reveal is measured vertically from the top of an inactive wall treatment to the finished floor elevation along the entire treated portion of a blank foundation wall.

2.9.12. Doors

A. Street-Facing Entry Spacing

A maximum distance between street-facing doors providing access from the public realm to the interior of a building.

1. Intent

To provide visual interest along the public realm, orient buildings to the public realm and promote greater use and activation of the public sidewalk by limiting distance without physical connections between the public realm and the interior of a building.

2. Applicability

a. Street-facing entry spacing requirements apply to all ground story street-facing facades.

b. The maximum street-facing entry spacing requirements must be met for each building and abutting buildings on a lot or within a project site, but are not applicable to buildings unrelated to the project.

c. Accessory structures do not have to provide a street-facing entry, and are not included in the calculation of maximum street-facing entry spacing requirement.

3. Standards

a. A street-facing entry must be provided to meet the street-facing entry spacing requirements of the zoning district.

b. Street-facing entries must not be located farther apart than the maximum entry spacing allowed by the zoning district.

c. To qualify as a street-facing entry, building entrances must meet the following standards:

i. Be located on a street-facing ground story facade;

ii. Provide both ingress and egress pedestrian access to the ground story of the building;

iii. Remain operable at all times. Access may be controlled and limited to occupants; and

iv. Must access an occupiable space.

d. A primary street-facing entry is required for all buildings.

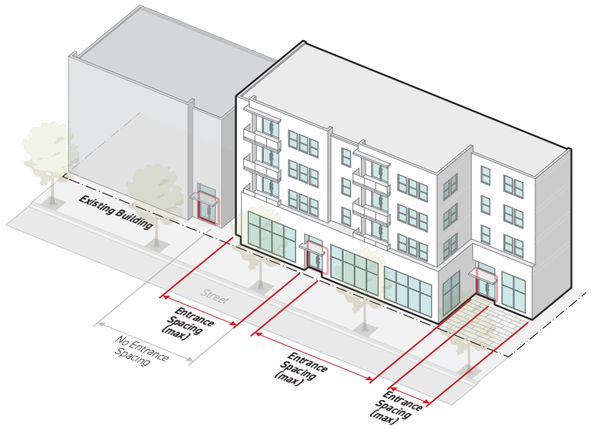
e. A side street-facing entry is only required when the building along the side street is greater than the maximum entry spacing requirement for the zoning district.

f. On a corner lot, an angled entry at the corner of the building where the primary and side street-facing facades meet may be used to meet the requirement for a street-facing entry along both streets.

g. Non-required entries are allowed in addition to required entries.

4. Measurement

Entry spacing is measured parallel to the street lot line from the edge of a door to the edge of an adjacent door, or to the edge of the building.



B. Entry Feature

Improved design requirements applied to entrances along the public realm.

1. Intent

To promote visual interest along the public realm, provide greater shelter and comfort to users, and highlight connections between the public and private realm to improve walkability.

2. Applicability

Entry feature standards apply to all required street-facing entrances where entry features are required by the zoning district.

3. Standards

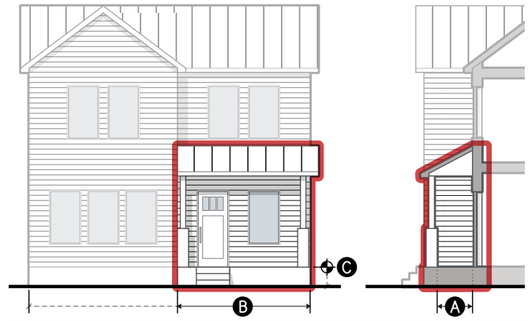
a. Each required street-facing entrance must include an entry feature meeting the standards for one of the following entry feature options.

b. Required entry features must abut and provide direct access to a street-facing entrance. An entrance directly accessed from an entry feature counts as a street-facing entrance, regardless if it faces the street.

c. Required entry features must provide direct access from the public realm associated with the primary or side street lot line.

PORCH

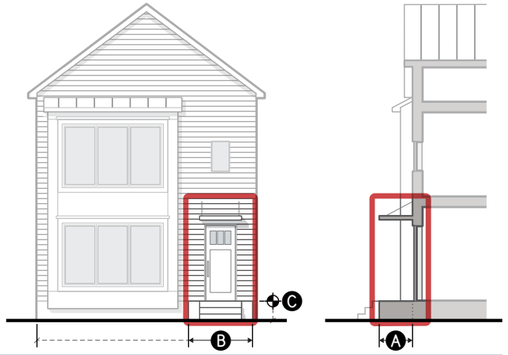
A wide, raised platform, projecting in front of a street-facing entrance, that is entirely covered but not enclosed.



DIMENSIONAL STANDARDS	
A Depth (min)	5'
B Width (min % of building width)	30%
Covered entrance	Required
Enclosed	Not allowed

RAISED ENTRY

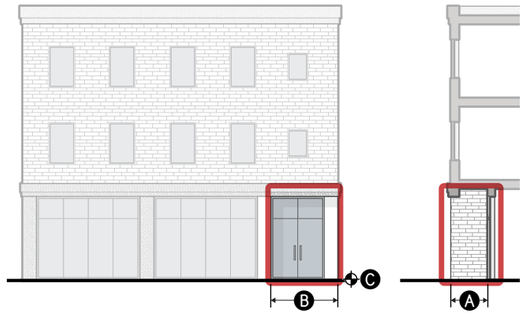
A raised platform accessed from an exterior staircase, providing covered access to a street-facing entrance.



DIMENSIONAL STANDARDS	
A Depth (min)	3'
B Width (min)	4'
Covered entrance	Required
Covered area (min)	n/a
Enclosed	Not allowed

RECESSED ENTRY

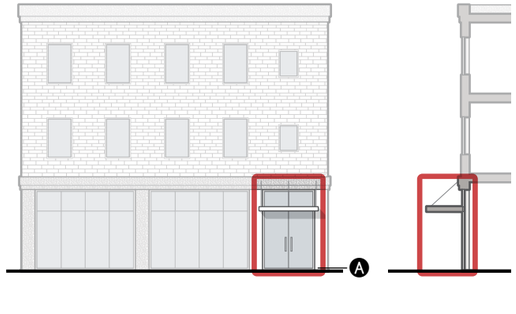
A space set behind the primary facade plane providing sheltered access to a street-facing entrance.



DIMENSIONAL STANDARDS	
A Depth (min)	3'
B Width (min)	5'
Covered entrance	Required
Enclosed	Not allowed

COVERED ENTRY

A space that provides sheltered access to an at-grade street-facing entrance with an overhead projecting structure.



DIMENSIONAL STANDARDS	
Depth (min)	n/a
Width (min)	n/a
Covered entrance	Required
Enclosed	Not allowed

FORECOURT

A yard screened with a short wall, fence or hedge that provides significant privacy for occupants located on the ground story, near sidewalk grade.

DIMENSIONAL STANDARDS	
A Depth (min)	8'
B Width (min)	10'
Covered entrance	Required
Fence or wall height (min/max)	2.5' / 4'
Enclosed	Not allowed

4. Measurement

a. Depth

Minimum depth is measured as the horizontal dimension at the narrowest point of an entry feature, perpendicular to the applicable street lot line.

b. Width

i. When specified in feet, width is measured as the total width of an entry feature, measured parallel to the street lot line.

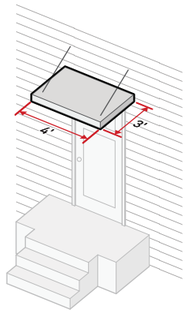
ii. When specified as a percentage, width is measured as the total width of the entry feature divided by the total width of the building that the entry provides access to, measured parallel to the street lot line. When the calculation for an entry feature width percentage results in a fraction, the result is rounded up to the nearest whole number.

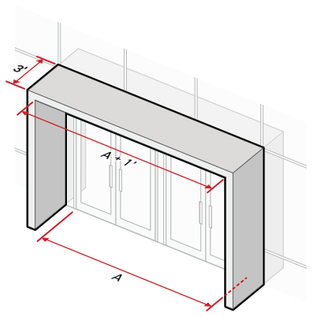
c. Covered Entrance

i. When required as a part of an entry feature, a canopy, roof, or other sheltering structure must cover the exterior area immediately abutting the associated street-facing entry.

ii. The minimum depth of the covered area is 3 feet.

iii. The minimum width of the covered area is 4 feet or the width of the street-facing entry plus 1 foot, whichever is greater.





A = Street-Facing Entry Width

ARTICLE 3.

USE DISTRICTS

SEC. 2.9. PLANNED DISTRICTS

2.9.1. UC University and Campus

A. Intent

The University and Campus District (UC-) is intended to foster a dynamic, mixed-use environment that supports higher education, research, technology, entrepreneurship, and creative industries, while integrating a diversity of housing options. The district is designed to serve as a hub for innovation and inclusive economic development by encouraging collaboration among public institutions, private industry, and academic institutions such as colleges and universities.

1. The district promotes a flexible regulatory framework that allows for the co-location of public and civic uses, residential, commercial, and light industrial uses in walkable, transit-supportive settings. A key goal is to support a live-work environment by encouraging a range of housing types that meet the needs of students, educators, researchers, entrepreneurs, and employees at all income levels.
2. The district emphasizes high-quality urban design, active public spaces, and multimodal connectivity, while ensuring compatibility between uses. It supports a vibrant public realm that attracts and retains talent, fosters creativity, and builds an inclusive, future-ready community.
3. The district comes in two versions: UC-A is intended for more walkable environments with tighter blocks and narrower streets and UC-B is intended for more campus-like settings characterized by larger lots, additional open space, and more expansive buildings.

B. Zoning Map Change

1. Initial Establishment of a UC- District

A university, college, or scientific and technical research park may elect to have all or parts of its campus covered in the initial establishment of the zoning district, so long as those areas are covered by the appropriate campus master plan.

2. Subsequent Zoning Map Change

Any property included as part of a university, college, or scientific and technical research park in a campus master plan can be included in a UC- district. A campus master plan must be submitted to the Planning Department prior to any zoning map change submittal. The campus master plan must be viewed as illustrative in nature and can be updated, in whole or in part, at any time.

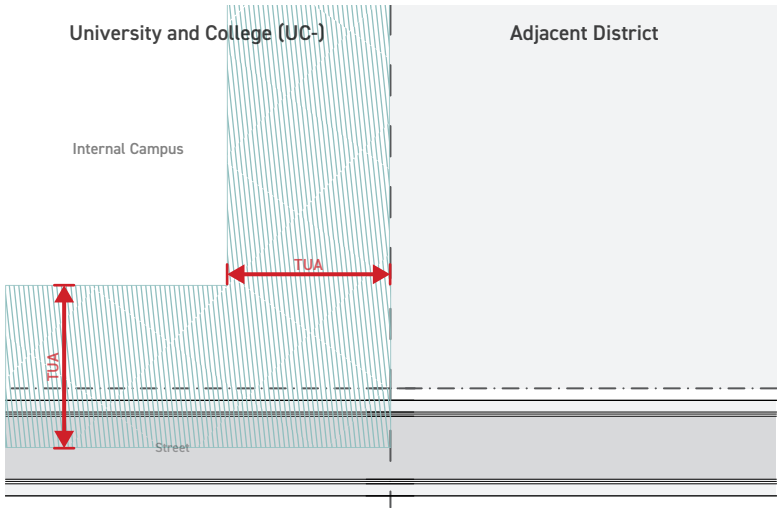
C. Campus Areas

1. Transitional Use Area

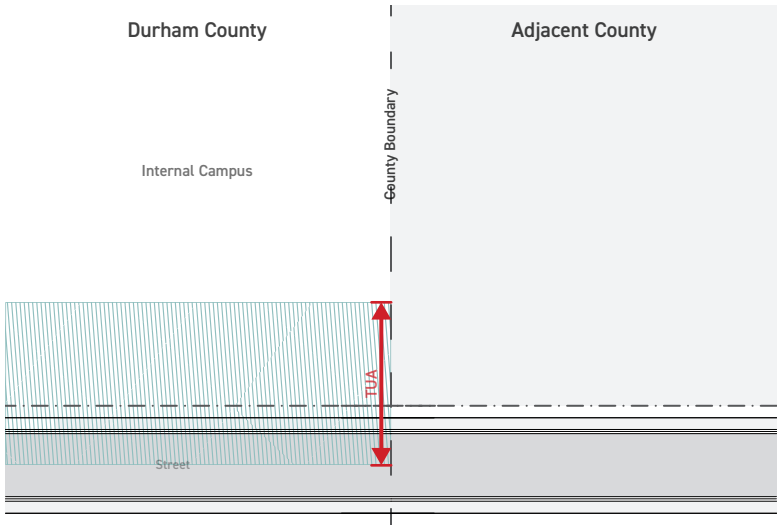
a. A Transitional Use Area establishes standards at the edges of the campus that minimize any adverse impacts of proposed development on adjacent properties in other zoning districts.

b. A Transitional Use Area is required when a UC- district is located across the street from a property with a non-UC zoning designation. The area is measured inward from the street's midpoint. If the street is more than 200 feet wide and contains no existing or planned structures, a Transitional Use Area is not required.

c. A Transitional Use Area is required when a UC- district shares a common lot line with a property that has a zoning designation other than UC. The Transitional Use Area is measured inward from the common lot line.



2. A Transitional Use Area is not required when the adjacent or opposing property is located outside of Durham County.

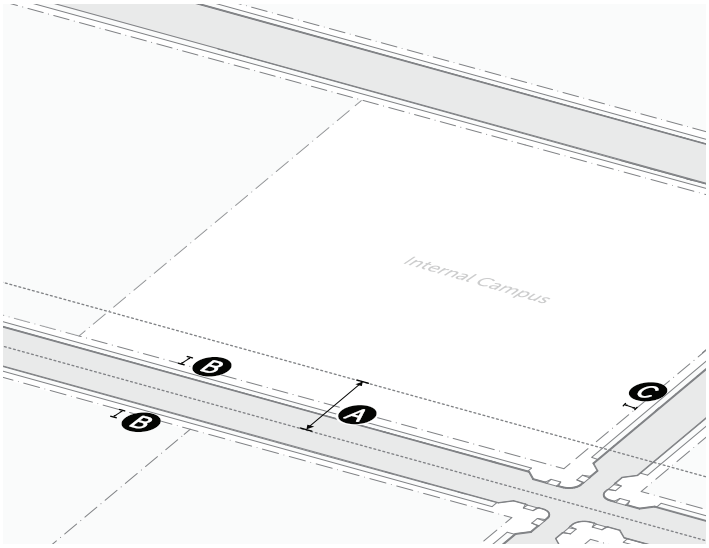


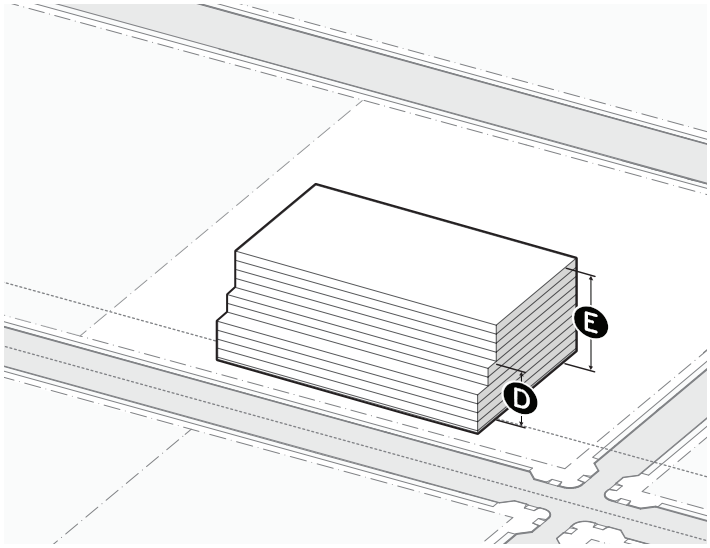
D. Internal Campus

1. All areas within a UC- district that are beyond the Transitional Use Area must be considered part of the Internal Campus.

2. All development within the Internal Campus must be governed by an approved Master Plan. This approach provides flexibility to accommodate the unique lot and building standards characteristic of university and campus environments. It ensures that master planning requirements and the specialized nature of these areas are appropriately addressed where standard UDO provisions may not fully apply.

E.UC- A Lot and Building Standards

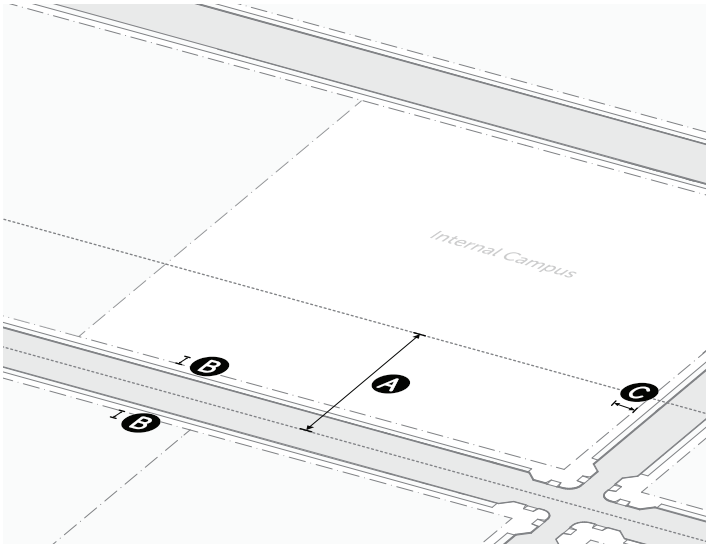


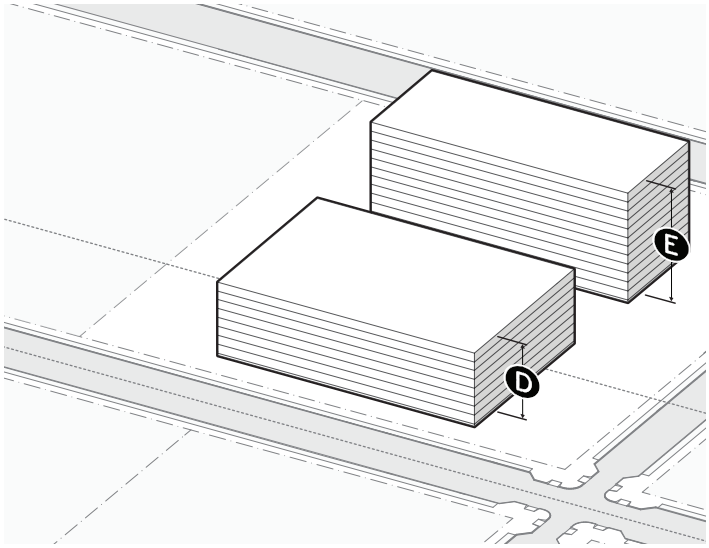


1. Site	
Ⓐ Transitional Use Area depth (min)	75′
2. Lot Size	
Area (min)	0′
Width (min)	0′
3. Building Setbacks	
Transitional Use Area (max)	
Ⓑ Primary street (min)	Follow setback for zoning district across the street
Ⓒ Side street (min)	10′
Side (min)	0′
Rear (min)	0′
Internal Campus	per Campus Master Plan

4. Massing	
Ⓓ Transitional Use Area height (max)	
Base height (*see also 2.9.1.G.1*)	75′
With an MSUP	120′
Ⓔ Internal Campus height (max)	
University or college	
Base height	120′
With an MSUP	145′
Scientific or technical research park	
Base height (max)	300′

F. UC- B Lot and Building Standards





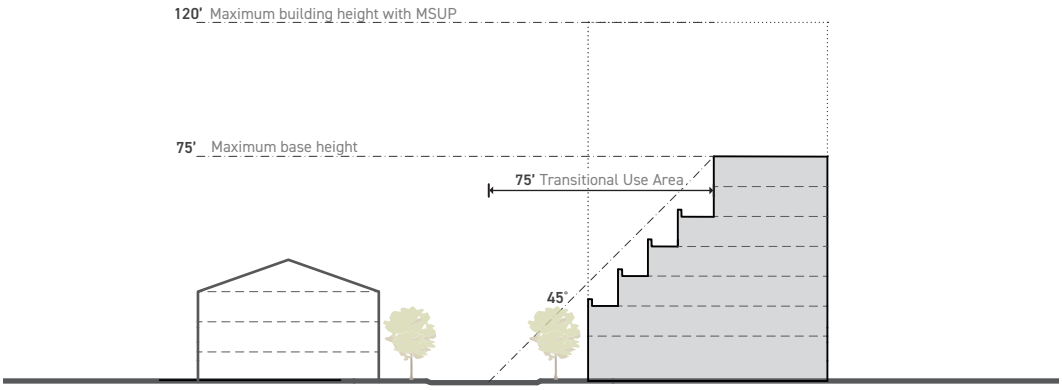
1. Site	
A Transitional Use Area depth (min)	150′
2. Lot Size	
Area (min)	0′
Width (min)	0′
3. Building Setbacks	
Transitional Use Area (max)	
B Primary street (min)	Follow setback for zoning district across the street
C Side street (min)	20′
Side (min)	0′
Rear (min)	0′
Internal Campus	per Campus Master Plan

4. Massing	
D Transitional Use Area height (max)	
Base height (*see also 2.9.1.G.2)*	150% of adjacent building height or 100′ whichever is greater
With an MSUP (*see also 2.9.1.G.2)*	150% of adjacent building height or 145′ whichever is greater
E Internal Campus height (max)	
University or college	
Base height	120′
With an MSUP	145′
Scientific or technical research park	
Base height (max)	300′

G. Measurement of Height Standards

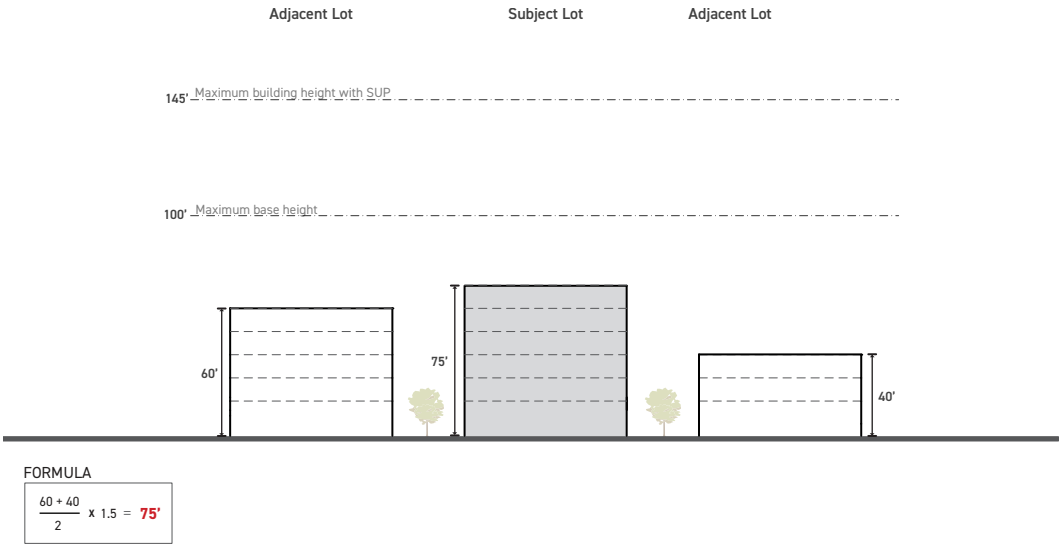
1. UC-A

A building cannot extend into a 45° angular height plane. The 45° degree angular height plane is measured at grade from the edge of the Transitional Use Area inward up to a maximum height of 75 feet.



2. UC-B

a. Building height cannot exceed 150% of the average height of buildings on adjacent properties (including those directly across the street), up to a maximum height of 100 feet/145 feet with an MSUP.



b. In calculating the average height for adjacent buildings, the following considerations are included:

i. The maximum permitted heights for developable vacant lots;

ii. The taller of buildings in front or behind each other; and

iii. Buildings within 150 feet of the edge of the Transitional Use Area.

H. Additional Standards

Unless specifically stated, the following requirements apply to all UC- districts.

1. Development Standards

Article 4, Development Standards apply by Campus Area as indicated below:

		Internal Campus	Transitional Use Area
Pedestrian Access	*Sec. 4.2.1*	○	○
Bicycle Parking	*Sec. 4.2.2.*	○	○
Transit Access	*Sec. 4.2.3.*	○	○
Vehicle Access	*Sec. 4.3.1.*	○	○
Vehicle Parking	*Sec. 4.3.2*	○	○
Parking Lot Dimensions	*Sec. 4.3.3*	●	●
Parking Lot Landscaping	*Sec. 4.3.4*	○	●
Other Vehicle Use Areas	*Sec. 4.3.5.*	○	●
Transitions	*Sec. 4.4.1.*	○	●
Transition Screens	*Sec. 4.4.2*	○	●
Frontage Screens	*Sec. 4.4.3*	○	●
Site Element Screens	*Sec. 4.4.5.*	○	●
Fences and Walls	*Sec. 4.5.1.*	○	●
Retaining Walls	*Sec. 4.5.2.*	○	●
Landscape Design	*Sec. 4.6.1*	○	●
Existing Vegetation Credits for Required Landscaping	*Sec. 4.6.2*	●	●
Mass Grading Buffers and Revegetation	*Sec. 4.6.3*	●	●
Signs	*Sec. 4.7*	○	●
Lighting[1]	*Sec. 4.8*	○	●
General Performance Standards	*Sec. 4.9*	●	●

● = Standards Apply ○ = Standards Do Not Apply

[1] *Light trespass cannot exceed the maximum lighting levels at the district boundary, as established in 4.8.1.D.2 and 4.8.1.D.3.*

2. Infrastructure and Public Improvements

Article 6, Infrastructure and Public Improvements apply by Campus Area as indicated below:

		Internal Campus	Transitional Use Area
Railroad Corridors	*Sec. 6.2.2.*	●	●
Performance Guarantees	*Sec. 6.2.3.*	●	●
Phased Development	*Sec. 6.2.4.*	○	●
Blocks[1]	*Sec. 6.3.2.*	●	●
Lots and Sublots	*Sec. 6.3.3.*	●	●
Naming	*Sec. 6.3.4.*	●	●
Streets	*Sec. 6.4.2.*	○	○
Streetscapes	*Sec. 6.4.3.*	○	○
Street Trees	*Sec. 6.4.4.*	●	●
Water and Sanitary Sewer Systems	*Sec. 6.5.1.*	●	●
On-Site Water Supply or Wastewater Disposal	*Sec. 6.5.2.*	●	●
Other Utilities	*Sec. 6.5.3.*	●	●

● = Standards Apply ○ = Standards Do Not Apply

[1] *Does not apply to redevelopment or expansions of existing development approved before January 1, 2026.*

3. Environmental Protection

Article 7, Environmental Protection applies in both Campus Areas.

4. Sidewalks

A public sidewalk must be provided with each site plan application in the following manner:

a. The length of sidewalk required per site plan must be equal to the total of the widest dimension of the project area.

b. Sidewalk can be placed as allowed in 12.4.2C.1; however, locations must be prioritized as follows:

   i. Locations within the campus specified within the Durham Walks! Plan or subsequently adopted pedestrian plan;

   ii. Within the Transitional Use Area located within one mile of the project site;

   iii. Along public right-of way internal to the district.

c. No sidewalk is required pursuant to paragraph 12.4.2D, Exemptions.

d. Payment-in-lieu is available pursuant to paragraph 12.4.2C.2, Payment-in-lieu (City only).

e. Alternatively, sidewalks may be provided in accordance with an approved alternative pedestrian plan.

5. Solid Waste

The requirements of Chapter 58 of the City Code, Solid Waste Collection and Disposal, may be modified on projects within a UC- district if a solid waste master plan has been filed with the City and that plan has been approved by the Solid Waste Director.

6. Road Improvements

a. Traffic Impact Analysis

i. A traffic impact analysis consistent with *8.2.14, Traffic Impact Analysis* is required with or in advance of site plan approval of projects when appropriate thresholds are reached.

ii. Within the City, this analysis may be included at the time of a zoning map change or in advance of a site plan submittal. If provided after the zoning map change, a single TIA, at the applicant's discretion, may reflect development throughout the UC- district, for identified areas within a UC- district, or be provided on a site plan specific basis.

b. Road Improvements (City only)

If the applicant performs the TIA utilizing any option other than the site plan specific basis, a proposed implementation schedule may be submitted for the provision of required road improvements, with the improvements tied to specific dates rather than specific projects. The implementation schedule must be reviewed and, if approved by the City, used to govern the timing of all required road improvements.

7. Stormwater

A stormwater impact analysis is required to be approved in advance of site plan approval when appropriate thresholds are reached. The analysis may reflect development throughout a UC- district, for identified areas within a UC- district, or be provided on a site plan specific basis. If provided utilizing any option other than the site plan specific basis, a proposed implementation schedule for the provision of required stormwater improvement may be submitted, with the improvements tied to specific dates rather than specific projects. The implementation schedule must be reviewed and approved by the City or County, as appropriate and, if approved, used to govern the timing of all required improvements.

ARTICLE 4.

DEVELOPMENT STANDARDS

SEC. 4.1. GENERAL PROVISIONS

4.1.1. Applicability

A. Development standard requirements apply based on the types of project activities proposed, as shown in the table below. Typically, more than one project activity will apply to a proposed project (for example, an expansion of an existing use may include both an addition and a facade modification).

		PROJECT ACTIVITY						
DEVELOPMENT STANDARDS		New Construction	Addition	Site Modification	Facade Modification	Change of Use	Renovation	Maintenance and Repair
Pedestrian Access	*Sec. 4.2.1*	●	●	●	○	○	○	○
Bicycle Parking	*Sec. 4.2.2.*	●	●	●	○	●	●	○
Transit Access	*Sec. 4.2.3.*	●	●	●	○	●	●	○
Vehicle Access	*Sec. 4.3.1.*	●	○	●	○	○	○	○
Vehicle Parking	*Sec. 4.3.2*	●	●	●	○	●	○	○
Parking Lot Dimensions	*Sec. 4.3.3*	●	●	●	○	○	○	○
Parking Lot Landscaping	*Sec. 4.3.4*	●	●	●	○	○	○	○
Other Vehicle Use Areas	*Sec. 4.3.5.*	●	●	●	○	●	○	○
Transitions	*Sec. 4.4.1.*	●	●	●	○	●	○	○
Transition Screens	*Sec. 4.4.2*	●	●	●	○	●	○	○
Frontage Screens	*Sec. 4.4.3*	●	○	●	○	○	○	○
Requirements for All for Transition and Frontage Screens	*Sec. 4.4.3*	●	●	●	○	●	○	○
Site Element Screens	*Sec. 4.4.5.*	●	●	●	○	○	●	○
Fences and Walls	*Sec. 4.5.1.*	●	●	●	○	○	○	○
Retaining Walls	*Sec. 4.5.2.*	●	●	●	○	○	○	○
Landscape Design	*Sec. 4.6.1*	●	●	●	○	●	○	○
Existing Vegetation Credits for Required Landscaping	*Sec. 4.6.2*	●	●	●	○	○	○	○
Mass Grading Buffers and Revegetation	*Sec. 4.6.3*	●	○	○	○	○	○	○
Signs	*Sec. 4.7*	●	●	●	○	●	○	○
Lighting	*Sec. 4.8*	●	●	●	○	●	○	○
General Performance Standards	*Sec. 4.9*	●	●	●	●	●	●	○

KEY: ● = Standards generally apply ○ = Standards do not apply

B. Project activities are defined in XX.

C. Where a Section is listed as applying, all applicable standards must be met. The applicable standards may be further modified by the applicability provisions for each development standard. Applicability may also be modified by *Sec. 8.3, Nonconformities*.

The text below would go elsewhere in the code but is included here for context

New Construction: Any activity that includes the construction of a new building or structure. Includes relocation of an existing structure to another location on the lot, or to any other lot. Relocation of an existing structure includes any activity that lifts any portion of a building off its foundation.

Addition: Any expansion of an existing building or structure that is less than the footprint of the existing building or structure, up to 25,000 square feet of new floor area. Includes activity that increases the floor area or the height of an enclosed space within an existing building. Any expansion that exceeds these thresholds is considered new construction.

Site Modification: Any modification of an existing site that affects less than 50% of the existing site area, up to 25,000 square feet of affected site area. Any site modification that exceeds these thresholds is considered new construction

Facade Modification: Any change to the exterior envelope of a building that affects more than 250 square feet of facade area. Facade modifications include changes to: the facade of a building; the amount of exterior foundation wall that is exposed above finished grade; and architectural elements including a balcony, porch, or deck attached to a facade.

Change of Use: Any change in use or a modification of an area designed and intended for a specific use from a previously approved use. Includes a change in the principal use of any portion of a building or lot from one to another. Includes the expansion of floor area, site area, or lot area dedicated to a use or an increase in the intensity of a use, such as an increase in seating capacity or the number of persons in care.

Renovation: Any modification to an existing building or structure that does not expand the building or structure and does not exceed: removal of up to 50% of the perimeter wall framing; removal of up to 50% of the roof framing; or removal of up to 50% of the structural members. Any modification that exceeds these thresholds is considered new construction.

Maintenance and Repair: Activity done to correct the deterioration, decay of, or damage to, any part of a building, structure, or lot, that does not involve a change or modification of the existing design, outward appearance or applicable zoning requirements. In-kind replacement of deteriorated or damaged parts of a building is considered maintenance and repair. Maintenance and repair includes repair of site components such as parking lots or landscaping, but does not include resurfacing of an existing parking lot. Includes any modification to meet fire, life safety, and ADA requirements.

SEC. 4.2. PEDESTRIAN AND BICYCLE MOBILITY

4.2.1. Pedestrian Access

A. Intent

To provide for safe and convenient pedestrian travel by:

1. Improving pedestrian access from the public realm to the interior of buildings;
2. Ensuring that required entrances are conveniently and effectively accessible to pedestrians; and
3. Activating the public realm with building access points and improve convenient pedestrian circulation through large sites to an extent and frequency appropriate to the context.

B. External Connectivity

1. All existing and proposed development must provide pedestrian and bicycle ingress and egress to and from public sidewalks, greenways, trails and bicycle lanes.
2. Pedestrian and bicycle connections must be made to any existing or proposed off-site pedestrian, bicycle, and transit facilities.
3. Adjacent public greenways must be connected to pedestrian and bicycle facilities on the site.

C. Internal Connectivity

1. General

a. Pedestrian walkways must be provided along common access driveways and areas that serve as ingress/egress for the development site. A pedestrian walkway must be placed along both sides of the driveway.

b. Driveways and areas that solely serve as access for rear-loaded townhouses or detached rowhouses or loading areas for nonresidential buildings do not require walkways.

c. The minimum width of a pedestrian walkway is 5 feet.

d. Walkways must be constructed of an all-weather solid surface material such as concrete, asphalt, or another similar material that would satisfy the State accessibility code.

2. Pedestrian Access Required

Pedestrian walkways to required street-facing building entrances must be provided as listed below.

	R-A	R-B	R-C	R-D	RX-	CX-	CN	CG	CH	IX	IH	IU	IC	CIV	PK	CON
Type 1	--	--	--	--	--	■	--	--	--	--	--	--	--	--	--	--
Type 2	--	--	■	■	■	--	■	--	--	■	--	■	■	■	--	--
Type 3	--	--	--	--	--	--	--	■	■	--	■	--	--	--	--	--

■ = Access Type Standards Required -- = Access Type Standards Not Required

D. Pedestrian Access Standards

1. Applicability

Pedestrian access standards apply to all required street-facing entrances (see *Sec. 2.9.11*). Pedestrian access standards do not apply to non-required entrances.

2. Pedestrian Connection Types

a. Type 1

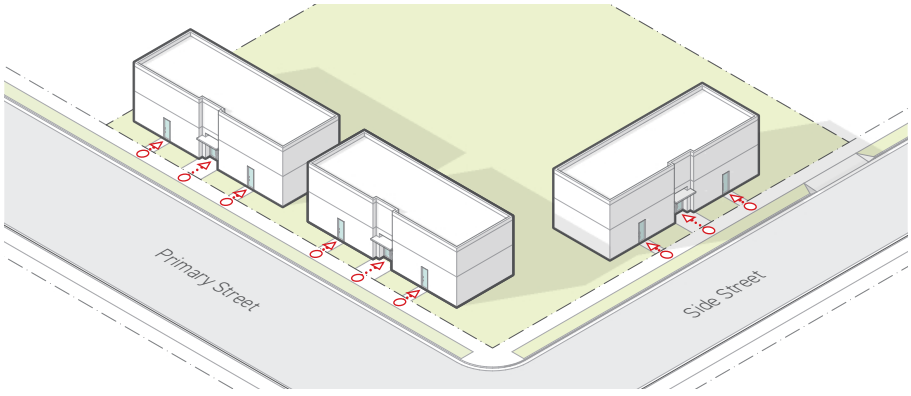
i. Intent

Intended to ensure buildings are highly integrated with the public pedestrian system and promote walking as a safe and convenient mobility option through frequent physical connections between the street and building entrances.

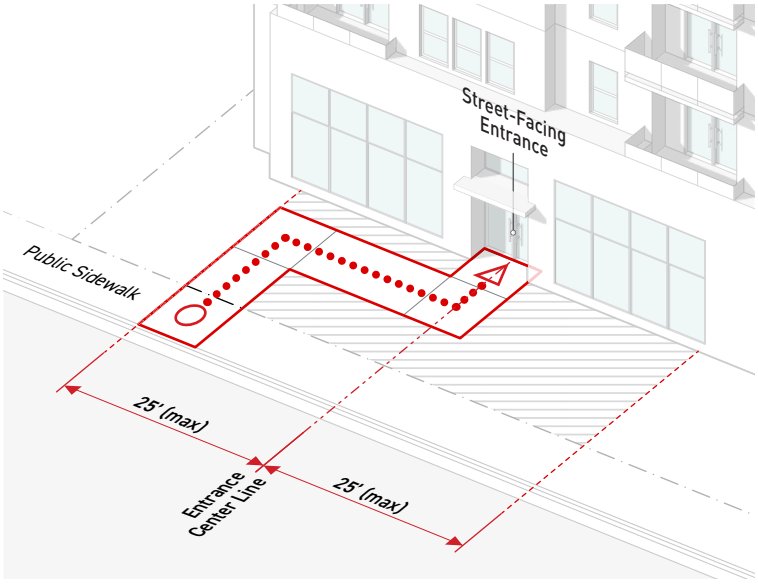
ii. Standards

a). A direct pedestrian walkway must be provided to each required street-facing entrance. A direct pedestrian walkway provides access to a single building entrance.

b). The pedestrian walkway must connect to the public sidewalk, or other publicly accessible pedestrian-facility along the street or trail, to a required street-facing entrance.



c). The connection to the public sidewalk system must be within 25 feet of the center of the street-facing entrance, measured parallel to the street lot line.



b. Type 2

i. Intent

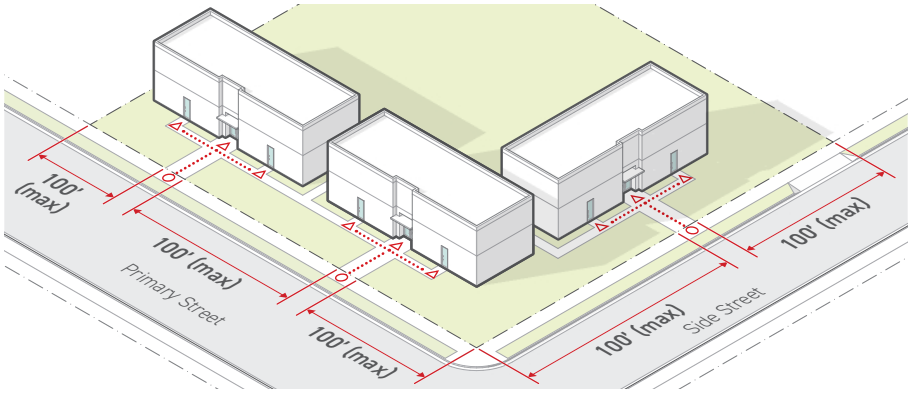
Intended to ensure buildings are conveniently accessible from the public pedestrian system and promote walking as a safe and convenient mobility option through regular physical connections between the street and building entrances.

ii. Standards

a). One grouped pedestrian walkway must be provided every 100 feet along each street frontage. A grouped pedestrian walkway provides consolidated access to multiple building entrances.

b). A grouped pedestrian walkway can be no more than 100 feet from a street intersection.

c). The grouped pedestrian walkway must connect to the sidewalk, or other publicly accessible pedestrian-facility along the street or trail, to a required street-facing entrance.



c. Type 3

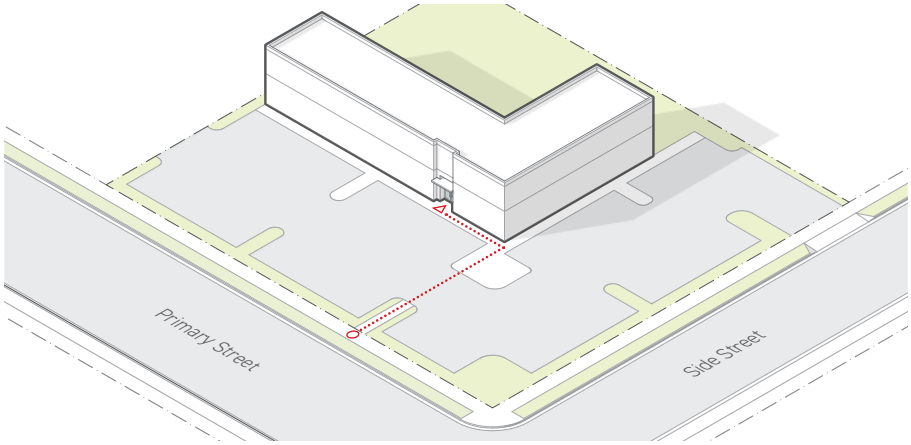
i. Intent

Intended to ensure buildings are accessible from the public pedestrian system by requiring a physical connection between the street and a building entrance.

ii. Standards

a). At least one pedestrian walkway must connect to the public sidewalk, or other publicly accessible pedestrian-facility along the street or trail, to a required street-facing entrance.

b). The pedestrian walkway must be physically separated from and uninterrupted by motor vehicle use areas except where required to cross a drive-aisle. Drive-aisle crossings must be the shortest practical.



4.2.2. Bicycle Parking

A. Intent

To promote bicycling as an alternative to automobile transportation and help ensure safe, secure, accessible, and convenient storage of bicycles for all users.

B. Applicability

1. All allowed uses in *Sec. 3.2*.
2. Dwelling units with individually accessed private garages are not required to provide long-term bicycle parking.

C. Standards

1. Required Bicycle Parking

Bicycle parking must be provided in accordance with the following table. When bicycle parking is required, a minimum of 2 short-term spaces and a minimum of 2 long-term spaces must provided, regardless of size.

	Spaces Required (min)	
USES	**Short-Term**	**Long-Term**
Agriculture Uses		
Agriculture	None	None
Residential Uses		
Single-unit/two-unit	None	None
Multi-unit		
1st 50 units	1 per 10 units	1 per 2 units
51st + units	1 per 15 units	1 per 4 units
Manufactured home	None	None
Manufactured home park or subdivision	1 per 10 units	1 per 2 units
Group living	1 per 6 bedrooms	1 per 3 bedrooms
Public and Civic Uses		
Community service	1 per 5,000 SF of floor area	1 per 10,000 SF of floor area
Care centers	1 per 5,000 SF of floor area	1 per 10,000 SF of floor area
Educational	4 per classroom	10 per classroom
Government	1 per 5,000 SF of floor area	1 per 5,000 SF of floor area
Medical	1 per 5,000 SF of floor area	1 per 5,000 SF of floor area
Parks and open space	4 per park	None
Passenger terminal	1 per 10,000 SF of floor area	1 per 20,000 SF of floor area
Except bus/rail platform or station	8 per station	4 per station
Places of worship	1 per 5,000 SF of floor area	1 per 10,000 SF of floor area
All social service institutions	1 per 5,000 SF of floor area	1 per 10,000 SF of floor area
All utilities	None	None

	Spaces Required (min)	
USES	**Short-Term**	**Long-Term**
Commercial Uses		
Indoor recreation	1 per 2,500 SF of floor area	1 per 10,000 SF of floor area
Outdoor recreation	?	?
Overnight accommodations	1 per 4 rooms	1 per 8 rooms
Parking, commercial	None	None
Restaurants	1 per 2,500 SF of floor area	1 per 10,000 SF of floor area
Retail sales and service	1 per 2,500 SF of floor area	1 per 10,000 SF of floor area
Self-service storage	1 per 10,000 SF of floor area	1 per 10,000 SF of floor area
Vehicle sales	1 per 10,000 SF of floor area	1 per 10,000 SF of floor area
Vehicle service	1 per 10,000 SF of floor area	1 per 10,000 SF of floor area
Office Uses		
Office	1 per 10,000 SF of floor area	1 per 5,000 SF of floor area
Industrial Uses		
Heavy industrial	None	None
Light industrial services	1 per 10,000 SF of floor area	1 per 10,000 SF of floor area
Resource extraction	None	None
Warehouse and freight movement	1 per 10,000 SF of floor area	1 per 10,000 SF of floor area
Waste-related service	None	Non
Wholesale trade	1 per 10,000 SF of floor area	1 per 10,000 SF of floor area

2. Bicycle Facilities

a. General

i. Dimensions

a). Bicycle parking must consist of bicycle racks that support the bicycle frame at two points.

b). Racks must allow for the bicycle frame and at least one wheel to be locked to the rack.

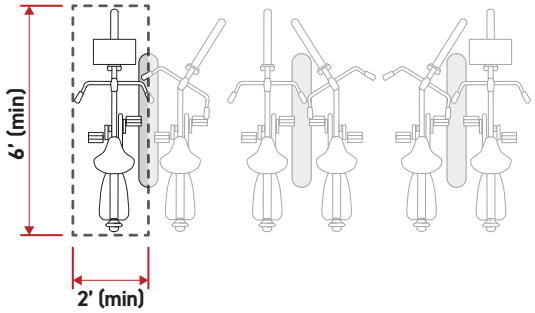
c). If bicycles can be locked to each side of the rack, each side can be counted as a required space.

d). Spacing of bicycle racks must provide clear and maneuverable access.

e). Bicycle racks must be permanently anchored to a floor, foundation or ground, wall, or ceiling as appropriate for the type rack proposed.

f). Bicycle parking spaces must be located on paved or pervious, dust-free surface with a slope no greater than 3%. Surfaces cannot be gravel, landscape stone, or wood chips. Racks must be securely anchored to a permanent surface.

g). Bicycle parking spaces must be a minimum of 2 feet wide and 6 feet long.



h). Bicycle parking must be placed at least 3 feet from all obstacles such as walls, fences, and curbs to provide clear and maneuverable access. Racks must be placed so that each required bicycle parking space is accessible without moving another bicycle.

i). Preferred bicycle rack styles are inverted U, circle, post and loop, and wave racks. . Comb bike racks can not be used for required racks.

j). All bicycle racks must be constructed of weather-resistant materials.

ii. Location

a). Bicycle parking must be provided in a safe, accessible and convenient location. Directional signage must be installed when bicycle parking facilities are not readily visible from the street, sidewalk, or main building entrance.

b). Bicycle parking must be provided in a well-lit area.

c). Bicycle parking locations cannot impede pedestrian or motorized vehicle movement or circulation.

d). Bicycle racks placed within the public right-of-way must not conflict with pedestrian use and encroachment agreements with the City or NCDOT, as applicable, must be obtained.

e). Applicants who choose to install bicycle parking within the public right-of-way are responsible for maintaining the racks.

f). Bicycle racks must be located on the ground level, not requiring the use of stairs, elevators, or ramps.

b. Short-Term Bicycle Parking

i. Short-term bicycle parking must be well distributed throughout the project. 50% of the required short-term bicycle parking must be placed within 50 feet of the main entrance with the remaining 50% placed within 100 feet of the main entrance.

ii. When there are multiple main entrances, bicycle parking can be distributed to accommodate each entrance.

iii. Short-term bicycle parking may be covered or uncovered. It must be publicly accessible at all hours.

c. Long-Term Bicycle Parking

i. Long-term bicycle parking must be located within 200 feet from an entrance to the building the bicycle parking is required to serve.

ii. Long-term bicycle parking is required to be secure, weather protected, and must include at least one of the following:

a). A locked facility/room with limited access;

b). A bicycle locker; or

c). A structure outside the main building that is covered and secured by means of a fence with a limited access gate or door.

iii. Long-term bicycle parking may also provide high density style racks (vertical or double decker) for optimizing parking capacity.

D. Measurement

1. When the application of these regulations results in a fraction, fractions of 1/2 or more are counted as one space.

2. Distance is measured in walking distance along the centerline of a sidewalk, walkway, or path from the nearest point of the bicycle rack to the main entrance of the use served.

4.2.3. Transit Access

A. Intent

To promote public transit use as an alternative to motor vehicle transportation and help ensure safe, lawful, and accessible access to public transit stops.

B. Applicability

All projects located on a current or future identified transit route as determined by the Durham County Transit Plan.

C. Standards

1. Required Transit Stop

If deemed appropriate by the Administrator, applicable projects must install on-site a 6 'X 12' concrete pad connected to sidewalks at the location determined to be the safest and most practical location for a transit stop.

2. Transit Stop Facilities

a. GoDurham may install and maintain necessary transit stop items, including signage, benches, lighting, and shelters.

b. Access to the transit stop must be allowed in perpetuity.

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SEC. 4.3. VEHICLE ACCESS AND PARKING

4.3.1. Vehicle Access

A. Intent

To facilitate transportation and to provide for safe and convenient vehicle and pedestrian travel by ensuring motor vehicle access is designed to support the safety of all users by minimizing conflicts with pedestrians, cyclists, transit vehicles, micro-mobility devices, and motor vehicles on the abutting public street and to avoid detrimental effects on the surrounding public realm, while providing sufficient access to vehicle parking and other motor vehicle use areas.

B. Applicability

Any lot that provides access to motor vehicles must follow the vehicle access standards.

C. General

1. A permit is required for any cutting of curbing or pavement of a public right-of-way to provide vehicle access to a property. A driveway on to a City or County street may only be installed, reconstructed, or modified with a permit issued by the Public Works Director.
2. For a driveway on to a State Highway, approval must be obtained from NCDOT.
3. All existing and proposed development that provides on-site parking areas and motor vehicle use areas must provide a satisfactory means of motor vehicle access to and from a street or alley, or permanent access easement where no abutting street or alley is present.
4. All vehicle access designs must be approved by the Public Works Director and must conform to NCDOT standards.

D. Design Standards

1. General

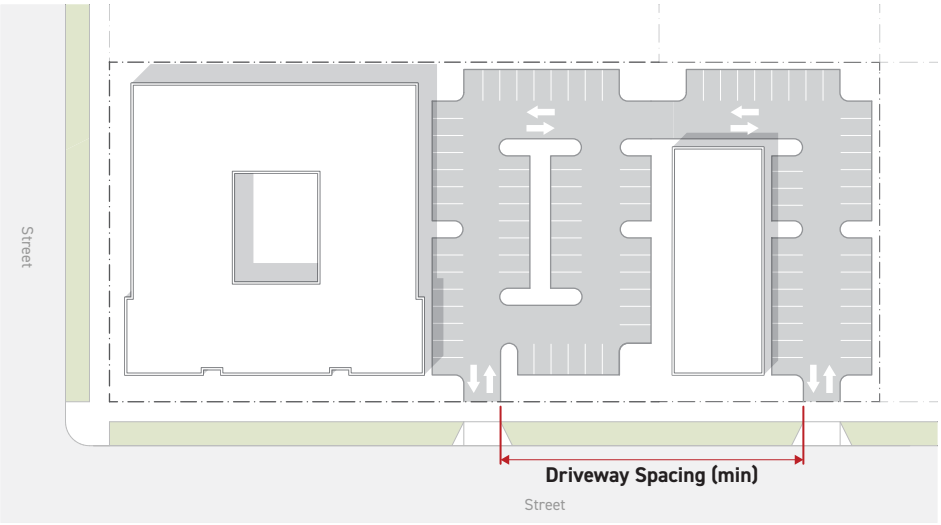
a. When a driveway is provided, it must meet the following design and spacing standards:

i. Every lot is limited to one driveway, unless additional driveways are allowed by the Administrator.

ii. For driveways serving parking lots with 6 or more spaces, minimum spacing between driveways must be no less than 100 feet, unless otherwise allowed by the Administrator.

iii. For driveways serving up to 6 on-site parking spaces, semicircular drives with no more than two point of access to a street are allowed but only on lots having a width of at least 100 feet.

iv. Driveway spacing is measured along the street lot line from edge of pavement to edge of pavement between driveways located on the same site.



v. When a lot is adjacent to a primary street and side street without an alley, vehicle access must take place along the side street, unless otherwise allowed by the Administrator.

vi. When an improved alley exists or is proposed, motor vehicle access must take place from the alley, unless otherwise allowed by the Administrator.

vii. Motor vehicle access may be shared between abutting lots, provided an easement, deed restriction, or other similar agreement acceptable to the City oe County is provided.

viii. Driveways must meet the following lane design standards:

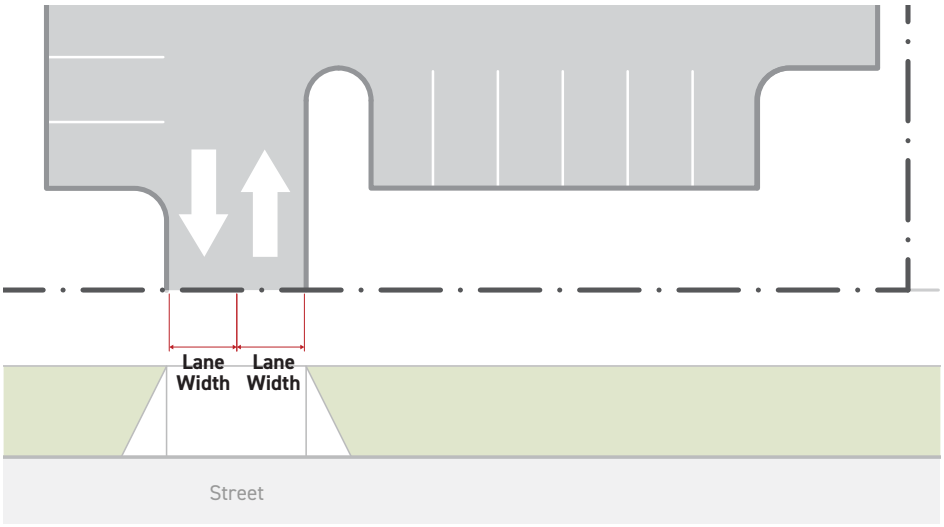
		Lane width (min/max)	
	Number of lanes per driveway (max)	Primary Street	Side Street
Driveway serving up to 6 parking spaces	1	8'/10'	8'/20'
Driveway serving 7 to 50 parking spaces	2	9'/11'	9'/11'
Driveway serving more than 50 parking spaces	2	9'/12'	9'/12'
Driveway serving a Heavy Commercial or Industrial Use	2	12'/20'	12'/20'

b. Driveway widths may be reduced or increased if approved by the Public Works Director.

c. Pedestrian walkways that cross a driveway must be maintained as a level and continuous path.

d. Lane width is measured separately for each driveway.

e. Driveway width is measured along the street lot line from edge of pavement to edge of pavement.

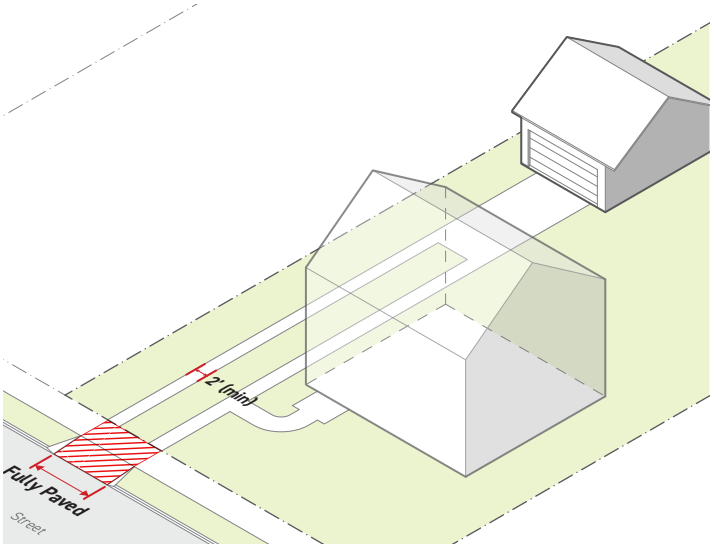


2. Ribbon Driveways

a. For driveways serving up to 6 on-site parking spaces, a ribbon driveway is allowed as an alternative to a fully-paced driveway.

b. The concrete strips in a ribbon driveway must be at least 2 feet in width. When the ribbon is also used as a walkway, the width of the strips must be increased to at least 3 feet.

c. Within the right-of-way, the driveway must be fully paved along its total width.



E. Cross Access

To be inserted - discuss

4.3.2. Vehicle Parking

A. Intent

To reduce parking demand, support the use of alternative forms of transportation, promote reuse and redevelopment of existing buildings, reduce the overall cost of construction and development, and increase the overall efficiency and use of taxable land within the City.

B. Applicability

All allowed uses in *Sec. 3.2*.

C. Limits on the Provision of Parking

1. Parking Maximums

a. The are no minimum parking requirements.

b. Parking spaces provided beyond the maximum parking shown in table below are allowed but must meet *Sec. 4.3.2.C.2*.

USES	Maximum Vehicle Parking Spaces Allowed	
	Downtown	All Other Districts
Agriculture Uses		
Agriculture	No maximum	No maximum
Residential Uses		
Single-unit/two-unit	No maximum	No maximum
Multi-unit	1 per unit	2 per unit
Manufactured home	No maximum	No maximum
Manufactured home park or subdivision	No maximum	No maximum
Group living	No maximum	No maximum
Public and Civic Uses		
Community service	2 per 1,000 SF of floor area	No maximum
Care centers	2 per 1,000 SF of floor area	No maximum
Educational	2 per 1,000 SF of floor area	No maximum
Government	2 per 1,000 SF of floor area	No maximum
Medical	No maximum	No maximum
Parks and open space	No maximum	No maximum
Passenger terminal	2 per 1,000 SF of floor area	No maximum
Places of worship	2 per 1,000 SF of floor area	No maximum
Social service institutions	2 per 1,000 SF of floor area	No maximum
Utilities	No maximum	No maximum
Commercial Uses		
Indoor recreation	2 per 1,000 SF of floor area	4 per 1,000 SF of floor area
Outdoor recreation	n/a	?
Overnight accommodations	1 per room	2 per room

USES	Maximum Vehicle Parking Spaces Allowed	
	Downtown	All Other Districts
Parking, commercial	No maximum	No maximum
Restaurants	2 per 1,000 SF of floor area	4 per 1,000 SF of floor area
Retail sales and service	2 per 1,000 SF of floor area	4 per 1,000 SF of floor area
Self-service storage	2 per 1,000 SF of floor area	No maximum
Vehicle sales	2 per 1,000 SF of floor area	No maximum
Vehicle service	2 per 1,000 SF of floor area	No maximum
Office Uses		
Office	2 per 1,000 SF of floor area	4 per 1,000 SF of floor area
Industrial Uses		
Heavy industrial	n/a	No maximum
Light industrial services	2 per 1,000 SF of floor area	No maximum
Resource extraction	n/a	No maximum
Warehouse and freight movement	2 per 1,000 SF of floor area	No maximum
Waste-related service	2 per 1,000 SF of floor area	No maximum
Wholesale trade	2 per 1,000 SF of floor area	No maximum

2. Methods to Exceed Maximum Parking

The maximum amount of motor vehicle parking can be exceeded by any of the following methods:

a. The additional parking spaces must be pervious paving pursuant to the following:

   i. Pervious paving is considered surface improvements such as interlocking concrete paving blocks, brick pavers, grid pavers, or other similar improvements which permit the infiltration of water through the improved surface.

   ii. Sub-surface preparation to accommodate the water infiltration allowed through the surface material is required.

   iii. Gravel is considered a pervious paving surface.

b. The additional parking spaces must be provided as structured parking subject to the following requirements:

   i. The footprint of proposed structured parking cannot exceed 75% of the footprint of a surface parking lot designed to accommodate 100% parking; and

   ii. The maximum height must be the height permitted within the zoning district.

c. The additional parking spaces are underground where parking areas are not visible from the right-of-way or adjacent properties.

d. For all sites except Downtown: a sealed alternative parking rate analysis, prepared by an engineer with expertise in transportation, that utilizes the following criteria to substantiate the need for additional parking. The Transportation Director or NCDOT, as applicable, must approve the analysis.

i. Data or studies of similar sites and uses;

ii. Comparisons to minimum standards in national published data sources such as Institute of Transportation Engineers (ITE), Urban Land Institute (ULI), National Parking Association (NPA), American Planning Association (APA), or other professionally recognized data sources; and

iii. Comparisons to maximum requirements of similar municipalities.

e. In Downtown, no more than the maximum allowed parking is allowed, unless provided within structured parking and at least 2 of the 3 following requirements are met:

i. At least 50% of the parking structure roof area is a green roof;

ii. A minimum of 15% of the total parking provided is made permanently publicly accessible; and

iii. All street frontage portions of the parking structure are constructed to allow conversion to interior usable space.

D. Handicapped Accessible Parking

1. Handicapped accessible parking spaces must be provided in the amount required by the North Carolina State Building Code, as amended.

2. Where standard parking spaces are provided on site, handicapped accessible spaces must be provided on site. Otherwise, they must be located according to the North Carolina State Building Code, as amended.

E. Electric Vehicle Charging

Where a parking lot with 6 or more spaces is provided, 20% of the parking spaces must be equipped with conduit and electrical capacity to accommodate the installation of electrical vehicle charging equipment.

F. Tandem Parking

1. Tandem vehicle parking is allowed for single-unit, two-unit and multi-unit living.

2. Two vehicle parking spaces in tandem must have a combined minimum dimension of 8.5 feet in width by 36 feet in length.

3. Both vehicle parking spaces in tandem must be assigned to the same dwelling unit.

4.3.3. Parking Lot Dimensions

A. Intent

To facilitate the creation of a convenient, attractive, and harmonious community by ensuring parking lots are designed to create safe, comfortable, and attractive environments for vehicular and pedestrian travel.

B. Applicability

1. Where a parking lot with 6 or more spaces is provided, the parking lot must meet the standards of this Section. A parking lot is considered a parking area that has no building or parking floor area below or above it.

2. Where a parking structure is provided, the parking structure must meet the standards of this Section. A parking structure is considered a building that includes parking uses, including parking garages and integrated podium parking.

C. General

1. All portions of a parking lot must be accessible by vehicles to all other portions of the parking lot without requiring the use of a street, except for an alley. Parking structures may use a street to access different levels of the structure.

2. Each parking space must be located so that no vehicle is required to back onto any sidewalk or street, except for an alley, to leave the parking space.

3. Full and permanent parking space delineation is required. Delineation may include striping, wheel stops, curbing, or other similar permanent material which can clearly define and delineate parking spaces. Full parking space delineation means clear markings for all three sides of a space.

D. Spaces and Drive Aisles

1. Parking spaces and drive aisles must meet the following minimum dimensions:

	Parking Space (min)		One-Way Drive (min)		Two-Way Drive (min)	
Angle	Width	Depth	Drive Aisle	Bay Width	Drive Aisle	Bay width
0°	20′	8.5′	12′	20.5′	24′	41′
60°	8.5′	18′	18	54′	--	--
90°	8.5′	18′	--	--	24′	60′

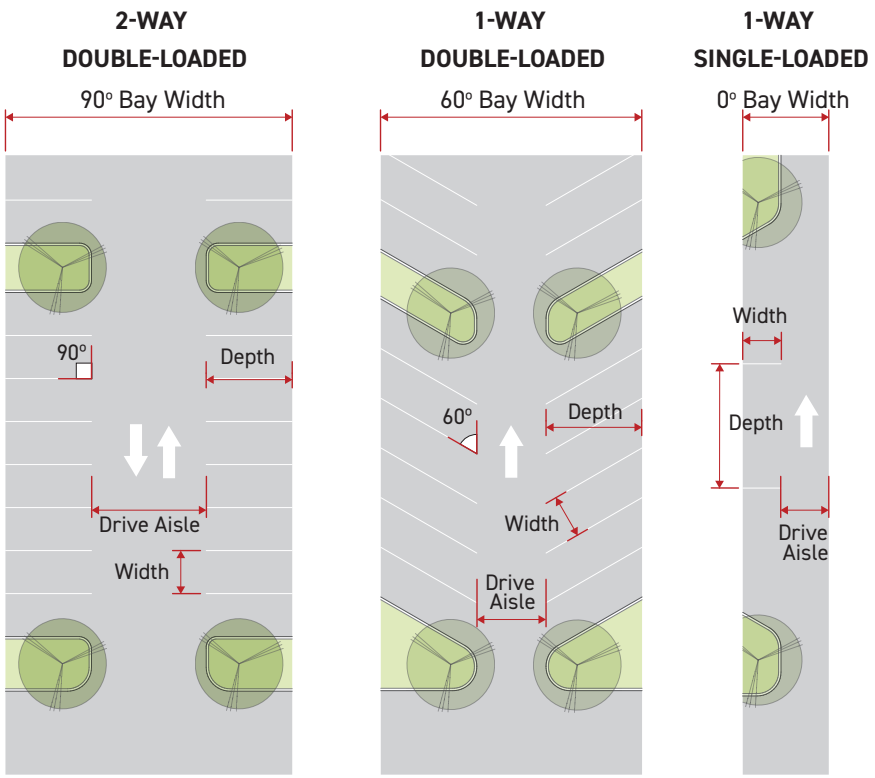
2. Compact parking spaces may be used in place of a standard size space when the following requirements are met:

   a. A compact vehicle space must be at least seven feet, six inches in width and at least 14 feet in length, exclusive of access drives, aisles, or columns.

   b. Up to 20% of the off-street parking spaces can be sized and designated for compact vehicles.

   c. Compact parking spaces must be signed and marked as "Compact."

   d. No more than 10 compact spaces can be located in any given row of parking.



3. Within parking structures, columns can extend into a parking space as follows:

   a. Encroachments are not allowed for compact spaces;

   b. A maximum of 30% of the total number of parking spaces within the structure can be affected by an encroachment.

   c. If the encroachment impacts only one space, then the maximum amount of encroachment is 18 inches. If the encroachment impacts two or more adjacent spaces, then the maximum amount of encroachment is 24 inches, with a maximum individual encroachment of 18 inches.

4. Nonresidential parking spaces and multifamily parking spaces must be striped on pavement or designated with some other form of permanent marking.

E. Lighting

Parking lots and parking structures must be lit and must meet *Sec. 4.7.*

F. Electric Vehicle Charging Equipment

1. Electric vehicle charging equipment, including pedestals, bollards, or cables, must not encroach into drive aisles or pedestrian walkways.

2. Electric vehicle charging equipment must not contain advertising signs visible from a street.

G. Parking Lot Surfacing and Curbing

1. All parking areas including drive aisles must be fully paved and constructed with concrete, asphalt, paving blocks, pervious surfacing or other similar materials intended for outdoor vehicle use.
2. All parking lots must be graded and drained to collect, retain and infiltrate surface water on-site by applying low impact development practices and standards.
3. Continuous curbing that is at least 6 inches in height or wheel stops that are at least 4 inches in height must be installed around the perimeter of all parking and landscaped areas. Curbing must be constructed of continuous concrete, granite, or other approved material of similar durability and appearance, and must contain inlets at appropriate intervals to allow stormwater infiltration from the open parking area.
4. Loose material surfaces must be contained with a permanent edging.
5. Where a parking space abuts a landscaped island, the Administrator may allow the front 2 feet of the required parking space length to overhang the landscaped island, provided a wheel stop is installed.

4.3.4. Parking Lot Landscaping

A. Intent

To help ensure parking lots are designed to create safe, comfortable and attractive environments for users and pedestrians, while also mitigating heat island effects, absorbing noise pollution, managing stormwater runoff, sequestering carbon emissions and supporting urban biodiversity through landscaping and surface design.

B. Applicability

1. Perimeter landscaping is required on-site surface parking lots serving more than 6 parking spaces
2. Interior landscaping is required on all on-site surface parking lots serving 20 or more parking spaces.
3. All landscaping must be installed according to *Sec. 4.6*.

C. Perimeter Landscaping

A frontage screen is required between the parking lot and street lot line, see *Sec. 4.4.3*.

D. Interior Landscaping

1. Interior Islands

a. No more than 10 consecutive parking spaces may be provided without a landscaped interior island.

b. Interior islands must be distributed evenly throughout the parking lot. Interior islands may be consolidated or intervals may be expanded with the permission of the Administrator, in order to preserve existing trees.

c. An interior island abutting a single row of parking spaces must be a minimum of 9 feet in width and 150 square feet in area. Each island must include at least 1 canopy tree.

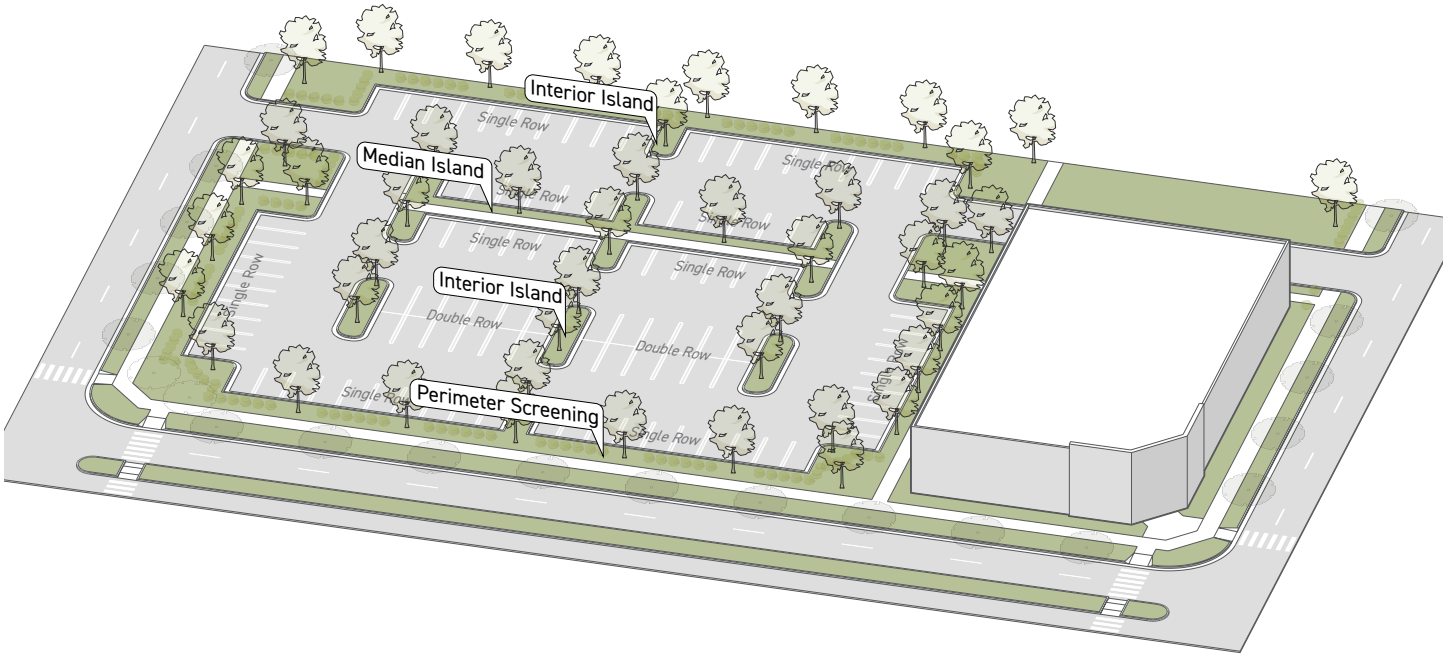
d. An interior island abutting a double row of parking spaces must be a minimum of 9 feet in width and 300 square feet in area. Each island must include at least 2 canopy trees.

e. Interior islands must be installed below the level of the parking lot surface to allow for stormwater runoff capture.

2. Median Islands

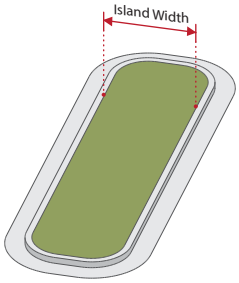
a. A landscaped median island must be provided between every 4 single parking rows. Intervals may be expanded to preserve existing trees.

b. A median island must be at least 6 feet wide. A median island with a pedestrian walkway must be a minimum of 12 feet wide.



E. Measurement

Interior and median island width is measured as the narrowest horizontal dimension from inside top of curb to inside top of curb.



4.3.5. Other Vehicle Use Areas

A. Intent

To facilitate transportation and to provide for safe and convenient vehicular and pedestrian travel by ensuring vehicle use areas are designed in a manner that does not detract from the safety, comfort, or enjoyment of users of neighboring lots or the public realm.

B. Applicability

1. All portions of a lot are designed and intended for use by vehicles must comply with the following standards, including areas used for circulation, maneuvering, loading, staging, queuing, service, and areas to be used for the sale or storage of vehicles.
2. Parking lots are excluded from the vehicle use area requirements.
3. Loading standards apply to any lot that include on-site loading areas.
4. Stacking space standards apply to any lot that includes an on-site drive-through or control gate.

C. General

1. Surfacing

Vehicle use area surfacing must meet the standards of *Sec. 4.3.3.G. Parking Lot Surfacing and Curbing*.

2. Perimeter Screening

A frontage screen is required between the vehicle use area and street lot line, see *Sec. 4.4.3*.

3. Lighting

Vehicle use area lighting must be lit and must meet *Sec. 4.7.*

D. Vehicle Stacking

1. Required Stacking Spaces

a. Unless otherwise expressly modified by the Administrator, off-street stacking spaces must be provided as follows:

Activity Type	Stacking Spaces (min)	Measured from the stacking lane entry to the following point of service
ATM teller machine (drive-up)	3	Teller machine
Bank teller lane	3	Teller or window
Car wash bay, full-service	6	Bay
Car wash bay, self-service	3	Bay
Dry cleaning/laundry drive-through	2	Cleaner/laundry window
Gasoline fueling	2	Fueling position
Gatehouse, staffed	2	Gatehouse

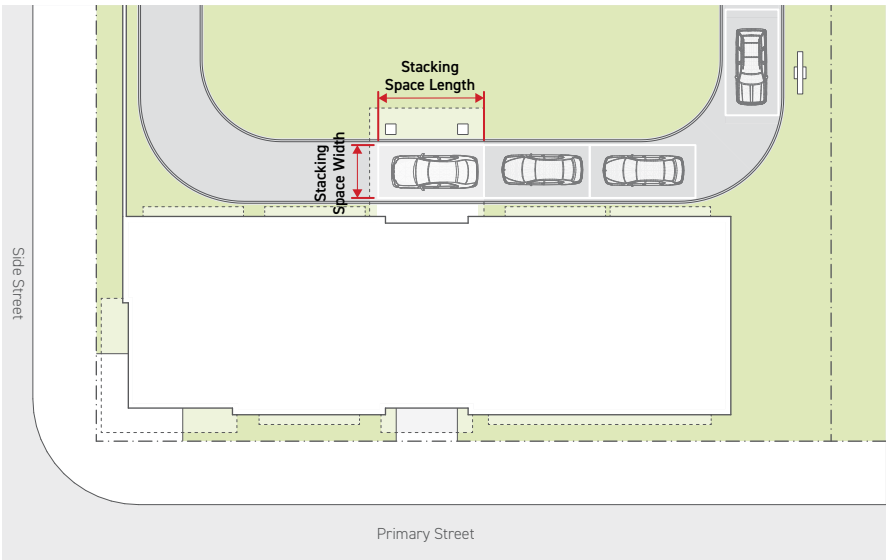
Activity Type	Stacking Spaces (min)	Measured from the stacking lane entry to the following point of service
Gate, unstaffed	1	Gate
Pharmacy pick-up	2	Pharmacy window
Restaurant drive-through with combined order/pick-up window(s)		Order/pick-up window
Restaurant drive-through with separate order point(s) and pick-up window(s)	4 plus	Order/pick-up window
	6 or	Order point closest to stacking lane entry for each undivided order lane
	4	Order point closest to stacking lane entry for each divided order lane
Schools (kindergarten through grade 12)	As required per NCDOT Municipal and School Transportation Assistance (MSTA) Standards	
Valet parking	1	Valet stand

b. A minimum stacking space number includes the space at the point of service. A drive-through facility with unspecified activity type must comply with the most stringent stacking requirements applicable as determined by the Planning Director.

c. The Administrator may modify the required number of stacking spaces based on existing conditions, physical considerations unique to the particular site, and consideration for specific stacking demands for the proposed use.

2. Design and Layout of Stacking Spaces

a. Stacking spaces must be a minimum of 8 feet in width by 20 feet in length.



b. Stacking spaces cannot encroach on or interfere with sidewalks, bike lanes, driveways, drive aisles, loading areas, or parking lots.

c. Where deemed necessary by the Administrator for traffic movement and safety, stacking spaces must be separated from other internal driveways by raised medians or other fixed barriers.

d. Devices for the transmission or broadcasting of voices or music must be so directed or muffled as to prevent the sound or music from being audible beyond the boundaries of the site.

3. Alternative Forms of Compliance

Alternatives to the requirements indicated above are allowed through approval by the Transportation Director, or NCDOT, as applicable, of a sealed traffic management plan, prepared by an engineer with expertise in transportation, utilizing one or more of the following:

a. Collection of data or studies of similar sites and uses;

b. Comparisons to minimum standards in national published data sources such as Institute of Transportation Engineers (ITE), Urban Land Institute (ULI), National Parking Association (NPA), American Planning Association (APA), or other professionally recognized data sources; or

c. Comparisons to minimum requirements of similar municipalities.

E. Loading

1. On-site Loading Not Required

On-site loading area is not required. If determined necessary by the Administrator, adequate space must be made available on-site for the unloading and loading of goods, materials, items, or stock for delivery and shipping.

2. Location

a. With the exception of alleys and areas specifically designated by the City, loading and unloading activity are not allowed in the public right-of-way.

b. Loading areas must be located to the rear or side of buildings.

c. Loading spaces cannot be located within 30 feet of a street intersection or in any required yard. Street intersections are measured from the back of the predominant curb-line (not including bulb outs) or future curb-line where no curb currently exists.

d. Loading spaces can be either inside or outside the building and on the same or adjoining lots.

e. Loading and unloading activities must not encroach on or interfere with sidewalks, bike lanes, driveways, drive aisles, stacking spaces, or parking lots..

3. Standards

If on-site loading is provided, it must meet the following.

a. Loading areas must be provided with a means of unobstructed ingress and egress to an alley or onto a public street wide enough to accommodate expected vehicles. Where ingress and egress is made into a public street, it must be through driveways or openings which meet

required standards. Permanent wheel stops or curbing must be provided to prevent any vehicle using the loading area from encroachment into a required yard or abutting property

b. On-site loading spaces, excluding maneuvering areas, must be a minimum of 10 feet wide by 25 feet long.

c. Vertical clearance is a minimum of 14 feet.

d. A minimum setback of 50 feet is required where loading docks face a Residential District, unless the loading area (dock and/or loading spaces) is completely screened by a Moderate Transition Sceen - see *Sec. 4.4.2*.

SEC. 4.4. TRANSITIONS AND SCREENING

4.4.1. Transitions

A. Intent

To improve the compatibility of new development with its surrounding context where the scale of development changes between adjacent lots.

B. Applicability

1. Transitions are required along common lot lines of lots with different zoning designations as specified in the table below.

	Zoning of Abutting Property														
Zoning of Subject Property	R-A	R-B R-C	R-D	RX-3 RX-5	RX-8	CX-3 CX-5	CX-8 CX-20	CN	CG IX	CH	IH	IU UC IC	CIV	CON	PK
R-A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R-B R-C R-D	A	--	--	--	--	--	--	--	--	--	--	--	--	A	--
RX-3 RX-5	--	C	C	--	--	--	--	--	--	--	--	--	--	A	--
RX-8	--	--	C	--	--	--	--	--	--	--	--	--	--	--	--
CX-3 CX-5	--	C	C	--	--	--	--	--	--	--	--	--	--	--	--
CX-8	--	--	C	--	--	--	--	--	--	--	--	--	--	--	--
CX-20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CN	B	B	B	--	--	--	--	--	--	--	--	--	--	A	--
CG IX	C	C	C	--	--	--	--	--	--	--	--	--	--	--	--
CH	C	C	C	B	B	B	B	--	--	--	--	B	B	A	A
IH	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
IU UC IC	--	C	C	--	--	--	--	--	--	--	--	--	--	--	--
CIV	A	B	B	--	--	--	--	--	--	--	--	--	--	A	--
CON PK	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

2. A transition along a common lot line is not required when both lots are owned or functionally controlled by the same person or entity.

C. Transition Types

1. General

a. A required transition must be located along the entire length of the common lot line shared with the abutting district.

b. No buildings or structures, except for walls or fences, are allowed in a transition area.

c. No vehicle use areas are allowed in a transition area, including fire lanes.

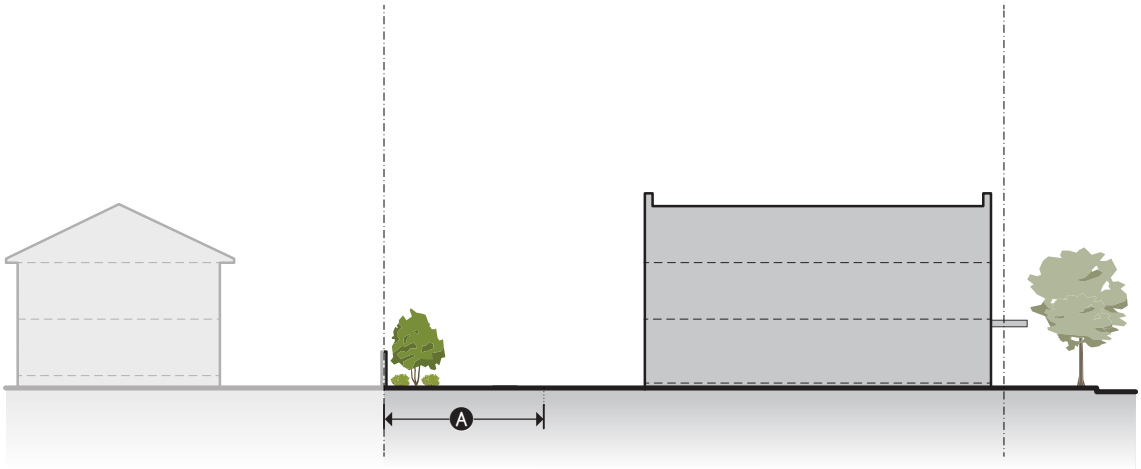
d. Breaks for pedestrian, bicycle and vehicle access are allowed, provided the break in the transition area is the minimum practical width. Driveways or walkways must cross at or near a perpendicular angle.

e. Stormwater management facilities can be located in a transition area.

2. Transition Types

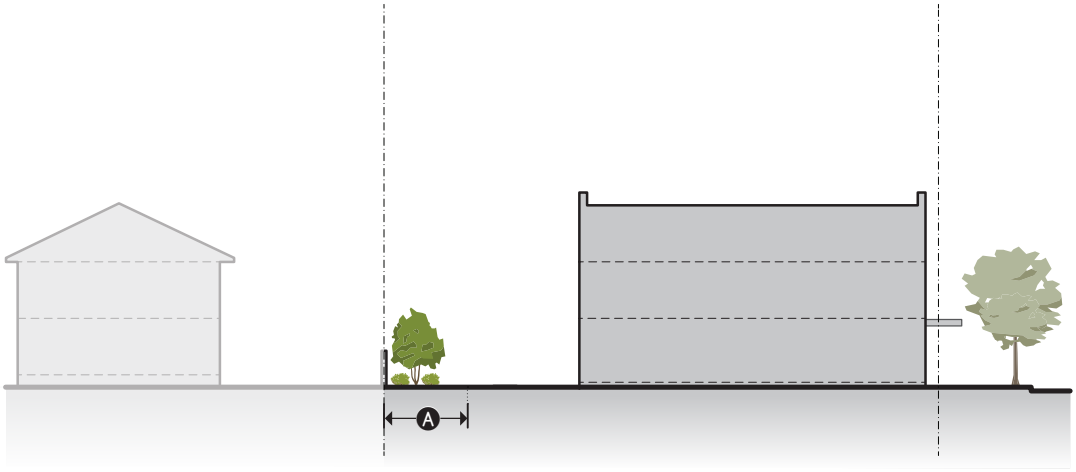
a. Transition Type Standards

TYPE A



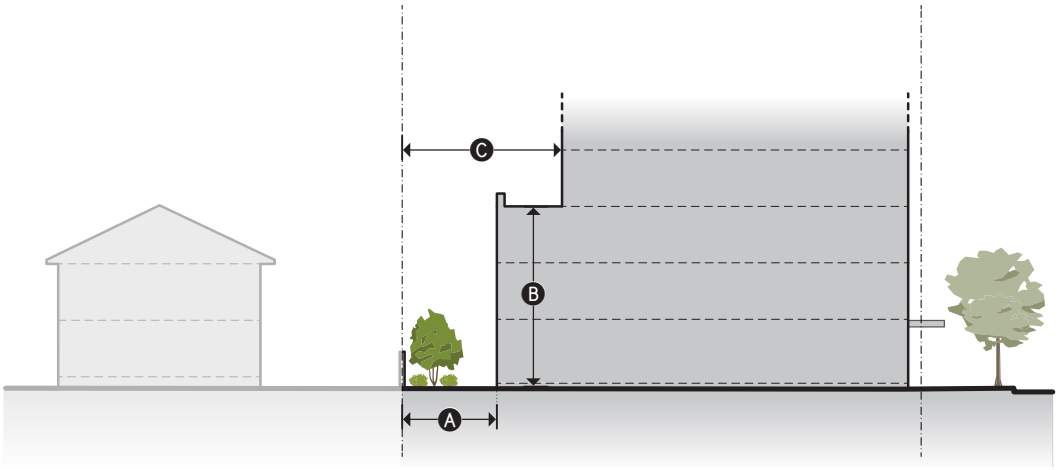
TRANSITION AREA		UPPER STORY STEP-BACK	
Ⓐ Depth (min)	30'	Height before step-back (max stories/feet)	n/a
Transition screen type	High	Upper story step-back (min)	n/a

TYPE B



TRANSITION AREA		UPPER STORY STEP-BACK	
A Depth (min)	15'	Height before step-back (max stories/feet)	n/a
Transition screen type	Moderate	Upper story step-back (min)	n/a

TYPE C



TRANSITION AREA		UPPER STORY STEP-BACK	
A Depth (min)	15'	B Height before step-back (max stories/feet)	3/40'
Transition screen type	Moderate	C Upper story step-back (min)	10'

b. Transition Screen Type

The transition screen type category is regulated by the transition type requirements spec. The standards for each transition screen type are determined by *Sec. 4.4.2. Transition Screens*. The option of which screen type to use within the required category is at the discretion of the applicant.

4.4.2. Transition Screens

A. Intent

To protect and enhance the character and stability of neighborhoods by mitigating impacts from uses, activities, or site elements with significant impact on abutting lots.

B. Applicability

1. A transition screen is required as specified by *Sec. 4.4.1. Transition Screens*.
2. A transition screen may also be required as a specific use standard in *Sec. 3.4*.
3. Where a specific use standard requires a transition screen that conflicts with this Section, the more intensive requirement must be met.

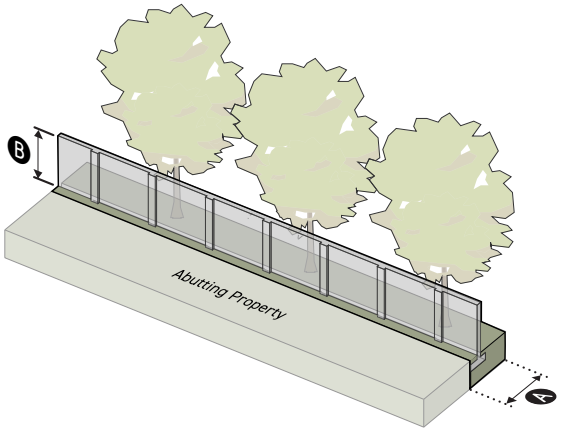
C. Mass Grading

For projects utilizing mass grading in an R- or RX- district, a High Transition Screen-2 must be installed along all shared project boundary lines.

D. Transition Screen Types

LOW TRANSITION SCREEN-1

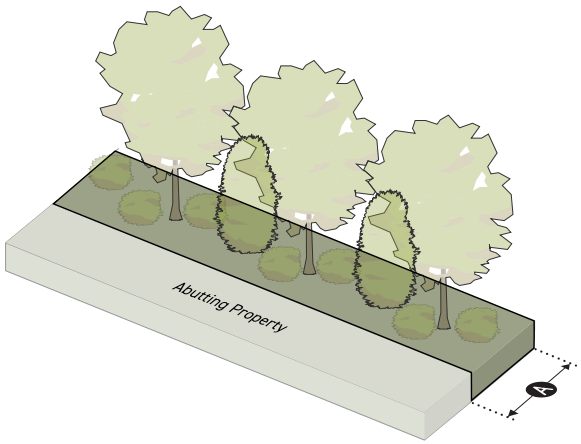
Narrow depth landscape screening with a wall intended for screening low impact transitions and uses.



SCREENING AREA	
A Depth (min)	6′
Landscaping (min per 50′)	
Canopy trees	3
Understory trees	None
Shrubs	None
WALL	
B Height (min)	6′
Opacity (min)	90%
Setback from property line (min)	0′

LOW TRANSITION SCREEN-2

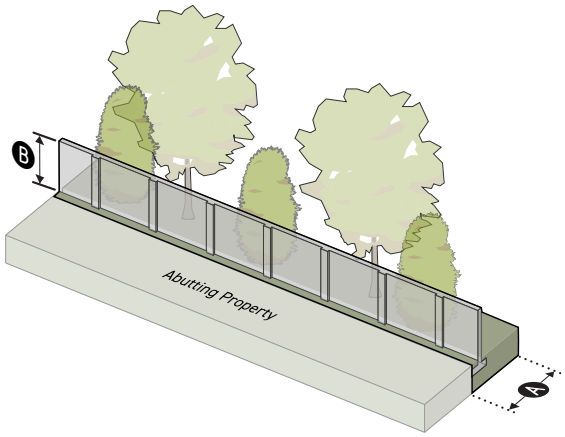
Medium depth landscape buffer with no wall intended for screening low impact transitions and uses.



SCREENING AREA	
A Depth (min)	12′
Landscaping (min per 50′)	
Canopy trees	3
Understory trees	2
Shrubs	7
WALL	
Not required	

MODERATE TRANSITION SCREEN-1

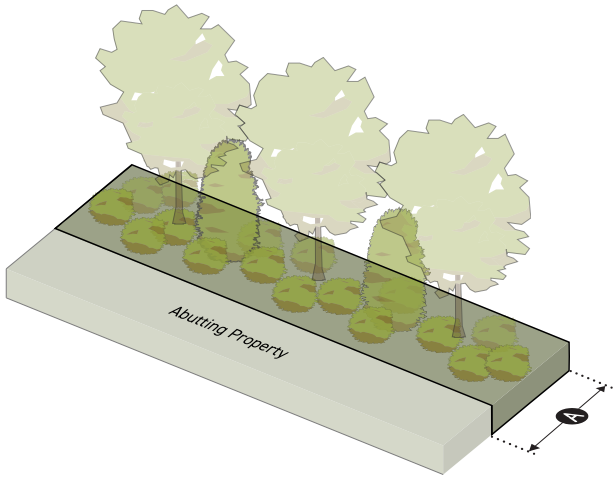
Narrow depth landscape screening with a wall intended for screening moderate impact transitions and uses.



SCREENING AREA	
A Depth (min)	10′
Landscaping (min per 50′)	
Canopy trees	2
Understory trees	3
Shrubs	0
WALL	
B Height (min)	6′
Opacity (min)	90%
Setback from property line (min)	0′

MODERATE TRANSITION SCREEN-2

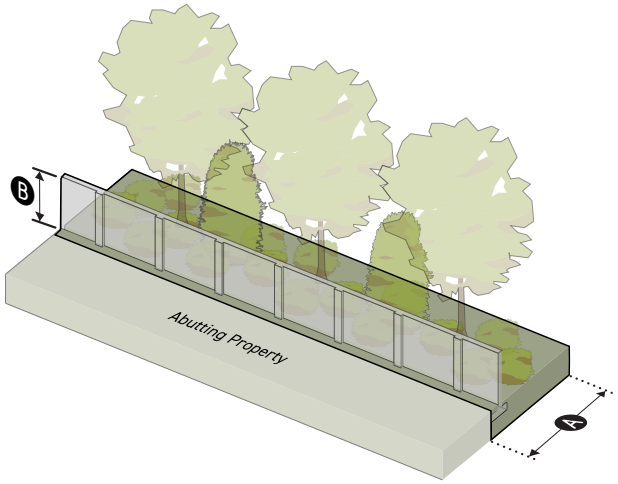
Medium depth landscape screening with no wall intended for screening moderate impact transitions and uses.



SCREENING AREA	
A Depth (min)	15′
Landscaping (min per 50′)	
Canopy trees	3
Understory trees	2
Shrubs	16
WALL	
Not required	

HIGH TRANSITION SCREEN-1

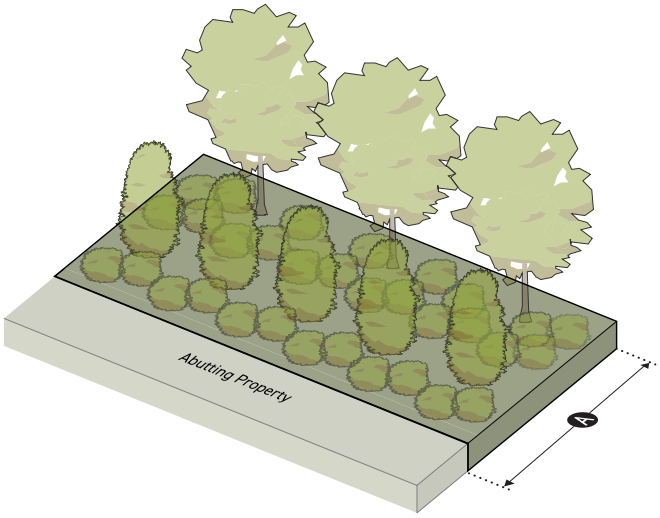
Medium depth landscape screening with a wall intended for screening high impact transitions and uses.



SCREENING AREA	
A Depth (min)	15’
Landscaping (min per 50’)	
Canopy trees	3
Understory trees	2
Shrubs	16
WALL	
B Height (min)	7’
Opacity (min)	90%
Setback from property line (min)	0’

HIGH TRANSITION SCREEN-2

Deep landscape screening with no wall intended for screening high impact transitions and uses.



SCREENING AREA	
A Depth (min)	30’
Landscaping (min per 50’)	
Canopy trees	4
Understory trees	5
Shrubs	32
WALL	
Not required	

4.4.3. Frontage Screens

A. Intent

To screen the negative impacts of uses on the public realm, promoting visual interest and increasing comfort for uses of the adjacent streetscape.

B. Applicability

1. Frontage screening is required as specified below:

	Frontage Screen Type
Outdoor Storage Areas	
Minor outdoor storage area	Moderate
Major outdoor storage area	High
Vehicle Use Areas	
Loading/service area	Moderate
Drive-through area	Low
Parking area	Low
Vehicle sales area	Low
Utility Areas	
Utility areas	Moderate

2. A frontage screen may also be required as a specific use standard in *Sec. 3.4*.

3. Where a specific use standard requires a frontage screen that conflicts with this Section, the more intensive requirement must be met.

C. General

1. A required frontage screen must be provided along the portion of the street lot line that directly abuts the use or outdoor activity that is required to be screened.

2. No buildings or structures, except for walls or fences, are allowed in a screening area.

3. No vehicle use areas are allowed in a screening area, including fire lanes.

4. Breaks for pedestrian, bicycle and vehicle access are allowed, provided the break in the transition area is the minimum practical width. Driveways or walkways must cross at or near a perpendicular angle.

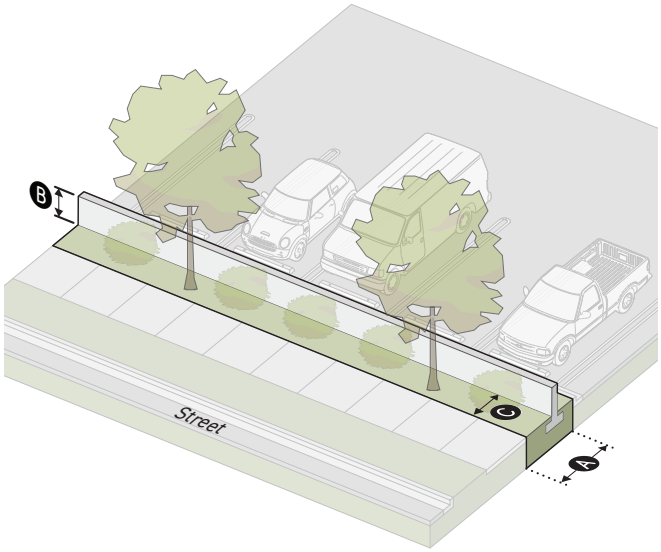
D. Mass Grading

For projects utilizing mass grading in an R- district, a High Frontage Screen-2 must be installed along all street lot lines.

E. Frontage Screening Types

LOW FRONTAGE SCREEN-1

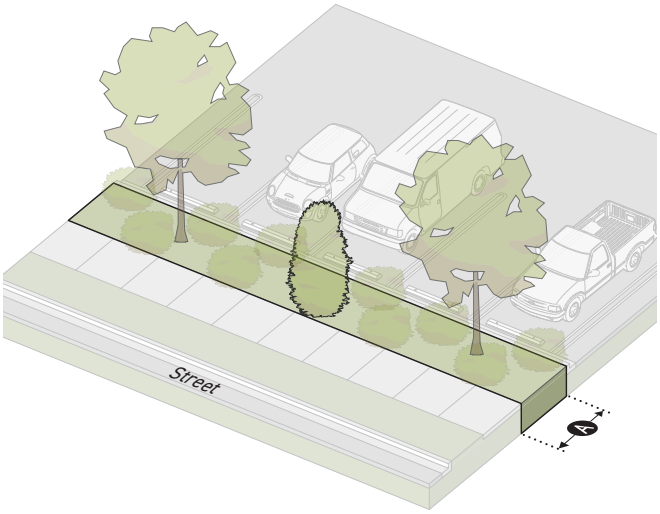
Narrow depth landscape screening with a low wall intended for low impact outdoor activities including parking lot perimeters.



SCREENING AREA	
A Depth (min)	7′
Landscaping (min per 50′)	
Canopy trees	2
Understory trees	None
Shrubs	5
WALL	
B Height (min)	4′
Opacity	
Below 4′ (min)	90%
Above 4′ (max)	50%
C Setback from property line (min)	3′

LOW FRONTAGE SCREEN-2

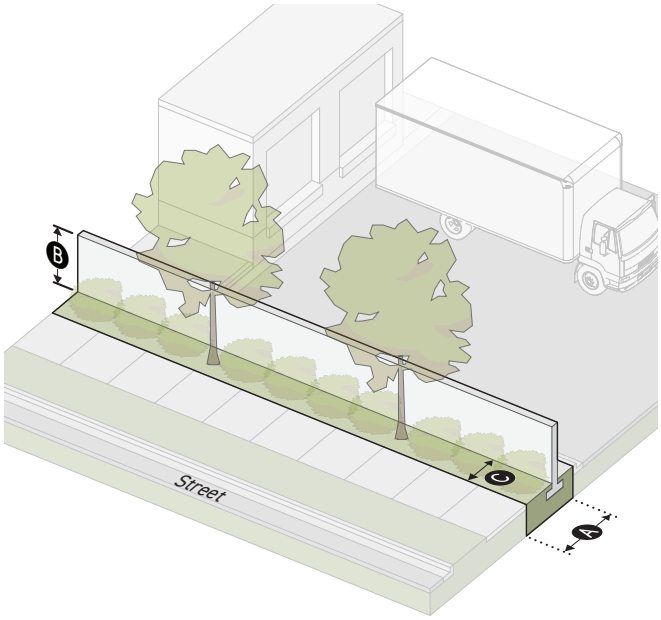
Medium depth landscape screening with no wall intended for low impact outdoor activities including parking lot perimeters.



SCREENING AREA	
A Depth (min)	10′
Landscaping (min per 50′)	
Canopy trees	2
Understory trees	1
Shrubs	10
WALL	
Not required	

MODERATE FRONTAGE SCREEN-1

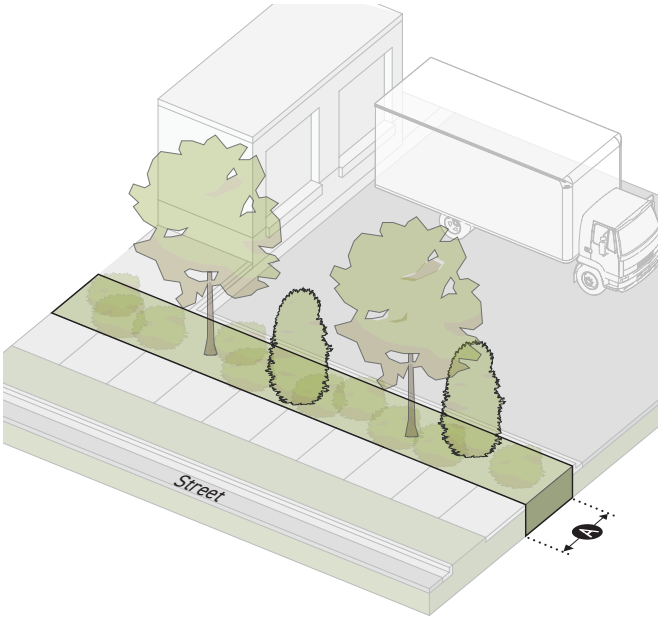
Narrow depth landscape screening with a wall intended for moderate impact outdoor activity including loading and service areas.



SCREENING AREA	
A Depth (min)	7’
Landscaping (min per 50’)	
Canopy trees	2
Understory trees	0
Shrubs	10
WALL	
B Height (min)	6’
Opacity (min)	90%
C Setback from property line (min)	3’

MODERATE FRONTAGE SCREEN-2

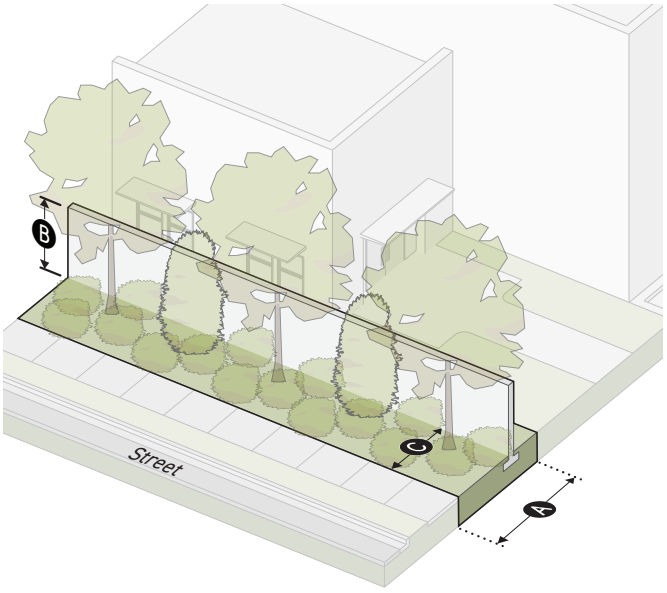
Medium depth landscape screening with no wall intended for moderate impact outdoor activity including loading and service areas.



SCREENING AREA	
A Depth (min)	10’
Landscaping (min per 50’)	
Canopy trees	2
Understory trees	2
Shrubs	10
WALL	
Not required	

HIGH FRONTAGE SCREEN-1

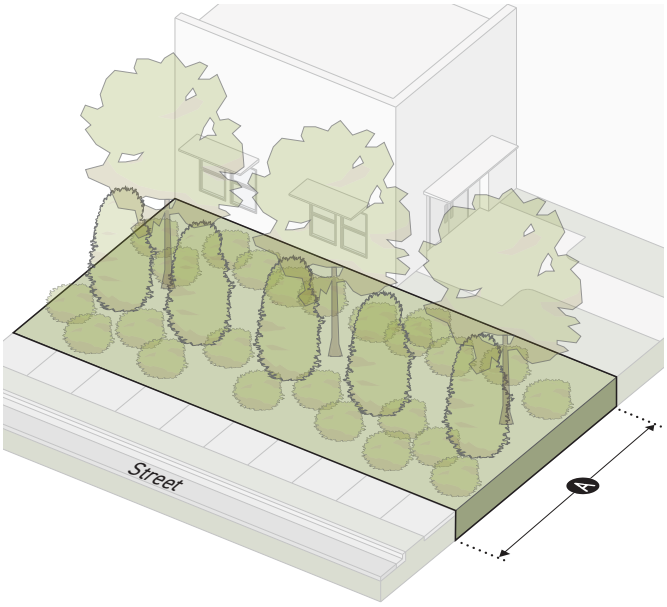
Medium depth landscape screening with a wall intended for high impact uses.



SCREENING AREA	
A Depth (min)	15’
Landscaping (min per 50’)	
Canopy trees	3
Understory trees	2
Shrubs	16
WALL	
B Height (min)	8’
Opacity (min)	90%
C Setback from property line (min)	3’

HIGH FRONTAGE SCREEN-2

Deep landscape screening with no wall intended for high impact uses.



SCREENING AREA	
A Depth (min)	30’
Landscaping (min per 50’)	
Canopy trees	3
Understory trees	5
Shrubs	24
WALL	
Not required	

4.4.4. Requirements for All for Transition and Frontage Screens

A. Natural Vegetation

1. Natural Vegetation Required

a. Existing healthy, natural forest cover and other vegetation must be used to meet the transition and frontage screening landscape requirements.

b. If existing healthy, natural forest cover and other vegetation is not present, then new planting material that meets *Div. 4.9. Landscaping*, can be used.

c. If the existing natural vegetation does not meet the landscaping standards of *4.4.2.C* or *4.4.3.C*, then supplemental plant material must be used to meet the applicable standards. Sampling of existing vegetation pursuant to paragraph *4.6.2.D, Sampling*, is required to determine if existing natural vegetation is sufficient.

d. The screening area depth requirements must be met at all times.

2. Existing Tree Protection in a Screening Area

In addition to the requirements of 7.3.2, Protection of Existing Vegetation, existing healthy trees within a required screening area must be protected as follows:

a. For trees with a dbh of 30 inches or less, 75% of the tree protection zone must be undisturbed; and

b. For trees over 30 inches dbh, at least 90% of the tree protection zone must be undisturbed.

B. Screening Area Depth Modification

1. Screening area depth is calculated perpendicular to the property line, however, modifications are allowed and are calculated based on the average depth of the screening area per 50 feet.

2. In no case can the minimum depth of the screening area be less than one-half the required depth.

3. In no case can the maximum depth of the screening area be more than one and one-half times the required depth.

C. Off-Site Vegetation

1. Existing plant material on an abutting property can be credited toward the screening requirements, provided that the material is in a permanently protected area such as a conservation easement or similarly preserved area.

2. Plant material, either existing or proposed, on an abutting property can be credited toward the screening requirements through use of a landscape easement.

D. Walls and Fences

1. All walls and fences in a screening area must meet the wall and fence design and installation standards, see *Sec .4.5.1 Fence and Wall Standards*.

2. No reduction in screening requirements are provided based on the provision of a fence.
3. Walls and fences cannot exceed the maximum height requirements of *Sec .4.5.1 Fence and Wall Standards*.
4. To allow for access for maintenance, required plantings must be located on the inside of a wall or fence.
5. An applicant is required to demonstrate provision for access and maintenance of landscaping and the wall or fence at the time of landscape plan approval.

E. Berms in Screening Areas

Outside of the Urban Growth Boundary, a berm that meets the following requirements may be used in-lieu of a required wall.

1. A berm must have a minimum average height of 6 feet, measured perpendicular to the center of the crown.
2. The berm must contain a rounded crown suitable for planting and a stabilized side slope of no greater than three-to-one. A steeper side slope may be used in exceptional cases when all of the following are met:
    a. This steeper slope is sufficiently stabilized; and
    b. Physical constraints of the site prevent the use of a flatter slope.
3. The berm only has to include ¾ of the required number of shrubs.
4. Prior to issuance of the first certificate of compliance, berms must be planted to ensure coverage by live plant material within 5 years.

4.4.5. Site Element Screens

A. Intent

To minimize effects on surrounding properties and visibility from the public realm of site elements including mechanical, electrical, or utility requirement and waste receptacles.

B. Applicability

1. Site element screening is required for all outdoor waste receptacle enclosures (with the exception of lots serving up to 4 dwelling units) and all outdoor mechanical or electrical equipment located on the roof of a building, or attached to the wall of a building, or on the ground.
2. Site element screening requirements do not apply to the following:
    a. Electric vehicle charging infrastructure;
    b. Solar panels;
    c. Phone or cable boxes;
    d. Electrical meters; and
    e. Gas meters, when 3 meters or less are located in a row.

C. Standards

1. Waste Receptacle Screening

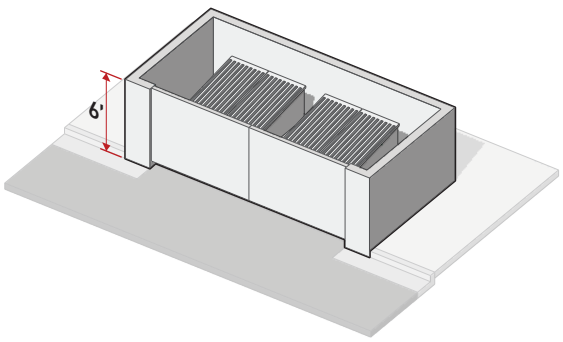
a. Waste receptacles cannot be located in a street yard. Waste receptacles must be located to the side or rear of buildings and must meet the encroachment requirements of *Sec. 2.9.5.E.1 Limited Encroachments*.

b. Outdoor waste receptacles must be screened on three sides by a wall or fence a minimum height of 6 feet.

c. Access gates must be provided on the fourth side and must also be a minimum height of 6 feet.

d. The wall or fence and gate access screening must be 90% opaque.

e. The screening enclosure must meet *Sec. 4.5.1.E. Design and Installation*.

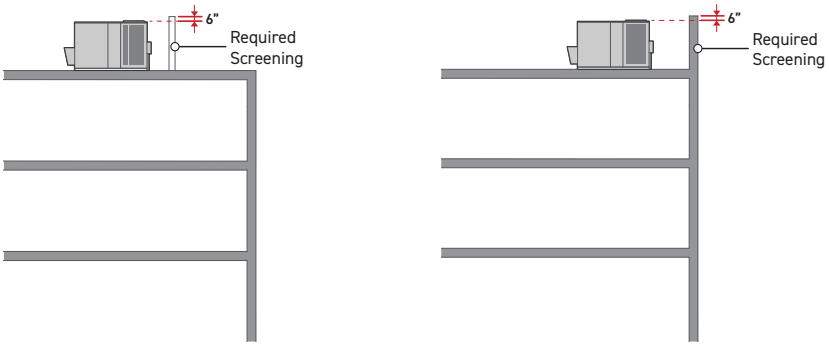


2. Roof-Mounted Equipment Screening

a. Equipment must be screened on the roof edge side by a parapet wall or other type of screen that is at least 6 inches higher than the topmost point of the equipment being screened.

b. The screening must be at least 75% opaque.

c. Screening must meet *Sec. 4.5.1.E. Design and Installation*.



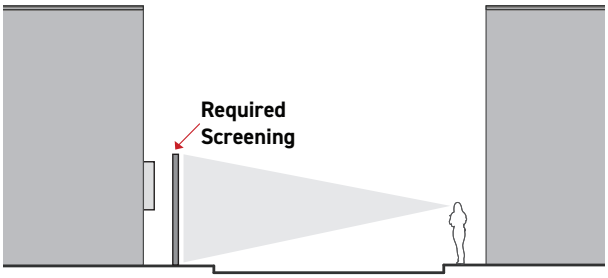
3. Wall-Mounted Equipment Screening

a. Equipment cannot be located in a front or side street yard. Equipment must be located in the side or rear yard and must meet the encroachment requirements of *Sec. 2.9.5.E.1 Limited Encroachments.*

b. Equipment visible from a street (not including an alley) must be fully screened by an opaque wall or fence or other type of screen that is at least 6 inches higher than the topmost point of the equipment being screened.

c. The screening must be at least 75% opaque.

d. Screening must meet the standards of *Sec. 4.5.1.E. Design and Installation*.



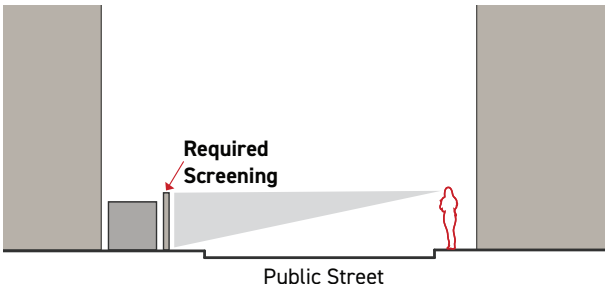
4. Ground Equipment Screening

a. Equipment cannot be located in a front yard or side street yard. Equipment must be located in the side or rear yard and must meet the encroachment requirements of *Sec. 2.9.5.E.1 Limited Encroachments.*

b. Equipment visible from a street (not including an alley) must be fully screened by an opaque wall or fence or other type of screen that is at least 6 inches higher than the topmost point of the equipment being screened.

c. The screening must be at least 75% opaque.

d. Screening must meet the standards of *Sec. 4.5.1.E. Design and Installation*.



SEC. 4.5. FENCES AND WALLS

4.5.1. Fence and Wall Standards

A. Intent

To facilitate natural surveillance and visual interest along the public realm while ensuring security and privacy for ground story uses in a manner appropriate to the context.

B. Applicability

1. Fence and wall standards apply to all lots.
2. Allowed fence and wall types for each zoning district are specified in the table below, unless:
   a. The fence is associated with a recreational facility, such as a tennis court; or
   b. The fence is associated with an electrical substation; or
   c. As otherwise required by another local, state, or federal government rule or law.

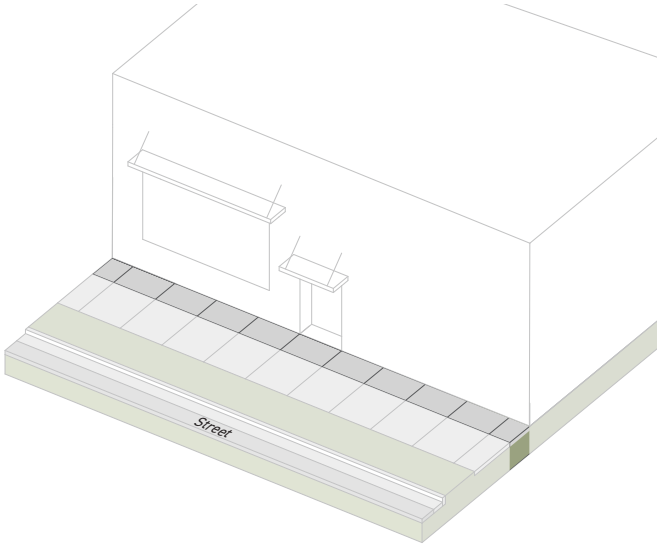
	Residential		Residential Mixed Use	Commercial Mixed Use	Commercial		Employment		Institutional	Open Space
	R-A	R-B R-C R-D	RX-	CX-	CN CG	CH	IX IU IC	IH	CIV	PK, CON
Front yard	D	B	B	A	C	D	C	D	C	D
Side street yard	D	E	E	A	C	D	C	D	C	D
Side/rear yard	F	F	F	F	F	G	F	G	F	F

3. If a screening requirement requires a taller fence or wall, the screening requirement supersedes any other requirement.
4. Posts, columns, or other similar vertical fence or wall supports, including lighting and ornamentation on top of supports, are exempt from the height requirements. To maintain the exemption, material cannot span from one support to another above the maximum height allowed.

C. Front and Side Street Yards

FENCE/WALL TYPE A

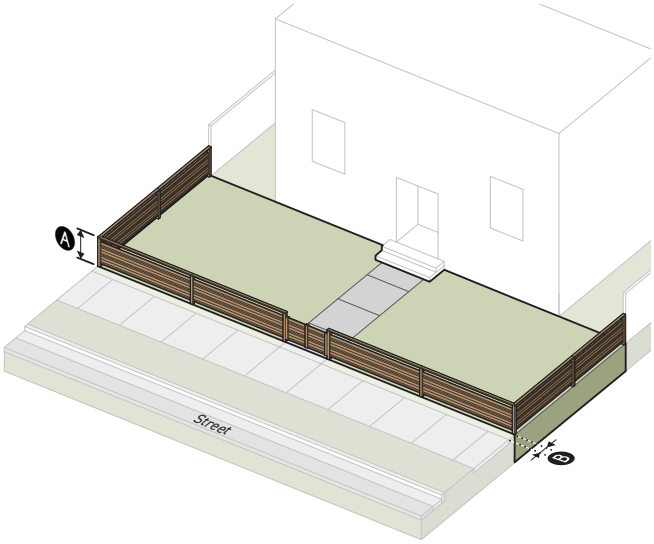
Intended for front and side street yards where buildings engage directly with sidewalks to provide natural surveillance and visual interest, especially where ground floor uses are commercial.



DIMENSIONAL STANDARDS	
Height (max)	Not allowed
Max height of 4 feet allowed if required for outdoor consumption of alcohol	

FENCE/WALL TYPE B

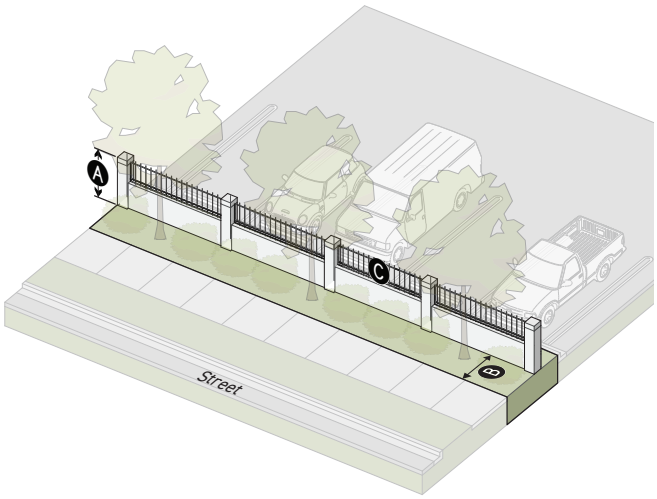
Intended for front and side street yards where the need for natural surveillance and visual interest is balanced with the need for separation between private ground floor uses and sidewalks.



DIMENSIONAL STANDARDS	
A Height (max)	4’
B Setback from lot line (min)	6”

FENCE/WALL TYPE C

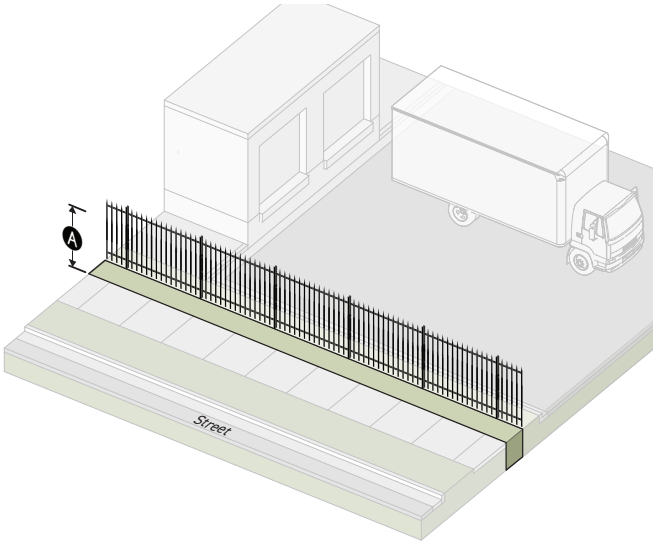
Intended for front and side street yards that face a street and parking lot edges where the need for natural surveillance and visual interest along the public realm is balanced with the need for security between private and public realm.



DIMENSIONAL STANDARDS	
A Height (max)	6′
B Setback from lot line (min)	3′
C Opacity above 4′ in height (max)	50%

FENCE/WALL TYPE D

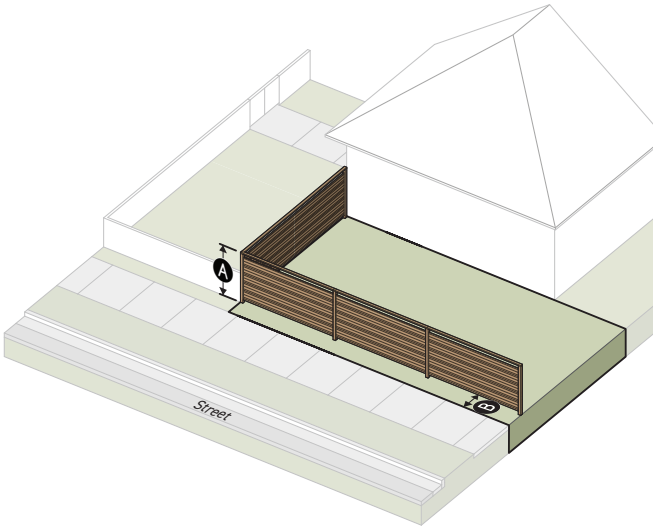
Intended for front and side street yards where additional screening and security is needed for heavier commercial and industrial activity, and for residential uses in rural areas.



DIMENSIONAL STANDARDS	
A Height (max)	8′
B Setback from lot line (min)	1″

FENCE/WALL TYPE E

Intended for side street yards with lower levels where visual interest and activation along the public realm is less critical than the need for additional privacy and security.

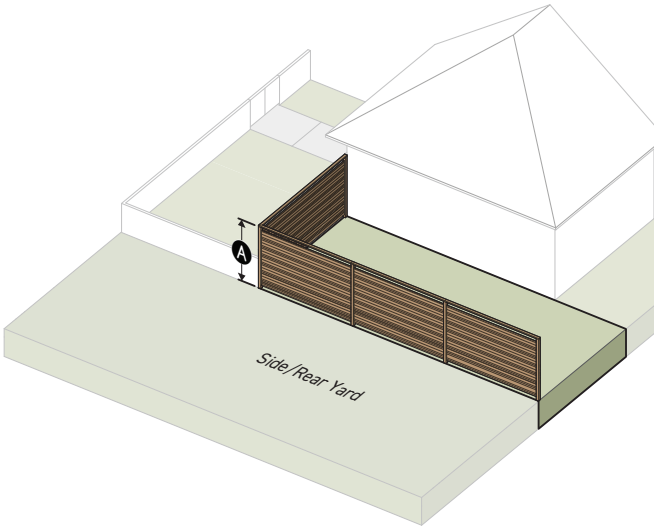


DIMENSIONAL STANDARDS	
A Height (max)	6′
B Setback from lot line (min)	1″

D. Side and Rear Yards

FENCE/WALL TYPE F

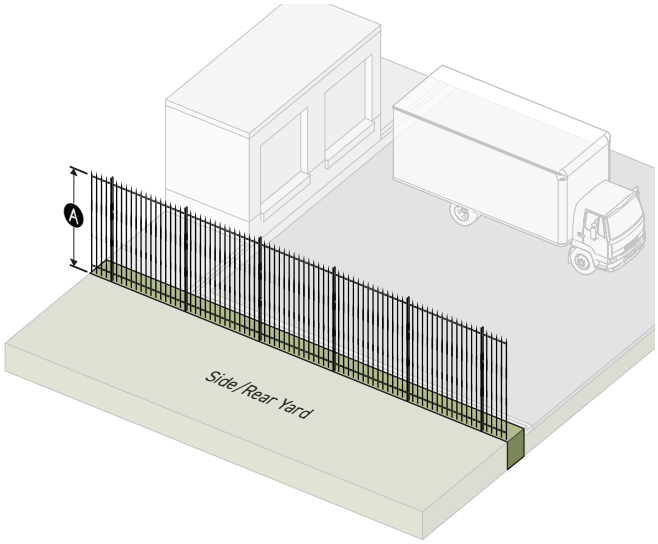
Intended for residential and commercial side and rear yards.



DIMENSIONAL STANDARDS	
A Height (max)	8′
Setback from lot line (min)	0′

FENCE/WALL TYPE G

Intended for heavier commercial and industrial side and rear yards.



DIMENSIONAL STANDARDS	
A Height (max)	10′
B Setback from lot line (min)	0′

E. Design and Installation

1. Fences

a. Fences must use durable, low maintenance material that has a long life expectancy constructed from one or more of the following materials:

   i. Welded/woven wire (e.g., chain link) - must be vinyl-coated.

   ii. Vinyl/PVC.

   iii. Wood boards/slats (e.g. cedar).

   iv. Wood-like composite materials.

   v. Ornamental metal (aluminum/steel/iron).

b. No fence can be constructed of tires, junk, or other discarded or slaved materials.

c. Other materials of similar construction, quality, and durability not listed may be allowed with approval by the Planning Director.

d. Fences constructed of materials with a finished side must face the finished side toward the abutting property. If support posts are located or visible on one side only, that side is the unfinished side.

e. Razor wire, concertina wire, barbed wire, and similar fencing materials are only allowed in the CH and IH districts or where associated with a major or minor utility.

f. Where allowed, fences or walls of 6 feet or greater in height may have barbed wire or razor wire attached to arms or brackets which extend inward over private property, but no such barbed wire or razor wire can be placed at any point closer to the ground than 6 feet.

2. Walls

a. Walls must be constructed from one or more of the following materials:

   i. Architectural block;

   ii. Brick;

   iii. Exposed aggregate concrete;

   iv. Stucco over concrete block; or

   v. Stone, all in a safe and visually appealing condition.

b. Exposed, plain, or painted concrete cinder block walls are not allowed.

c. Other materials of similar construction, quality, and durability not listed may be allowed with approval by the Planning Director.

3. Location

a. Fences and walls must be set back from the lot line in accordance with *Sec. 4.4.2* and *Sec. 4.5.1.C*.

b. All fence and walls, including their sub-grade elements, such as footings or foundation, must be located on-site.

c. No fence or wall is allowed within any required drainage or utility easement.

d. No fence or wall can obstruct the visibility of motorists, cyclists, and pedestrians at intersections or driveways - see Sec. 12.3.1D, Sight Triangles.

4. Maintenance

All fences and walls must be maintained in good repair and must be kept vertical, structurally sound, and protected from deterioration.

F. Electric Fences

1. Applicability

a. Electric fences are allowed in conjunction with the following uses:

i. Government facilities in 5.2.4D, Government Facilities;

ii. Utilities in 5.2.4J, Utilities; and

iii. Industrial uses in 5.2.6, Industrial Use Categories.

b. Electric fences are not allowed in RX- or CX- districts.

c. A minor special use permit is required for electric fences located in a front or side street yard.

d. An electric fence is allowed in conjunction with a use or location not otherwise authorized by this section if it is required by the state or federal government.

2. General

a. Electric fences must be battery-powered with a maximum of 12 volts direct current.

b. The electric charge produced upon contact must comply with energizer specifications established by the Electrotechnical Commission (IEC).

c. Electric fence cabling and wiring must not connect to any overhead power line post.

d. Electric fences cannot interfere with overhead utility lines or their maintenance.

e. Electric fences cannot disrupt the transmission of power, telephone, radio, television, or data signals.

f. The electric fence system must include a clearly marked cut-off switch, accessible from a main entry path, that disconnects the entire system from all energizers for emergency and enforcement personnel.

g. Warning signs must be clearly visible and posted at intervals of every 6 feet along the electric fence.

3. Perimeter Wall or Fence

a. All electric fences must be entirely contained within a non-electric perimeter fence or wall.

b. If the adjacent property is residential, the perimeter fence or wall visible from that property must meet one or more of the following requirements:

i. Total area must be 80% opaque;

ii. Be located behind an evergreen hedge that reaches a minimum height of 6 feet within 3 years of planting; or

iii. Be located behind an existing or proposed transition or frontage screen.

c. **Location**

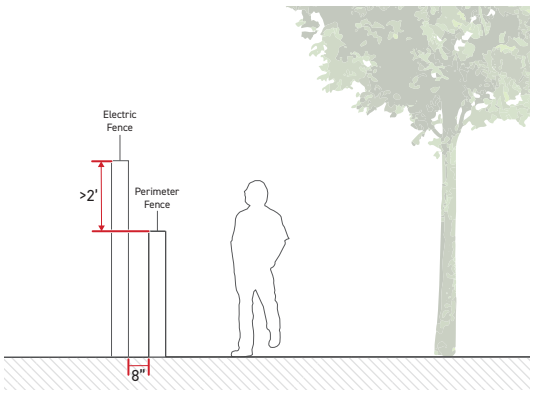
i. The electric fence must be spaced at least 4 to 8 inches away from the perimeter fence or wall, except at gate openings.

ii. No part of the perimeter fence or wall may touch the electric fence, except at gates openings.

iii. The space between the electric fence and perimeter fence or wall must remain clear of obstructions.

d. **Height**

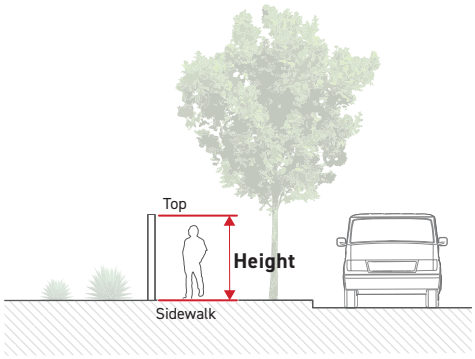
The electric fence must be at least 2 feet taller than the perimeter fence or wall.



G. Measurement

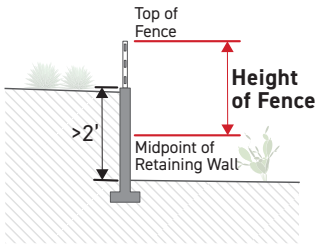
1. Front and Side Street Yards

a. Fence or wall height is measured from the abutting sidewalk to the topmost point of the fence or wall.



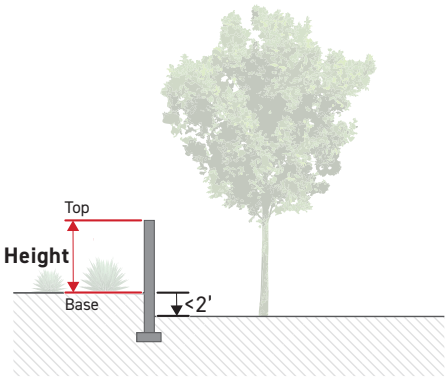
b. If no sidewalk exists within 20 feet of the fence or wall, height is measured from the base of the fence or wall to the topmost point of the fence or wall, on the exterior side of the fence or wall.

c. If a fence or wall is located within 3 feet of the exterior face of a retaining wall and the retaining wall is 2 feet in height or greater, the height is measured from the top of the fence or wall to the midpoint of the retaining wall. If a guardrail is required on top of a retaining wall, the guardrail is exempt from the maximum height measurement.

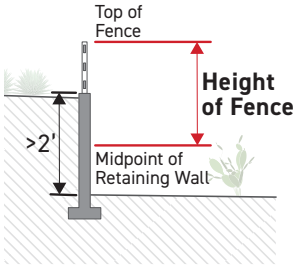


2. Side and Rear Yards

a. If the difference in grade on either side of a fence or wall is less than 2 feet, height is measured from the base of the wall on the side with the highest grade.



b. If a fence or wall is located within 3 feet of the exterior face of a retaining wall and the retaining wall is 2 feet in height or greater, the height is measured from the top of the fence or wall to the midpoint of the retaining wall. If a guardrail is required on top of a retaining wall, the guardrail is exempt from the maximum height measurement.

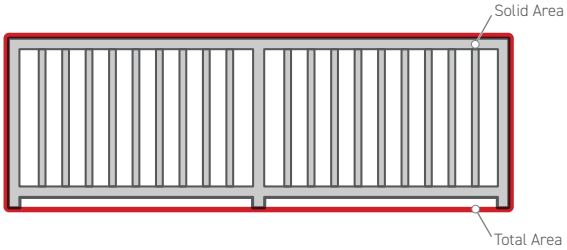


c. Fences and walls abutting an alley in the rear or side yard are measured from the surface of the adjacent alley and vertically to the topmost point of the fence or wall. If the fence or wall is located on a slope of more than 2 feet above the surface of an alley, the height is measured from the top of the fence or wall to the midpoint of the slope.

3. Opacity

a. Opacity is measured as a percentage, calculated by dividing the solid portion of the fence or wall by the total area of the fence or wall.

b. The total area of the fence or wall is measured as the smallest regular shape containing all elements of the fence or wall, excluding the top portions of a finial or post.



$$\frac{\text{Solid Area}}{\text{Total Area}} = \textbf{Opacity (\%)}$$

c. If the opacity requirement applies to a portion of the fence or wall, the total area to be measured is limited to that specified portion.

4.5.2. Retaining Walls

A. Intent

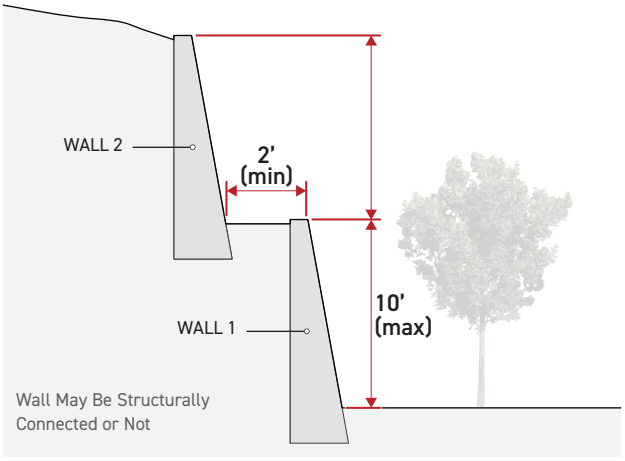
To prevent retaining walls from looming over neighboring properties and public rights-of-way while improving the aesthetic quality of large retaining walls.

B. Applicability

1. All freestanding retaining walls located within 30 feet of a right-of-way.
2. Does not apply to retaining walls associated with culverts or stream crossings or to transportation improvements, such as bridge overpass structures for streets or railroads.
3. This section does not apply in a CH or IH district.

C. Standards

1. A retaining wall must meet required building setbacks.
2. A freestanding retaining wall cannot exceed a continuous, uninterrupted height of 10 feet above grade or adjacent curb level (or if no curb exists, from the center crown of the street), whichever is higher.
3. Additional height above 10 feet is allowed, provided the wall contains a minimum 2-foot step back for each additional 10 feet of wall height.



4. A Low Frontage Screen-2 is required for any freestanding retaining wall 7 feet or more in height.

SEC. 4.6. LANDSCAPE

4.6.1. Landscape Design

A. Intent

To support a healthy urban ecological system by providing the necessary supplemental information for all applicable landscaping requirements in the UDO.

B. Applicability

The landscape design standards apply to any plant material used to meet a requirement of the UDO.

C. Landscape Manual

The Landscape Manual for Durham, North Carolina, also referred to as the Landscape Manual provide the following:

1. A list of species that must be used within the City and County of Durham, including appropriate applications and specifications, to satisfy the requirements of the UDO.
2. Diagrams depicting required planting methods that must be included, as applicable, on site plans and plats.
3. Diagrams depicting required tree protection fencing specifications that must be included, as applicable, on site plans and plats.
4. Diagrams illustrating recommended methods for buffer depictions on site plans and preliminary plats.
5. Recommended best practices for landscaping methodologies including, but not limited to, "water-wise" approaches to landscape materials and incorporation of Crime Prevention Through Environmental Design (CPTED) principles.

D. Basic Plant Types

There are five basic plant types referred to in this section, and all require the use of locally-adapted plants. They include deciduous canopy trees, evergreen canopy trees, deciduous understory trees, evergreen understory trees and shrubs, defined as follows:

1. Deciduous Canopy Trees

Large deciduous shade trees with a mature height of 30 feet or greater and a mature spread of 30 feet or greater.

2. Evergreen Canopy Trees

Trees at least 20 feet tall at maturity that usually have green foliage throughout all seasons of the year.

3. Deciduous Understory Trees

Small deciduous trees or large deciduous shrubs with a mature height of 10 to 30 feet.

4. Evergreen Understory Trees

Trees or large shrubs at least 10 feet tall at maturity that usually have green foliage throughout all seasons of the year.

5. Shrubs (Deciduous and Evergreen)

Prostrate or upright woody plants, either evergreen or deciduous, with a mature height usually less than 10 feet. Evergreen shrubs usually have green foliage throughout all seasons of the year.

E. Plant Material Requirements

Unless specified elsewhere in the UDO, plant material must meet the minimum requirements listed below. When determining the quantity of plant material required, the quantity is rounded up to the nearest whole number.

1. Plant Materials, General

All plant material must meet or exceed size and shape relationships specified in the latest edition of The American Standard for Nursery Stock published by the American Association of Nurserymen.

2. Trees

a. Deciduous Canopy Trees

Deciduous canopy trees must have a minimum size of 2-inch caliper at time of planting, unless allowed under Sec. 7.3.1E.3.

b. Evergreen Canopy Trees

Evergreen trees must have a minimum height of 8 feet at the time of planting.

c. Deciduous Understory Trees

i. Deciduous understory trees with single stems must have at a minimum size of 1-inch caliper and a minimum height of 8 feet at the time of planting.

ii. Multi-stemmed deciduous understory trees must have a minimum height of 8 feet at the time of planting.

d. Evergreen Understory Trees

Evergreen understory trees must have a minimum height of 6 feet at the time of planting.

e. Tree Spacing

i. Canopy trees must be planted at least 18 feet apart.

ii. Deciduous understory trees must be planted at least 12 feet apart.

iii. The spacing between canopy and deciduous understory trees must be at least six feet.

f. Mixing of Tree Species

The following table indicates the maximum percentage of trees of the same genus and species that can be planted.

Total Trees Planted on Site	Species Required (min)	Percentage of Any One Species (max)
10 or less	1	Not applicable
11 to 20	2	70%
21 to 50	3	50%
51 to 100	4	40%
101 to 200	5	30%
201 to 300	6	25%
301 to 500	7	20%
Over 500	8	20%

3. Shrubs

a. Deciduous and Evergreen Shrubs

i. All shrubs must be cold hardy and heat tolerant.

ii. Upright shrubs must be a minimum of 15 inches in height at the time of planting.

iii. Shrubs cannot be planted closer than 3 feet on center. Shrubs cannot be planted closer than 3 feet to planted trees, or within 6 feet of existing protected trees; however, no more than 25% of the tree protection zone of an existing tree may be disturbed with new plantings.

iv. When planted as a hedge, the maximum spacing for 24-inch high shrubs is 3 feet on center. Spacing for other size shrubs is specified in the Landscape Manual pursuant to *Sec. 4.2.1.C, Landscape Manual*.

b. Mixing of Shrub Species

When more than 20 shrubs are required to be planted, a mix of species must be provided. The following table indicates the maximum percentage of shrubs of the same genus and species that can be planted.

Total Shrubs Planted on Site	Species Required (min)	Percentage of Any One Species (max)
20 or less	1	Not applicable
21 to 100	4	20%
101 to 200	5	25%
201 to 300	6	20%
301 to 400	7	20%
401 to 500	8	20%
501 to 600	9	20%
Over 600	10	20%

4. Plant Species List

a. A list of plants by type and appropriate location or use to satisfy the requirements under the UDO is in the Landscape Manual pursuant to *Sec. 4.2.1.C, Landscape Manual*.

b. A list of prohibited plants identified as inappropriate for use within the City and County is in the Landscape Manual. These plants cannot be used to satisfy landscaping requirements, either as existing or proposed plant material.

c. When a species or cultivar is proposed for use but is not listed in the Landscape Manual, a professional urban forester or certified plant professional must certify that the use of the plant material is appropriate for the intended use and location, and that it does not have invasive tendencies.

F. Landscape Plans and Surveys

Landscaping plans must be prepared by certified arborists, landscape architects, or other similarly licensed professionals with a proficiency in preparing landscaping plans. Tree surveys must be reviewed and signed by a certified arborist or forester to confirm the size and species of the trees depicted on the plans.

G. Installation

1. Easements

a. Trees can be planted in access or utility easements, including stormwater control measure access and maintenance easements, provided that they are a species adapted for the nature of the easement.

i. Approval by the entity or Department responsible for the easement is required for the location of the trees proposed for planting.

ii. Compliance with additional requirements by the responsible entity or Department is required.

b. Shrubs must be installed at least 5 feet away from the flow line of a swale.

c. Shrubs can be planted in a public utility easement provided they are approved by the utility provider.

d. If the entity responsible for an existing easement denies the location of landscaping material that is otherwise required by the UDO, the required landscaping location can be modified to the minimum extent necessary to avoid conflict with the easement.

2. Tree Grates

When used, tree grates must be sized and maintained to ensure continued health of any required tree and installed so as not to create any pedestrian hazard.

3. Groundcover and Mulch

a. Groundcover can be planted around trees, provided they are located outside of the planting hole.

b. Mulch must be used in all areas where no other ground cover or grass is used to avoid bare spots.

4. Certification

Certification by a licensed landscape architect or licensed landscape contractor verifying that all plants have been installed per all UDO and Landscape Manual requirements must be submitted before a Certificate of Compliance will be issued.

H. Maintenance

1. Responsibility

Unless otherwise stated, the owner of any property where landscaping is required is responsible for the maintenance of all required plant material (including street trees located off-site), fences and walls. Maintenance responsibilities includes the clearing and replacement of required material that is dead and/or dying.

2. Pruning

a. Trees and shrubs must be kept trimmed back from doors, windows, and walkways.

b. Necessary pruning and trimming must be in accordance with the American National Standards for Tree Care Operations: Tree Shrub and Other Woody Plant Maintenance – Standards Practices (Pruning), and cannot be interpreted to include topping of trees through removal of crown material or the central leader, or any other similarly severe procedures such as lollipopping, meatballing, or hatracking that cause irreparable harm to the natural form of the tree, except where such procedures are necessary to maintain public overhead utilities. Any such activity is a violation of the UDO and additional plant material may be required by the Planning Director to replace or supplement the damaged plant material.

I. Extensions

1. General Request for Extension of Compliance

It is recognized that land development occurs continuously and that vegetation used in landscaping should be planted at certain times to ensure the best chance of survival.

2. Extensions for All Other Development

a. In order to ensure compliance and to reduce the potential expense of replacing landscaping materials which were installed at an inappropriate time or under unfavorable conditions, a letter of request for extension of compliance with landscaping requirements can be filed with the Planning Director, which states the reasons why the request is being made.

b. This letter must acknowledge that the applicant is aware of all landscaping requirements, and will comply with those requirements within 90 days, or discontinue use of the property.

c. The Planning Director must grant the extension on requests for planting extensions for residential and mixed use projects submitted between May 15 and September 15 of each year and may grant the extensions for other uses and at other times if there are unfavorable conditions for planting.

d. If the initial letter of request for extension of compliance with landscaping requirements has expired and conditions are still deemed unsuitable for planting, an applicant can request one additional extension of up to 90 days. During periods of extreme drought, as evidenced by the official declaration of Stage 3 or greater mandatory water conservation requirements, the Planning Director may authorize additional 90-day extensions beyond the one extension typically allowed. These extensions may be continued throughout the period in which the extreme drought conditions remain.

e. The applicant must also acknowledge that while a Conditional Certificate of Compliance may be issued, no Final Certificate of Compliance can be issued while there is an active (pending) letter of request for extension of compliance with landscaping requirements unless a performance guarantee (such as a letter of credit or performance bond) sufficient to cover 125% of the installed landscaping costs has been posted with the Inspections or Planning Department.

4.6.2. Existing Vegetation Credits for Required Landscaping

A. Intent

To help ensure existing healthy vegetation on site can used to meet a landscaping requirement of the UDO.

B. Applicability

1. Existing healthy vegetation that is retained can be credited toward landscaping requirements.
2. Vegetation to be saved must meet all requirements of 8.3.2, Protection of Existing Vegetation.

C. Existing Trees

1. Healthy canopy trees can be retained and credited toward landscaping requirements if each tree proposed for credit has a dbh of at least 1 inch, or larger if specified elsewhere in the UDO, and all requirements of 8.3.2, Protection of Existing Vegetation, are satisfied. Credit will be given for existing, healthy, protected trees at number equal to the value of the dbh of each protected tree divided by 2 inches.
2. Credit is allocated on a one-for-one basis for healthy evergreen trees, deciduous understory trees, evergreen understory trees or shrubs. The size of material is not be taken into account, except where the material is below the required minimum planting size, in which case no credit is given.
3. In order to receive credit for any retained trees, at least 75% of the tree protection zone must remain undisturbed. Root zones extending into rights-of-way are considered disturbed areas, unless legally binding protections are placed upon those areas. Trees whose tree protection zones fall outside the protected area, but are within larger groups of trees, do not count toward any landscaping requirements but must be left in place unless they are diseased or otherwise hazardous to the integrity of the landscape area or the development.
4. Existing trees located within 30 feet of power lines or within utility easements are not be eligible to receive credit, unless the tree is a species appropriate for underneath power lines or received approval to be located within the utility easement.

D. Sampling

1. All trees, shrubs and groundcover within a minimum 20-by-20-foot area for each unique stand of vegetation proposed to be retained must be inventoried and identified on the landscape plan.
2. Photographs can be used to supplement the sample but cannot replace it.
3. For purposes of determining preserved tree coverage, shrubs and groundcover need not be included in the sampling.
4. The Planning Director can require additional sample areas as needed to ensure a representative sample of the existing vegetation.

4.6.3. Mass Grading Buffers and Revegetation

A. Intent

To control soil erosion, preserve existing vegetation, and reduce the visual impact of mass grading along exterior lot lines on adjacent properties and the public right-of-way.

B. Massing Grading Buffers

1. Applicability

a. Mass grading buffers only apply to activity within the City jurisdiction.

b. Mass grading, where no site improvements are proposed requires a mass grading buffer along all exterior lot lines.

c. A mass grading buffer is not required upon approval of a site plan for other site improvements, although additional perimeter landscaping or screening provisions may be required.

d. If a site plan or a final plat is approved, the required mass grading buffer must be retained until a screening area pursuant to *Sec. 4.4, Transitions*, is installed. A preliminary plat does not relieve the applicant of these requirements.

e. A site plan for buildings, not just utilities, must be approved to be relieved of the requirements of this section.

f. Forestry activities conducted in accordance with a Forest Management Plan as specified in the North Carolina Forestry Best Management Practices Manual to Protect Water Quality are exempt from these requirements. However, if a buffers is not maintained, development of the site will be prohibited for 3 to 5 years from the date of forestry activities.

2. Buffer Standards

a. General

i. No grading is allowed within a mass grading buffer except to provide reasonable access and for utility installation. All crossings and intrusions into a mass grading buffer must be at an angle between 75 and 105 degrees, with minimal disturbance to the buffer.

ii. A mass grading buffer must preserve existing vegetation.

b. Adjoining Other Properties

A mass grading buffer adjoining other properties (along exterior property lines), must be a minimum of 65 feet in width if the adjoining property is developed, or 32 feet if the adjoining property is undeveloped, measured perpendicular to the boundary of the site, and must be in place prior to such grading activity.

c. Adjoining Public Rights-of-Way

A mass grading buffer along a public right-of-way must be at least 65 feet in width measured perpendicular to the boundary of the site and must be in place prior to grading activity..

C. Revegetation

1. Applicability

a. An owner has two years from the date that a site plan is approved for land disturbing activity subject to this section where no other tract improvements are proposed either to secure site plan approval for development of the tract or to revegetate the site.

b. Revegetation is not required upon approval of a site plan for site improvements for that portion of the development tract with such improvements proposed. The remainder of the development tract must be revegetated until a site plan showing other site improvements is approved. A preliminary plat does not relieve the applicant of the requirements of this paragraph.

c. Revegetation is required only where land disturbing activity has taken place, and no site plan for improvements has been approved within 2 years.

2. Revegetation Standards

a. So long as a mass grading buffer has been provided and maintained, revegetation of a tract with a ground cover sufficient to restrain erosion satisfies the requirement for revegetation.

b. If a mass grading buffer is not provided and maintained, revegetation of a tract must create a biological community composed of a mixed and variable assemblage of native vegetation which is appropriate for the existing site conditions with at least 3 different species of trees native to Durham County and a tree density of at least 200 living trees per acre, with at least 50% of those trees having the potential of attaining a 2.5 inches or greater dbh within 7 years.

SEC. 4.7. **SIGNS**

4.7.1. General

A. Purpose

The purpose of this section is:

1. To encourage the effective use of signs as a means of communication;
2. To maintain and enhance the aesthetic environment, and the community's ability to attract sources of economic development and growth;
3. To eliminate physical and visual clutter;
4. To improve pedestrian and traffic safety; to minimize the possible adverse effects of signs on nearby public and private property; and
5. To enable the fair and consistent enforcement of these sign regulations.

B. Effect

The effect of this section is:

1. To establish a permit system that allows a variety of types of signs on business premises and a limited variety of signs on other premises, subject to the UDO and its permit procedures;
2. To allow certain small signs incidental to the principal use of a site without a permit if such signs meet the requirements of the UDO;
3. To prohibit off-premise advertising signs, except where regulation is controlled by state or federal law;
4. To allow signs to make minor encroachments of the public right-of-way, if specially allowed; and
5. To prohibit all signs not expressly not allowed by the UDO.

4.7.2. General Requirements for Signs

A. Sign Defined Interpretations

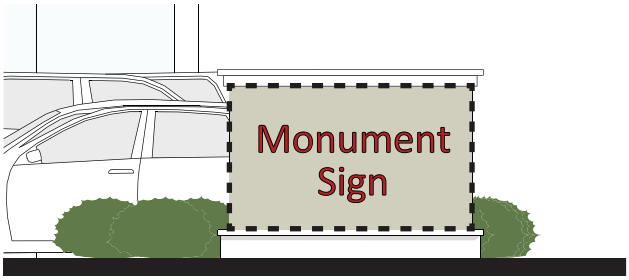
1. A sign is considered any word, words, lettering, parts of letters, figures, numerals, phrases, sentences, emblems, devices, structures, designs, trade names, or trade marks by which anything is made known such as are used to designate an individual, a firm, an association, a corporation, a profession, a business, or a commodity or products, which are legible from any public street or adjacent property and used to attract attention.
2. This definition includes the structure or the face on which a sign message is displayed.
3. For the purposes of this section, this definition does not include "trade dress," i.e.; architectural features identified with a product or business, as a sign.
4. Various kinds of signs are further defined in this section.

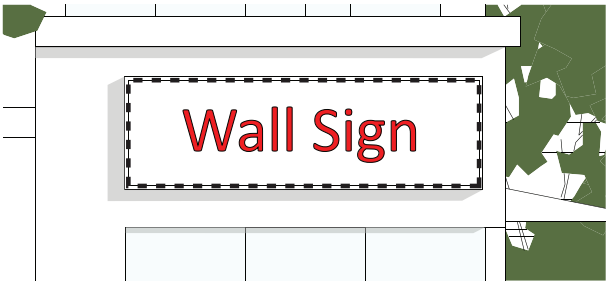
5. (County Only) Signs within the SRP-C District are regulated pursuant to this section if legible from property not zoned SRP-C, instead of "adjacent property" as indicated in Paragraph 1, above.

B. Sign Calculation Standards

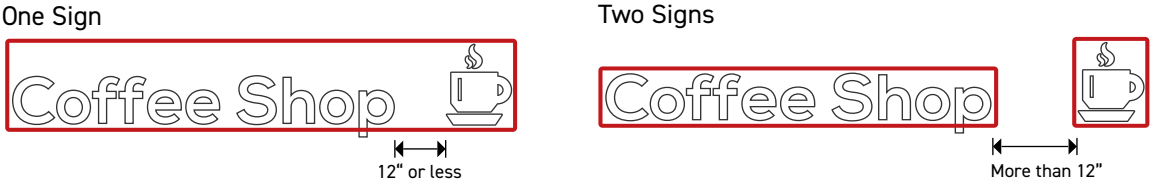
1. Sign Area

a. The area of a sign include all lettering, wording, designs and symbols, together with the background, whether open or enclosed, on which they are displayed. The supporting structure or bracing of a sign is not included in measuring the area of the sign unless the structure or bracing is made part of the message or face of the sign. Any back-lit area is considered part of the face of the sign.





b. Where a sign consists of individual letters, words or symbols, the sign area is area of the smallest rectangle, circle or square which completely encompasses all the letters, words or symbols. Images, logos or text greater than 12 inches apart are calculated as separate signs for the purposes of calculating individual sign area.



c. The area for a sign with more than one face is computed by adding together the area of all sign faces. Signs with identical sign faces placed in a manner to ensure that the angle at which the two sign faces are placed does not exceed 60 degrees, are considered to have a single face.

[add image]

d. The entire surface area of a multi-tenant sign that depicts the names of the individual tenants counts toward the total aggregate area of the sign.

e. All monument signs must incorporate a street address number or address range. Street address numbers must be a minimum of 6 inches high in residential districts, and 12 inches high in all other districts. The area of the address number is not computed as part of the sign face unless it exceeds twice the minimum number height requirement. All street address numbers must be displayed in accordance with City or County standards, as applicable.

2. Sign Height

a. The height of a sign is computed as the distance from the base of the sign at a computed grade to the top of the highest attached component of the sign (including the sign face, sign structure, or any other appurtenance).

b. The computed grade is the elevation of the nearest point to the proposed sign location of the crown of the nearest public street providing access; or the grade of the land at the principal entrance to the principal structure on the lot, whichever is higher.

[add image]

C. Design, Construction and Maintenance

1. Signs must comply with applicable provisions of the North Carolina Building Code and the National Electrical Code.

2. Signs must be constructed of permanent materials and permanently affixed to the ground or building except for those signs that, by their nature, are considered temporary or moveable.

3. Permanent signs must be maintained in good condition at all times and must be kept free of cracked or peeling paint, missing or damaged sign panels or supports, and weeds, grass or vegetation that obscures the view of the sign.

D. Visibility at Intersections

Where a driveway intersects a right-of-way or where property abuts the intersection of two rights-of-way, an unobstructed sight distance must be provided at all times within the sight triangle area (see XX).

E. Placement of Signs

Signs must be located so as not to block windows, doors, or other means of ingress and egress.

F. Changeable Copy on On-Premise Signs

Except as authorized under *Sec. 4.7.4.A.2, Exception for Downtown*, changeable copy is allowed only on on-premise signs that are: in nonresidential districts, associated with nonresidential uses in the PDR District, or associated with places of worship and institutional uses in any district, subject to the following:

1. No more than 50% of the area of a sign can be devoted to changeable copy, except for signs for marquees which can devote up to 80% of sign area to changeable copy.

2. The display of copy does not change more than 8 times in one day, except for time and temperature displays.

3. Displayed copy cannot be animated, blinking, chasing, flashing, or have other moving effects. This provision does not restrict the copy from changing from one message to another.

G. Nonconforming Signs

1. All Signs

Signs that were lawful as of the effective date of the UDO but are not in conformance with current requirements are allowed to be maintained as nonconforming signs.

2. Off-Premise Signs

Certain off-premise signs, as defined in *Sec. 4.7.4, Prohibited Signs*, that were made nonconforming by previous ordinances but were allowed to continue beyond the amortization period in force for other off-premise signs may continue to exist until such point that compensation is not required for their removal under federal law, subject to the following restrictions, which are carried forward from previous ordinances, or are clarifications of such ordinances:

a. The signs and supporting structures may not be enlarged, moved to a different location in the City or County except by moving 1/100th of a mile on the same sign location or site as authorized by 19A NCAC 2E.0210(16), or improved through replacement by substantially different materials or in any other manner;

b. Lights and/or other electric or electronic features may not be added, and the intensity of lighting may not be increased;

c. The signs must operate in compliance with all other restrictions in *Sec. 4.7*, and the UDO, and other local regulations, including but not limited to prohibitions on sign operation and sign features contained in *Sec. 4.7.4.A* and *Sec. 4.7.4.B* and prohibitions on dilapidated and damaged signs contained in *Sec. 4.7.4.F* and *Sec. 4.7.4.G*.

d. The signs must be removed if repair or damage to the sign and structure exceeds 50% of value as determined by the criteria in 19A NCAC 2E.0225(f);

e. The signs must operate in compliance with all restrictions contained in federal and/or State law and regulation; and

f. The owner of such signs must maintain all necessary records and documents, including permits, required to be obtained under previous ordinances and/or State law or regulation, to demonstrate that the sign may continue to exist under the provisions of *Sec. 4.7.4.E*.

g. The restrictions contained in this section do not prohibit the City or County from requiring removal of any nonconforming off-premise sign when removal is accomplished in accordance with applicable law, including but not limited to federal and/or state requirements regarding compensation.

4.7.3. Signs Allowed in Right-of-Way

The following signs are allowed within the public right-of-way in all zoning districts. Where signs are permanent signs, they require a license agreement approved by the Public Works Director and/or an encroachment agreement approved by NCDOT. Signs allowed in the right-of-way must meet all other applicable requirements of the UDO.

A. Awning signs, bracket signs, canopy signs, marquee signs, projecting signs, and suspended signs projecting over a public right-of-way. All signs must be at least 18 inches inside the curb line or edge of pavement.

B. Entrance signs provided that the sign is consistent with an approved overall sign plan, site plan or subdivision plat.

C. Moveable signs.

D. Emergency warning signs erected by a government agency, utility company, or a contractor doing work in a public right-of-way.

E. Public signs erected by or on behalf of the City, County, State or Federal government.

F. Signs erected pursuant to a temporary use permit subject to the ordinances or regulations as may apply.

G. (City only) Signs erected in connections with elections, referenda, or current political events provided that they do not exceed 6 square feet per sign in area and are no more than 4 feet in height. The signs must be located so as not to obstruct drivers' vision clearances at intersections. These signs may be posted 45 days prior to an election in which a person identified on the sign is a candidate or item identified on the sign is on the ballot and must be removed within 15 days after the election or cessation of candidacy of all persons identified on the sign, whichever comes first. Along State rights-of-way such signs may require permits from NCDOT.

4.7.4. Prohibited Signs

The following signs are not allowed, and may neither be erected nor maintained:

A. Animated or Motion Signs

Signs with animated, blinking, chasing, flashing, or moving effects; however, this provision does not prohibit signs with an alternating display of time or temperature and signs with changeable copy pursuant to *Sec. 4.7.2.F, Changeable Copy on On-Premise Signs*.

1. General Prohibition

Except Downtown, signs with animated, blinking, chasing, flashing, or moving effects (including but not limited to sign faces that periodically change to show different images or messages) are not allowed, with the exception of signs that alternate the display of time or temperature and signs with changeable copy under *Sec. 4.7.2.F, Changeable Copy on On-Premise Signs*.

2. Exception for Downtown

In Downtown, signs with animated, blinking, chasing, flashing, or moving effects, including sign faces that periodically change to show different images or messages are allowed through the issuance of a minor special use permit pursuant to *Sec. 8.2.9, Special Use Permit*. In addition to the review factors in *Sec. 8.2.9.H, Review Factors*, the following review factors must also be considered:

a. The sign or signs are spaced so as to not lead to excessive animated signage in an area;

b. There is no negative impact upon traffic safety; and

c. There is artistic or historic merit or other design qualities that will have a positive impact on the Downtown.

B. Rotating Signs

Rotating or revolving signs.

C. Windblown or Inflated Signs

Fluttering, spinning, windblown or inflated devices including pennants, propeller discs, flags or banners which do not conform with the requirements of this Ordinance unless associated with a temporary use in the Downtown authorized under *Sec. 8.2.12, Temporary Use Permit*, and Sec. 3.6, Temporary Uses.

D. Portable Signs

Any sign not permanently attached to the ground or other permanent structure, including but not limited to signs:

1. With attached wheels;
2. Converted to A- or T-frame signs;
3. Menu and sandwich board signs. This provision does not apply to approved moveable sidewalk signs in *Sec. 4.7.7.F*;
4. Gas or hot air filled displays; and
5. Attached or painted on vehicles parked and visible from the right-of-way, unless the vehicle is used as a vehicle in the normal day-to-day operations of the business.

E. Off-Premise Signs

1. A sign that directs attention to a business, commodity, service or entertainment not conducted, sold, or offered on the premises where the sign is located, or which business, commodity, service, or entertainment forms only minor or incidental activity upon the premises where the sign is displayed. The sale of a commodity must be considered a minor activity if the commodity advertised is a specific brand or if the advertising content is not directly controlled, or has in the past not been directly controlled by the operator of the on-premise business. These product-oriented signs are considered on-premises signs if they comply with on-premise sign requirements.
2. Notwithstanding the prohibition in *paragraph 1., above*, the provisions of *Sec. 4.7.2.G, Nonconforming Signs*, apply to nonconforming off-premise signs located along federal and primary or interstate highways that were existing as of September 4, 1990, in the City or December 1, 1989, in the County and meet all requirements of *Sec. 4.7.2.G*.

F. Obsolete Signs

1. A sign relating to or identifying a business or activity that has not been conducted on the premises for 6 months or to a transpired election or event, or to a political party or non-profit organization that no longer exists.

2. The structure for a sign that is not allowed under the UDO if the structure cannot be used for a legal use or does not comply with the height, size, or other physical requirements of the UDO.

G. Dilapidated or Damaged Signs

A sign that has missing or broken panels, broken or damaged supports or frame, or otherwise displays inadequate maintenance, dilapidation, obsolescence or abandonment.

H. Signs Constituting Traffic Hazards

Any sign which constitutes a hazard to traffic including, but not limited to, signs located within the sight distance triangle of an intersection.

I. Signs Located in the Right-of-Way

Except those signs expressly allowed in rights-of-way in *Sec. 4.7.3, Signs Allowed in Right-of-Way*, all signs, including supports, frames, and embellishments, that are located within a public right of way or attached, affixed, or painted on any utility pole, light standard, utility box or pedestal, tree, rock, or other natural object located within the public right of way or on public property, except as expressly permitted by the City Public Works Director, County General Services Director, or NCDOT, as applicable.

J. All Other Unlisted Signs

All other signs that are not expressly exempt from regulation or expressly permitted under this section.

4.7.5. Signs Requiring a Sign Permit

A. Signs Allowed by Zoning District

	Residential	Residential Mixed Use	Commercial Mixed Use	Commercial	Employment	Institutional	Open Space	Standards
	R-A, R-B R-C, R-D	RX-	CX-	CN CG, CH	IX, IH IU, IC	CIV	PK, CON	
Building Signs								
Awning sign	--	□	■	■	■	■	■	*4.7.5.B*
Canopy sign	--	--	■	■	■	■	■	*4.7.5.C*
Painted sign	□	□	■	■	■	■	■	*4.7.5.D*
Projecting sign	--	--	■	■	■	■	■	*4.7.5.E*
Wall sign	□	□	■	■	■	■	■	*4.7.5.F*
Freestanding Signs								
Bracket sign	□	□	■	■	■	■	■	*4.7.5.G*
Entrance sign	■	■	■	■	■	■	■	*4.7.5.H*
Monument sign	□	--	--	■	■	■	■	*4.7.5.I*
Special Signs								
Crown sign	--	■	■	--	■	■	--	*4.7.5.J*
Marquee sign	--	--	■	■	--	--	--	*4.7.5.K*
Suspended sign	□	□	■	■	■	■	■	*4.7.5.L*
Roof sign	--	--	■	■	■	■	■	*4.7.5.M*

■ = Allowed □ = Allowed for nonresidential uses only -- = Not allowed

B. Awning Sign

1. Definition

A building sign where graphics or symbols are painted, printed, sewn, or otherwise adhered to the material of an awning.

2. General Standards

Must be placed on the face or the valance of the awning that is parallel to the building face.

Only an awning over a ground-story door or window can contain a sign.

Cannot be illuminated.

3. Number of Signs

Maximum of 1 sign per awning.

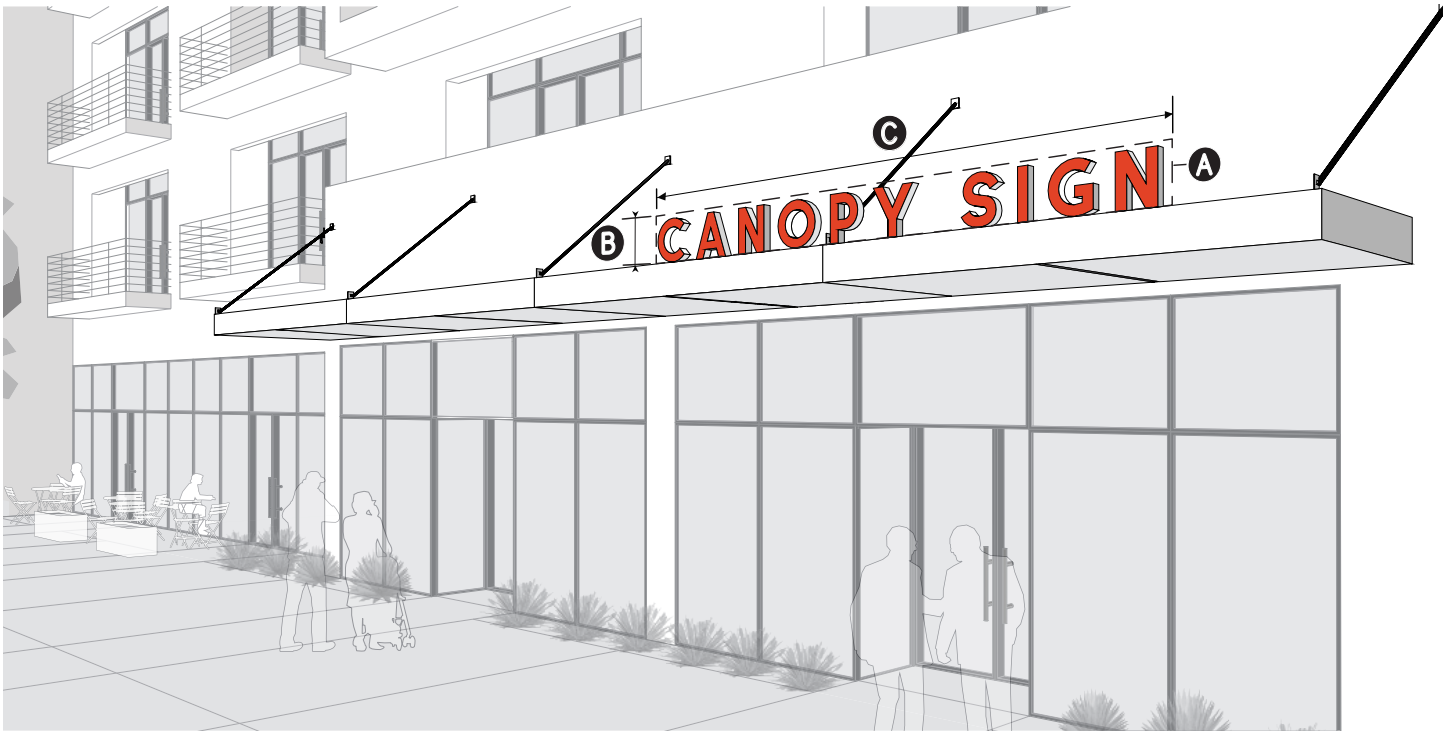
4. Total Sign Area

Combined area of all building signs (max)	1.5 SF per linear foot of building frontage or 32 SF, whichever is greater

5. Individual Sign Dimensions

A Area (max)	40 SF
B Height (max)	1'
C Width (max)	60% of awning

C. Canopy Sign



1. Definition

A building sign attached to a canopy.

2. General Standards

Can extend above or below the canopy; however, cannot extend outside the overall length or width of the canopy.

The sign must be parallel to the plane of the building face.

Only a canopy over ground-story doors or windows can contain a canopy sign.

Can be externally and internally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 1 sign per canopy.

4. Total Sign Area

Combined area of all building signs (max)	1.5 SF per linear foot of building frontage or 32 SF, whichever is greater

5. Individual Sign Dimensions

A Area (max)	40 SF
B Height (max)	1'
C Width (max)	60% of canopy

D. Painted Sign

1. Definition

A building sign painted on the exterior wall of a building or structure.

2. General Standards

Must be executed by a professional sign painter.

If located within a mural,only areas including text count towards sign area.

Can only be externally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 1 sign per lot or 30' of building frontage, whichever is greater.

4. Total Sign Area

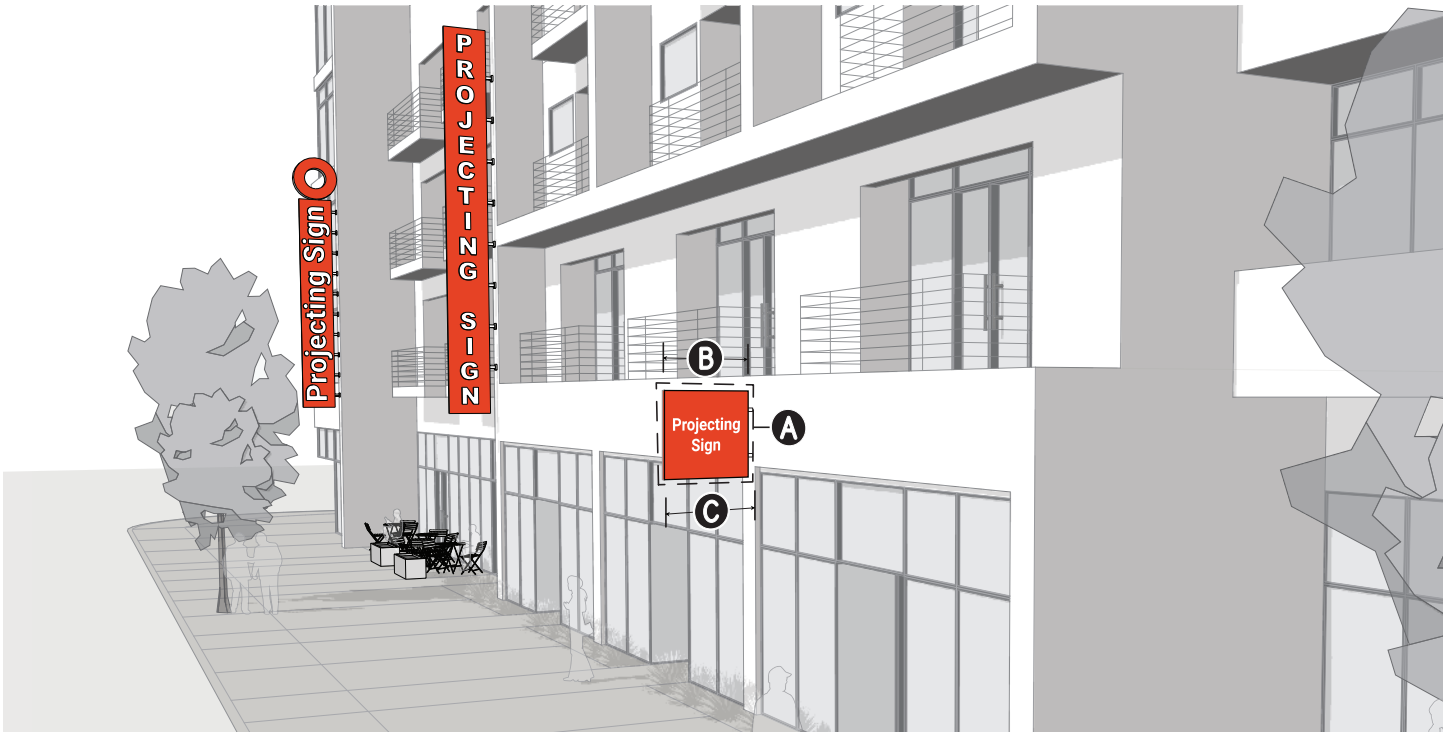
Nonresidential District: maximum of 1 sign per lot or 30' of building frontage, whichever is greater.

Residential District: maximum of 1 sign per building.

5. Individual Sign Dimensions

Ⓐ Area (max)	
Nonresidential District	60 SF
Residential District	30 SF

E. Projecting Sign



1. Definition

A building sign extending at a 90-degree angle from the exterior wall of a building or structure.

2. General Standards

Must be at least 15 feet from any other projecting sign or suspended.

Cannot extend above the top of the building roof line or parapet.

Can be externally and internally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 1 sign per lot or 30' of building frontage, whichever is greater.

4. Total Sign Area

Combined area of all building signs (max)	1.5 SF per linear foot of building frontage or 32 SF, whichever is greater

5. Individual Sign Dimensions

A Area (max)	60 SF
B Height (max)	12'
C Depth (min/max)	1'/6'

F. Wall Sign

1. Definition

A building sign attached flat to the exterior wall of a building or structure, located on the lower portion of a building or structure. For purposes of this section only, a "wall" includes any permanent architectural extension of a wall, including parapets, unless that extension serves solely as the framing for a sign support structure or sign face, even if such extension projects beyond or above the enclosed portions of the building.

2. General Standards

Must be located below the window sills of the 2nd story on a multi-story building or below the roof line on a single-story building.

Cannot extend above the top of the building roof line or parapet.

The sign can not extend beyond the edges of the wall to which it is attached, except when the sign is contiguous on two adjacent walls of the same building, the connecting portion may extend to but not beyond the face of the adjoining portion.

Can be externally and internally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Nonresidential District: maximum of 1 sign per lot or 30' of building frontage, whichever is greater.

Residential District: maximum of 1 sign per building.

4. Total Sign Area

Combined area of all building signs (max)	1.5 SF per linear foot of building frontage or 32 SF, whichever is greater

5. Individual Sign Dimensions

Ⓐ Area (max)	
Nonresidential District	60 SF
Residential District	30 SF
Ⓑ Depth (max)	1'

G. Bracket Sign

1. Definition

A freestanding sign comprised of a vertical pole, a horizontal decorative sign support, and a suspended sign face.

2. General Standards

Must be located at least 30 feet from any other freestanding sign

Can only be externally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 1 sign per lot or 30' of street frontage, whichever is greater.

4. Total Sign Area

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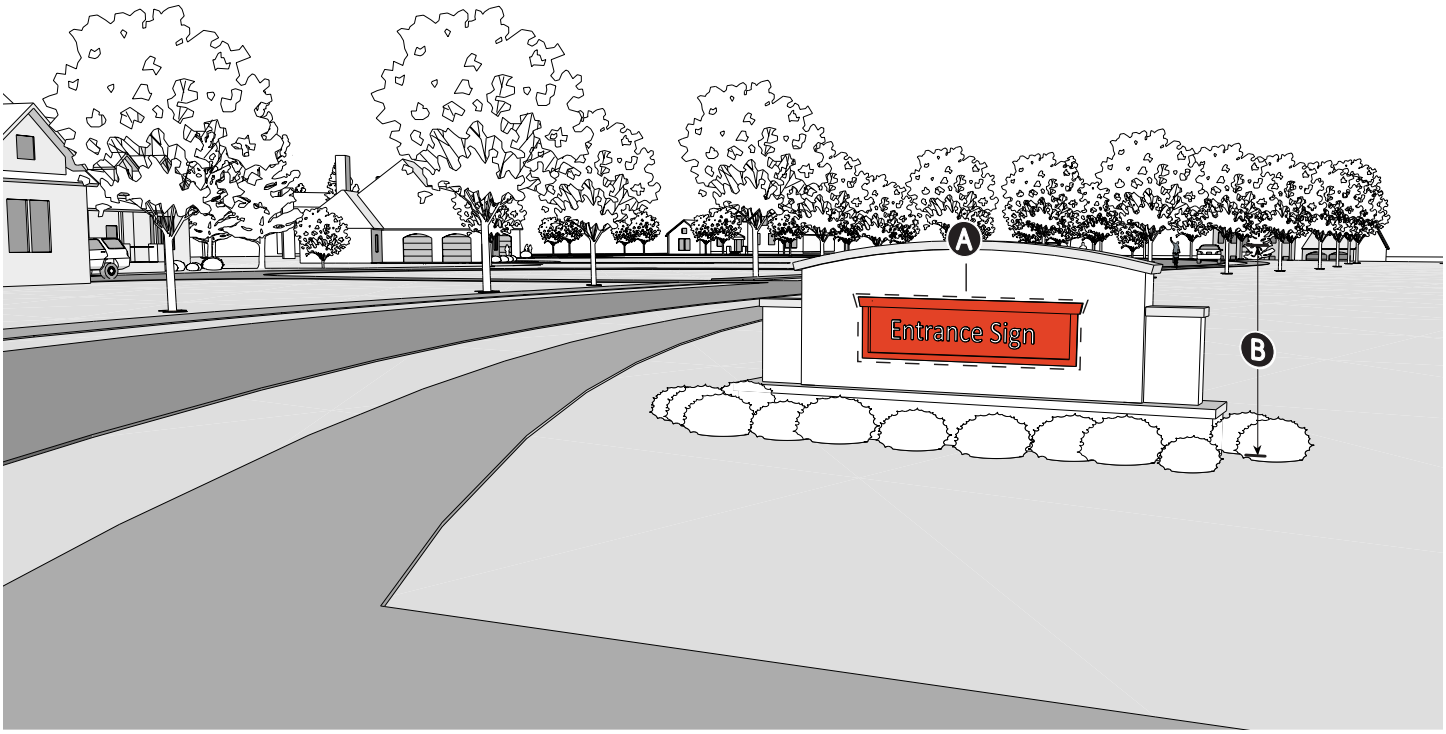
5. Individual Sign Dimensions

A Area (max)	9 SF
B Height (max	6'

H. Entrance Sign



1. Definition

A freestanding sign attached to the ground along its entire length placed near a entrance into a development.

2. General Standards

Must be located within 25 feet of a subdivision or development entrance.

Must be located at least 30 feet from any other freestanding sign

Must be set back at least 10 feet from any lot line.

Sign must be incorporated into a permanent landscape feature such as a wall or masonry column.

Can only be externally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 2 signs for each subdivision or development entrance.

4. Total Sign Area

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5. Individual Sign Dimensions

A Area (max)	12 SF
B Height (max)	6'

I. Monument Sign

1. Definition

A freestanding sign attached to the ground along its entire length.

2. General Standards

Must be located at least 30 feet from any other freestanding sign

Must be set back at least 10 feet from any lot line.

A defined landscaped area must be provided at the base of the sign - see XX.

Can be externally and internally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 1 sign per street frontage.

Additional signs allowed when street frontage exceeds 300 feet with an approved common signage plan. There must be a minimum of 150 feet between signs.

4. Total Sign Area

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5. Individual Sign Dimensions

(A) Area (max)	
Nonresidential District	
Street frontage <150 feet	32 SF
Street frontage 150 feet or more	80 SF
Residential District	
Street frontage <150 feet	12 SF
Street frontage 150 feet or more	32 SF
(B) Height (max)	6'

J. Crown Sign

1. Definition

A special sign attached flat to the exterior wall of a building or structure, located on the upper band of a building.

2. General Standards

Can have crown signs or roof signs - can't mix them on a building.

Only allowed on buildings at least 4 stories in height.

Cannot be placed below the start of the 4th story.

Cannot extend above the top of the building roof line or parapet.

Can be externally and internally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 2 signs allowed per building, with a maximum of 1 sign per building facade.

4. Total Sign Area	
--	--
5. Individual Sign Dimensions	
Ⓐ Area (max)	
4 to 6 stories	200 SF
7 to 10 stories	300 SF
10 to 20 stories	400 SF
More than 20 stories	500 SF
Ⓑ Depth (max)	3'

K. Marquee Sign

1. Definition
A special sign attached to a marquee.
2. General Standards
Cannot extend above, below or outside of the overall length or width of the marquee.
Only allowed on a fully permitted marquee.
Can only be internally illuminated - see *Sec. 4.7.6*.
3. Number of Signs
Maximum of 1 sign per establishment.

4. Total Sign Area	
--	--
5. Individual Sign Dimensions	
Ⓐ Area (max)	350 SF
Ⓑ Height (max)	8’
Depth (max)	1’

L. Suspended Sign

1. Definition

A special sign attached to the building facade at a 90-degree angle that hangs from a bracket or support

2. General Standards

The hanging bracket must be an integral part of the sign design.

Must be located below the window sills of the 2nd story on a multi-story building or below the roof line on a single-story building.

Must be located at least 15 feet from any other suspended sign or projecting sign.

Can only be externally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 1 sign per establishment.

4. Total Sign Area

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5. Individual Sign Dimensions

A Area (max)	6 SF
B Height (max)	3'
C Depth (min/max)	1'/3'

M. Roof Sign

1. Definition

A special sign erected on a roof of a building consisting of channel letters, graphic segments, open lighting elements, or other open forms affixed to a non-solid panel sign support structure.

2. General Standards

Can have roof signs or crown signs - can't mix them on a building.

Only allowed on buildings at least 4 stories in height.

Must be located on the roof of a building.

Can be externally and internally illuminated - see *Sec. 4.7.6*.

3. Number of Signs

Maximum of 2 signs allowed per building, with a maximum of 1 sign per building facade.

4. Total Sign Area

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5. Individual Sign Dimensions

A Area (max)	200 SF
B Height (max)	10'

4.7.6. Illumination

A. Prohibited Light Sources

The following light sources are not allowed:

1. Blinking, flashing and chasing.
2. Bare bulb illumination.
3. Colored lights used in any manner so as to be confused with or construed as traffic control devices.
4. Direct reflected light that create a hazard to operators of motor vehicles.

B. Brightness

The light from any illuminated sign must not be of an intensity or brightness that will interfere with the peace, comfort, convenience, and general welfare of residents or occupants of adjacent properties.

C. Internal Illumination

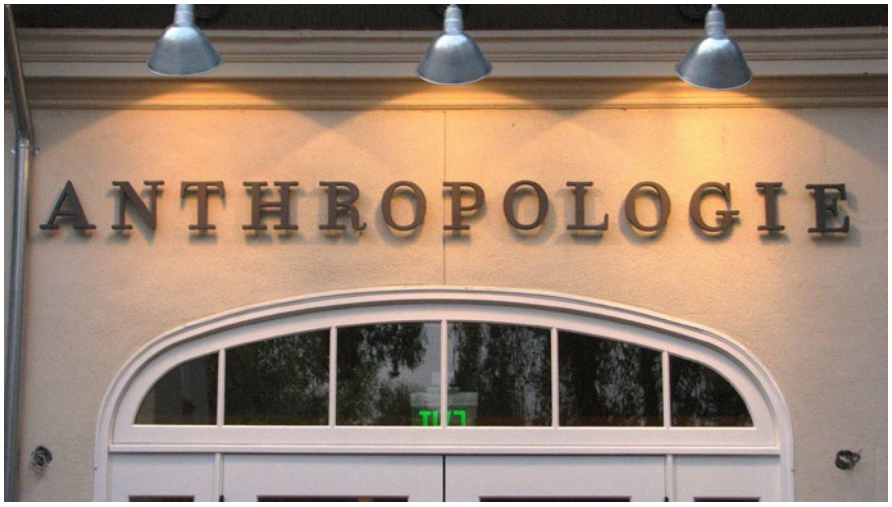
1. Illuminated signs using channel letters must be internally lit or back-lit.

2. For internally illuminated signs on a background, the background must be opaque or a darker color than the message of the sign.

D. External Illumination

1. Lighting directed toward a sign must be shielded so that it illuminates only the face of the sign and does not shine directly onto public right-of-way or adjacent properties.

2. Projecting light fixtures used for externally illuminated signs must be simple and unobtrusive in appearance, and not obscure the sign.



4.7.7. Signs Allowed Without a Sign Permit

A. General

1. The signs under this section are allowed in all zoning districts.
2. No sign permit is required; however, the property owner's consent is required before erecting a sign without permit.

B. Flags

1. Flags are any fabric or other flexible material designed to be flown from a pole.
2. References to the number of flags and flagpoles and flag dimensions refer to both vertical flagpoles and mast arm flagpoles, such as staffs extending at an angle from a building.
3. Except as otherwise provided herein flags must be displayed on flagpoles.
4. In a Residential District, a flagpole cannot exceed 25 feet in height unless a special use permit is granted by the Board of Adjustment. A fee cannot be charged for a use permit request for a flag in a Residential District.
5. In all other districts, a flagpole cannot exceed the maximum height allowed in the zoning district or 70 feet, whichever is less. A flagpole cannot be placed on top of buildings unless they are located in Downtown.
6. A vertical flag pole must be set back from all lot lines a distance which is at least equal to the height of the pole.
7. The maximum dimensions of any flag must be proportional to the flagpole height. In addition, flags are subject to the following dimensional limitations:

Pole Height	Maximum Flag Size
Up to 25'	24 SF
25' to 29'	28 SF
30' to 34'	40 SF
35' to 39'	60 SF
40' to 49'	96 SF
50' to 59'	150 SF
60' to 70'	216 SF

8. Each property is be allowed a maximum of 3 flagpoles unless a special use permit is granted by the Board of Adjustment.
9. A maximum of 3 flags is allowed per flagpole.
10. The flag and flagpole must be maintained in good repair. A flagpole with broken halyards shall not be used and flags which are torn or frayed shall not be displayed.

C. Incidental Signs

A small sign intended to provide incidental messaging on a site.

1. General

Incidental signs can be internally or externally illuminated - see *Sec. 4.7.6*.

2. Single Unit/Two Unit Uses

a. Maximum area of an individual incidental sign is 4 square feet.

b. Maximum of 1 incidental sign is allowed per lot.

c. If placed on the ground, an incidental sign cannot be more than 3 feet in height and must be set back at least 5 feet from any lot line.

3. All Other Uses

a. Maximum total combined incidental sign area is 85 square feet per lot.

b. Maximum area of an individual incidental sign is 20 square feet.

c. If placed on the ground, an incidental sign cannot be more than 5 feet in height and must be set back at least 5 feet from any lot line.

D. Temporary Signs

A sign which not designed or intended to be installed permanently.

1. General

Temporary signs cannot be illuminated.

2. Single Unit/Two Unit Uses

a. Maximum total combined temporary sign area is 12 square feet per lot.

b. Maximum area of an individual temporary sign is 6 square feet.

c. Maximum of 2 temporary signs are allowed per lot.

d. If placed on the ground, a temporary sign cannot be more than 3 feet in height and must be set back at least 3 feet from any lot line.

e. Signs can be temporarily installed for a period not exceeding 30 consecutive calendar days, up to 2 times per 12 month period. On construction sites, temporary signs can be installed for as long as active construction work is taking place, all temporary signs must be removed prior to the issuance of a Certificate of Compliance.

3. All Other Uses

a. Maximum total combined temporary sign area is 64 square feet per lot.

b. Maximum area of an individual temporary sign is 32 square feet.

c. Maximum of 4 temporary signs are allowed per lot.

d. Signs can be temporarily installed for a period not exceeding 30 consecutive calendar days, up to 2 times per 12 month period. On construction sites, temporary signs can be installed for as long as active construction work is taking place, all temporary signs must be removed prior to the issuance of a Certificate of Compliance.

e. If placed on the ground, a temporary sign cannot more than 6 feet in height and must be set back at least 5 feet from any street lot line or 15 feet from any common lot line.

E. Window Signs

A sign affixed to the inside of a window or door, or a sign placed within a building less than 6 feet from a window or door so as to be plainly visible and legible through a window or door.

1. Window signs may be displayed on ground floor windows and doors only.
2. Maximum area of all window signs is 20% of the area of a single window pane or 20% of the aggregate area of all immediately adjacent window panes separated by a mullion, muntin or grid no greater than 6 inches in width.
3. Window signs cannot be illuminated except 1 exposed neon window sign stating "open" not greater than 5 square feet is allowed, limited to 1 per establishment.

F. Moveable Signs on Sidewalk

A movable sign wholly independent of a building for support but not permanently secured or attached to the ground located on a sidewalk.

1. A moveable sign cannot be permanently attached in any way to the sidewalk, and cannot be chained or attached in any way to street furniture, other signs, street trees, other landscaping, or other fixtures or appurtenances on or in the sidewalk.
2. A moveable sign can be located within the right-of-way only on sidewalks.
3. One moveable sign is allowed for each street facing entrance, and no more than one may be placed per business on the same street face.
4. The sign can be located no more than 10 feet from the main pedestrian entrance. This distance can be increased only by the minimum amount necessary to achieve the minimum width for pedestrian clearance.
5. The sign cannot impair the ability of pedestrians or cyclist to use the sidewalk. There must be a minimum of 6 feet of clear distance of sidewalk at all times.
6. Each moveable sign cannot exceed 2.5 feet in width and 4 feet in height.
7. The sign must be removed each day by the close of business.
8. The sign cannot be illuminated.

4.7.8. Landmark Signs

A. Privileges

Signs which have been officially designated as Landmark Signs pursuant to *Sec. 8.2.19, Historic District or Landmark Designation*, and which retain those dimensional, locational, and lighting standards that the sign possessed when it received such a designation enjoys the following privileges.

1. Is allowed to remain on roofs or exceed height limits found elsewhere in the UDO.
2. Is allowed to exceed dimensional limits found elsewhere in the UDO.
3. Is allowed to remain in a right-of-way unless it becomes a hazard to traffic.
4. Is allowed to retain its original lighting patterns and materials.

B. Regulations

1. The following regulations apply to signs which have been designated as Landmark Signs.
2. The voluntary removal of a Landmark Sign by an owner is allowed.
3. Alterations to a Landmark Sign is not allowed without the issuance of a Certificate of Appropriateness by the Historic Preservation Commission using the criteria used in *Sec. 8.2.20, Certificate of Appropriateness*.

4.7.9. Elements of Common and Way-Finding Signage Plans

A. Elements of a Common Signage Plan

The common signage plan consists of elements:

1. Location

Identification of sign locations on buildings or property.

2. Materials and Illumination

Description of the type of sign and sign materials, including construction materials and proposed lighting if any.

3. Size

a. Itemization of sign size or band area at identified locations.

b. Allocation of sign area for multi-tenant structures may favor one tenant or series of tenants over another, provided the property owner identifies the available sign area per tenant.

4. Letter Style

a. Description of dominant letter style and letter height to be used on the signs.

b. The use of federally registered trademarks (logos) can be incorporated into the plan.

c. Text not associated with a trademark shall be consistent with the font of a trademark.

5. Color

a. Listing of the colors to be used on each sign.

b. A maximum of 3 colors plus either black or white are allowed in a single common plan. Any neon lighting for building signage must be matched to an approved color specified on the signage plan in order to be included as a part of the color scheme.

B. Elements of a Way-Finding Signage Plan

1. Location

All proposed locations along right-of-way within the development must be identified.

2. Sign and Type

Sign sizes and types to be used must be identified.

3. Font, Symbols, and Color

Fonts, symbols, and colors to be used must be identified and meet the following criteria:

a. A maximum of two fonts can be used; one for the overall development name and one for the names of sub-sections or tenants of the development.

b. A maximum of two font sizes can be used; one for the overall development name and one for the sub-sections or tenants of the development.

c. If a unified development has both a common signage plan and a way-finding signage plan, the same fonts must be used in both plans.

d. The following logos or symbols are allowed:

i. Logo associated with the name of the unified development.

ii. Directional arrows.

e. A maximum of 3 colors plus either black or white are allowed. If a unified development has both a common signage plan and a way-finding signage plan, the same colors must be used within both plans.

4. Lighting and Materials

The lighting and materials to be used must be indicated.

C. Approval Procedure

The approval procedure for common and way-finding signage plans is set forth in *Sec. 8.2.11, Common and Way-Finding Signage Plans*.

SEC. 4.8. LIGHTING

4.8.1. Outdoor Lighting

A. Intent

To assure that adequate exterior lighting is provided for nonresidential and multifamily developments to facilitate crime prevention, security, and safe passage, and that exterior lights be shielded so that the light cast beyond the property line does not exceed the limits in accordance with these standards.

B. Applicability

1. New Fixtures

All outdoor on-site lighting fixtures for nonresidential and multifamily developments installed after the effective date of the UDO.

2. Existing Fixtures

a. Routine maintenance, including changing the lamp, ballast, starter, photo control, fixture housing, lens and other required components, is allowed for all existing fixtures.

b. The installation of new site lighting, replacement of existing lighting, and any modifications to light fixture wattage, fixture type, mounting, or fixture location must comply with the requirements of this Section.

c. Lighting fixtures existing as of June 12, 2000 may remain, and are considered nonconforming structures. Modifications, replacement or expansions, must conform to the standards of this Section.

3. Exemptions

a. Outdoor lights required by the Federal Aviation Administration.

b. Outdoor lights used for a temporary event; permitted through a temporary use permit.

c. Outdoor lights used exclusively for recreational activities, concerts, plays or other outdoor events that are open to the public, provided that the light fixtures are located at least 100 feet from any adjacent residential use and the event or function meets all other applicable zoning requirements. Time limits are as follows:

i. No limits within the UC, UC-2, and Downtown Districts.

ii. In all other districts, lights can not be illuminated between the weekday hours of 12:00 a.m. and 8:00 a.m. and between the hours of 1:00 a.m. and 8:00 a.m. on Saturday and Sunday.

iii. In the CH and IH districts, illumination may be extended until 3:00 a.m. on weekdays and 5:00 a.m. on Saturday and Sunday with the approval of a minor special use permit per *Sec. 8.2.9, Special Use Permit*. Additionally, the review factors in *Sec. 8.2.9.H, Review Factors*, to be considered are limited to *Sec. 8.2.9.H.2.d, Lighting*; *Sec. 8.2.9.H.2.j, Effect on Nearby Properties*; Sec. 8.2.9.H.2.k, Compatibility; and *Sec. 8.2.9.H.2.i, Consistency with Policy*.

d. Outdoor lighting exempted pursuant to *b.* and *c.* above can only be illuminated while the activity takes place and during high traffic periods immediately before and after the event.

C. Prohibited Lighting Sources

The following light fixtures and sources are not allowed:

1. Cobra-head-type fixtures with dished or drop lenses or refractors, which contain sources that are not incandescent.
2. Temporary searchlights and other high-intensity narrow-beam moving fixtures that shine light directly up to the sky.
3. Blinking or flashing lights shall be prohibited unless the lights are required as a safety feature (e.g. beacons on towers) or allowed as part of a sign in accordance with *Sec, 4.7, Signs*.
4. The direct or reflected light from any outdoor light source must not create a traffic hazard to operators of motor vehicles or to operators of aircraft.
5. No colored lights may be used in such a way as to be confused or construed as street-traffic control or air-traffic control devices.

D. General Illumination Standards

1. All site lighting must be designed so that the level of illumination as measured in foot-candles (fc) at all points meets the standards in the table below with minimum and maximum levels measured on the pavement within the lighted area.

	LIGHTING LEVELS (IN FOOT-CANDLES)	
TYPES OF LIGHTING	**Minimum**	**Maximum**
Architectural lighting, landscape or decorative lighting, and walkways except for those listed below	0.0	5.0
Canopy area lighting	2.0	24.0
Pedestrian passages and malls (Article 16)	1.0	15.0
Multifamily parking Lot	0.5	8.0
Nonresidential parking lot	0.5	10.0
Nonresidential and multifamily entrance	1.0	15.0
On-site walkways between building entrances, between parking and a building entrance, or serving to meet sidewalk requirements per *Sec. 4.2, Pedestrian and Bicycle Mobility.*	0.2	5.0
Storage area (security lighting)	0.5	10.0
Vehicle sales and display	0.5	24.0

2. The maximum illumination permitted at the edge of a property line is set forth below. Where a development is unified with shared parking or other measures shown on a site plan, the maximum illumination levels apply only to the exterior lot lines of the project (any interior lot lines are exempt from this paragraph).
3. The maximum illumination at the edge of the property line adjacent to a Residential District is 0.5 foot-candles.

4. The maximum illumination at the edge of the property line adjacent to a Nonresidential District is 5.0 foot-candles.

5. The maximum illumination at the edge of the property line adjacent to a street is 5.0 foot-candles.

E. Design and Installation

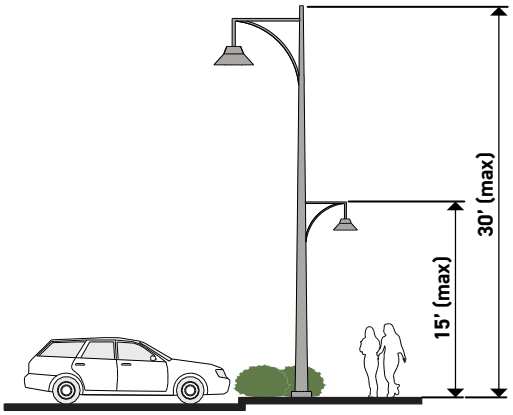
1. Outdoor lighting cannot be oriented onto adjacent properties, streets or sidewalks.

2. Service connections for all freestanding lighting fixtures must be installed underground.

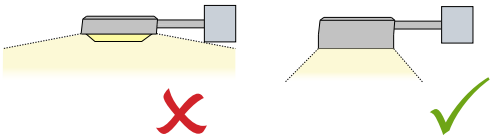
F. Parking and Pedestrian Area Lighting

1. Light fixtures within parking lots and motor vehicle use areas can be no higher than 30 feet.

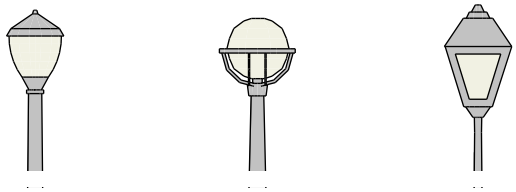
2. Light fixtures within pedestrian areas mounted on poles may be no higher than 15 feet.



3. All light fixtures must be full cutoff (shielded), except as listed below.

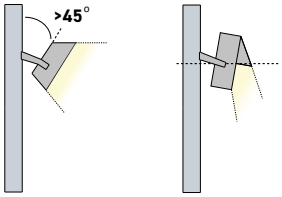


4. Non-cutoff (unshielded) fixtures can be used when the maximum initial lumens generated by each fixture is less than 9,500. These fixtures generally feature globes or vertical glass planes and must be coated with an internal white frosting to diffuse light.

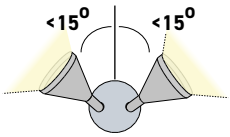


G. Flood Lights and Flood Lamps

1. Flood light fixtures must either be aimed down at least 45 degrees from vertical or the front of the fixture shielded so that no portion of the light bulb extends below the bottom edge of the shield.

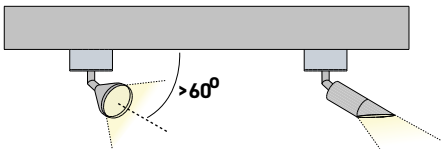


2. Any flood light fixture located within 50 feet of a street right-of-way must be mounted and aimed perpendicular to the right-of-way, with a side-to-side horizontal aiming tolerance not to exceed 15 degrees.



Overhead View

3. All flood lamps emitting 1,000 or more lumens must be aimed at least 60 degrees down from horizontal or shielded so that the main beam is not visible from adjacent properties or the street right-of-way.

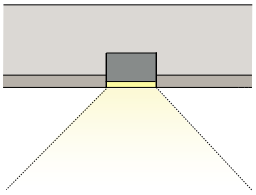


H. Canopies

Outdoor lighting under canopies must be designed to prevent glare off-site. Acceptable lighting designs include the following:

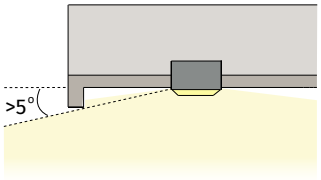
1. Recessed

Recessed fixture incorporating a lens cover that is either recessed or flush with the bottom surface of the canopy.



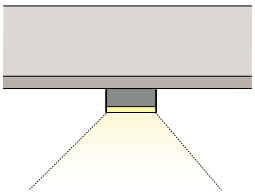
2. Shielded

Light fixture incorporating shields or is shielded by the edge of the canopy itself, so that light is restrained to 5 degrees or more below the horizontal plane.



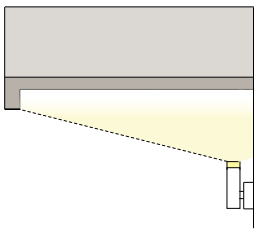
3. Surface Mounted

Surface mounted fixture incorporating a flat glass that provides a cutoff design or shielded light distribution.



4. Indirect

Indirect lighting where light is beamed upward and then reflected down from the underside of the canopy, provided the fixture is shielded so that direct illumination is focused exclusively on the underside of the canopy.



I. Building Lighting

1. Outdoor lighting fixtures must be selected, located, aimed and shielded so that direct illumination is focused exclusively on the building facade, plantings and other intended site features and away from adjoining properties and the street right-of-way.

2. All wall pack fixtures must be full cutoff fixtures.

3. Only lighting used to accent architectural features, landscape or art may be directed upward, provided that the fixture is located, aimed or shielded to minimize light spill into the night sky.

J. Measurement

1. Light levels are specified, calculated and measured in footcandles. All footcandles values are maintained footcandles.
2. Measurements are to be made at ground level, with the light-registering portion of the meter held parallel to the ground pointing up.

SEC. 4.9. GENERAL PERFORMANCE STANDARDS

4.9.1. Air Pollution

Any activity which releases smoke, particulate matter, gases or contaminants into the atmosphere must comply with all applicable federal and State regulations.

4.9.2. Fire, Explosion and Storage of Flammable Materials

All activities must comply with the Fire Codes of the appropriate jurisdiction.

4.9.3. Hazardous Materials and Wastes

All activities must comply at a minimum with all applicable State and federal regulations as well as the appropriate County Health Department regulations and City and County fire department regulations for hazardous materials and wastes.

4.9.4. Electromagnetic Transmissions

All activities must control electromagnetic frequencies so that there is no interference in the operation of equipment off-site and no adverse effects to persons off-site.

4.9.5. Waste Products

Any activity which discharges material or liquids into sanitary sewers must conform with all federal, State and local discharge and release regulations. City and County sanitation ordinances may also apply. All storage areas, waste disposal areas, and trash handling facilities must be designed to prevent wind blown debris from leaving the site. The drainage of waste or stored materials onto adjacent properties or directly into creeks and watercourses or into the stormwater conveyance system is prohibited. Only uncontaminated stormwater runoff may be discharged into the stormwater conveyance system.

4.9.6. Radiation

All activities must comply with all federal and State regulations which apply to the handling, storage, and disposal of nuclear material.

4.9.7. Noise

Noise is regulated by Article II, Noise, of Chapter 26, Environment, Litter, Vandalism and Pollution the Durham City Code or Article II of Chapter 14 (Environment) of the Durham County Code, as appropriate.

4.9.8. Building Code and Accessibility

All activity must comply with any applicable State or federal building code and accessibility regulations, as determined by the City-County Inspections Department.

ARTICLE 5.

OVERLAY DISTRICTS

SEC. 5.1. AIRPORT OVERLAY (-A60, -A65)

5.1.1. Purpose

The Airport Overlay is established to contribute to the safe operation of airports, to facilitate orderly development around airports, and to control and minimize impacts on surrounding activities. It is also intended to encourage land use patterns which are appropriate for the airport vicinity and public safety by avoiding concentrations of population. Standards are provided to ensure an attractive entrance to the area in order to encourage trade and commerce and maintain economic vitality.

5.1.2. Applicability

The Airport Overlay applies to properties near the Raleigh-Durham Airport. The specific boundaries are defined on the Official Zoning Map and are imposed on property as an addition to the underlying zoning district. The boundaries generally follow physical boundaries which are identifiable on the landscape and are related to the airport noise contours as determined by the Raleigh-Durham Airport Authority. The Airport Overlay is divided into two suboverlays which are further described below:

A. -A65

An area found within the 65 Ldn of the Raleigh-Durham Airport and shown on the Official Zoning Map.

B. -A60

An area located outside the 65 Ldn but within the 60 Ldn of the Raleigh-Durham Airport and shown on the Official Zoning Map.

5.1.3. Allowed Uses and Prohibitions

A. Allowed Uses in -A65

Only the following uses are allowed, consistent with the use permissions of the underlying zoning district as specified in *Sec. 3.3, Use Table (Residential, Public and Civic, and Agricultural Uses)*.

B. Allowed Uses in -A60

All uses in the underlying zoning district are allowed, pursuant to *Sec. 3.3, Use Table*, with the exception of outdoor firing ranges.

C. Prohibited Lighting

The lighting types below are not allowed:

1. Any moving, pulsating, flashing, rotating, or oscillating light, which may interfere with air traffic other than navigational markings or lights marking potential obstructions in accordance with Federal Aviation Administration requirements.

2. Flood lights, spot lights, or other lighting devices which are not shielded so as to prevent illumination in an upward direction.

3. Any light which constitutes a "misleading light" within the meaning of Federal Aviation Administration regulations.

D. Prohibited Electronic Signals

Any electronic impulse or signal which interferes with communications between aircraft and the airport, or which interferes with established navigation aids are not allowed.

E. Prohibited Heights

Structures and signs of a height which obstruct the takeoff and landing of aircraft, as determined by the Federal Aviation Administration, are not allowed.

5.1.4. Additional Requirements

A. The Raleigh-Durham Airport Authority has the opportunity to review applications for a special use permit, variance, zoning map change, subdivision, or site plan approval within the airport overlay prior to a decision by the approving authority. All development must also comply with the airspace regulations adopted by the Raleigh-Durham Airport Authority. Whenever the airspace regulations impose more stringent requirements or limitations than are required by this UDO, the provisions of the airspace regulations prevail.

B. Residential development within the Airport Overlay must demonstrate that aircraft noise exposure within the dwellings will not exceed decibel levels of 45 Ldn and be certified by an acoustical engineer or a board certified member of the Institute of Noise Control Engineering. Measures for reducing noise exposure may include: orientation of structures, design standards, landscaping, or construction materials used in walls, windows, doors, roofs, floors, or ceilings. Design guidelines for noise reduction are available from publications of the Raleigh-Durham Airport Authority.

C. Residential development within the Airport Overlay must ensure that purchasers of the dwellings will be notified that the property may be subject to noise exposure from aircraft using Raleigh-Durham Airport. Measures used to notify purchasers may include notices on plats or deeds.

D. Nonconforming uses may be continued subject to the regulations found in *Sec. 8.3*. However, no building permit can be issued which would allow a greater hazard (for example: more units, or brighter lighting) to public safety than existed at the time of adoption of this UDO.

5.1.5. Aviation Easement

The developer of new development in the Airport Overlay-A60 or –A65 must grant an aviation easement to the Raleigh-Durham Airport Authority for the subject property. A copy of the recorded aviation easement must be provided to the Planning Director prior to approval of a site plan or preliminary/ minor plat for the subject property. The easement must, at a minimum, convey a perpetual right and easement for the free and unobstructed overflight of aircraft over and in the vicinity of the property. The easement must be appurtenant to the property, and must not be subordinated to any other interest such as mortgage or lien.

SEC. 5.2. MAJOR TRANSPORTATION CORRIDOR OVERLAY (-MTC)

5.2.1. Purpose

A. The Major Transportation Corridor Overlay (-MTC) is established to enhance the economic and aesthetic appeal and orderly development of properties adjacent to major transportation corridors. Certain arterial streets, parkways and expressways are of critical importance to Durham City and County.

B. Rights-of-way carrying high volumes of traffic are image makers for Durham City and County. They act as entryways for visitors and residents and also serve as an indicator of the quality of life found in the area. Standards are provided to ensure that highways, freeways, and other similar high-volume rights-of-way in this overlay develop with improved traffic efficiency and safety by reducing visual clutter and avoiding inappropriate site design.

5.2.2. Applicability

Except in design districts, the MTC Overlay applies to all property within 1,250 feet of a designated right-of-way, and may extend up to 2,500 feet at intersections. The actual boundaries are determined at the time of adoption of the MTC Overlay and are shown on the Official Zoning Map. The MTC Overlay is measured perpendicular to the edge of:

A. The right-of-way of the limited access highway; or

B. The right-of-way for a frontage road, if present.

5.2.3. Buffer Requirements

A. Location of Buffers

A buffer must be provided along the perimeter of the property line adjacent to the designated right-of-way.

B. Buffer Width

1. The buffer width must be no less than 30 feet and no more than 100 feet. The actual buffer width is determined at time of adoption of the overlay. In determining the width of the buffer, the governing body must consider the following factors:

    a. The topography of the area;

    b. The existing and proposed land uses;

    c. The size of the adjacent parcels;

    d. The traffic volumes of the corridor; and

    e. Any additional factors the governing body deems reasonable in carrying out the purpose of the UDO.

2. The following buffer widths must be provided for the following designated rights-of-way:

MTC Overlay	Buffer Width (Feet)	Segment
I-40	100'	Orange County line to Research Triangle Park
I-40	100'	Research Triangle Park to Wake County Line
I-85	50'	Avondale Ave. to US Highway 70
I-85	100'	US Highway 70 to Granville County Line
I-540	50'	Wake County line to Wake County line

C. Allowed Activity in Buffer Area

1. Within the buffer area, existing vegetation must be maintained in a natural, undisturbed state. In areas where the existing vegetation provides inadequate screening, the property owner or applicant must install vegetation that meets the opacity standards of Sec. 9.4.4.A, Natural Buffers Required.

2. When necessary, transportation corridors and utility easements may cross the required buffer area. The crossings must be designed to minimize clear views through the required buffer. The nature and limits of such intrusions must be shown in detail on all site plans or subdivision plats associated with the crossing.

3. Trails may not intrude laterally into the buffer for distances greater than 50 feet. Trails must meander to avoid natural features and to prevent clear views through the buffer. Selective thinning is allowed; however, no tree over 12 inches in caliper may be removed for the trail. The maximum trail width is 10 feet. Trails must be shown on all site plans and subdivision plats associated with the trail.

4. Except as provided in *5.2.3.D, Adjustments to the Required Buffer*, walls or fences are not allowed to be constructed within the buffer area.

D. Adjustments to the Required Buffer

1. Within areas of I-85 MTC Overlay where the required buffer width is identified as 100 feet in *5.2.3.B, Buffer Width*, the buffer width can be reduced to 50 feet without a major special use permit if the following conditions are met:

   a. On properties proposed for residential purposes, with at least 900 feet of uninterrupted frontage along the limited access highway or frontage road, if present, a noise barrier is built to the NCDOT noise policy and to match existing NCDOT noise barriers; and,

   b. On properties proposed for nonresidential purposes that provide a buffer with 80% opacity as defined in 9.4.5, Constructed Buffer.

2. The buffer width and amount of landscape materials may be reduced through the issuance of a Major Special Permit pursuant to *Sec. 8.2.9, Special Use Permit*, considering the following issues in addition to the findings set forth in *Sec. 8.2.9.H, Criteria for Approval of Major and Minor Special Use Permits*.

   a. The topography of the area; and

   b. The size of the parcel of record.

5.2.4. Freestanding Signs

Freestanding signs within the MTC Overlay cannot exceed 12 feet in height.

SEC. 5.3. HISTORIC DISTRICTS OVERLAY (-H)

5.3.1. Purpose

Historic District Overlays (-H) are established to help protect and preserve areas and landmarks with special significance in terms of prehistorical, historical, architectural or cultural importance, and possesses integrity of design, setting, materials, feeling and association.

5.3.2. Designation

A. Historic Districts Overlays may be designated by the governing body after the Historic Preservation Commission (HPC) deems and finds that the area is of special significance in terms of its prehistorical, historical, architectural, or cultural importance, and possesses integrity of design, setting, materials, feeling, and association.

B. Procedures for designation of Historic District Overlays are found in *Sec. 8.2.18, Historic or Landmark Designation*.

5.3.3. Applicability

All development within a locally designated historic district must comply with the requirements contained in this section. In addition, all development within a locally designated historic district must comply with the requirements of any underlying zoning district, except as otherwise required by this UDO.

5.3.4. Standards

General standards that apply to all Historic District Overlays may be developed; however, each individual overlay may have additional specific standards that apply specifically to one overlay.

5.3.5. Downtown Historic District Overlay

A. General Provisions

1. Development in the Downtown Historic District Overlay must comply with the standards of this subsection, in addition to the standards of the adopted Downtown Durham Historic Preservation Plan and the general standards of the Downtown Design District.

2. In the event of a conflict between applicable standards, the following standards will take precedence in the order listed below:

    a. The Downtown Durham Historic Preservation Plan, through approval of an applicable certificate of appropriateness.

    b. The standards of this subsection.

    c. The standards of the Downtown Design District.

    d. All other applicable standards of this UDO.

B. Build-To

Development in the Historic District Overlay must conform to established build-to. The build-to line is:

1. If buildings exist adjacent to the property on either side, the build-to zone is at or between the two established street facade locations;
2. If an adjacent building exists on only one side of the property, the build-to zone must be within 2 feet of the existing street facade location; or
3. If no adjacent buildings exist, the underlying zoning district build-to zone applies.
4. On corner lots, the standards of this section apply for each street facade.

C. Building Step-Backs

Building step-backs must meet the preservation plan requirements through the issuance of a COA and are exempt from the height articulation requirements of 16.3.3C.1, DD District.

D. Height

1. Maximum height is determined by the underlying zoning district.
2. The HPC may allow height greater than that of the highest 'pivotal' or 'contributing' structure, as assigned in the Downtown Durham Historic District Preservation Plan, only by making the following additional findings:
    a. The proposed development allows for adequate light, air and open space access to adjacent properties; and
    b. Given consideration of the height of structures in the immediate vicinity, the proposed development does not adversely affect the character of the historic district.
3. The HPC may limit height below the maximum allowed in order to find that the proposal is consistent with the adopted Historic Properties Local Review Criteria, as amended.

SEC. 5.4. WATERSHED PROTECTION OVERLAY

5.4.1. Purpose

A. The purpose of the Watershed Protection Overlay is to preserve the quality of the region's drinking water supplies through application of the development standards in *Article 7, Environmental Protection*. In general, water supply protection is accomplished by establishing and maintaining low intensity land use and development on land near the region's water supply rivers and reservoirs. Where high density development is desired, water supply protection is accomplished through the use of engineered stormwater controls. The overall objective is to:

1. Reduce the risk of pollution from stormwater running off of paved and other impervious surfaces; and

2. Reduce the risk of discharges of hazardous and toxic materials into the natural drainage system tributary to drinking water supplies.

B. Watershed protection regulations are adopted by the City of Durham and Durham County in accordance with the requirements of the North Carolina Environmental Management Commission, Title 15A NCAC 2B .0100, .0200 and .0300, (adopted pursuant to NCGS §143-214.5) and in accordance with NCGS Chapter 160D.

5.4.2. Establishment of Districts

A. The following 6 Watershed Overlays have been established for lands within the watersheds of public drinking water rivers and reservoirs. Each Watershed Overlay is divided into 2 areas, a Critical Area (A) and a Protected Area (B), based on their distance from the protected water supply and ridge lines that define the drainage basin.

Overlay	Designation	General Location
M/LR-A	Lake Michie/Little River District A	One mile from the 341 foot MSL normal pool of Lake Michie and from the 355 foot MSL normal pool of the Little River Reservoir, or to the ridge lines defining their drainage basins, whichever is less.
M/LR-B	Lake Michie/Little River District B	The portion of the drainage basins of Lake Michie and the Little River Reservoir not covered by M/LR-A.
F/J-A	Falls/Jordan District A	One mile from the 251.5 foot MSL normal pool of Falls Reservoir and from the 216 foot MSL normal pool of the Jordan Reservoir, or to the ridge lines defining their drainage basins, whichever is less.
F/J-B	Falls/Jordan District B	From the edge of F/J-A Overlay to five miles from the normal pool of the Falls Reservoir and the Jordan Reservoir, or to the ridge lines that define their drainage basins, whichever is less.
E-A	Eno River District A	One mile from and draining to the Eno River water intake.

E-A(2)	Eno River District A2	One half mile from and draining to the Teer Quarry Eno River water intake.
E-B	Eno River District B	From the edge of E-A to 10 miles from the Eno River water intake, or to the ridge lines that define the drainage area of the intake, whichever is less.

B. The general boundaries of the Watershed Overlays are defined by the distance from the normal pool and ridge line criteria described above, with rights-of-way and property lines used to determine inclusion or exclusion in the Watershed Overlay.

C. The general boundaries and the parcels included within these boundaries are shown on the map entitled "Watershed Overlays Parcels Map", which is included by reference and adopted as part of this UDO.

D. Where a general boundary crosses a parcel, parcels one-half acre or less are excluded from the Overlay, and parcels greater than one-half acre are included. The parcels included in each Overlay and their Watershed Overlay designation are shown on the Official Zoning Map.

5.4.3. Rules for Interpretation of Overlay Boundaries

A. When a property is divided by one or more of the arcs representing the one half-mile, the one-mile, or the 5-mile distance from the reservoir, or by the ridgeline that defines the water supply reservoir, a request can be submitted for an interpretation of the Watershed Overlay boundary through the City-County Planning Department. The request can be submitted by any individual and must include sufficient information to enable the Planning Director to make a recommendation to the governing body and NC Environmental Management Commission (EMC), as appropriate.

B. For all requests, the Planning Director will evaluate the request and will seek approval from the appropriate governing body for submission to the NC Environmental Management Commission (EMC). Upon such approval, the Planning Director will submit the proposed Watershed Overlay boundary change to the EMC, in accordance with 15A NCAC 02B .0104(o). Upon approval by the EMC, the Planning Director will complete the interpretation and modify the Watershed Overlay boundary in accordance with the interpretation. All such changes must be shown on the Official Zoning Map and the Watershed Overlays Parcels Map, which nust be maintained by the Planning Department.

Commentary: The NC Administrative Code, in Rule 15A NCAC 02B .0104(o), states that all revisions (expansions and deletions) to the Environmental Management Commission (EMC) adopted critical and protected area boundaries or to the local government's interpreted critical and protected area boundaries must be approved by the EMC prior to adoption by the local government.

C. The Planning Director will interpolate the general boundary as shown on the Watershed Overlays Parcels Map, but may vary it to exclude lots of one-half acre or less in a proposed subdivision. In addition, the Planning Director, may use identifiable physical features, such as roads, streams or easements, as boundaries if they approximately coincide with the interpolated general Overlay boundary. All changes must be shown on the Official Zoning Map and the Watershed Overlays Parcels Map, which must be maintained by the Planning Department.

5.4.4. Nonresidential Land Use Restrictions

Nonresidential land uses are restricted in accordance with the following table and *Sec. 7.6, Watershed Protection*.

Overlay	Development Restrictions
M/LR-A	All industrial uses listed in *3.4.6, Industrial Uses*, and the sale of fuel for motor vehicles are not allowed.
M/LR-B	All Industrial uses listed in *3.4.6, Industrial Uses*, are not allowed.
F/J-A	Except outside of the Urban Growth Boundary, nonresidential uses are not allowed, except that public and civic uses listed in *3.4.3, Public and Civic Uses*, commercial uses listed in *3.4.4, Commercial Uses*, office uses listed in *3.4.5, Office Uses*, and light industrial uses listed in 5.2.6A, Light Industrial Service, are allowed on land zoned for such uses (see *Sec. 3.3, Use Table*) as of September 28, 1992, provided that they do not manufacture, distribute or warehouse for distribution nuclear materials or substantial quantities of hazardous materials. Such uses may be allowed to store for on-site use or produce as a waste product nuclear materials or substantial quantities of hazardous materials, subject to the requirements of *Sec. 7.6.2.G, Hazardous and Nuclear Materials*, provided that they maintain a 1,000-foot natural vegetated buffer from the normal pool of the reservoir except when located in a special flood hazard area. Land already zoned for one of the above uses may be rezoned to permit one of the above nonresidential uses, except for commercial uses, in accordance with *Sec. 8.2.5, Zoning Map Change*. Within the Urban Growth Boundary, nonresidential uses are not allowed except those uses allowed in residential districts and in the CN District may be allowed. The sale of fuel for motor vehicles is not allowed.
F/J-B	Municipal solid waste landfill facilities that are constructed and operated in accordance with N.C. Administrative Code Title 15.A.13.B. Sec. 1600 are allowed except when located in a special flood hazard area. Outside of the Urban Growth Boundary, commercial uses listed in *3.4.4, Commercial Uses*, office uses listed in *3.4.5, Office Uses* and industrial uses listed in *3.4.6, Industrial Uses*, that manufacture, distribute, warehouse for distribution, store for on-site use, or produce as a waste product nuclear material or substantial quantities of hazardous materials (except when located in a special flood hazard area) are subject to the requirements of *Sec. 7.6, Watershed Protection*.
E-A, E-A(2)	Industrial uses listed in *3.4.6, Industrial Uses*, are not allowed. The sale of fuel for motor vehicles is not allowed.

E-B	Outside of the Urban Growth Boundary, commercial uses listed in *3.4.4, Commercial Uses*, office uses listed in *3.4.5, Office Uses*, and industrial uses listed in *3.4.6, Industrial Uses*, that manufacture, distribute, warehouse for distribution, store for on-site use, or produce as a waste product nuclear material or substantial quantities of hazardous materials (except when located in a special flood hazard area) are subject to the requirements of *Sec. 7.6, Watershed Protection*.

ARTICLE 6.

INFRASTRUCTURE AND PUBLIC IMPROVEMENTS

SEC. 6.1. **APPLICABILITY**

Reserved

SEC. 6.2. GENERAL PROVISIONS

6.2.1. Improvement Requirements

A. Applicability

The requirements of this section apply to all development, unless expressly exempted by the language of below.

B. Mitigation

The approving authority can require on- and off-site improvements to mitigate the impacts of the proposed development.

C. Clearing and Grading

1. All property required to be dedicated, reserved or otherwise set aside and identified on the approved site plan or preliminary plat must be surveyed, staked, and appropriately marked and protected prior to beginning clearing and grading work.

2. All clearing and grading work must be in conformance with the approved site plan or preliminary plat.

D. Floodplains

Base floodplain elevation data must be provided for all development proposals that are impacted by a floodplain as required by *Sec. 7.3, Floodplain and Flood Damage Protection*.

E. Compliance

Prior to any land disturbing activity, the applicant must comply with all Federal, State, and local permitting requirements.

F. Utility Lines and Drainage Channels

Utility lines and drainage channels facilities must be located in groupings and with the least possible disturbance to existing trees to the maximum extent allowed by sound engineering practices, as determined by the Public Works director.

G. Consistency with Adopted Plans

Development must comply with adopted public plans for the area in which it is located. This includes plans for public facilities such as rights-of-way, parks and open space, schools, and other similar facilities.

H. Survey Monuments and Markers

Permanent survey monuments and markers must be installed in accordance with N. C. General Statutes 39-32 and 47-30, as supplemented by City/County and N. C. Department of Transportation requirements.

I. Public Facility Sites

When a proposed site for any public facility, including but not limited to schools, or other public use sites, is shown on an adopted plan, the site must be reserved and/or dedicated in accordance with paragraph XX, Reservation of Public Facility Sites and Lands.

J. Required Easements

1. Storm drainage and utility easements for water, sanitary sewer, electricity, gas and communications improvements must be provided in the location and to the width as required by the provider.

2. Easements for other purposes, including but not limited to trails and greenways, scenic views, historic preservation, cemetery access, and unique natural sites, must be designed for reservation or dedication as appropriate.

3. All site plans and subdivision plats must exhibit standard easement notes stating the type and purpose of the easement along with a list of prohibited uses/activities within the easement.

4. Any cross access agreement must specify maintenance responsibilities and require that access be unrestricted. The agreement and a plat depicting the easement must be recorded. Copies of the recorded documents and an attorney certification that the requirements of this paragraph have been met must be provided to the Planning Director.

6.2.2. Railroad Corridors

A. This section does not apply to light rail lines or corridors.

B. To minimize the loss of existing or former railroad corridors which may have public value as corridors for other forms of transportation, railroad corridors designated for preservation on a plan adopted by a governing body must be identified on development plans, site plans and subdivision plats.

C. The rail bed and original right-of-way must be designated for the purpose of dedication or reservation in accordance with requirements for dedication and reservation pursuant to *Sec. 7.2.7.L, Recreation Land*. Dedicated railroad corridors reduces the obligation to dedicate recreation land under *Sec. 7.2.7.L, Recreation Land*, by the amount of the corridor dedicated.

D. Unless agreements have been established that do not allow a railroad crossing, the following applies:

1. Crossing of the railroad right-of-way is allowed for Boulevards and Major/Minor Thoroughfares as designated on the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Comprehensive Transportation Plan.

2. No additional at-grade crossings of the Railroad Corridor by streets or drives are allowed, unless a minor special use permit pursuant to Sec. 3.9, Special Use Permit, is approved. In addition to the findings specified in 3.9.8A, General Findings, the Board of Adjustment must also find that extreme hardship would result to the property owner due to:

a. Lack of access; or

b. Design constraints that severely limit the development potential of the property.

6.2.3. Performance Guarantees

A. Filing of Performance Guarantees

1. Applicability

a. A performance guarantee is required if landscaping, recreational facilities, committed elements, or infrastructure requirements including but not limited to stormwater, streets, sidewalks, or water and sewer improvements, have not been completed in accordance with the approved construction drawings, site plan, or subdivision plat.

b. For a project requiring multiple performance guarantees, a single performance guarantee may be posted in lieu of multiple guarantees. This allowance does not apply to guarantees required for erosion control and stormwater control measures.

2. Amount

a. A performance guarantee in the amount of 125% of the reasonable estimated cost to complete the infrastructure or other improvement calculated as of the time the performance guarantee is issued is required, as determined by the applicable department director.

b. Any extension of the performance guarantee necessary to complete required improvements cannot exceed 125% of the reasonably estimated cost of completion of the remaining incomplete improvements still outstanding at the time the extension is obtained, as determined by the applicable department director.

3. Timing

The applicable department director must specify when a performance guarantee must be submitted.

B. Form and Conditions of Performance Guarantee

1. Form

A performance guarantee may be in the form of a surety bond, letter of credit, or other form of guarantee that provides equivalent security to a surety bond or letter of credit.

2. Conditions

A performance guarantee must be conditioned upon the performance of all work necessary to complete the specified improvements and the delivery of all necessary encroachment agreements, with the performance and delivery to be done by a specified completion date as allowed per NCGS § 160D-804.1.

3. Release of Guarantee

The performance guarantee must be returned or released, as appropriate, in a timely manner upon the acknowledgment by the City or County that the improvements and conditions for which the performance guarantee is being required are complete.

4. Extension

a. If the improvements are not complete and the current performance guarantee is expiring, the performance guarantee must be extended, or a new performance guarantee issued, for an additional period limited to the duration necessary to complete required improvements.

b. Reasonable, good faith progress toward completion of the required improvements that are the subject of the performance guarantee or any extension must be demonstrated.

C. Issuance of Certificate of Compliance

For required improvements other than infrastructure, if the responsible department director determines the completion of the improvement prior to issuance of a certificate of compliance is not practicable, and sufficient justification for the delay has been shown, certificates of compliance may be issued if an adequate performance guarantee is provided. In such event, the requirements for performance guarantees within this section apply.

6.2.4. Phased Development

A. Preliminary plats and site plans must indicate proposed phasing, with no individual phase exceeding 50 acres.

B. Phasing plans must be included in the first submittal and must be reviewed and evaluated as part of the overall development.

C. Off-site improvements are excluded from phasing; however, they may be required within a certain phase to satisfy overall development requirements.

D. Phases must be designed to ensure the efficient construction of future phases. Each phase of a development must be designed and function with the utilities, fire protection, right-of-way infrastructure, and stormwater management necessary to serve that phase.

E. Each phase must contain the minimum tree coverage percentage as required in *Sec. 7.2, Tree Protection and Open Space*.

F. Lot numbers cannot be duplicated within different phases of the same development.

G. All right-of-way and/or easements for public infrastructure servicing the respective phase must be recorded with the first plat.

H. Water and sewer extension permit applications for each individual phase of the project are required after plan approval.

I. No land disturbing activity in a subsequent phase can commence until:

1. The first asphalt layer of the street or other vehicular system of the previous phase has been laid and inspected; and

2. The lots in the previous phase have been stabilized, inspected, and approved per the County and State Sedimentation and Erosion Control standards.

SEC. 6.3. NEIGHBORHOOD LAYOUT AND DESIGN

6.3.1. Intent

The facilitate the creation of compact, walkable, neighborhoods by providing for a well-connected street grid with convenient access to neighborhood-scale goods and services and community open space.

6.3.2. Blocks

A. Intent

To provide a well-connected street network with safe and convenient vehicular and pedestrian access within developments and between adjacent developments.

B. Applicability

The block perimeter standards apply to all subdivision plats and site plans submitted in accordance with Sec. XX and Sec. XX. Compliance with the block perimeter standards is not required when one or more of the following conditions are met:

1. The site to be developed is below the minimum applicable site area established in the table in *Sec. 6.3.2.A.2*.
2. The resulting street connection, if completed, would neither reduce the perimeter of the oversized block by at least 20% nor result in conforming block perimeters.
3. The new street or street stub right-of-way, including utility placement easement, would consume more than 15% of either the area of the impacted adjacent property or the property to be developed.
4. The creation (on the property to be developed) or continuation (on an adjacent property) of any new street or street stub would be obstructed by any of the following:
    a. Railroad, or controlled access highway;
    b. Watercourse that has 1 square mile of drainage area or more; or
    c. Previously established tree protection areas, open space or public park.
5. North Carolina Department of Transportation denies a permit necessary to make the street connection.
6. The property to be developed or the adjacent property to which any new street or stub street would be continued contains one or more of the following land uses: historic landmark, cemetery, landfill, hospital, school (public or private (K-12)), college, community college, university, place of worship, police station, fire station, EMS station, or prison.

C. Block Standards

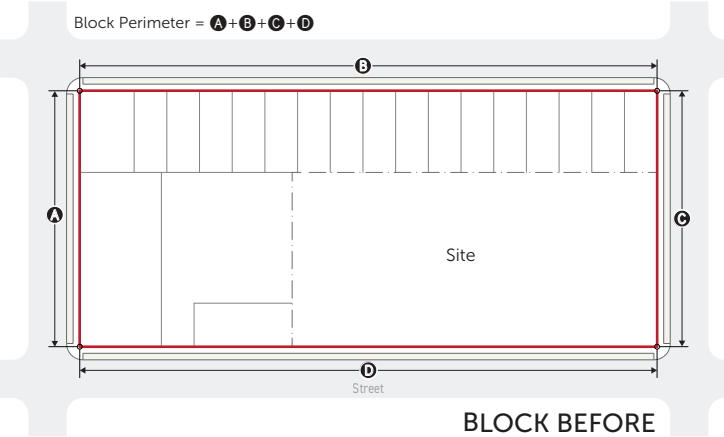
The following table establishes the maximum block perimeter that must be met.

	Block Perimeter (max)	Site Area Applicable (min)
Outside the Urban Growth Boundary	5,000'	10 acres
Inside the Urban Growth Boundary	2,880'	5 acres

D. Block Measurement

1. A block is bounded by a street (not including an alley). All streets must the requirements of *Sec 6.4.2*.

2. Block perimeter is measured along the edge of the property adjoining the street.



3. Within a single phase of development, individual block perimeters can exceed the maximum by 25% provided that the average of all block perimeters in the phase does not exceed the maximum.

4. Where a block is bisected by a pedestrian passage or a multi-use path that meets *Sec 6.4.2.G or Sec 6.4.2.H*, the maximum block perimeter may be increased by 50%.

   [Insert Graphic]

E. Preservation of Significant Features

To the maximum extent possible, street and block layout must designed to preserve structures and sites of historic or cultural significance, small family cemeteries, and to protect habitats of rare or unusual plants or wildlife as documented in the established Durham Inventory, the State Natural Heritage Listing, or the National Register of Historic Places.

F. Open Access

1. Streets must remain permanently open to the public and provide community-wide access as part of an overall connected street network.

2. Public and private streets, including alleys, cannot be gated or otherwise restrict public access.
3. Proposed streets must be interconnected and must connect with external adjacent streets in order to provide multiple routes for vehicle, bicycle or pedestrian trips from, to and within the development.

G. Dead End Streets

1. New cul-de-sacs or other dead end streets are not allowed, except for stub streets.
2. Existing cul-de-sacs or other dead end streets can be maintained, modified, and improved so long as the length of the street is not increased.

H. Stub Streets

1. Where a development adjoins unsubdivided land, stub streets must be used to the meet maximum block perimeter standards.
2. The stub street must extend to the boundary of the abutting property to the point where the connection to the anticipated street is expected.
3. Stub streets must be located so that the portion of the block perimeter located on the subject property does not exceed 50% of the maximum block perimeter.

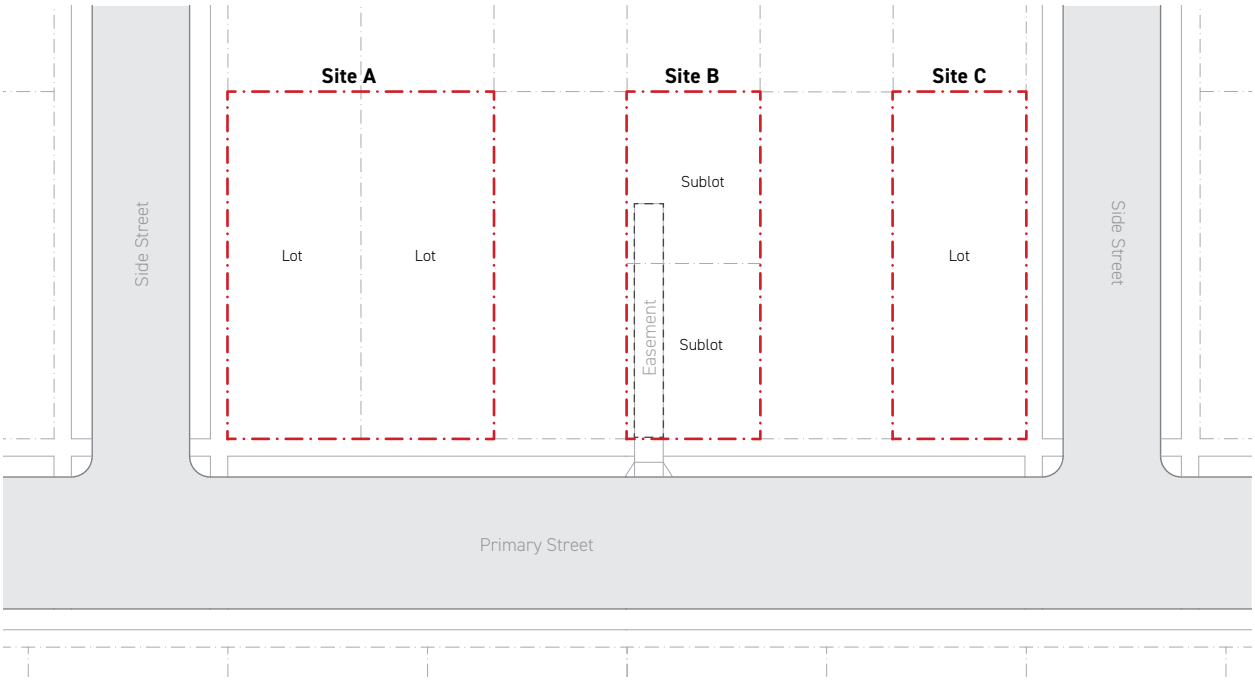
   [Insert Graphic]

4. If a stub street exists on an abutting property, the proposed street system must connect to the stub street to form a through street.
5. When the entirety of a creek crossing is in the development, the crossing must be in a single phase in its entirety.
6. When stubbing to the edge of the site, the stub street must be built to the furthest point possible without NCDEQ approval and a fee in lieu of construction is paid for the remainder. Any right-of-way and slope easements needed to build the connection must be dedicated
7. Where a stub street is provided, a barricade using a design approved by the Planning Director must be constructed at the end of the stub street, pending the extension of the street into abutting property. A sign noting the future street extension must be posted at the applicant's expense.

6.3.3. Lots and Sublots

A. Intent

To establish minimum requirements for parcels of land in the application of this Code and provide mechanisms for the transfer of land ownership.



B. Lots

1. Frontage

a. Every lot must have frontage on a street or alley for the minimum width required by the zoning district - see *Sec. 2.9.3*.

b. No building can be erected or enlarged on a lot unless the lot abuts or has access to a street or alley that meets *Sec 6.4.2*.

2. Lot Numbering

All lots must be numbered consecutively within each block. Lot numbering can be cumulative throughout the subdivision if the numbering continues from block to block in a uniform manner. Any lots being re-subdivided must be consecutively numbered beginning with the last available number in the existing block or subdivision.

3. Newly Created Lots

Each new lot must meet the dimensional standards for the zoning district (*see Sec. 2.9*) in which it is located and should be generally developable under the standards of this Code, taking into account topography, floodplain, easements, and other site constraints. Exceptions include, but are not limited to, lots platted for open space, common areas, and other lots identified on the plat as not intended for development.

C. Sublots

A sublot is a parcel of land, existing with other sublots on a single lot, intended for the purpose of the transfer of ownership or possession or for development.

1. The use of sublots is only allowed as part of the compact or affordable optional process in a R-C or R-D district.
2. A sublot is not required to have frontage on a street or alley but must front a permanent access easement that is at least 6 feet in width with a maximum length of 150 feet, or as approved by the Fire Marshal.
3. When a lot is subdivided into sublots, the lot and each sublot must be recorded with the Office of the Register of Deeds.
4. A sublot is not required to conform to the lot standard requirements of the zoning district in which it is located but as part of the optional process buildings must meet the building standard requirements.

6.3.4. Naming

A. The proposed name of a development and proposed street names must not duplicate or too closely approximate, phonetically, the name of any other development or street in the City or County.

B. House or building numbers must conform to the system established for the City or County.

SEC. 6.4. STREETS AND STREETSCAPES

6.4.1. Intent

To improve the safety of all transportation users throughout the City and County, and to create an active public realm and promote the use of active transportation by creating safe and convenient facilities for pedestrians and bicyclists.

6.4.2. Streets

A. Applicability

The requirements of this section apply whenever a new street is proposed for construction.

B. General

1. New streets must be dedicated as public right-of-way. Right-of-way can be private only if private stormwater control measures are placed within or underneath the right-of-way. Private streets must be constructed to public street standards, and all other requirements of this Code apply.
2. This section provides standards for new streets and includes a set of allowed street typologies allowed within all zoning districts.
3. The sidewalk and street tree requirements in *Sec. 6.4.3* apply in addition to following street standards.
4. Construction specifications for street typologies, including intersection specifications, will be reviewed by the City Transportation Department, City Public Works Department, or NCDOT; and approved through the City Public Works Department or NCDOT, as applicable.
5. Curb and gutter is measured to back-of-curb pursuant to the specifications of the City Public Works Department.

C. Neighborhood Street 1

1. Right-of Way	
A Width	45′
2. Streetscape	
B Pedestrian zone	6′
C Planting zone	6′

3. Street	
D Curb/gutter	1′6″
E Travel lane	9′

D. Neighborhood Street 2

1. Right-of Way	
Ⓐ Width	60′
2. Streetscape	
Ⓑ Pedestrian zone	6′
Ⓒ Planting zone 1	4′
Ⓓ Planting zone 2	6′

3. Street	
Ⓔ Curb/gutter	1′6″
Ⓕ Parallel parking	7′
Ⓖ Travel lane	9′

A. Neighborhood Street 3

1. Right-of Way	
Ⓐ Width	60′
2. Streetscape	
Ⓑ Pedestrian zone	6′
Ⓒ Planting zone	6′

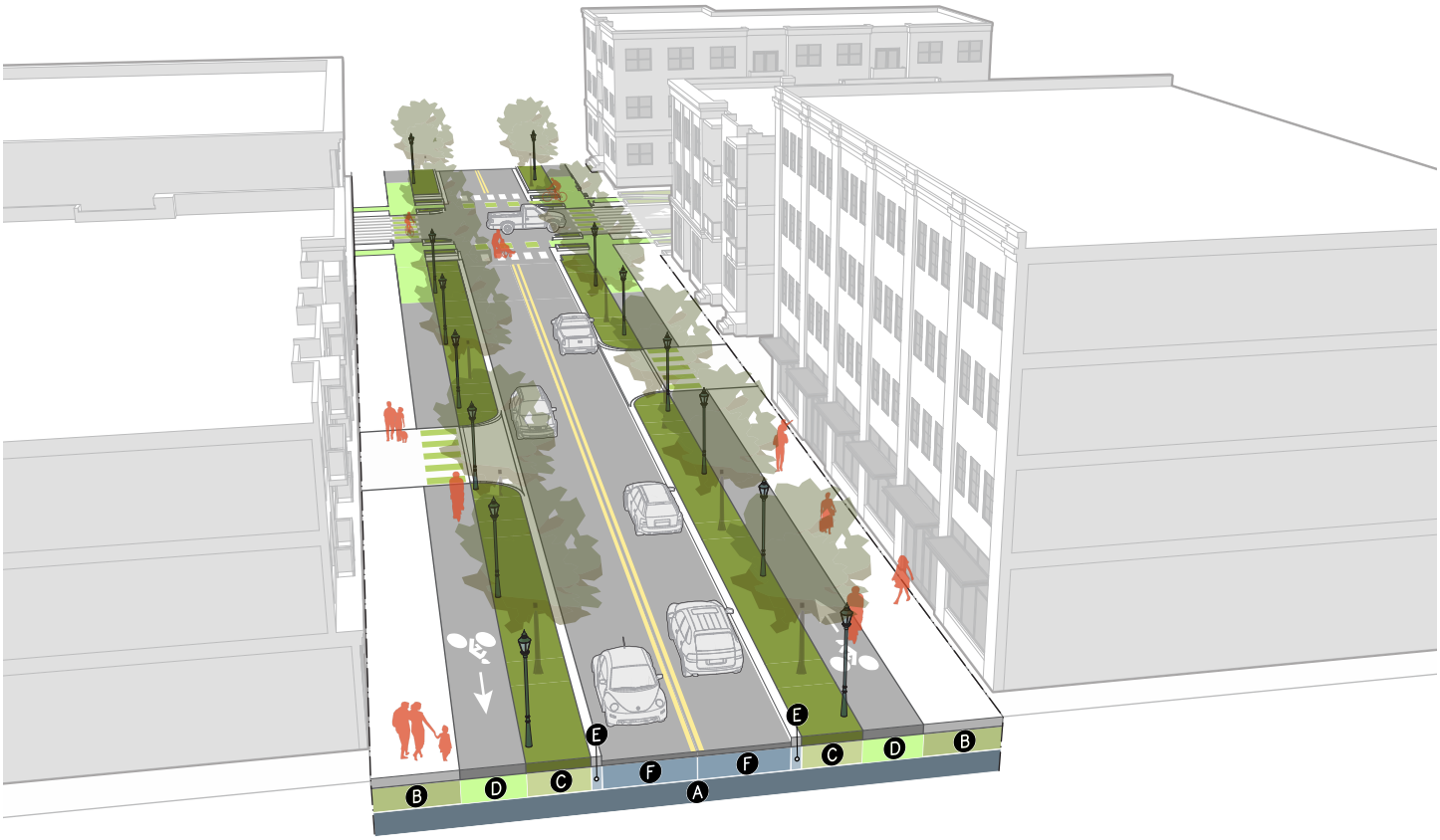
3. Street	
Ⓓ Bike lane	6′
Ⓔ Bike buffer	1′6″
Ⓕ Curb/gutter	1′6″
Ⓖ Travel lane	9′

B. Neighborhood Street 4

1. Right-of Way	
A Width	60′
2. Streetscape	
B Multi-use path	12′
C Pedestrian zone	6′
D Planting zone 1	1′
E Planting zone 2	6′

3. Street	
F Curb/gutter	1′6″
G Parallel parking	7′
H Travel lane	9′

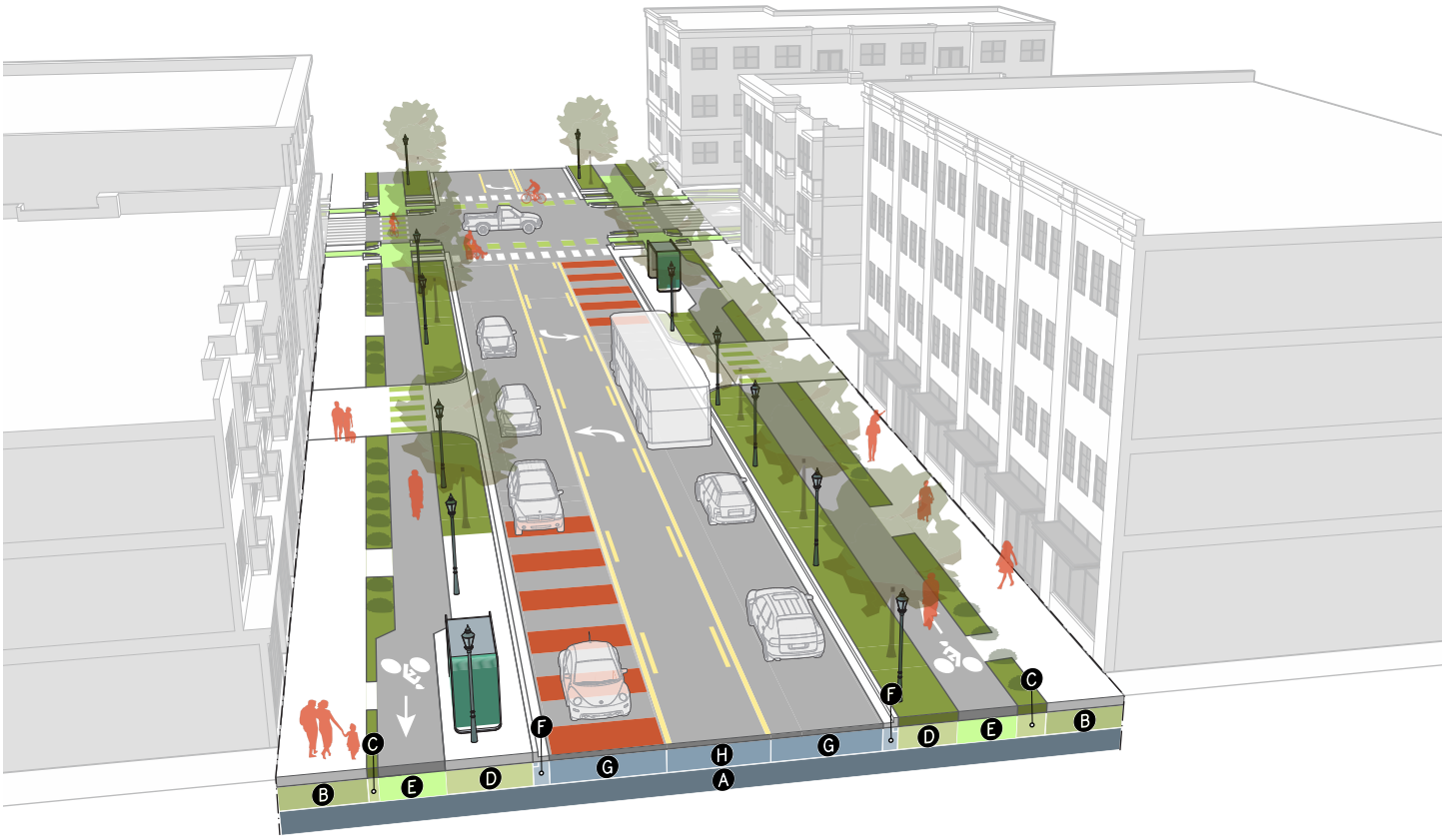
A. Mixed Use Street 1



1. Right-of Way	
Ⓐ Width	60′
2. Streetscape	
Ⓑ Pedestrian zone	8′
Ⓒ Planting zone	6′

3. Street	
Ⓓ Bike lane	6′
Ⓔ Concrete curb	1′
Ⓕ Travel lane	9′

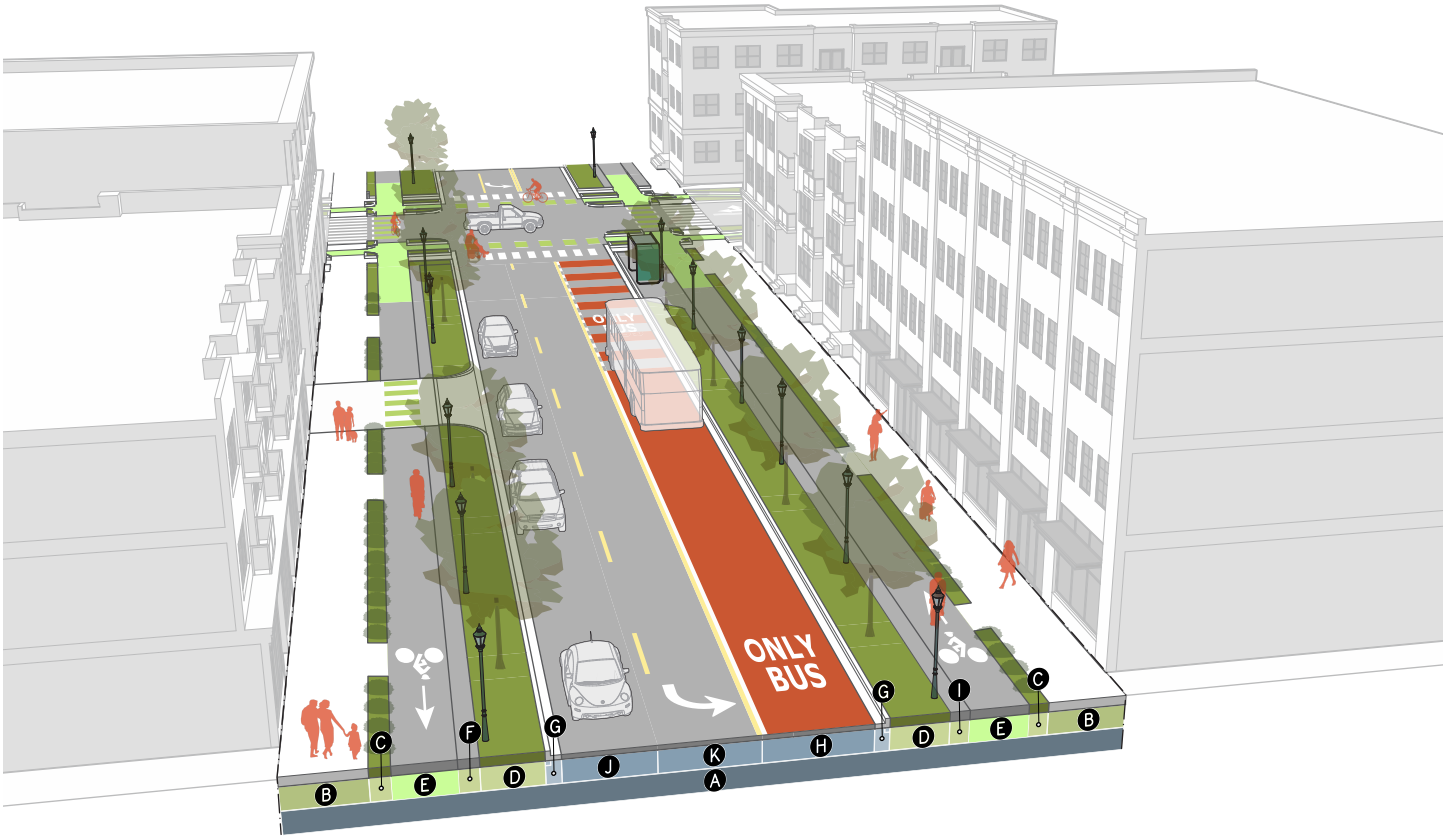
B. Mixed Use Street 2



1. Right-of Way	
A Width	80′
2. Streetscape	
B Pedestrian zone	8′
C Planting zone 1	2′6″
D Planting zone 2 / transit shelter	6′

3. Street	
E Bike lane	6′
F Curb/gutter	1′6″
G Travel lane / bus lane	11′
H Turn lane	10′

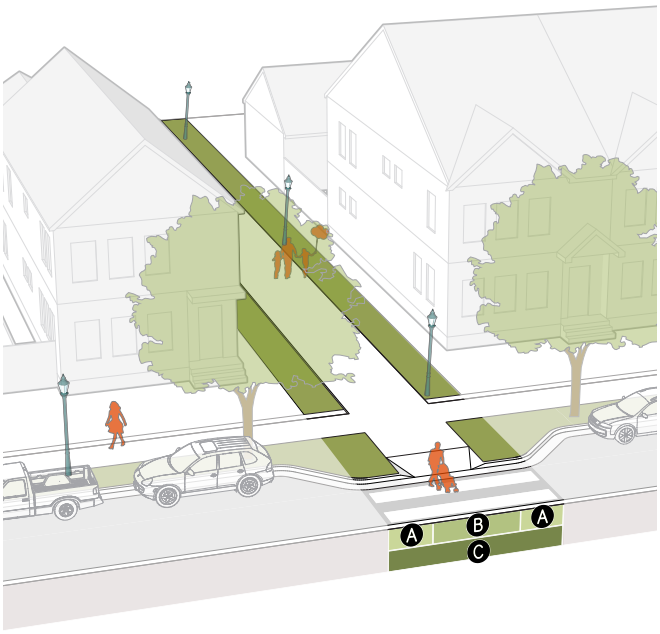
E. Bus Rapid Transit



1. Right-of Way	
A Width	80′
2. Streetscape	
B Pedestrian zone	8′
C Planting zone 1	1′6″
D Planting zone 2	6

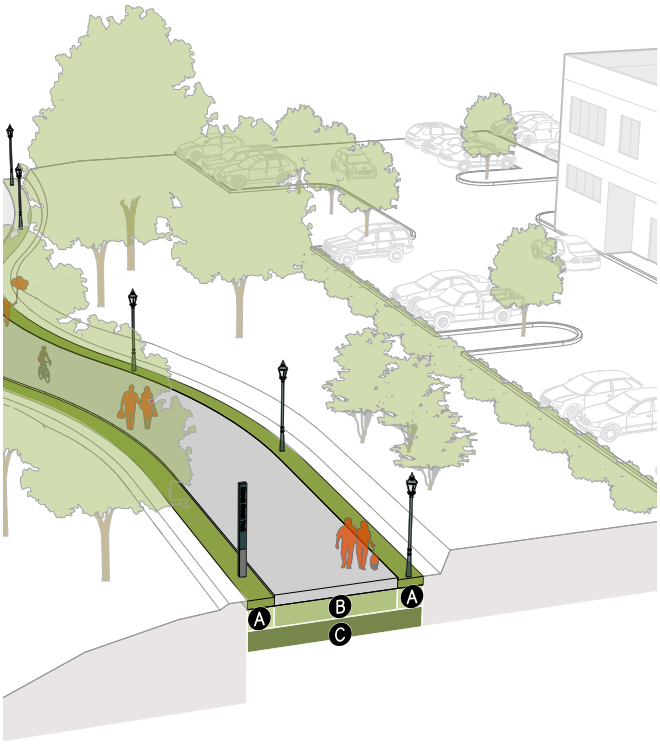
3. Street	
E Bike lane	6′
F Bike buffer	2′
G Curb/gutter	1′6″
H Bus lane	11′
I Transit shelter	8′
J Travel lane	9′
K Turn lane	10′

F. Pedestrian Passage



1. Right-of Way	
Width	15′
2. Through-Way	
Ⓐ Utility zone (cumulative)	7′
Ⓑ Pedestrian zone	6′
3. Configuration	
Ⓒ 	13′

G. Multi-Use Path



1. Right-of Way	
Width	20′
2. Through-Way	
Ⓐ Utility zone (cumulative)	7′
Ⓑ Shared sidewalk/bike zone	10′
3. Configuration	
Ⓒ 	17′

6.4.3. Streetscapes

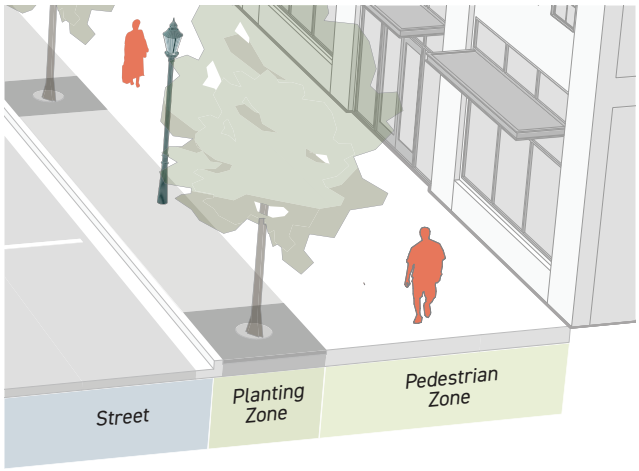
A. Applicability

1. Existing streets must meet the following streetscape requirements for any new construction or addition projects with over 1,000 square feet of new floor area, and for site modifications impacting more than 2,000 square feet of land area.

2. Existing streets may continue to serve existing development in their current configuration; however, they cannot be extended or substantially rebuilt except in conformance with this Code.

B. Streetscape Standards

The following pedestrian and planting zones must be provided.



	R-A CON	R-B R-C, R-D	RX-, CX- CN, IX, IU	CG, CH, IH, IC, CIV, PK
Pedestrian Zone (min)	--	6′	8′	6′
Planting Zone (min)	--	6′	6′	6′

1. Pedestrian Zone

a. The pedestrian zone is the area between the street lot line and the planting zone.

b. The pedestrian zone must remain clear of obstacles at all times and be constructed to meet all City/NCDOT and ADA specifications.

c. Where there is not enough room in the right-of-way, the required pedestrian zone must be provided on-site as a public access easement.

d. Where there is not enough room because of an existing building, the pedestrian zone can reduced to a minimum of 4 feet.

2. Planting Zone

a. The planting zone is the area between back of curb and the pedestrian zone.

b. The following encroachments are allowed in the planting zone subject to City or NCDOT approval:

i. Benches, trash receptacles and bicycle racks.

ii. Utility boxes, meters, man hole covers, regulatory signs and fire suppression equipment.

iii. Pedestrian lighting.

iv. Landscaping, sidewalk, trees and planters.

c. Where the installation or expansion of a planting zone along an existing street is constrained by either an existing building or because of insufficient right-of-way, the planting zone can be can be modified based on the following order:

i. Reduce the planting zone width down to no less than 3.5 feet.

ii. Create a bump out to provide for a 3.5 feet planting zone.

iii. Eliminate the planting zone entirely.

C. Required Streetscape Amenities

Reserved

D. Alternative Streetscape Plan (ASP)

Reserved

6.4.4. Street Trees

A. Applicability

All street trees planted to meet the requirements of this Code.

B. General

1. One canopy tree must be planted for every 40 feet on center, on average.
2. Where overhead utilities exist, one understory tree can be planted every 20 feet on center, on average.
3. The planting location priority for street trees is as follows:
   a. As shown in the respective street type cross-section in *Sec. 6.4.2* and streetscape standard in *Sec. 6.4.3*;
   b. If at least 3.5 feet exists between the pedestrian zone and back of curb, street trees must be placed between sidewalk and back of curb (the planting zone);

      [Insert Graphic]

   c. If at least 3.5 feet exists between the pedestrian zone and right-of-way line and no building is constructed within 10 feet of the right-of-way line, street trees must placed be between the sidewalk and right-of-way line;

      [Insert Graphic]

   d. If at least a 3.5-foot bump out exists in the right-of-way, street trees must placed in the bump out;
   e. If none of the above can be met, or if NCDOT does not allow street trees in the right-of way, street trees must be placed on private property within 10 feet of the right-of-way line.

      [Insert Graphic]

C. Existing Trees

1. Existing trees can be used to meet the requirements of this section, as long as existing trees are protected in accordance with the standards of *Sec. 7.2.3, Protection of Existing Vegetation*. However, the amount of required trees pursuant to *Sec. 6.4.4.B* applies regardless of credit received for the use of existing trees.
2. Trees preserved to meet other requirements of this Code can be used to meet the requirements of this section as well, provided they meet the minimum size and location requirements of this section.
3. Trees located in a side yard behind the front building line or located behind any portion of a building cannot be used for credit.

D. Street Tree Installation

1. Required street trees must be clearly noted on any site plan, preliminary plat, minor, or final plat.

2. Unless otherwise noted, all required street trees must be canopy trees.
3. Street trees must be at least 2.5 inch caliper at time of planting.
4. A contiguous growing area without encroachments must be provided for each tree as specified in the *Landscape Manual*. Alternative systems to satisfy growing area requirements, such as critical root path systems, can be utilized as specified within the *Landscape Manual*.
5. Planting location must take into consideration any roadway widening identified on approved transportation plans but not provided by the development.
6. Required street trees must be planted before a Certificate of Compliance is issued, unless the planting has been postponed to the appropriate season in accordance with the requirements of *Sec. 4.6.1.I*.

E. Alternative Street Tree Requirement

1. Applicability

If an existing obstruction prevents the installation of street trees in priority levels *Sec. 6.4.4.B.3.a*, *B.3.b*, or *B.3.c* above, then the following alternative street tree requirements can be used.

2. Alternatives

a. Street tree alternatives specified below can be used, individually or in combination, and if used must comply with the associated standards.

b. Spacing and location requirements must be consistent with those required for street trees.

c. Maintenance of alternatives are the responsibility of the property owner(s) of the development site.

TABLE OF ALTERNATIVES

Alternative	Standards
Landscape Planters	Must provide a minimum of 2 landscape planters with a planting area of at least 5 SF each in-lieu of each required street tree. Additionally: 1. Planters must be continually maintained. 2. Planters must be located above-ground constructed of durable all-weather material such as fiberglass, metal, stone, or a cementitious material.
Vegetative Screen and Awning or Canopy	1. The vegetative screen must be a minimum of 100 SF along the street frontage in-lieu of each required street tree. Additionally: a. The screen must be composed of landscape material with a minimum of 50% evergreen. b. The screen must be at least 10 feet high. 2. The awning/canopy must be a minimum of 10 linear feet along the street frontage in-lieu of each required street tree and must be a minimum of 5 feet in depth. The awning must be kept in good repair.

SEC. 6.5. UTILITIES

6.5.1. Water and Sanitary Sewer Systems

A. General

Proposed additions to public systems must be coordinated with the existing systems and must satisfy the design and construction standards and specifications of the utility providing the services. Where not otherwise prohibited by local ordinance, community systems, or systems designed to serve more than one user independent of public systems, must satisfy the standards of the applicable agency responsible for approval.

B. Public

Installation of improvements which are extensions to existing public systems must be approved by the public utility providing the services. Sanitary sewer systems may be extended when outside of the Urban Growth Boundary in the following instances:

1. In the County jurisdiction, and within the City jurisdiction where no State approval has been issued, approval of a major special use permit pursuant to Sec. 3.9, Special Use Permit, provided that:

    a. Pump stations are equipped with battery-backed alarm systems connected by an automatic dialer to a 24-hour maintenance service; and

    b. Provision is made for connection to a portable generator.

2. To serve an existing use or structure for which a health hazard has been documented by the County health department or the State of North Carolina. The additional requirements of *Sec. 7.6.2, General Requirements* apply in watershed protection overlays.

C. Community

Community systems designed to serve more than one user independent of public systems are allowed if approved by the State of North Carolina.

6.5.2. On-Site Water Supply or Wastewater Disposal

Soils evaluation by a qualified soil scientist, early in the approval process, is recommended where the use of individual on-site wastewater disposal systems is anticipated.

6.5.3. Other Utilities

A. Installation

1. The applicant must arrange for the coordinated installation of all other proposed utilities, including gas, electricity, and communications improvements, and must ensure that site plans, preliminary plats, and final plats clearly show all related easements and right-of-way.

2. Utilities must be installed underground for any subdivision requiring preliminary plat approval, except as follows:

    a. Where electric transmission lines cannot be installed underground.

b. Electric transmission lines are located outside of the boundary of the development site and are existing above ground at time of application, even if subsequently relocated as part of the development.

ARTICLE 7. ENVIRONMENTAL PROTECTION

SEC. 7.1. OPENING PROVISIONS

7.1.1. Purpose

Durham boasts a wealth of natural resources and land, including, fields, forests, streams and rivers, lakes, wildlife, and natural beauty. Inappropriate development not only threatens the natural environment but also jeopardizes the quality of life of residents who cherish Durham as a special place to live, work, and connect with nature. Durham County has established standards to protect its natural resources and demonstrate responsible land management and development.

7.1.2. Exemptions

Public water supply reservoirs and associated facilities are exempt from this Article unless expressly stated otherwise.

SEC. 7.2. TREE PROTECTION AND OPEN SPACE

7.2.1. Tree Coverage

A. Purpose

To preserve and maintain undisturbed tree cover, while also providing replacement tree cover on development sites. Tree coverage helps reduce glare, noise, air pollution, and soil erosion; moderate temperatures; reduce stormwater runoff; preserve remnants of Durham's native ecology; provide habitat for native plants and wildlife; support a healthy living environment; and enhance the overall attractiveness of Durham County as a place to live.

B. Applicability

1. The tree coverage standards apply inside the City limits only.
2. New development must provide tree coverage areas on a portion of the development tract.
3. Site plans for additions to existing development must provide tree coverage based on the percentage of the area proposed for disturbance, unless the original site plan for the development already included the required amount of tree coverage.
4. Additions to existing single- and two-unit structures, are exempt from the tree coverage standards.

C. Locations

1. General

The following areas may be credited toward required tree coverage:

a. Any forested land in the floodway, non-encroachment area, floodway fringe, non-encroachment area fringe, or Areas of Shallow Flooding Zone (AO) (unless proposed to be filled or developed in accordance with *7.3.4, Special Flood and Future Conditions Hazard Areas*;

b. Preserved wetlands and wetland buffers;

c. Steep slope areas;

d. Riparian buffers;

e. Durham Natural Inventory Sites;

f. Major Transportation Corridor (MTC) buffers:

g. Surveyed or delineated Piedmont Prairie areas; and

h. Any portion of the tract left undisturbed that satisfies the minimum size requirements established in *2.2.E, Preserved Tree Coverage*.

2. R-/RX-3 Districts (Greater than 4 Acres)

For residential subdivisions over 4 acres, the following must be prioritized for tree preservation before tree replacement may be used to satisfy required tree coverage calculations:

a. Existing forests, at least one contiguous acre in size, that meet *7.2.2.E, Preserved Tree Coverage*, provided they do not conflict with other provisions in this section, in which healthy hardwood trees at least 10 inches in DBH comprise at least 50% of the area;

b. Individual existing healthy trees greater than 18 inches DBH;

c. Special Flood Hazard Areas and Future Conditions Flood Hazard Areas;

d. Riparian buffers along all perennial and intermittent streams;

e. Wetlands protected by the U.S. Army Corps of Engineers or the North Carolina Department of Environmental Quality, and any associated required buffers; and

f. Areas of at least 5,000 contiguous square feet that include natural slopes greater than 25%.

D. Required Tree Coverage

The required percentage of tree coverage for a tract or phase is specified in the table below. Total tree coverage is calculated as the sum of preserved tree coverage and replacement tree coverage.

Zoning District	Total Minimum Required Tree Coverage
R-, RX-3 (less than 4 acres)	7%
R-, RX-3 (4 acres or more)	22%
RX-5, RX-8	7%
CX-3	3%
CX-5, CX-8, CX-20, IX, IU	0%
CN	5%
CG, CH, IH, UC	10%
CIV	10%
PK	20%
CON*	50%

* = Development within the CON district may provide less than 50% tree coverage if a recorded conservation easement specifies a different percentage as part of an approved management plan.

1. General Requirements

a. Tree preservation and tree replacement areas must be shown on all preliminary plats, final plats, site plans, and development plans to clearly assign tree replacement responsibility to future owners. Tree preservation and replacement areas located on individual lots must also be shown on all plot plans for those lots.

b. Property owners are responsible for protecting and preserving designated tree preservation and replacement areas during and after development, in accordance with standard horticultural practices and *7.2.3, Protection of Existing Vegetation*.

c. Trees may be used to satisfy both tree coverage requirements and the landscaping and buffering requirements of *Sec. 4.6, Landscape*, provided all applicable standards are met.

2. R-/RX-3 Districts (4 Acres or More)

a. A minimum of 22% preserved tree coverage is required for any phase that does not exceed 35 acres, or when the overall development qualifies under one of the following:

i. The development provides affordable housing under Sec. XX, Affordable Housing Bonus, or is an approved Low-Income Housing Tax Credit (LIHTC) development.

ii. The development provides at least 10% of dwelling units as affordable rental or for-sale units at no more than 80% Area Median Income (AMI). All other provisions for affordable dwelling units, as defined in *Article 9, Defined Terms*, apply.

iii. The development site provides double the minimum required riparian buffers (e.g., a 50-foot buffer is increased to 100 feet, a 150-foot buffer is increased to 300 feet).

iv. The development must provide a natural, undisturbed wildlife corridor with a minimum width of 50 feet. The corridor must extend through the site, connect to neighboring undisturbed natural areas or tree preservation areas on adjoining properties, and be in a permanent conservation easement in accordance with *7.2.7.K.3*.

b. If the tree coverage requirement cannot be met with existing on-site vegetation, in accordance with *7.2.1.C, Locations* and *7.2.1.E, Preserved Tree Coverage*, then the tree coverage percentages specified in the table below must be met.

Preserved Tree Coverage Area	Total Tree Coverage Area Required
At least 15% but less than 22%	28%
At least 10% but less than 15%	29%
Less than 10%	30%

c. For any phase of a development that exceeds 35 acres, where the overall development does not qualify under *paragraph 2.a above*, a minimum of 30% preserved tree coverage is required for that phase. If this requirement cannot be met with existing on-site vegetation, in accordance with *7.2.1.C, Locations* and *7.2.1.E, Preserved Tree Coverage*, the tree coverage percentages specified in the table below must be met.

Preserved Tree Coverage Area	Total Tree Coverage Area Required
At least 25% but less than 30%	33%
At least 15% but less than 25%	34%
Less than 15%	35%

d. In addition to the street tree requirements of *6.4.4, Street Trees*, each single-unit or two-unit lot must retain an existing tree or plant a new tree prior to issuance of a certificate of compliance for a new primary structure. Any newly planted tree must be an allowable canopy or understory species and must comply with the minimum planting area requirements, see *Sec. 4.6, Landscape*.

3. RX-5 and RX-8 Districts

A minimum of 7% preserved tree coverage is required. Where this requirement cannot be met with existing on-site vegetation, in accordance with *7.2.1.C, Locations* and *7.2.1.E, Preserved Tree Coverage* the tree coverage percentages specified in the table below must be met.

Preserved Tree Coverage Area	Total Tree Coverage Area Required
Less than 7%	9%

4. CX-3 District

A minimum of 3% preserved tree coverage is required. Where this requirement cannot be met with existing on-site vegetation, in accordance with *7.2.1.C, Locations* and *7.2.1.E, Preserved Tree Coverage* the tree coverage percentages specified in the table below must be met.

Preserved Tree Coverage Area	Total Tree Coverage Area Required
Less than 3%	5%

5. CN District

A minimum of 5% preserved tree coverage is required. Where this requirement cannot be met with existing on-site vegetation, in accordance with *7.2.1.C, Locations* and *7.2.1.E, Preserved Tree Coverage* the tree coverage percentages specified in the table below must be met.

Preserved Tree Coverage Area	Total Tree Coverage Area Required
Less than 5%	7%

6. CG, CH, IH, and UC Districts

A minimum of 10% preserved tree coverage is required. Where this requirement cannot be met with existing on-site vegetation, in accordance with *7.2.1.C, Locations* and *7.2.1.E, Preserved Tree Coverage*, the tree coverage percentages specified in the table below must be met.

Preserved Tree Coverage Area	Total Tree Coverage Area Required
At least 8% but less than 10%	13%
At least 6% but less than 8%	14%
Less than 6%	15%

7. R-/RX-3 (4 acres and less), CIV, PK, and CON Districts

The required tree coverage percentages can be met through any combination of tree preservation or tree replacement.

8. Tree Coverage Calculation Exclusions

a. General

For the purpose of calculating tree coverage, the following areas are excluded from the total development tract:

i. The water surface area of ponds, lakes, and other water bodies, excluding stormwater control structures.

ii. Land dedicated for the widening of existing road rights-of-way.

b. Utility Easements

i. Only applies only to single-unit and two-unit residential developments and only for areas within a recorded utility easement, such as power, gas, water, or sewer, that is at least 50 feet wide and in place at the time of application submittal.

ii. Only only to the calculation of replacement tree coverage and allows adjustment of the overall tree coverage percentage requirement to account for the excluded area.

Example: An application requires tree coverage for a 100-acre development tract, with 5 acres located within a qualifying easement. 15% is required for tree preservation, which results in an additional 8% for tree replacement, for a total of 23% tree coverage. The exclusion is applied as follows:

1) 15% of 100 acres = 15 acres

2) 8% of 95 acres (5 acres excluded) = 7.6 acres

3) 22.6 acres or 22.6% (adjusted from the original 23% requirement to account for the exclusion)

E. Preserved Tree Coverage

1. General

Tree preservation areas must meet the following requirements:

a. All provisions of *7.2.2, Protection of Existing Vegetation*, must be met.

b. Tree preservation areas must be located in the areas identified in *7.2.1.C, Locations*. Additional tree preservation areas may be located outside these areas if they protect major specimen trees or clusters of trees.

2. Clusters of Trees

a. This section doesn't apply to projects in the R- and RX-3 districts that less than 4 acres in size.

b. The tree coverage area for a cluster of trees is defined by the exterior boundary of the combined tree protection zones for all trees in the cluster.

c. For parcels larger than 1 acre, a tree preservation area for a cluster of trees counts toward the tree coverage standard only if it:

i. Includes at least 1,000 square feet or a smaller area;

ii. Has no individual dimension less than 13 feet;

iii. Encompasses the entire tree protection zone of the cluster; and

iv. Implements adequate tree protection measures during construction and grading, as defined in *7.2.3, Protection of Existing Vegetation*.

d. For parcels 1 acre or less, a cluster of trees counts toward the tree coverage standard only if it:

i. Includes at least 500 square feet or a smaller area; and

ii. Has no individual dimension less than 13 feet.

e. At least 60% of the tree coverage area within a tree cluster must consist of trees with a minimum 1-inch DBH, as determined through landscape sampling under *4.6.2.D, Sampling*.

f. At least 75% of the tree protection zone for trees within the cluster measuring at least 6 inches DBH must remain undisturbed for it to be considered a protected cluster. Root zones extending into rights-of-way are considered disturbed areas, unless legally binding protections are placed upon those areas.

3. Individual Trees

a. The tree coverage area for an individual tree is defined by its tree protection zone.

b. At least 75% of the tree protection zone must remain undisturbed for the tree to count as preserved. Root zones extending into rights-of-way are considered disturbed unless legally binding protections are in place.

c. An individual tree may count toward tree coverage credit if it has a diameter of 6 inches DBH or greater.

4. Construction in Preserved Tree Coverage Area

a. Preserved tree coverage areas cannot be disturbed, except as follows:

i. Unpaved walking paths and foot trails constructed with minimal disturbance of tree roots and existing vegetation. No tree 6 inches DBH or greater can be removed for the construction of the trail.

ii. Paved trails that are public trails and are shown on the most recent version of the Durham Trails and Greenways Master Plan. In no case can the clearing of the trail corridor exceed 16 feet in width.

iii. Amenity areas containing such items as picnic tables and benches provided that such areas are unpaved and no larger than 200 square feet or 10% of the tree coverage area, whichever is smaller. No tree 6 inches DBH or greater can be removed for the construction of an amenity area.

b. Buildings, utilities, and stormwater facilities must be set back at least 10 feet from the edge of preserved areas. Only conservation, greenway, and landscape easements are permitted within a preserved tree coverage area.

F. Replacement Tree Coverage

Areas proposed for tree replacement must meet the following;

1. For parcels greater than 1 acre, a tree replacement area does not count toward the tree coverage standard unless it is at least 1,000 square feet, or the smaller area allowed and no dimension is less than 25 feet.

2. For parcels 1 acre or less, a tree replacement area does not count unless it is at least 500 square feet, or the smaller area allowed and no dimension is less than 15 feet.

3. When replacement trees are provided to satisfy this section, credit is calculated based on the required planting area for each proposed tree, using the table below:

Hardwood Caliper	Non-Hardwood Height	Credit
4"	18" or over	275 SF
3.5"	16" to 18"	250 SF
3"	14" to 16"	225 SF
2.5"	12" to 14"	200 SF
2	10" to 12"	175 SF
1.5"	8" to 10"	150 SF
1"	7" to 8"	100 SF
0.75"	5" to 7"	75 SF
< 0.75"	< 5"	No Credit

Example. 10 trees at 2.5" caliper require 2,000 square feet of planting area (10 × 200 = 2,000) and provide 2,000 SF of replacement tree credit.

4. At least 50% of replacement trees must be 1-inch caliper or greater.

5. All tree species must be native to the North Carolina Piedmont region.

   a. A minimum of 50% must be hardwood canopy species.

   b. The remainder must be a mix of understory hardwood and non-hardwood species, with no more than 50% of this remainder consisting of pines.

6. Replacement trees must be provided as a mix of species, in accordance with *4.6.1.E, Plant Material Requirements.*

7. 100% of the replacement trees planted to augment preserved tree coverage clusters, pursuant to *7.2.2.E.2, Clusters of Trees*, must be native understory hardwoods of at least 1-inch caliper.

8. Areas meeting *7.2.2.E.2, Clusters of Trees* may be counted towards the transition standards in *4.4, Transitions and Screening* if the dimensional requirements are met.

9. Areas designated as replacement tree coverage areas are subject to the same use limitations as preserved tree coverage areas in *7.2.2.E.4, Construction in Preserved Tree Coverage Areas,* except that stormwater control measures designed as bio-retention facilities are permitted.

10. Replacement trees must be planted prior to the issuance of a Certificate of Compliance, unless planting is deferred to the appropriate season in accordance with *4.6..1.I, Extensions.*

11. The minimum dimension requirements for tree replacement areas can be combined with the minimum dimension requirements for tree preservation areas if directly adjacent and the proposed plantings are representative of the existing forest area in terms of the canopy, understory, and herbaceous layers.

12. For individual single-unit lots within subdivisions 4 acres or less, the minimum dimension requirements for tree preservation areas do not apply. For residential subdivisions of 4 acres or more, required tree coverage areas cannot be located on private individual lots and must be provided within common or shared areas.

7.2.2. Protection of Existing Vegetation

Any trees preserved on a development tract to meet the requirements of this Section, or otherwise designated for preservation, must comply with the following:

A. Tree protection measures, including the location and details of fencing, must be shown on site, landscape, grading, utility, demolition, and erosion control plans.

B. A protection zone must be established around each preserved tree. The zone must be the greater of:

   1. A 6-foot radius around the tree, or

   2. A 1-foot radius for every inch of tree diameter at breast height (dbh).

C. A tree protection fence constructed of a material resistant to degradation by sun, wind, and moisture for the duration of the construction, must be installed at the same time as the erosion control measures, and must remain in place until all construction is complete. The fencing must be mounted on metal posts placed no further than 10 feet apart. Silt fencing does not serve as tree protection fencing.

D. At the start of grading involving the lowering of the existing grade around a tree or stripping of topsoil, a clean, sharp, vertical cut must be made at the edge of the tree save area at the same time as other erosion control measures are installed. Tree protection fencing must be installed on the side of the cut farthest away from the tree trunk. This procedure must be incorporated as a note on the grading and erosion control plans.

E. No storage of materials, dumping of waste materials, fill, or parking of equipment is allowed within the tree protection zone, and no trespassing is allowed within the boundary of the tree protection zone, and it must be noted on the grading and erosion control plans and posted at each end of the tree protection fence with perimeter signs spaced a maximum of 100 feet on center. Each sign must read “no trespassing/tree protection area” and “prohibido entrar/zona protectora para los arboles”

F. Alternative tree protection plans for individual trees may be utilized if the proposed measures are done in accordance with best management practices and approved by the Planning and Development arborist.

7.2.3. Tree Survey

A. Purpose

The primary purpose of the tree survey requirements is to provide better information about the presence and location of significant trees on sites proposed for development. This information is needed before plans for development are so far advanced that it is unreasonable and impractical to modify the plans to protect the trees identified on the tree survey. Knowing the location and size of major specimen trees helps the staff and governing body evaluate possible modifications to the proposed plans to preserve significant trees and improve the appearance of proposed development.

B. Land Disturbance Tree Survey

1. A land disturbance tree survey is required for any area for which the limits of disturbance are within 30 feet of a preserved tree coverage area, floodplain, steep slope area, riparian buffer, required landscape buffer, inventory site, wetland, or conservation area.

2. The land disturbance tree survey must show the specific location, species, size and tree protection zone of any tree 6 inches dbh or greater that is within 30 feet of any area proposed for disturbance, and meets the qualifications in the above paragraph.

3. The land disturbance tree survey must be shown on all site, grading, and erosion control plans, as well as preliminary plats.

4. The survey must be prepared in accordance with *4.6.1.F, Landscape Plans and Surveys*.

7.2.4. Clear-Cutting

A. Standards

Properties must not be clear-cut during the conduct of forestry activities. To maintain the visual character of the site from adjoining properties and right-of-way, a vegetated perimeter buffer must be maintained while tree harvesting for forestry occurs. A 32-foot wide buffer of naturally existing vegetation must be maintained along all boundaries of the property being forested that adjoin other properties. Along public rights-of-way, a 50-foot buffer of naturally existing vegetation must be maintained, exclusive of areas required for access to the site.

1. Penalties

a. City

Site plans proposing development on properties where all or substantially all trees within the required 32-foot or 50-foot buffers, or both, have been removed must be denied for 3 years from the date of removal. If the removal is a willful violation of this section, development is denied for 5 years from the date of removal.

b. County

Site plans proposing development on properties where all or substantially all trees within the required 32-foot or 50-foot buffers, or both, have been removed must be denied for 3 years from the date of removal.

7.2.5. Major Specimen Trees

A. A major specimen tree is defined pursuant to *Article 9, Definitions.*

B. Major specimen trees saved and protected under *7.2.3* are eligible tree coverage credit equal to 1.5 times the size of the tree protection zone. Trees located within the floodway, non-encroachment area, floodway fringe, non-encroachment area fringe, Areas of Shallow Flooding Zone (AO) - unless proposed to be filled or developed in accordance with *7.3.4, Special Flood and Future Conditions Hazard Areas* - preserved wetlands and wetland buffers, steep slope areas, riparian buffers, Major Transportation Corridor (MTC) buffers, and Durham Natural Inventory Sites are not eligible for additional credit.

C. To receive additional credit, a major specimen tree survey is required showing the specific location, species, size, and tree protection zone of all major specimen trees to be preserved. This survey must be included on all site, landscape, grading, utility, demolition, and erosion control plans.

D. Removal of trees is only allowed to provide property access or to accommodate required pedestrian infrastructure or right-of-way improvements, with protections for major specimen trees maintained under XX, Natural Buffers.

7.2.6. Open Space

A. Purpose

To contribute to the visual character and uniqueness of each development and provide recreational and aesthetic opportunities for residents.

B. Applicability

Reserved

C. Required Open Space

The total minimum required tree coverage and open space by district must be met as listed below.

	Residential Districts				Nonresidential Districts						
	R-, RX-3 (< 4 acres)	R-	RX-3	RX-5, RX-8	CX-3	CX-5, CX-8, CX-20, IX, IU	CN	CG, CH, IH, UC,	CIV	PK	CON**
Total Minimum Required (% of project site)	7%	30%	30%	25%	20%	15%	5%	10%	15%	40%	50%
The sum of the Required Elements and Supplemental Elements must equal the Total Minimum Required											
Required Elements (%) The Required Elements percentages must be met											
Tree coverage	7%	22%	22%	7%	3%	--	5%	10%	10%	20%	50%
Amenity space	--	--	7%	15%	15%	15% ****	--	--	--	--	--
Recreational open space	--	3%	--	--	--	--	--	--	--	10%	--
Supplemental Elements (%) The Supplemental Elements can be used at the applicant choice until the Total Minimum Required has been met for the district											
Public art	--	1%	1%	1%	1%	1%	--	--	1%	1%	--
Public plazas and courtyards	--	--	--	--	2%	--	--	--	5%	10%	--
Preservation of natural and cultural resources	--	5% ***	3% ***	3%	2%	--	--	--	5%	10%	--
Flexible space	--	5%	3%	3%	2%	--	--	--	5%	10%	--
Recreational Land	In addition, an impact fee for recreational land may be required as outlined in *7.2.6.L*.										

***** = Subdivisions created through the exempt plat process are not subject to open space requirements but remain subject to tree coverage requirements.

****** = Development within the Conservation (CON) district may provide less than 50% tree coverage if a recorded conservation easement specifies a different percentage as part of its approved management plan.

******* = Residential subdivisions must prioritize preservation under *7.2.6.H, Preservation of Natural and Cultural Resources*, to the greatest extent possible before applying Public Art or Flexible Space to meet amenity requirements.

******** = The provision of public art allows required Amenity Space to be reduced to 12%.

D. General Open Space Requirements

1. For amenity space requirements see *2.10.5, Outdoor Amenity Space*.
2. Required open space must be designed and located to be accessible to all residents, owners and users within the project, by way of a sidewalk, greenway, and/or multi use trail.
3. Streets, driveways, vehicular use areas, and yards do not count toward the open space requirement.
4. Sidewalks and walkways required under *4.2, Pedestrian and Bicycle Mobility*, do not qualify as "all-weather trails" and can not be counted toward open space requirements.
5. All open space areas, except trails, must have a minimum dimension of 20 feet in any direction.
6. The development must be designed so that at least 95% of the residential units are within a 1,500-foot walking distance of the usable open space.
7. Non-amenitized stormwater facilities cannot count towards required open space.
8. Payment in lieu of required open space is available in addition to payment-in-lieu available under *4.2, Pedestrian and Bicycle Mobility*, and *7.2.6.L, Recreation Land*, if the development:
    a. Contains 10 or fewer units; or
    b. Contains no engineered stormwater controls.

E. Recreational Open Space

Land provided to meet the recreational open space requirement must be meet one or more of the following configurations.

Open Space Type	Illustration	Recommended Size	Description & Key Features	Typical Facilities & Requirements
Mini-Park	[insert graphic]	Min: 2,000 SF Max: None	Mini-Parks are small spaces typically designed for small-scale passive recreation (e.g., courtyard seating) and active recreation (e.g., playgrounds).	Playgrounds may be fenced and must be equipped with playground equipment and/or fountain/splash pad, seating, and an open shelter or other shading Structure. Courtyards are spaces with more than 50% of its perimeter defined by building edges that is available for informal activities and seating. Courtyards are usually paved.

Open Space Type	Illustration	Recommended Size	Description & Key Features	Typical Facilities & Requirements
Close	[insert graphic]	Min: 2,500 SF Max: None	Closes are alternatives to a paved Cul-de-Sac that are available for informal activities near the fronting residences.	Passive recreation, formal landscaping, and seating
Green	[insert graphic]	Min: 2,000 SF Max: 5 acres	Greens are informal spaces typically sited to preserve key natural features and may include passive and limited active recreational amenities.	Passive and active unstructured or Structured recreation, Accessory Structure, drinking fountains, community facility <5,000 gross square feet, paths and trails, seating. The surface is predominately grass or other natural ground cover and tree stand areas.
Park	[insert graphic]	Min: 1 acres Max: 5 acres or dedicated land in accordance with *7.2.6.L, Recreation Land*	Parks are available for unstructured recreation and a limited amount of Structured recreation including some athletic fields.	Facilities may include, but not be limited to, such as passive recreational use amenities as benches, picnic tables, paths and trails, drinking fountains, Gazebos, landscaping playground, stages or band stands as well as active recreational uses such as athletic fields and their related facilities.
Parkways	[insert graphic]	Min: 1 acre Max: None	Parkways are areas that share more than 25% of their perimeter along a Street with a minimum depth of 50 feet from the back of curb / edge of pavement. Parkways retain, to the greatest extent possible, natural or pre-existing contours, topography,water courses and vegetation.	Parkways often contain trails. If the Parkway is sparsely vegetated, it shall be provided with supplemental interior landscaping of an informal design must be provided

Open Space Type	Illustration	Recommended Size	Description & Key Features	Typical Facilities & Requirements
Greenbelt	[insert graphic]	Min: 20 feet in width	Greenbelts are generally conservation areas that retain, to the greatest extent possible, natural or pre-existing contours, topography, water courses and vegetation.	Greenways, trails, and seating.
Amenitized Stormwater Facility	[insert graphic]	Min: 1 acre Max: None	Amenitized stormwater facilities integrate water quality and flood control functions with recreational open space. Key features may include accessible pedestrian passages, seating areas, native landscaping, and educational signage that highlights the role of the facility in managing stormwater.	May be counted if at least two of the following amenities are provided: » Educational signage with a minimum area of 6 SF; » Walking or jogging path surrounding at least 50% of the perimeter of the stormwater control measure, with a bench provided every 50 linear feet; » Dock or pier; or » Decorative water feature, such as an aeration or fountain system.

F. Public Art

1. Public artwork requires a recommendation of approval from the Public Art Committee of the Cultural Advisory Board.
2. Public Art is artwork created for public spaces and audiences, including but not limited to murals, sculptures, installations, digital works, interactive and kinetic artwork, site-specific integrated artwork, and artist-designed site elements. Public Art typically responds to the physical and social context of its location while reflecting the city's cultural history, community values, and diverse identities.
3. Public art must be permanent and include a maintenance agreement.
4. All-weather materials must be used.
5. Public art cannot include advertisements, but can include a placard indicating the name of the artwork, the name of the artist, and information about the artwork.
6. Public art does not need to meet minimum required percentage in order to account for the required 1% open space.

G. Plazas and Courtyards

1. Plazas

a. Plazas must be at least 2,000 square feet and be not more than 2 acres in size.

b. Plazas must be located adjacent to or as part of a civic building or common area facility development as a project amenity and are spatially defined by building frontage.

c. The horizontal length or width of a plaza cannot exceed 3 times the height of adjacent buildings.

d. Surface areas must maintain a slope of less than 3% and may include passive recreation, paths and trails, accessory structures, seating, and drinking fountains, and primary surfaces of brick or other approved paver materials.

e. Surface areas may be stepped as necessary to accommodate natural topography, subject to approval.

2. Courtyards

a. Plazas must be at least 2,000 square feet and and be not more than 2 acres in size.

b. Courtyards are defined spaces intended for civic purposes, generally unstructured, with limited structured recreation.

c. They must be spatially defined by building frontages and located at intersections of important streets.

d. Courtyards may include passive and active recreation, paths and trails, accessory structures, seating, drinking fountains, and community facilities under 5,000 gross square feet.

e. Surface materials may consist of any combination of grass, crushed gravel, brick pavers, or other suitable ground cover.

H. Preservation of Natural and Cultural Resources

Areas that extend beyond tree coverage, as identified within the sustainability matrix and must include the preservation of the following:

1. Wildlife corridors, habitats, or other biologically significant areas as identified in the Durham County Inventory of Important Natural Areas, Plants, and Wildlife, or in adopted plans;

2. Areas with observed presence of species of special concern, threatened, or endangered species as determined by the North Carolina Wildlife Resources Commission (NCWRC), North Carolina Plant Conservation Program (NCPCP), or other qualified ecologists and biologists. This includes species state-listed as Endangered, Threatened, or Special Concern;

3. Piedmont Prairies;

4. Existing cemeteries;

5. Properties currently designated in, or eligible for, the National Register of Historic Places;

6. Sites identified in the Durham Architectural and Historic Inventory; and
7. Sites identified as naturally or culturally significant within an adopted Small Area Plan or other adopted open space plan.

I. Flexible Space

Flexible space may include, but is not limited to:

1. Cluster Box Units (CBUs);
2. Green stormwater infrastructure, such as rain gardens and bioswales. These must provided in addition of required stormwater facilities.
3. Alternative layouts for parks, parkways, greenways, or playgrounds;
4. Excess recreational open space or preserved tree coverage; or
5. Areas between structures or other informal open spaces.

J. Open Space Calculation

1. Trails

a. Trails used to satisfy the requirements of this section must be paved with an all-weather surface, such as asphalt, concrete, or another material that meets State accessibility standards. Gravel is not considered an all-weather surface. Exceptions to paving may be allowed for trails located within required riparian buffers.

b. The area of trails must be calculated based on the square footage of the trail surface, with an additional 5 feet added on either side.

2. Playgrounds

Use the square footage of each playground structure plus a six-foot-wide walk zone around it.

3. Pedestrian Zones

Required pedestrian infrastructure does not count towards open space requirements.

K. Ownership and Management of Open Space

1. Land set aside as open space in residential developments must be held in common ownership or dedicated to the public rather than platted as part of individual private lots.
2. Prior to approval of a final plat, a program for continued maintenance of all open space areas shall be submitted. The submission shall include agreements, contracts, deed restrictions, sureties, or other legal instruments acceptable to the City or County, as appropriate, to guarantee the provision and continued maintenance of such common areas and facilities.
3. The open space must be protected in perpetuity by a binding legal instrument that is recorded with the deed. The instrument must be one of the following:

a. A permanent conservation easement in favor of either:

i. A land trust or similar conservation-oriented non-profit organization with legal authority to accept such easements (the organization must be bona fide and in perpetual existence and the conveyance instruments must contain an appropriate provision for re-transfer in the event the organization becomes unable to carry out its functions). If the entity accepting the easement is not the City or the County, then a third party right of enforcement favoring the City or the County must be included in the easement; or

ii. A governmental entity with an interest in pursuing goals compatible with the purposes of this section acceptable to the City or County, as appropriate.

b. A permanent restrictive covenant for conservation purposes in favor of a governmental entity.

c. An equivalent legal tool that provides permanent protection, if approved by the City or County, as appropriate.

d. Dedication of the land to an established homeowner's association (with legal standing in the property) that accepts permanent maintenance responsibility.

4. The instrument for permanent protection must include clear restrictions on the use of the open space. These restrictions must include all restrictions contained in this section, as well as any further restrictions the applicant chooses to place on the use of the open space.

5. Open space that has been dedicated to an established homeowner's association can be transferred with a permanent conservation easement to a land trust or similar conservation-oriented non-profit organization with legal authority to accept such easements pursuant to *paragraph 3*. above.

L. Recreation Land

1. Provisions for both active and passive recreation areas, including parks, greenways, and trails, consistent with adopted policies, plans, and regulations shall be made for all developments. All such land shall be dedicated or reserved and shall satisfy applicable City or County site suitability standards with regard to location, area, and potential use.

2. Dedication, Impact Fees, and Payment-in-Lieu

a. In the County

i. The applicant for a residential development shall be responsible for either:

a). Dedicating 1,150 square feet of land for recreation purposes (including active and passive recreation areas, including trails) for each proposed dwelling unit; or

b). Making payment-in-lieu equivalent to the tax value of 1,150 square feet of comparable property per dwelling unit.

ii. One of the following shall be required:

a). Dedication of land; or

b). Payment-in-lieu of dedication.

b. In the City

i. The applicant for a residential development shall be responsible for:

a). Paying a recreation impact fee or dedicating 575 square feet of land for parks and active recreation areas for each proposed dwelling unit; and

b). Paying a resource based recreation impact fee or dedicating 575 square feet of land for passive recreation areas (including trails) for each proposed dwelling unit.

ii. Where recreation service districts have been established, payments made under this section shall be expended within the respective district from which collected.

iii. The following, individually or in combination, shall be required based upon jurisdiction and whether the development is located on the Durham Trails and Greenways Master Plan or the Durham Comprehensive Bicycle Transportation Plan:

a). Payment of an impact fee;

b). Dedication of land; or

c). Payment-in-lieu of dedication.

SEC. 7.3. FLOODPLAIN AND FLOOD DAMAGE PROTECTION

7.3.1. Purpose

A. The floodplain and flood damage protection standards are intended to preserve and maintain the undisturbed vegetated state of natural floodplains to control stormwater, maintain flood storage capacity, improve water quality, and conserve plant and wildlife habitat. In addition, the standards serve to promote the public health, safety, and general welfare and minimize public and private losses from flooding in flood-prone areas.

B. This section is intended to facilitate the implementation of the Federal Flood Insurance Program and minimize the risk of sustaining flood-related damage by:

1. Restricting or prohibiting uses that are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
2. Requiring flood-vulnerable uses, including related facilities, to be protected against potential flood damage at the time of initial construction;
3. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which play a crucial role in managing floodwaters;
4. Controlling filling, grading, dredging, or other development that may increase erosion or flood damage;
5. Restricting or prohibiting the construction of flood barriers that unnaturally divert flood waters or may increase flood hazards in other lands;
6. Minimizing damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, and streets and bridges located in flood-prone areas; and
7. Ensuring that property owners and potential property owners are notified that their property is located in a Special Flood Hazard Area or Future Conditions Flood Hazard Area.

C. The degree of flood protection required by this Code is considered reasonable for regulatory purposes and is based on scientific and engineering analyses. However, larger floods may occur, and actual flood heights can be influenced by man-made or natural causes. This Code does not imply that land outside the Special Flood Hazard Areas and Future Conditions Flood Hazard Areas or permitted uses within these areas will be free from flooding or flood damage. This Code also does not create liability on the part of Durham, City or County, including any officer or employee thereof, for any flood damages resulting from reliance on this ordinance or any lawfully made administrative decision.

7.3.2. Applicability

A. This section applies to all Special Flood Hazard Areas, Future Conditions Flood Hazard Areas, and nearby affected flood hazard areas within the City and County of Durham as identified by the Federal Emergency Management Agency (FEMA) or produced under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its Flood Insurance Study (FIS) dated December 6, 2019, for Durham County and associated Digital Flood Insurance Rate Map (DFIRM)

panels, including any digital data developed as part of the FIS, which are adopted by reference and declared a part of this Code along with any subsequent revision in accordance with N.C. General Statute § 160D-105.

B. The Special Flood Hazard Areas, Future Conditions Flood Hazard Areas, and nearby affected flood hazard areas also include those defined through standard engineering analysis for private development or by governmental agencies, but which have not yet been incorporated into the Flood Insurance Rate Map (FIRM). This includes, but is not limited to, detailed flood data generated to meet the requirements of 3.21.2B.11 and 12, Duties and Responsibilities.

7.3.3. Standards

A. General Standards

In all Special Flood Hazard Areas and Future Conditions Flood Hazard Areas, the following provisions apply:

1. All new construction and substantial improvements must be securely anchored to prevent flotation, collapse, or lateral movement;
2. All new construction and substantial improvements must be constructed with flood-resistant materials and utility equipment;
3. All new construction or substantial improvements must be constructed using methods and practices that minimize flood damage;
4. All electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities must be designed and located to prevent water from entering or accumulating within the components during flooding conditions. These include, but are not limited to, HVAC equipment, water softener units, bath/kitchen fixtures, ductwork, electric meter panels/boxes, utility/cable boxes, appliances (e.g., washers, dryers, refrigerators, etc.), hot water heaters, and electric outlets/switches;
5. All new and replacement water supply systems must be designed to minimize or prevent the flood water infiltration into the system;
6. All new and replacement sanitary sewage systems must be designed to minimize or prevent flood water infiltration into the systems and discharges from the systems into floodwaters;
7. All on-site waste disposal systems must be located and constructed to avoid impairment or contamination during flooding;
8. Any alteration, repair, reconstruction, or improvements to a structure in compliance with the standards of this Code, must meet the requirements of new construction; and
9. New solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities are not allowed. A structure or tank for chemical or fuel storage incidental to an allowed use or to the operation of a water treatment plant or wastewater treatment facility may be located in a Special Flood Hazard Area only if the structure or tank is either elevated or floodproofed to at least the regulatory flood protection elevation and certified according to the certification requirements in Sec. 3.21, Floodplain Development Permit;

10. Fill material must be used for all new construction and substantial improvements to create an elevation that is 2 feet above base flood elevation or future conditions flood elevation, except as otherwise authorized in *7.3.4, Special Flood and Future Conditions Hazard Areas*. The fill material is required to extend for a distance of 40 feet from the exterior walls of a building. If the distance to the property line is less than 40 feet, the fill must extend to the property line. The required fill material distance must include a sloped edge with a maximum 3:1 slope (for example, for a fill 3 feet deep: 31 feet of flat fill plus 9 feet of sloped fill) or a retaining wall in lieu of the slope (for example, a side yard of flat fill and a retaining wall). Residential accessory structures, which are defined as nonhabitable structures by the North Carolina Building Code, are exempt from requirements to extend the fill material beyond the building's footprint but are required to be placed on fill at least 2 feet, or 5 feet in Zone A, above base flood elevation. Exceptions from any of these requirements resulting from special storm water considerations must be forwarded to the approving authority if other than the Floodplain Administrator, with a recommendation from the Floodplain Administrator;

11. Nothing in this Code is intended to prevent the repair, reconstruction, or replacement of a building or structure existing on the effective date of this Ordinance and located totally or partially within the floodway or non-encroachment area, provided there is no additional encroachment below the Regulatory Flood Protection Elevation in the floodway or non-encroachment area, and provided that the repair, reconstruction, or replacement meets all of the other requirements of this Ordinance.

12. If a structure is partially located in a Special Flood Hazard Area, the entire structure must meet the requirements for new construction and substantial improvements; and

13. If a structure is located in multiple flood hazard zones or in a flood hazard risk zone with multiple base flood elevations, the standards for the more restrictive flood hazard risk zone and the highest Base Flood Elevation (BFE) applies.

B. Specific Standards

In all Special Flood Hazard Areas where Base Flood Elevation (BFE) data has been provided and in Future Conditions Flood Hazard Areas where future conditions flood elevations data has been provided, as set forth in *7.3.2, Applicability*, or 3.21.2B.11 and 12, Duties and Responsibilities, the following provisions are required:

1. Subdivisions

a. Land in Special Flood Hazard Areas and Future Conditions Flood Hazard Areas can be used for the following purposes, provided that such uses are designed and constructed to minimize clearing, grading, erosion, and water quality degradation, and are in compliance with *Sec. 7.3, Floodplain and Flood Damage Protection.* Land in Special Flood Hazard Areas and Future Conditions Flood Hazard Areas cannot be used to meet minimum lot size requirements, except in the Rural Tier and on property zoned RR or RS-20 in the Suburban Tier where at least 50% of the required lot area is located outside the floodway or non-encroachment area or floodway fringe.

b. If allowed, development proposals located in Special Flood Hazard Areas and Future Conditions Flood Hazard Areas must:

   i. Be consistent with the need to minimize flood damage;

ii. Have public utilities and facilities such as water, sewer, gas, and electrical systems located and constructed to minimize flood damage;

iii. Have adequate drainage provided to reduce exposure to flood hazards; and,

iv. Have Base Flood Elevation (BFE) data provided if development is greater than the lesser of 5 acres or 50 lots/manufactured home sites. Base Flood Elevation (BFE) data must be adopted by reference per *7.3.2, Applicability*, to be used in implementing this Code.

2. Residential Construction

New construction or substantial improvements of any residential structure, including manufactured homes, must have the reference level, including basement, elevated no lower than the regulatory flood protection elevation.

3. Nonresidential Construction

New construction or substantial improvements of any commercial, industrial, or other non-residential structure must have the reference level, including basement, elevated no lower than the regulatory flood protection elevation. Hazardous, solid waste, salvage yards, chemical storage facilities, or similar uses are not allowed. Structures located in AE and X (Future) Zones may be floodproofed to the regulatory flood protection elevation in lieu of elevation, provided that all areas of the structure below the required flood protection elevation are watertight, with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect must certify that the standards of this section have been met. Certification must be provided to the official listed in the certification requirements in Sec. 3.21, Floodplain Development Permit.

4. Manufactured Homes

a. New or replacement manufactured homes must be elevated so that the reference level of the manufactured home is no lower than the regulatory flood protection elevation.

b. Manufactured homes must be securely anchored to an adequately anchored designed foundation to resist flotation, collapse, and lateral movement in accordance with the State of North Carolina Regulations for Manufactured/Mobile Homes, 1995 Edition, and any subsequent revision adopted by the Commissioner of Insurance in accordance with NCGS §143-143.15, or a certified engineered foundation. Additionally, if the required elevation results in the chassis being elevated 36 inches or less above grade, the chassis must be supported by reinforced piers or other foundation elements of at least equivalent strength. If the chassis exceeds 36 inches in height, an engineering certification is required.

c. All foundation enclosures or skirting must meet the standards in *7.3.3.B.5, Elevated Buildings*.

d. All new substantially-improved or substantially-damaged manufactured home parks or subdivisions located in Special Flood Hazard Areas or Future Conditions Flood Hazard Areas must prepare an evacuation plan for all residents. The plan must be filed with the Floodplain Administrator and the Emergency Management Coordinator before site plan approval, plat approval, or building permit issuance, if site plans or plats are not required.

e. Manufactured homes, except replacement manufactured homes located in an existing manufactured home park or subdivision, are not allowed in the floodway or non-encroachment area. Permitted manufactured homes are subject to the non-encroachment standards of *7.3.3.E, Floodway and Non-Encroachment Areas.*

5. Elevated Buildings

New construction or substantial improvements of elevated buildings that include fully enclosed areas below the regulatory flood protection elevation must not be designed for human habitation but only for vehicle parking, building access, or limited storage of maintenance equipment used in connection with the premises. Such areas must be constructed entirely of flood-resistant materials below the regulatory flood protection elevation in Zone AE and X (Future) Zones and meet the following design criteria:

a. Measures for complying with this requirement must be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing the entry and exit of floodwater. To meet this requirement, the foundation must either be certified by a professional engineer or architect or meet the following minimum design criteria:

   i. Provide a minimum of 2 openings on different sides of each enclosed area subject to flooding;

   ii. The total net area of all openings must be at least 1 square inch for each square foot of each enclosed area subject to flooding;

   iii. If a building has more than 1 enclosed area, each area must have exterior walls with openings to enable the entry of floodwater;

   iv. The bottom of all required openings must be no higher than 1 foot above adjacent grade; and

   v. Openings can be equipped with screens, louvers, or other opening coverings or devices provided they allow the automatic flow of floodwaters in both directions. For the purposes of this standard, vinyl or sheet metal skirting is not considered an enclosure for regulatory or flood insurance rating purposes and, therefore, is not required to have hydrostatic openings.

b. Access to the enclosed area must be the minimum necessary to allow for vehicles parking (e.g., garage doors) or limited storage of maintenance equipment used in connection with the premises (e.g. standard exterior door) or entry to the living area (e.g. stairway or elevator). The interior portion of such enclosed areas must not be partitioned or finished into separate rooms, except to enclose storage units.

6. Additions and Improvements

a. Additions or improvements to pre-FIRM structures when the addition or improvements in combination with any interior modifications to the existing structure are:

b. Additions or improvements to pre-FIRM structures must be evaluated in combination with any interior modifications to the existing structure are subject to the following conditions:

i. If the addition or improvements do not qualify as a substantial improvement, they must be designed to minimize flood damage and must not increase the structure's nonconformity; or

ii. If the addition or improvements are considered a substantial improvement, both the existing structure and the addition or improvements must comply with the standards for new construction.

c. Additions to post-FIRM structures with no modifications to the existing structure only require the addition to comply with the standards for new construction.

d. Additions or improvements to post-FIRM structures, when combined with any interior modifications to the existing structure, must meet the following requirements:

i. If not a substantial improvement, only the addition or improvements must comply with the standards for new construction; or

ii. If a substantial improvement, the existing structure and the addition or improvements must comply with the standards for new construction.

e. If a fire wall or independent perimeter load-bearing wall is provided between the addition and the existing building, the addition is considered a separate building and only the addition must comply with the standards for new construction.

7. Recreational Vehicles

a. Recreational vehicles cannot be located within Special Flood Hazard Areas or Future Conditions Flood Hazard Areas for 180 days or more and must be licensed and ready for highway use (on wheels attached to a site by quick-disconnect type utilities with no permanently attached additions).

b. Recreational vehicles not meeting these standards must meet the standards of manufactured homes in *7.3.3.B.4.*

8. Temporary Structures

Before a Floodplain Development Permit can be issued for a temporary structure, applicants must submit to the Floodplain Administrator a written plan for the removal of the structure in the event of a hurricane or flash flood warning notification. The plan must include the following information:

a. A proposed time period for which the temporary use will be permitted;

b. The name, address, and phone number of the individual responsible for the removal of the temporary structure;

c. The time frame before the event at which a structure will be removed (i.e. minimum of 72 hours before landfall of a hurricane or immediately upon flood warning notification);

d. A copy of the contract or other suitable instrument with a trucking company to ensure the availability of removal equipment when needed; and

e. Designation, accompanied by documentation, of a location outside the Special Flood Hazard Area or Future Conditions Flood Hazard Area to which the temporary structure will be moved.

9. Accessory Structures

If accessory structures such as sheds or detached garages are located in a Special Flood Hazard Area or Future Conditions Flood Hazard Area, the following must be met:

a. Accessory structures cannot be used for human habitation (e.g. work, living, sleeping, cooking, or restroom areas);

b. Accessory structures must be designed to have low flood damage potential;

c. Accessory structures must be constructed and placed on the building site to offer the minimum amount of resistance to the flow of floodwaters;

d. Accessory structures must be firmly anchored in accordance with *7.3.3.A, General Standards*;

e. All service facilities such as electrical and heating equipment must be installed in accordance with *7.3.3.B, Specific Standards*;

f. Openings to relieve hydrostatic pressure during a flood must be provided below regulatory flood protection elevation in conformance with elevated building requirements in *7.3.3.B, Specific Standards*; and

g. An accessory structure with a footprint less than 150 square feet does not require an elevation or floodproofing certificate. Elevation or floodproofing certifications are required for all other accessory structures in accordance with the certification requirements in Sec. 3.21, Floodplain Development Permit.

C. Floodplains without Base Flood Elevations

Within a Special Flood Hazard Area established in *7.3.2, Applicability* where no Base Flood Elevation (BFE) data has been provided, the following standards apply:

1. No encroachments, including fill, new construction, substantial improvements, or new development, is allowed within 20 feet on each side of the top of the bank, or 5 times the width of the stream, whichever is greater, unless a certification with supporting technical data from a registered professional engineer is provided, demonstrating that encroachments will not result in any increase in flood levels during the occurrence of the base flood discharge.

2. The Base Flood Elevation (BFE) used in determining the regulatory flood protection elevation is determined based on one of the following conditions listed in order of priority:

   a. If Base Flood Elevation (BFE) data is available from other sources, all new construction and substantial improvements must also comply with all the applicable standards of this Code and must be elevated or floodproofed in accordance with 3.21.2B.11 and 12, Duties and Responsibilities.

   b. All subdivision, manufactured home park, and other development proposals must provide Base Flood Elevation (BFE) data if development is greater than 5 acres or has more than 50 lots or manufactured home sites. The Base Flood Elevation (BFE) data must be adopted

by reference per 8.4.2, Standards. A Letter of Map Revision (LOMRR) is required before the approval of construction drawings for development requiring Base Flood Elevation (BFE) data.

c. If Base Flood Elevation (BFE) data is not available from a Federal, State, or other source as outlined above, the reference level must be elevated to or above 5 feet above the highest adjacent grade.

D. Floodplains with Base Flood Elevations

Along rivers and streams where Base Flood Elevation (BFE) data is provided but neither floodway or non-encroachment areas are identified for a Special Flood Hazard Area on the FIRM or in the FIS, no encroachments, including fill, new construction, substantial improvements, or other development, are allowed unless certification with supporting technical data by a registered professional engineer is provided demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than 1 foot at any point within the community.

E. Floodway and Non-Encroachment Areas

1. Located within the Special Flood Hazard Areas established in *7.3.2, Applicability*, are areas designated as floodways or non-encroachment areas, which are extremely hazardous due to the velocity of floodwaters that have erosion potential and carry debris and potential projectiles.

2. No encroachments, including fill, new construction, substantial improvements, or other development are allowed unless the Federal Emergency Management Agency (FEMA) authorizes conditional approval of the proposed encroachment via a Conditional Letter of Map Revision (CLOMR) or a professional engineer registered in the State of North Carolina certifies that such uses will result in no increases in flood levels during the occurrence of a base flood, as demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice if required by the Floodplain Administrator.

F. Standards for Areas of Shallow Flooding (Zone AO)

Located within the Special Flood Hazard Areas established in *7.3.2, Applicability*, are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of 1 to 3 feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate. In addition to the general standards in *7.3.3.A, General Standards*, all new construction and substantial improvements must meet the following requirements.

1. The reference level must be elevated at least as high as the depth number specified on the Flood Insurance Rate Map (FIRM), in feet, plus a freeboard of 2 feet, above the highest adjacent grade; or at least 5 feet above the highest adjacent grade if no depth number is specified.

2. Nonresidential structures may, in lieu of elevation, be floodproofed to the same level as required in *7.3.3.F.1, Standards for Areas of Shallow Flooding (Zone AO)* so that the structure, together with attendant utility and sanitary facilities, below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Certification is required as per 3.21.6, Certification Requirements, and *7.3.3.B.3, Nonresidential Construction*.

3. Adequate drainage paths must be provided around structures on slopes, to guide floodwaters around and away from proposed structures.

7.3.4. Special Flood and Future Conditions Hazard Areas

A. General

1. Development and land disturbing activity within Special Flood Hazard Areas and Future Conditions Flood Hazard Areas is not allowed, except as provided below.

2. The Floodplain Administrator and the Board of Adjustment, as applicable, cannot approve development that is located below the regulatory flood protection elevation if the development is otherwise required to be located at or above the regulatory flood protection elevation or is not allowed within the Special Flood Hazard Areas or Future Conditions Flood Hazard Areas.

3. Development addressed under *7.3.3.C, Floodplains without Base Flood Elevations*, and *7.3.3.D, Floodplains with Base Flood Elevations*, are deemed floodway development for purposes of this section.

B. Development Allowed

Land can be used for the following purposes, with no special approvals required:

1. Agricultural uses, including active agriculture, pasture forestry, wildlife sanctuary, game farms, and similar uses; and

2. Lawns and gardens.

C. Development Requiring Floodplain Administrator Approval

1. The following only require Floodplain Administrator approval in association with any applicable site plan, plat, construction drawings, or building permit approval.

2. Development of, or substantial improvements to, a single-family or duplex structure, and associated site improvements such as accessory structures, driveways, walkways, and utility crossings, on a single lot of record recorded on or before January 1, 2006, or recorded prior to being mapped in the floodway fringe, non-encroachment area fringe, or Areas of Shallow Flooding Zonee AO). Projects can utilize fill, pursuant to a floodplain development permit per Sec. 3.21, Floodplain Development Permit, in the floodway fringe, non-encroachment area fringe, or Zone AO.

3. Floodproofing or elevation by design in lieu of required fill for new construction or substantial improvements on lots of record that were recorded on or before January 1, 2006, pursuant to a Floodplain Development Permit issued under Sec. 3.21, Floodplain Development Permit. If the Floodplain Administrator approves floodproofed or elevated-by-design construction or improvements rather than use of fill in Zone AE or Zone X (Future), the approval must specify the minimum foundation opening requirements and limitations on below-BFE enclosures uses, if applicable.

4. Development with a valid site plan or preliminary plat approval prior to the most recent and applicable Flood Insurance Rate Map(s) (FIRM) for Durham County. This must also include any necessary site plan or preliminary plat amendment that is a result of the impacts of the FIRM.

5. The following uses, with the ability to utilize fill in support of the use:

    a. Parks, playgrounds, trails, ballfields, and other similar recreational facilities.

    b. Constructed or restored wetlands or riparian buffers for mitigation.

    c. Utility crossings to connect to existing facilities where it is the most direct connection, as specified by the Public Works Director. Crossings must be perpendicular from the facility to the connection, with an allowable 15 degree variation. A non-perpendicular route must be used if it is demonstrated to cause less disturbance than the perpendicular route.

    d. Crossings by streets, driveways, pedestrian walkways, and railroads where no other option is available. Crossings must be perpendicular from the facility to the connection, with an allowable 15 degree variation. A non-perpendicular route must be used if it is demonstrated to cause less disturbance than the perpendicular route.

    e. Level spreaders and vegetative filter strip stormwater runoff devices.

D. Development Requiring a Minor Special Use Permit

The following requires approval of a minor special use permit pursuant to Sec. 3.9, Special Use Permits, including the review factors in 3.9.8C, Additional Review Factors for Development in Special Flood Hazard Areas and Future Conditions Flood Hazard Areas.

1. Fill or Development in the Floodway Fringe, Non-Encroachment Area Fringe, or Future Conditions Flood Hazard Areas

Any fill or development, such as parking or floodproofing or elevation by design, in the floodway fringe, non-encroachment area fringe, Future Conditions Flood Hazard Areas, or Areas of Shallow Flooding Zonee AO) that is not under the approval authority of the Floodplain Administrator pursuant to *7.3.4.C, Development Requiring Floodplain Administrator Approval*.

2. Fill or Development in the Floodway or Non-Encroachment Area

a. Uses listed below and located in the floodway or non-encroachment area that do not qualify for Floodplain Administrator approval pursuant to *7.3.4.C, Development Requiring Floodplain Administrator Approval*:

    i. Crossings by streets, driveways, pedestrian walkways, and railroads.

    ii. Intakes, docks, piers, utilities (including water and wastewater treatment, including stormwater control and sedimentation and erosion control facilities), bridges, other public facilities, and water-dependent structures.

    iii. Other encroachments authorized by FEMA.

b. Fill may be proposed in support of such uses.

c. Certification required under *7.3.3.C, Floodplains without Base Flood Elevations*, *7.3.3.D, Floodplains with Base Flood Elevations*, or *7.3.3.D, Floodway and Non-Encroachment Areas*, as appropriate, must be provided.

E. Density Credit

1. No density credit is allowed for land in the floodway or non-encroachment area, except as otherwise allowed in this Code.
2. The amount of land in the floodway fringe or non-encroachment area fringe must be credited for residential density on adjacent land in the same development at a rate of 50% of that allowed by the zoning, except as otherwise allowed in this Code.
3. The portions of the Special Flood Hazard Areas and Future Conditions Flood Hazard Areas located within required riparian buffers must be given 100% credit.

SEC. 7.4. RIPARIAN BUFFER PROTECTION

7.4.1. Purpose

To maintain land adjacent to surface waters in a vegetated state in order to enhance and maintain water quality, protect stream channel wetlands, minimize stormwater runoff, reduce sedimentation and erosion, provide nutrient removal, conserve plant and wildlife habitat and protect wildlife movement corridors.

7.4.2. Definitions

A. Within the Neuse River Basin, the definitions contained or referenced in 15A NCAC 02B.0714 and associated state rules apply to this section. Within the Jordan Water Supply Basin, the definitions contained or referenced in 15A NCAC 02B .0263, .0267, 02R .0601, and associated state rules apply to this section, as applicable. Such definitions supersede any conflicting UDO definition for purposes of this section.

B. Buffer areas which are required in this section but not regulated by the state must follow definitions based upon the Neuse River or Jordan Water Supply state rules, as applicable based upon the location of the surface water, unless otherwise indicated in this section.

7.4.3. Applicability

This section applies to any person or entity conducting activities within the City or County of Durham, except where such activities are otherwise regulated by the State of North Carolina or the United States.

A. The initial 50 feet of any buffer is regulated by the State under Neuse River Basin or Jordan Water Supply Basin rules, and associated rules, as applicable.

B. Within the Jordan Water Supply Basin, activities otherwise regulated by the State include forest harvesting and agricultural activities, activities conducted by a local, state, or federal government, and activities under multiple jurisdictions except where such multiple jurisdictions are the City and County of Durham exclusively. This section supersedes all locally implemented buffer requirements stated in 15A NCAC 02B .0214 through .0216 as applied to WS-II, WS-III, and WS-IV waters in the Jordan watershed. Where any requirement of this section conflicts with any other valid law, the most stringent requirement applies.

C. Buffers areas not regulated by the State are regulated by the City or County of Durham, as applicable.

D. The requirements of this section apply in all cases, including where State standards are less stringent. Review and approval by the City or County is always required, except in the case of an exempt use, and must occur pursuant to the applicable process in each case (e.g., Preliminary Plat, Major Site Plan, etc.). Within the Neuse River Basin, final review by the City or County must occur after any State action is completed.

7.4.4. Riparian Buffers Protected

A. Regulated Activities

This section applies to any activity conducted within any riparian buffer, and to any activity conducted outside of any riparian buffer that has hydrologic impacts upon that buffer in violation of the diffuse flow requirements of *7.4.5, Diffuse Flow Requirements*. There is no disturbed area minimum for

regulated activities and they include but are not limited to activities conducted pursuant to building permits. As stated in *7.4.3, Applicability*, compliance with this entire section is required even where State standards are less stringent. Within the Neuse River Basin, final review by the City or County must occur after any State action is completed.

B. Buffers Protected

1. General

a. Riparian buffers as depicted on the table below must be required adjacent to the following surface waters:

   a). Intermittent streams;

   b). Perennial streams;

   c). Modified natural streams;

   d). Lakes; and

   e). Ponds (including beaver ponds).

b. The table includes the total buffer width required for certain surface waters in watershed protection overlays. It does not include the 10-foot setback required under 8.5.4B.2, Buffer Setback.

c. A lake or pond must receive the same buffer as the stream to which it is connected at the point of initial connection.

d. A gap of 300 feet or less in a stream, as determined by the City or County, must receive the same buffer as the upstream portion of such stream, including culverted or piped streams approved and installed after the effective dates listed in 8.5.4C.3.a.

Commentary. *17.3, Defined Terms*, defines "adjacent" as "property abutting directly on the boundary of, touching, or sharing a common point." The applicable state rules define "modified natural stream" as "an on-site channelization or relocation of a stream channel and subsequent relocation of the intermittent or perennial flow as evidenced by topographic alterations in the immediate watershed. A modified natural stream must have the typical biological, hydrological, and physical characteristics commonly associated with the conveyance of water."

	None		M/ LR-A		M/ LR-B		M/ LR-C		E-A, E-A(2)		E-B		F/ J-A		F/ J-B	
Surface water category	P	I	P	I	P	I	P	I	P	I	P	I	P	I	P	I
Buffer width	50	50	150	50	150	50	150	50*	150	50	100	50*	150	100	100	50*

Key: P – Perennial; **I** – Intermittent; **M/LR-A** – Lake Michie/Little River Critical Area; **M/LR-B; M/LR-C** – Lake Michie/Little River Protected Area; **E-A; E-A(2)** – Eno River Critical Area; **E-B** – Eno River Protected Area; **F/J-A** – Falls/Jordan Critical Area; **F/J-B** – Falls/Jordan Protected Area

**A buffer minimum of 100 feet if a high-density option is utilized per 8.7.2B.1*

2. Buffer Setback

a. Buildings must be set back at least 10 feet from the edge of the riparian buffer. Other development which does not require both grading and construction can be located within those 10 feet.

b. When an encroachment into a riparian buffer is permitted either by right, through required authorization, or from approval of a variance, grading and construction necessary for that encroachment is allowed within the setback.

3. Riparian Reservoir Buffers

Riparian buffers are required adjacent to reservoirs pursuant to *Sec. 7.5, Water Supply Reservoir Buffer.*

4. Riparian Wetland Buffers

a. Riparian buffers are required adjacent to wetlands pursuant to *Sec. 7.6, Wetlands Protection*.

b. Wetlands adjacent to, or within 50 feet of, surface waters must be considered part of the riparian buffers but are regulated pursuant to 15A NCAC 2B .0230 and .0231 , 15A NCAC 2H .0500 and .0506, 15A NCAC 2H .1300, and Sections 401 and 404 of the Federal Water Pollution Control Act.

C. Buffer Measurement

Riparian buffers are measured as follows:

1. For intermittent and perennial streams, begin at the top of the bank and extend landward the required distance on all sides of the surface water, measured horizontally on a line perpendicular to a vertical line marking the top of the bank.

2. For ponds, lakes and reservoirs located within a natural drainage way, begin at the normal water level and extend landward the required distance, measured horizontally on a line perpendicular to a vertical line marking the normal water level.

3. Where an intermittent or perennial stream begins or ends, including but not limited to when it goes underground, enters or exits a culvert, or enters or exits a wetland, begin at the top of the bank and extend landward the required distance in a radius around the beginning or end.

   a. The radius requirement applies to culverts or piping present within the riparian buffer as of July 22, 1997 within the Neuse River Basin, or as of the effective date of this section (November 4, 2010 for the City; November 8, 2010 for the County) outside of the Neuse River Basin, and has continued to exist since that time.

   b. *7.4.8, Piping Streams*, applies to culverts or piping that were approved and installed after such effective dates.

4. Where an intermittent, perennial, or modified natural stream contains a gap of 300 feet or less, as determined by the City or County, extend the upstream buffer in a straight line through the gap, or in an alternative manner if approved by the Planning Director, until it meets the downstream buffer. This includes culverted or piped streams approved and installed after the effective dates listed in *7.4.4C.3.a*.

D. Buffer Identification

1. Riparian buffers must be clearly indicated on all plats and plans required for development, as applicable by the Planning Director as well as any other documents as required under applicable law or policy.

2. Signs or other mechanisms that clearly demarcate riparian buffer boundaries are be required for all new development or redevelopment.

    a. Temporary signs must be installed before clearing and grading begins and maintained until permanent signs are installed. Tree protection fencing or silt fencing may be used in lieu of temporary signs with prior approval from the City or County as appropriate.

    b. Permanent signs must be installed prior to issuance of certificate of occupancy and maintained in perpetuity.

    c. All signs must be posted at intervals of one per 50 feet. The required interval can extend to one per every 200 feet when required signage is directly adjacent to preserved tree coverage, dedicated open space, or other conserved land

    d. Each sign must be at least 4 inches by 6 inches in size, must face away from the buffer, and must read "Riparian Buffer – Do Not Disturb Except as Authorized by the City [County] of Durham".

    e. All signs must be placed on metal or wood posts installed securely in the ground, except that permanent signs may be placed on permanent fencing along the buffer boundary. If wood posts are used they must be at least two inches by two inches in size and be made of treated wood. Posts must extend a minimum of three feet above ground and be sunk at least 2 feet below ground.

7.4.5. Diffuse Flow Requirements

Diffuse flow must be maintained in riparian buffers by dispersing concentrated flow prior to its entry into a buffer and reestablishing vegetation as listed below. These requirements apply to all development, including development that does not propose to impact or conduct an activity within a riparian buffer.

A. Concentrated runoff from new ditches or man-made conveyances must be converted to diffuse flow at non-erosive velocities before the runoff enters a riparian buffer except as authorized under *7.4.10, Uses*.

B. Corrective action to restore diffuse flow must be taken as necessary and must be designed to impede the formation of erosion gullies.

C. New stormwater conveyances including drainage ditches, roadside ditches, and stormwater control measures must not be allowed in or through riparian buffers except as authorized under *7.4.10, Uses*.

7.4.6. Maps and On-Site Determinations

A. Maps

Surface water must be deemed present if it is at least approximately shown on any of the following maps. If any surface water is depicted differently on different maps, the most restrictive depiction applies:

1. The most recent version of the soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture, which means the most recent hard copy paper bound ma p or digital version of such map; and

    a. The most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic map prepared by the United States Geologic Survey (USGS); and

    b. Outside of the Neuse River Basin, any map approved by the Geographic Information Coordinating Council, the North Carolina Environmental Management Commission and both governing bodies as more accurate than the maps listed in paragraphs 1 and 2 above. However, such map cannot be used for buffer delineation on projects that are existing and ongoing under *7.4.7, Existing Use Exemption*.

B. On-Site Determinations

1. Within the Neuse River Basin

A landowner or other affected party who believes that surface water is inaccurately depicted must consult the North Carolina Department of Environmental Quality (Water Resources Division) and may request an on-site determination by the Division.

2. Within the Jordan Water Supply Basin

a. The Division or another party may request an on-site determination by the City or County as appropriate of the specific origination point of a stream where it is in question.

b. A landowner or other affected party, including the Division, who believes that one or more maps inaccurately depict, or omit based on site-specific evidence, surface water must consult the City or County as appropriate and may request an on-site determination by the City or County.

c. When an on-site determination is requested, a City or County representative, or other party authorized or accepted by the City or County, who has successfully completed the Division's Surface Water Identification Training Certification course, its successor, or other equivalent training curriculum approved by the Division, may make the on-site determination following submission of any fees, information or documents required by the City or County. An origination point must be established using the latest version of the Division publication, Identification Methods for the Origins of Intermittent and Perennial Streams .

d. A City or County representative, or other party authorized or accepted by the City or County, who has successfully completed the training required above may also make either type of on-site determination absent an outside consultation or request.

e. An on-site determination is valid for 5 years from the date of the determination unless specified otherwise therein.

3. Surface water shown on a map may be exempt from *7.4, Riparian Buffer Protection Standards*, if it is determined on site to be: (1) a manmade pond or lake located outside of a natural drainage way, meaning the pond or lake is not fed by directly nor indirectly, and has no direct nor indirect discharge to, an intermittent or perennial stream; (2) an ephemeral stream; (3) not present on the ground, except for any stream gap of 300 feet or less; or (4) a ditch or other manmade

conveyance other than a modified natural stream unless constructed for navigation or boat access.

4. Surface water not shown on a map may be governed by *7.4., Riparian Buffer Protection Standards*, if it is determined on site to be: (1) a lake, pond, or impoundment located in a natural drainage way, meaning the lake, pond, or impoundment is fed by and discharges to an intermittent or perennial stream; (2) a perennial stream, including any gap of 300 feet or less; (3) an intermittent stream, including any gap of 300 feet or less; or (4) a modified natural stream, including any gap of 300 feet or less.

    a. Commentary. A lake, pond, or impoundment of a jurisdictional water does not lose its jurisdictional status if it contributes surface water flow to a downstream jurisdictional water in a typical year through a channelized nonjurisdictional surface water feature, through a culvert, dike, spillway, or similar artificial feature, or through a debris pile, boulder field, or similar natural feature.

5. Despite the provisions of *2.4, Board of Adjustment*, any dispute must be referred to the Division Director c/o the 401 Oversight Express Permitting Unit, or its successor, in writing. The Director's determination is subject to review as provided in Articles 3 and 4 of G.S. 150B.

7.4.7. Existing Use Exemption

This section does not apply to the portion of a riparian buffer occupied by the footprint of a legal existing and ongoing use.

A. Within the Neuse River Basin, exemption rules for an existing and ongoing use per State rules 15A NCAC 02B .0714, as amended, applies.

B. Within the Jordan Water Supply Basin, exemption rules for an existing and ongoing use per State rules 15A NCAC 02B .0267, as amended, applies. These rules apply to existing and ongoing uses as of November 4, 2010 in the City jurisdiction, and November 8, 2010 in the County jurisdiction.

7.4.8. Piping Streams

A. Piping of streams is prohibited except where necessary to accomplish a use that is authorized under *7.4.9, Uses*, and approved as required.

    1. Commentary. Approved piping is a use within an existing buffer and the buffer remains in effect. There is no gap in the buffer, so buffer requirements apply along the piped portion of the stream.

7.4.9. Uses

A. General

1. As stated in *7.4.2, Applicability*, compliance with this entire section is required even where State standards are less stringent. Within the Neuse River Basin, final review by the City or County must occur after any State action is completed for the buffers under state jurisdiction.

2. No new clearing, grading, or development may take place or may any new building permits be issued in violation of this section. Parties subject to this section must abide by all state rules and laws regarding waters of the state including but not limited to 15A NCAC 2B .0230 and .0231, 15A

NCAC 2H .0500, 15A NCAC 2H .1300 , and Sections 401 and 404 of the Federal Water Pollution Control Act.

3. Any use authorized by this section must be designed, constructed and maintained to minimize the amount of intrusion into the stream buffer and to minimize clearing, grading, erosion, water quality degradation, and damage to vegetation.

B. Temporary Clearing and Revegetation

Where any use involves temporary land clearing, revegetation must occur pursuant to an approved vegetation plan. Such plan must include trees as specified under 9.2.3B.6, Mixing of Tree Species, and the *Landscape Manual for Durham, North Carolina*, planted at a density sufficient to provide 320 trees per acre at maturity with at least 50% of those trees having the potential of attaining a two and a half inch or greater DBH within 7 years

C. Table of Uses

1. Within The Neuse River Basin

The list and rules for potential new uses within the riparian buffer, or outside of the buffer with impacts upon the buffer, are per 15A NCAC 02B .0714, as amended.

2. Within the Jordan Water Supply Basin

The list and rules for potential new uses within the riparian buffer, or outside of the buffer with impacts upon the buffer, are per 15A NCAC 02B .0267, as amended.

3. Within Buffers not regulated by the State

Uses within these buffer areas must follow the applicable state rule for the Neuse River or Jordan Water Supply basins, as applicable.

4. Additional Use Limitations

Notwithstanding the use allowances within the Neuse River Basin or Jordan Water Supply rules, the following uses are prohibited in any riparian buffer:

a. Airport facilities that impact equal to or less than 150 linear feet or one-third of an acre of riparian buffer.

b. Airport facilities that impact greater than 150 linear feet or one-third of an acre of riparian buffer.

c. Any fence or wall.

d. Playground equipment installed on lands other than single-family lots, or on any lot that requires removal of vegetation.

e. Temporary roads that do not cross perpendicular to the stream. Temporary roads which cross at a perpendicular will adhere to the assigned Use Category as determined by the appropriate threshold in 15A NCAC 02B .0267.

f. Within the Jordan Water Supply Basin, the following uses must exceed the "exempt" requirements in 15A NCAC 02B .0267; these uses must instead be designated as allowable,

and may only proceed provided that there are no practical alternatives to the requested use, pursuant to *7.4.10*.

i. Railroad crossings that impact equal to or less than 40 linear feet of riparian buffer;

ii. Road crossings that impact equal to or less than 40 linear feet of riparian buffer;

iii. Utility, non-electric, perpendicular crossings of streams and surface waters which disturb equal to or less than 40 linear feet of riparian buffer with a maintenance corridor equal to or less than 10 feet in width.

7.4.10. No Practical Alternatives/Authorization Certificate

A. Within the Jordan Water Supply Basin

1. A person or entity who wishes to undertake a use designated as allowable or allowable with mitigation must first submit a request for a "no practical alternatives" determination. The request must be submitted to the City or County as appropriate. In the request, the applicant must certify that the project meets all of the following criteria:

   a. The basic project purpose cannot be practically accomplished to better minimize disturbance, preserve aquatic life and habitat, and protect water quality;

   b. The use cannot practically be reduced in size or density, reconfigured or redesigned to better minimize disturbance, preserve aquatic life and habitat, and protect water quality; and

   c. Best management practices must be used if necessary to minimize disturbance, preserve aquatic life and habitat, and protect water quality.

2. The applicant must also submit at least the following information:

   a. The name, address and phone number of the applicant;

   b. The nature of the activity to be conducted by the applicant;

   c. The location of the activity, including the jurisdiction;

   d. A map of sufficient detail to accurately delineate the boundaries of the land to be utilized in carrying out the activity, the location and dimensions of the riparian buffers, and the location and dimensions of any disturbance in riparian buffers associated with the activity;

   e. An explanation of why the activity cannot be practically accomplished, reduced or reconfigured to better minimize disturbance to the riparian buffer, preserve aquatic life and habitat and protect water quality; and

   f. Best management practices proposed to control the impacts associated with the activity.

3. Within the Jordan Water Supply Basin, within 60 days of a complete submission, the appropriate jurisdiction (the local government acting pursuant to 15 NCAC 02B .0267 (11)) must review the entire project and make a finding of fact as to whether the criteria in paragraph 1 above have been met. If they have, "no practical alternatives" has been established and the jurisdiction must issue an Authorization Certificate. Failure to act within 60 days must be construed as a finding

of "no practical alternatives" and an Authorization Certificate must be issued to the applicant. However, such 60-day deadline may be extended if one of the following occurs:

a. The applicant agrees, in writing, to a longer period;

b. The jurisdiction determines that the applicant requires an additional reasonable period of time in which to furnish requested information the jurisdiction deems necessary to its decision;

c. The final decision is to be made pursuant to a public hearing; or

d. The applicant refuses access to its records or premises for the purpose of gathering information necessary to the local government's decision.

4. The appropriate jurisdiction may attach conditions to an Authorization Certificate that support the purpose, spirit and intent of the state riparian buffer protection program and/or this section.

5. Despite the provisions of 2.4, Board of Adjustment, appeals from Authorization Certificate determinations must be to the Division Director, c/o the 401 Oversight Express Permitting Unit, or its successor, in writing. The Director's decision is subject to review as provided in Articles 3 and 4 of G.S. 150B.

B. Within the Neuse River Basin

A person or entity who wishes to undertake a use within a buffer regulated by the State and designated as allowable with authorization, allowable with mitigation upon authorization, or allowable with exception, must submit requests for a written Authorization Certificate to the North Carolina Department of Environmental Quality (Division of Water Resources).

7.4.11. Mitigation

Mitigation is required where:

A. Within the Neuse River Basin, a proposal for a use designated as allowable with mitigation with authorization, allowable with exception, or as a condition of a variance for a prohibited use, per Neuse rules 15A NCAC 02B .0714 and associated state rules, as amended.

B. Within the Jordan Water Supply Basin, a proposal for a use designated as allowable with mitigation, or as a condition of a variance for a prohibited use, per Jordan rules 15A NCAC 02B .0267 and associated state rules, as amended.

C. Within Buffers not Regulated by the State, the state Basin rules based upon buffer location applies, or per mitigation allowances established by the City or County, as applicable.

D. Compliance with this entire section is required even where State standards are less stringent. Within the Neuse River Basin, final review by the City or County must occur after any State action is completed for the buffers under State jurisdiction.

7.4.12. Variances and Allowable with Exception

A. Within the Neuse River Basin

1. Variance, per Neuse Rule 15A NCAC 02B .0714

Uses designated as prohibited in Item (11) of this Rule may not proceed within the riparian buffer unless a Variance is granted pursuant to Rule .0226. Mitigation may be required as a condition of variance approval.

2. Allowable with Exception, per Neuse Rule 15A NCAC 02B .0714

Uses not designated as deemed allowable, allowable upon authorization, allowable with mitigation upon authorization or prohibited in Item (11) of this Rule require a written Authorization Certificate with Exception from the Authority for impacts within the riparian buffer pursuant to Rule .0611 of this Subchapter and an appropriate mitigation strategy that has received written approval pursuant to (12) of this Rule.

B. Within the Jordan Water Supply Basin

Per Jordan Rule 15A NCAC 02B .0267, a person or entity who wishes to undertake a prohibited use must first submit a request for a minor or major variance to the appropriate jurisdiction as stated below. A minor variance is required for any activity that impacts only the outer 20 feet of a State riparian buffer. A major variance is required for any activity that impacts any portion of the inner 30 feet of a State riparian buffer. Such variances are separate from variances authorized under Sec. 3.14, Variance.

1. Minor Variance

A minor variance request must be submitted to the City or County as appropriate for review and decision. The City or County may attach conditions to approval that support the purpose, spirit and intent of the riparian buffer protection program and this section. Despite the provisions of 2.4, Board of Adjustment, appeal from the City or County decision must be to the Division Director, c/o the 401 Oversight Express Permitting Unit, or its successor. The Director's decision is subject to review as provided in Articles 3 and 4 of G.S. 150B.

2. Major Variance

A major variance request must be submitted to the City or County as appropriate for initial review. If the City or County determines that the request meets the requirements of 3, Variance Requirements, below, it must submit preliminary findings to the North Carolina Environmental Management Commission c/o the Division of Water Resources, 401 Oversight Express Permitting Unit, or its successor. Within 90 days after receipt by the City or County of a complete application, the Commission approves, approves with conditions and stipulations, or denies the request. Despite the provisions of 2.4, Board of Adjustment, appeal from the initial City or County determination or the Commission decision must be to the Superior Court.

3. Variance Requirements

The City or County must make the 3 findings of fact per Item 12 in Rule .0267 in order to determine that the variance requirements are met.:

a. There are practical difficulties or unnecessary hardships that prevent compliance with the riparian buffer protection requirements. The following criteria must all be met in order to make such finding:

   i. If the applicant complies with the provisions of this section, he/she can secure no reasonable return from, nor make reasonable use of, his/her property. Merely proving that the variance would permit a greater profit from the property must not be considered adequate justification for a variance. Moreover, the variance must be the minimum possible deviation from the terms of this Ordinance that must make reasonable use of the property possible;

   ii. The hardship results from application of this section to the property rather than from other factors such as deed restrictions or other hardship;

   iii. The hardship is due to the physical nature of the applicant's property, such as its size, shape, or topography, such that compliance with provisions of this section would not allow reasonable use of the property;

   iv. The applicant did not cause the hardship by knowingly or unknowingly violating this Ordinance;

   v. The applicant did not purchase the property after the effective date of this UDO, and then request a variance; and

   vi. The hardship is rare or unique to the applicant's property.

b. The requested variance is in harmony with the general purpose, spirit and intent of the state riparian buffer protection requirements and/or this section; and

c. In granting the variance, the public safety and welfare have been assured, water quality has been protected, and substantial justice has been done.

C. Buffers Not Regulated by the State

1. For uses designated or considered prohibited or allowable with exception, as indicated in the Neuse River Basin or Jordan Water Supply rules, a variance to encroach into buffers that are not regulated by the state is required by the Board of Adjustment per 8.2.16, Variance.

2. For projects that receive a variance from State buffers, such projects that require encroachment into buffers that exceed state minimums are deemed allowed only to the extent necessary to construct the approved project. However, mitigation is required for the encroachment.

SEC. 7.5. WATER SUPPLY RESERVOIR BUFFER

7.5.1. Reservoir Buffer Standards

A. A reservoir buffer must be maintained from the normal pool of each water supply reservoir as shown in the table below, except that the buffer requirement do not apply to land that does not naturally drain to that reservoir. If the land around any reservoir does not naturally drain to that reservoir, the riparian buffer requirements of *Sec. 7.4, Riparian Buffer Protection*, apply.

RESERVOIR	BUFFER WIDTH
Lake Michie	250'
Little River Reservoir	250’
Jordan Reservoir	250’
Falls Reservoir	250’

B. Reservoir buffers must maintain natural undisturbed vegetation, except for intrusions allowed pursuant to *Sec. 7.4, Riparian Buffer Protection*.

7.5.2. Buffer Reductions

A. At the request of a property owner, the governing body may reduce the reservoir buffer requirements through the issuance of a Major Special Use Permit, Sec. 3.9, Special Use Permit, whenever it determines that:

1. The reservoir buffer would result in exceptional hardship, depriving the property owner of all reasonable use of the property.
2. The proposed intrusion into the reservoir buffer is the minimum amount necessary to relieve that exceptional hardship.
3. The maximum reduction permitted is to the riparian buffer width required under *Sec. 7.4, Riparian Buffer Protection*.

B. In making its determination, the governing body must consider topography, erosion potential, and the size of the parcel, in addition to the review factors specified in 3.9.8, Criteria for Approval or Major and Minor Special Use Permits.

SEC. 7.6. WATERSHED PROTECTION

7.6.1. Applicability

The following standards apply to *Sec. 7.6, Watershed Protection.*

7.6.2. General Requirements

A. Minimum Lot Size

1. In all Watershed Protection Overlays, except for F/J-B and E-B, the minimum lot sizes specified below apply to all new subdivisions, except for Sec. XX, Cluster Subdivisions or Sec. XX, Conservation Subdivisions.

MINIMUM LOT SIZE

Overlay	Outside UGB	Rural Commercial	Within UGB
M/LR-A	3 acres	--	20,000 SF
M/LR-B	3 acres	1 acre	20,000 SF
F/J-A	3 acres	--	1 acre
E-A, E-A(2)	--	--	20,000 SF

2. In F/J-B and E-B, subdivisions must comply with the requirements of the underlying zoning district.

B. Impervious Surface Limits

1. Development in a Watershed Protection Overlay cannot exceed the limits on impervious surfaces allowed as specified below. Development plans, site plans, preliminary plats, and final plats must identify the amount of existing and proposed impervious surfaces.

IMPERVIOUS SURFACE LIMITS

Overlay	Low Density Option		High Density Option
M/LR-A	6%		Not allowed
M/LR-B	Outside UGB	6%	Not allowed
	Rural Commercial	12%	24%
F/J-A	Within 1/2 mile of the normal pool: 6%; Between 1/2 and 1 mile from the normal pool: 9%		Not allowed outside the UGB 40%, for all areas with the UGB and for those uses allowed in *5.4.4. Nonresidential Land Use Restrictions*; Nonresidential Land Use Restrictions, intensities greater than 25% require a Major Special Use Permit pursuant to (Sec. XX)
F/J-B, E-B	24%		70%
E-A, E-A(2)	24%		Not allowed

2. The impervious surface limit provisions of this section can be exceeded through an impervious surface credit transfer. Credit for the impervious surfaces allowed on 1 or more parcels ("donor parcels") can be transferred to non-contiguous parcels ("receiving parcels"), such that the amount of impervious surface available for a development project would be the total of what is normally allowed on the receiving parcel plus what is transferred from the donor parcel(s). Impervious surface credit transfer is subject to the following provisions:

    a. The donor parcel and receiving parcel must be located within the same water supply watershed.

    b. The impervious surface credit transfer cannot be from a donor parcel in Area B to a receiving parcel in Area A or from a donor parcel in an F/J-A area with a 9% limit to a receiving parcel in an F/J-A area with a six percent limit.

    c. The portion of the donor parcel which is restricted from development as part of the impervious surface credit transfer must remain in a vegetated or natural state or be used for crop production or pasture provided that best management practices (BMPs) as developed by the Soil and Water Conservation District are utilized. The portion of the donor site restricted from development must be protected from all future development through use of a permanent conservation easement in favor of either:

        i. Durham County or the City of Durham; or

        ii. A land trust or similar conservation-oriented non-profit organization with legal authority to accept such easements (the organization must be bona fide and in perpetual existence and the conveyance instruments must contain an appropriate provision for re-transfer to the County or City, as appropriate, in the event the organization becomes unable to carry out its functions). If the entity accepting the easement is not the County or City, then a third right of enforcement favoring the County or City, as appropriate, must be included in the easement.

    d. The impervious surface credit transfer must be reviewed and approved through the final plat process in accordance with Sec. 3.6, Subdivision Review, or the site plan process in accordance with Sec. 3.7, Site Plan Review.

    e. The donor parcel must be deemed appropriate for acceptance by the County or City, as appropriate, under the Durham County Review Criteria for Acceptance of Conservation Easements for Impervious Surface Transfer.

C. Stormwater

Where development proposes intensity greater than the maximum authorized by the Low Density Option, engineered stormwater controls must be used to control stormwater runoff from the first inch of rainfall in order to meet water quality concerns.

D. Ownership, Design, and Maintenance of Engineered Stormwater Controls

1. Unless approved otherwise, ownership of engineered stormwater controls remains with the property owner or a property owner's association, which is responsible for the continued care and maintenance.

2. Engineered stormwater controls must be designed and constructed in accordance with standards and specifications established by the City Public Works Director or County Engineer.

3. Except as allowed in paragraph c. below, no building permit can be issued for a site proposed for development, until:

   a. The City Public Works Director or County Engineer, has approved the plans and specifications for the proposed engineered stormwater controls and the property owner has entered into an Agreement and Covenants or Operation and Maintenance Agreement with the City or County, in accordance with the terms established by either the City Public Works Director or County Engineer; and

   b. The property owner has posted a performance bond, surety instrument, or other payment satisfactory to the City or County, in an amount determined by the City Public Works Director or County Engineer, to assure construction, maintenance, repair, or reconstruction to ensure the adequate performance of the engineered stormwater controls.

   c. For commercial, industrial, institutional, multifamily, and office projects, building permits may be issued. However, construction drawing approval, or water or sewer permit approval, may be withheld until compliance with Paragraphs a. and b. above are met.

   d. The Agreement and Covenants or Operation and Maintenance Agreement required under Paragraph a. may be required before the site plan or preliminary plat are approved.

4. No certificate of compliance can be issued for any structure constructed within a site proposed for development, other than as allowed below, until the City Public Works Director or County, has approved construction of the engineered stormwater controls and after review and approval of submitted "as-built" drawings. However, the Stormwater Division of the City may allow for delay in approval of construction of stormwater controls and submission and approval of as-built drawings for single-family housing, duplexes, townhouses, and detached rowhouses and other developments requiring multiple certificates of occupancy in accordance with adopted policies of the City.

E. Riparian Buffers

Riparian buffers are required in accordance with *Sec. 7.4, Riparian Buffer Protection*.

F. Wastewater Treatment Facilities

1. Wastewater Treatment

Wastewater treatment facilities are be allowed if approved by the State of North Carolina. Individual on-site ground absorption systems are allowed, subject to the State of North Carolina, as applicable.

2. Sanitary Sewer Services

a. Within the Urban Growth Boundary, public and private sanitary sewer lines, force mains, and pump stations are allowed. Public and private pump stations must have the following safety features:

i. Battery-backed alarm systems activated by pump failure or power outage, connected by an automatic dialer to a 24-hour maintenance service approved by the City Public Works Director or County Engineer.

ii. Provision for connection of a portable generator. The City Public Works Director or County Engineer, may require the pump station to be equipped with on-site, stand-by power.

b. Outside of the Urban Growth Boundary, new public or private sanitary sewer lines or outfalls, including necessary force mains and pump stations, may be allowed in the Watershed Protection Overlays, subject to the approval of City Council or Board of Commissioners:

i. To serve an existing use or structure for which a health hazard has been documented by the County Health Department or the State of North Carolina; or

ii. If associated with a wastewater treatment facility as allowed in Sec. 7.6.2.A., Wastewater Treatment, above.

c. In considering such extensions, all reasonable alternatives must be considered before a decision is made to extend sewer services. All service connections, installed in accordance with the North Carolina Plumbing Code, must meet Article III, Water and Sewer Main Extensions of Chapter 70, Utilities of the Durham City Code.

G. Hazardous and Nuclear Materials

1. Before a site plan is approved, an Emergency Contingency Plan must be prepared and submitted through the Planning Department to the Durham County Fire Marshall and the Water Management Director for review and approval. The Emergency Contingency Plan must be prepared in accordance with the Superfund Amendments and Reauthorization Act (SARA), Title III and must be updated annually. In addition, the Emergency Contingency Plan must include:

   a. A site plan depicting buildings and the locations of points of storage, transfer, and use of nuclear and hazardous materials;

   b. A list of nuclear and hazardous materials kept on-site in any quantities;

   c. The location of spill control valves on any bridge and causeway; and

   d. The person responsible for on-site spill control and containment, and the appropriate means of contacting that person on a 24-hour basis.

2. Any container or tank used to store hazardous materials must be equipped with leak detection devices and must be double-walled or have other secondary containment features.

3. Points of storage, transfer, and use of substantial quantities of hazardous materials must be protected by a dike or comparable containment structure, constructed of a material resistant to the hazardous material the structure is designed to contain. The structure must be sized to handle at least the maximum amount of material to be stored or used and must be constructed and installed in a manner to prevent rainwater or stormwater infiltration.

4. All floor drains that could collect hazardous materials must be connected to a corrosion resistant tank or catch basin sized to handle the maximum amount of hazardous material to be stored

or used. These floor drains cannot be connected to the site's natural drainage system, and discharges to the site's storm drainage system or to adjacent surface waters are not allowed.

5. Points of storage, transfer, and use of hazardous or nuclear materials must have roof coverage.

H. Exceptions

All developments in Watershed Protection Overlays are subject to the restrictions in this section, with the following exceptions:

1. Existing Development

For the purposes of this section, existing development is considered to include any impervious surfaces constructed before January 1, 1994. All new uses and activities and all expansions of previously-existing uses and activities must conform to *5.4.4. Nonresidential Land Use Restrictions* and *7.6.2, General Requirements.*

2. Existing Single-Family Lots

New construction and additions to existing residential buildings on single-family residential lots recorded before January 1, 1994 must be constructed in accordance with the watershed protection standards, if any, in effect at the time the lot was created. In Rural Villages, as defined on the Future Land Use Map of the Durham Comprehensive Plan, lots must use the current standards or those in effect at the time the lot was created, whichever is less restrictive.

3. Stormwater Control Exemptions

Proposed development projects not in the Urban Growth Boundary, and in F/J-B or E-B overlays involving less than 1 acre cumulatively, of land disturbing activity are exempt from the stormwater control requirements indicated in this Section.

I. High Density Option Approval

All developments utilizing the High Density Option in the F/J-A overlay require site plan approval by the appropriate governing body.

J. Changes to Tier Boundaries

Neither the City or County will extend the Urban or Suburban boundaries further into the M/LR-A or F/J-A overlays.

SEC. 7.7. STEEP SLOPE PROTECTION

7.7.1. Purpose

The primary purpose for the slope protection standards is to minimize grading, land instability and the removal of vegetation in order to:

A. Protect the quality of wetlands and water courses below the slope from increased sedimentation;

B. Protect steep slope plant and animal habitat from disturbance and development; and

C. Preserve the aesthetic quality of the natural terrain.

7.7.2. Exceptions

For the purposes of sedimentation and erosion control, steep slopes are defined in 12.10.4B, Stabilization of Disturbed Land, and are also regulated under Sec. 3.8, Sedimentation and Erosion Control, and *Sec. 7.9, Sedimentation and Erosion Control*.

7.7.3. Steep Slope Areas

A. Applicability

1. Steep slope areas refer to natural grades and do not include man-made grades.
2. Slope is the relationship of vertical rise to horizontal run, expressed as a percentage.
    a. Except in the CSD District, steep slope areas are defined as land areas that:
        i. Have a grade of 25% or more;
        ii. Have an area of 5,000 square feet or greater; and
        iii. Are located within 200 feet of any floodway fringe or perennial stream or within 100 feet of an intermittent stream.
    b. In the CSD District, steep slope areas are defined as land areas that:
        i. Have a grade of 15% or more;
        ii. Have an area of 2,500 square feet or greater; and
        iii. Are located within 200 feet of any floodway fringe or perennial stream or within 100 feet of an intermittent stream.

B. Slope Calculations

1. Slope calculations must use the smallest contour interval for which maps are available. Steep slope areas must be determined irrespective of tract boundaries.
2. Steep slope areas must be clearly indicated on all site plans, development plans, preliminary plats and final plats. When a property owner or developer believes that the presence or location of a steep slope area is different than what is shown on the appropriate topographic map, the property owner or developer must provide a field survey to determine the location or presence of the moderate or steep slope area for purposes of meeting the requirements of this section.

7.7.4. Steep Slope Development Limitations

Development and land disturbing activity on steep slope areas must be conducted only in accordance with the following requirements. Compliance with these requirements will be determined by the approving authority.

A. Grade of Reconstructed Slopes

The grade of reconstructed slopes cannot exceed 33% (3:1).

B. Grading and Uses

1. Except in the CSD District, on any tract proposed for construction, no more than 15% of the steep slope area on the tract can be graded. For purposes of this calculation, the land areas of individual steep slope areas on the tract are added together to establish the total steep slope area for the tract.

2. In the CSD District, on any tract proposed for construction, no steep slope area can be graded. The only allowed disturbance allowed is:

    a. Unpaved walking paths and foot trails constructed with minimal disturbance of tree roots and existing vegetation; and

    b. No tree 6 inches dbh or greater can be removed for the construction of the trail.

C. Public Right-of-Way

Land disturbance solely for the purpose of any public right-of-way is exempt from the steep slope area grading limits of this section.

D. Density Credits

1. Except in Design Districts, the amount of land designated as steep slopes can be credited for residential density at a rate of 15% of that allowed by the zoning, except as otherwise allowed in this Code.

2. Within Design Districts, density credits for steep slopes are governed by the provisions in Article 16.

3. The portions of steep slope areas located within required riparian buffers get 100% credit.

SEC. 7.8. WETLANDS PROTECTION

7.8.1. Purpose

The primary purpose of the wetlands protection standards is to conserve and maintain natural wetlands in an undisturbed vegetated state in order to provide storage of stormwater runoff, minimize degradation of preserved wetlands from the impacts of adjacent development, improve water quality and preserve plant and wildlife habitat.

7.8.2. Application of Wetlands Protection

The City and County acknowledge the pre-eminence of the Federal and State governments with regard to the identification and regulation of wetlands. Accordingly, the standards contained within this section are not intended to duplicate the requirements of the US Army Corps of Engineers (the Corps) or the North Carolina Department of Environmental Quality (DEQ), Division of Water Resources (Division), but require the buffering of wetland areas, identified by these agencies, on development plans, site plans, preliminary plats, final plats, and as otherwise required under *Sec. 7.4, Riparian Buffer Protection*.

7.8.3. Wetland Buffer Applicability

A. A wetland buffer is not required for any wetland approved for dredging or filling under a Section 404 Permit issued by the Corps or a Section 401 Water Quality Certification issued by the Division.

B. A wetland buffer is not be required for wetland areas associated with man-made ponds unconnected to intermittent or perennial streams or to man-made drainage ditches.

C. A wetland buffer is required for any wetland area 1 acre or greater in size.

7.8.4. Wetland Buffer Width

The wetland buffer must be provided along the perimeter boundary of the wetland area and must be at least 25 feet in width.

7.8.5. Wetland Buffer Standards

Wetland buffers are governed by *Sec. 7.4, Riparian Buffer Protection*, except where it may conflict with this section, in which case this section applies.

SEC. 7.9. SEDIMENTATION AND EROSION CONTROL

7.9.1. Purpose

A. This section is adopted for the purposes of:

1. Regulating private, non-exempt land-disturbing activity to control accelerated erosion and sedimentation to prevent the pollution of water and other damage to lakes, watercourses and other public and private property by sedimentation; and

2. Establishing procedures through which these purposes can be fulfilled.

B. No person can undertake any land-disturbing activity without first obtaining a permit from the Sedimentation and Erosion Control Officer.

7.9.2. Applicability

A. Exemptions

The following activities do not require a permit:

1. General

a. Land-disturbing activities for the purpose of fighting fires;

b. Land-disturbing activities less than 12,000 square feet in surface area. In determining the area, land under single or multiple ownership being developed as a unit will be aggregated. However, an erosion control plan and/or permit may be required by the Sedimentation and Erosion Control Officer when off-site damage is occurring, or if the potential for off-site damage exists. Additionally, this section may apply when the applicant, or a parent, subsidiary, or other affiliate of the applicant has engaged in any activity listed in 3.8.7, Disapproval of Plan;

2. Agricultural Exemptions

a. As listed in NCGS § 113A-52.01, land-disturbing activities relating or incidental to the production of crops, grains, fruits, vegetables, ornamental and flowering plants, dairy, livestock, poultry, and all other forms of agriculture undertaken on agricultural land for the production of plants and animals useful to man, including but not limited to:

i. Forage and sod crops, grain and feed crops, tobacco, cotton and peanuts;

ii. Dairy animals and dairy products;

iii. Poultry and poultry products;

iv. Livestock, including beef cattle, llamas, sheep, swine, horses, ponies, mules or goats, including the breeding and grazing of any or all such animals;

v. Bees and apiary products;

vi. Fur animals; and

vii. Mulch, ornamental plants, and other horticultural products. For purposes of this section, "mulch" means substances composed primarily of plant remains or mixtures of such substances;

b. Land-disturbing activities undertaken on forest land for the production and harvesting of timber and timber products and which are conducted in accordance with best management practices set out in Forest Practice Guidelines Related to Water Quality, adopted by the North Carolina Department of Agriculture and Consumer Services. However, if land-disturbing activity undertaken on forestland for the production and harvesting of timber and timber products is not conducted in accordance with Forest Practice Guidelines Related to Water Quality, the provisions of this section apply;

c. Land-disturbing activities undertaken as defined in NCGS § 113A-52(8) that are otherwise regulated by the provisions of the Mining Act of 1971, NCGS § 74-46 – 74-68;

d. Land-disturbing activities over which the state has exclusive regulatory jurisdiction as provided in NCGS § 113A-56(a);

e. Land-disturbing activities undertaken during an emergency, activities essential to protect human life;

f. Activities undertaken to restore the wetland functions of converted wetlands to provide compensatory mitigation to offset impacts permitted under Section 404 of the Clean Water Act; and

g. Activities undertaken pursuant to Natural Resources Conservation Service standards to restore the wetlands functions of converted wetlands as defined in Title 7 Code of Federal Regulations Sec. 12.2 (January 1, 2014 Edition).

B. Plan Required

1. Excluding the exemptions listed in *7.9.2, Applicability*, a sedimentation and erosion control plan is required for any land-disturbing activity, if an aggregate land area of 20,000 square feet or more will be disturbed, or if an aggregate land area of 12,000 square feet or more will be disturbed in a M/LR-A, M/LR-B, F/J-A, E-A, or E-A(2) Watershed Protection Overlay District.

2. The Sedimentation and Erosion Control Officer may also require a plan for any land-disturbing activity if determined that off-site damage is occurring or the potential for off-site damage exists. A plan may also be required if any activity listed in 3.8.7, Disapproval of Plan, takes place.

	<12,000 SF	12,000 SF - 20,000 SF	>20,000 SF
Plan	MR	MR(*R)	R
Permit	MR	R	R

MR = May be required when off-site damage is occurring, the potential for off-site damage exists, or if any activity listed in 3.8.7, Disapproval of Plan, takes place.
R = Required.
*R = Required in a Lake Michie/Little River Critical Area (M/LR-A), Lake Michie/Little River Protected Area (M/LR-B), Falls/Jordan Critical Area (F/J-A) and Eno River Critical Areas (E-A; E-A(2)).

C. Protection of Property

Land-disturbing activity must take all reasonable measures to protect all public and private property from damage caused by such activity.

D. More Restrictive Rules Apply

Whenever conflicts exist between federal, State or local laws, ordinances or rules, the more restrictive provision applies.

7.9.3. Basic Control Objectives

In order for a sedimentation and erosion control plan to be approved, the following control objectives must be met:

A. Identify Critical Areas

On-site areas which are subject to severe erosion, and off-site areas which are especially vulnerable to damage from erosion or sedimentation, must be identified and receive special attention;

B. Limit Time of Exposure

All land-disturbing activity must be planned and conducted to limit exposure to the shortest feasible time;

C. Limit Exposed Areas

All land-disturbing activity must be planned and conducted to minimize the area to be exposed at any one time;

D. Control Surface Water

Surface water runoff originating upgrade of exposed areas must be controlled to reduce erosion and sediment loss during the period of exposure;

E. Control Sedimentation

All land-disturbing activity must be planned and conducted so as to restrain off-site sedimentation damage; and

F. Manage Stormwater Runoff

When the increase in the velocity of stormwater runoff resulting from a land-disturbing activity is sufficient to cause accelerated erosion of the receiving watercourse, plans must include measures to control the velocity at the point of discharge so as to minimize accelerated erosion of the site and increased sedimentation of the stream.

7.9.4. Mandatory Standards for Land-Disturbing Activity

No land-disturbing activity can occur except in accordance with the mandatory standards listed below. Except where more stringent standards are specified in this Code, the technical standards and specifications in the North Carolina Erosion and Sediment Control Planning and Design Manual also apply. Additionally, for land-disturbing activities greater than or equal to one acre, requirements within the most recent version of the State of North Carolina General Permit No. NCG010000 apply.

A. Buffer Zones

Except where more stringent buffer requirements are required, the following buffer requirements apply;

1. No land-disturbing activity during periods of construction or improvement to land is allowed in proximity to a lake or natural watercourse unless a buffer zone is provided along the margin of the watercourse of sufficient width to confine visible siltation within the 25% of the buffer zone nearest the land-disturbing activity. This subsection does not apply to a land-disturbing activity in connection with the construction of facilities located on, over or under a lake or natural watercourse; and
2. Unless otherwise provided, the width of a buffer zone is measured from the top of the bank nearest edge of the disturbed area, with the 25% of the strip nearer the land-disturbing activity containing natural or artificial means of confining visible siltation.
3. Two rows of silt fence must be placed along all buffer zones. Rows muse be spaced a minimum of 3 feet apart.

B. Stabilization of Disturbed Land

The angle for disturbed land can be no greater than what can be retained by vegetative cover or other adequate erosion control devices or structures.

1. Ongoing Activity

a. Ground Cover

i. Land left exposed must be planted or otherwise provided with temporary ground cover, devices, or structures sufficient to restrain erosion within the applicable time period after completion of any phase of grading or period of inactivity as follows: 7 days for a steep slope; 10 days for a moderate slope; and 14 days for land with no slope or inclination.

ii. For purposes of this section, a moderate slope means an inclined area where the inclination is 3 units of horizontal distance to 1 unit of vertical distance or flatter; and a steep slope means an inclined area where the inclination is greater than 3 units of horizontal distance to 1 unit of vertical distance. No other criteria apply.

b. Soil Stockpiles

Soil stockpiles must be less than 30 feet above existing grade or half the height of adjacent existing mature tree cover. Soil stockpiles must be wrapped in 2 rows of silt fence, and groundcover must be planted in accordance with this section. Soil stockpile slopes must be 2:1 or flatter.

2. Completed Activity

For any area of land-disturbing activity where grading activities have been completed, temporary or permanent ground cover sufficient to restrain erosion must be provided as soon as practicable, but in no case later than 7 days after completion of grading.

C. Stabilization of Sedimentation and Erosion Control Devices

1. General Provisions

a. Whenever land-disturbing activity exceeds 12,000 square feet, sedimentation and erosion control devices and practices must be used that are sufficient to retain the sediment generated by the land-disturbing activity within the boundaries of the tract during construction upon and development of the tract, and must plant or otherwise provide temporary ground cover sufficient to restrain erosion 7 days.

b. Erosion and sedimentation control measures, structures and devices must be so planned, designed and constructed as to provide protection from the calculated maximum peak of runoff from the 25-year storm. Runoff rates must be calculated using the procedures in the USDA, Soil Conservation Service's "National Engineering Field Manual for Conservation Practices," or other calculation procedures acceptable to the Sedimentation and Erosion Control Officer.

c. Each sediment basin or trap in the Suburban or Rural Tier must have a minimum volume of 3,600 cubic feet per acre of disturbed area and a minimum surface area of 435 square feet per cfs of Q25 (25-year storm) peak inflow. Each sediment basin or trap in the Downtown, Compact Neighborhood, or Urban Tier must have a minimum volume of 1,800 cubic feet per acre of disturbed area and a minimum surface area of 325 square feet per cfs of Q25 peak inflow. A skimmer must be used in each sediment basin or trap. If the temporary sediment basin or trap is converted to a permanent stormwater control measure and the volume is greater than that of the temporary basin, the larger of the 2 must be used, unless approved in writing by the Durham County Erosion Control Office.

d. Sediment basins and traps must be designed and constructed so that the basin will have a settling efficiency of at least 70% for the 40-micron (0.04mm) size soil particle deposited into the basin by the runoff of that two-year storm that produces the maximum peak rate of runoff as calculated according to procedures in the United States Department of Agriculture Soil Conservation Service's "National Engineering Field Manual for Conservation Practices" or according to procedures adopted by any other agency of the State or the United States or any generally recognized organization or association.

e. Sediment basins and traps cannot be installed in perennial or intermittent streams.

f. Existing ponds and lakes cannot not be used as sediment basins or traps.

g. A developer must retain control of the permitted area, including sediment basins or traps, until the permit has been closed. For commercial sites, outparcels will be permitted separately.

h. Newly constructed open channels must be designed and constructed with side slopes no steeper than 2:1 if a vegetative cover is used for stabilization, unless soil conditions allow steeper slopes or where the slopes are stabilized using mechanical devices, structural devices,

or other acceptable ditch liners. In any event, the angle for side slopes must be sufficient to restrain accelerated erosion.

i. Additional areas may be added based on the criteria in this section only if the basin or trap is properly installed and maintained.

j. In high quality water HQW zones, Lake Michie/Little River Critical Area (M/LR-A), Lake Michie/Little River Protected Area (M/LR-B), Falls/Jordan Critical Area (F/J-A), Eno River Critical Areas (E-A; E-A(2)), and Third Fork Creek Watershed, uncovered areas are limited at any time to a maximum total area of 20 acres. In high quality water HQW zones, only the portion of the land-disturbing activity within a HQW zone is governed by this section. Larger areas within HQW may be uncovered with the written approval of the Director of DEQ, Division of Energy, Mineral and Land Resources. Larger areas within all other zones may be uncovered with the written approval of the Durham County Erosion Control Office.

2. Triassic Soil Specific Requirements

Triassic soils do not respond as well to conventional erosion control measures as listed within this ordinance and projects with underlying Triassic soils are thus subject to the following additional requirements:

a. Flocculants must be used on-site in accordance with the requirements of *7.9.4.3, Flocculants*.

b. Sediment basins and traps must have a minimum volume of 5,400 cubic feet per acre of disturbed area and must be designed so as to dewater not more than 4 days.

c. Moderate and steep slopes must be stabilized by either matting or hydroseeding in order to more rapidly provide groundcover more.

3. Flocculants

Flocculants are chemicals that can cause fine particles to combine and settle in detained runoff. When used in conjunction with sediment basins or traps, they can reduce sediment in discharge leaving a site. The use of flocculants, where not required by *7.9.4.2, Triassic Soil Specific Requirements*, is recommended in land disturbing activity. When used, the following requirements apply:

a. A flocculant application plan must be included on the erosion control plan, including:

   i. Type of Flocculant to be used including manufacturer and supplier;

   ii. Site-specific dosing systems;

   iii. Locations of flocculant application; and

   iv. Identification of the individual and/or position responsible for dosing and monitoring of flocculant usage.

b. Soil samples should be obtained from areas where flocculants will be used, and samples should be screened using jar tests with multiple flocculants to select the appropriate flocculant. Jar testing can be performed by the contractor or flocculant supplier.

c. Only flocculants listed on the NCDEQ website as an approved product for use in North Carolina can be used.

d. Flocculant applied in solid form should be evaluated and re-applied if needed after every rainfall event that is equal to or exceeds 0.5 inches.

e. Flocculants cannot be applied directly to surface waters.

f. Flocculants must be applied upstream of a sediment basin, trap, or other pooling device such as silt fence.

g. The use of flocculants does not alter the requirements for site stabilization. Sites should be stabilized as soon as possible using conventional methods to minimize the need to use flocculants.

7.9.5. Protection of Stream Banks, Channels and Slopes

A. Intent

Stream banks and channels downstream from any land-disturbing activity must be protected from increased degradation by accelerated erosion caused by increased velocity of runoff from the land-disturbing activity.

B. Performance Standards

The land-disturbing activity must be planned and conducted so that the velocity of stormwater runoff in the receiving watercourse at the point of discharge resulting from a 25-year storm after development does not exceed the greater of:

1. The velocity specified according to the soil type in the following table, for a point of discharge into a receiving watercourse with bare soil or rock banks or bed;

Materials		Maximum Permissible Velocities	
Name	Description	Feet/Second	Meters/Second
Fine Sand (noncolloidal)	Cecil fine sandy loam, Pinkston fine sandy loam	2.5	0.8
Sand Loam (noncolloidal)	Appling sandy loam, Creedmoor sandy loam, Helena sandy loam, Mayodan sandy loam, Wedowee sandy loam, Wilkes sandy loam, White shore sandy loam	2.5	0.8
Silt Loam (noncolloidal)	Georgeville silt loam, Herndon silt loam, Lignum silt loam, Roanoke silt loam	3.0	0.9
Ordinary Firm Loam	Iredell loam, Mecklenburg loam, Wahee loam, Davidson clay loam, White Store clay loam-eroded	3.5	1.1
Fine Gravel	--	5.0	1.5

Materials		Maximum Permissible Velocities	
Name	Description	Feet/Second	Meters/Second
Stiff Clay (very colloidal)	Iredell-Urban land complex, White Store-Urban land complex, Mayodan-Urban land complex	5.0	1.5
Graded, Loam to Cobbles (noncolloidal)	Tatum gravelly silt loam, Nason stony silt loam, Goldston slaty (channery) silt loam	5.0	1.5
Graded, Silt to Cobbles (colloidal)	--	5.5	1.7
Alluvial Silts (noncolloidal)	Wehadkee silt loam, Congaree silt loam, Chewacla silt loam, Cartecay silt loam	3.5	1.1
Alluvial Silts (colloidal)	--	5.0	1.5
Coarse Gravel (noncolloidal)	--	6.0	1.8
Cobbles and Shingles	--	5.5	1.7
Shales and Hard Pans	--	6.0	1.8

2. The velocity specified according to the type of vegetation and depth of flow in the following table, for a point of discharge into a vegetated receiving watercourse; or

Vegetatively Protected Watercourses and Point of Stormwater Discharge			
Group No.	Vegetation	Depth of Flow (feet)	Maximum Permissible Velocity
1	Bermudagrass	up to 1	4
		greater than 1	6
2	Reed canarygrass;	up to 1	3
	Kentucky bluegrass	greater than 1	6
3	Grass and legumes, mixed;	up to 1	3
	Weeping lovegrass	greater than 1	4
4	Annuals: Annual lespedeza (KOBE); Sudangrass	up to 1	2.5
	Small Grain: Rye, Oats, Barley; Ryegrass	greater than 1	2.5

Note: Do not use vegetative protection on longitudinal parallel to flow slopes steeper than 10% except for side slopes. Annuals: Use only as temporary protection until permanent cover is established.

3. The velocity in the receiving watercourse determined for the 10-year storm prior to development.

C. Expected Velocity

If *7.9.5.B, Performance Standards* cannot be met, the channel below the discharge point must be designed and constructed to withstand the expected velocity.

D. Slope Protection

When soils with slopes as indicated in the following table, occur between a point of stormwater discharge and the next confluence of concentrated stormwater runoff, such areas, on- or off-site, must be protected from accelerated erosion by diverting the stormwater discharge from those soil surfaces. Diversion may include the provision of piped, paved or armored storm drainage facilities.

Critical Soils of Durham County		
ApC	Appling sandy loam	6-10% slopes
CfC	Cecil fine sandy loam	6-10% slopes
CrC	Creedmoor sandy loam	6-10% slopes
DaD	Davidson clay loam	6-10% slopes
GeC	Georgeville silt loam	6-10% slopes
GeD	Georgeville silt loam	10-15% slopes
GlE	Goldston slaty silt loam	10-15% slopes
GlF	Goldston slaty silt loam	25-45% slopes
GrC	Granville sandy loam	6-10% slopes
Gu	Gullied land	Clayey materials
HeC	Helena sandy loam	6-10% slopes
HrC	Herndon silt loam	6-10% slopes
HsC	Herndon stony silt loam	2-10% slopes
IrC	Iredell loam	6-10% slopes
IyC	Iredell-Urban land complex	6-10% slopes
MfC	Mayodan sandy loam	6-10% slopes
MfD	Mayodan sandy loam	10-15% slopes
MfE	Mayodan sandy loam	15-25% slopes
MrC	Mayodan-Urban land complex	0-10% slopes
MrD	Mayodan-Urban land complex	10-15% slopes
MuC	Mecklenburg loam	6-10% slopes
NaD	Nason silt loam	10-15% slopes
NaE	Nason silt loam	15-25% slopes
NoD	Nason stony silt loam	10-15% slopes
PfC	Pinkston fine sandy loam	2-10% slopes
PfE	Pinkston fine sandy loam	10-25% slopes
TaE	Tatum gravelly silt loam	15-25% slopes
Ur	Urban land	--
WmD	Wedowee sandy loam	10-25% slopes
WmE	Wedowee sandy loam	15-25% slopes
WsC	White Store sandy loam	6-10% slopes

Critical Soils of Durham County		
WsE	White Store sandy loam	10-25% slopes
WvC2	White Store clay loam	2-10 % slopes, eroded
WvE2	White Store clay loam	10-25% slopes, eroded
WwC	White Store-Urban land complex	0-10% slopes
WwE	White Store-Urban land complex	10-25% slopes
WxE	Wilkes sandy loam	10-25% slopes

E. Acceptable Management Measures

Measures applied alone or in combination to satisfy the intent of this section are acceptable if there are no objectionable secondary consequences. The State Sedimentation Control Commission recognizes that the management of stormwater runoff to minimize or control downstream channel and bank erosion is a developing technology. Innovative techniques and ideas will be considered and may be used when shown to have the potential to produce successful results. Some alternatives are to:

1. Avoid increases in surface runoff volume and velocity by including measures to promote infiltration to compensate for increased runoff from areas rendered impervious;
2. Avoid increases in stormwater discharge velocities by using vegetated or roughened swales and waterways in lieu of closed drains and high velocity paved sections;
3. Provide energy dissipaters at outlets of storm drainage facilities to reduce flow velocities at the point of discharge. These may range from simple rip-rapped sections to complex structures; and
4. Protect watercourses subject to accelerated erosion by improving cross sections and/or providing erosion-resistant lining.

F. Exceptions

This section does not apply where it can be demonstrated, to the satisfaction of the Sedimentation and Erosion Control Officer, that stormwater discharge velocities will not create an erosion problem in the receiving watercourses.

7.9.6. Borrow and Waste Areas

A. When the person conducting the land-disturbing activity is also the person conducting the borrow or waste disposal activity, areas from which borrow is obtained and which are not regulated by the provisions of the Mining Act of 1971 and waste areas for surplus materials other than landfills regulated by the State Department of Environmental Quality's Division of Solid Waste Management are considered part of the land-disturbing activity where the borrow material is being used or from which the waste material originated.

B. When the person conducting the land-disturbing activity is not the person obtaining the borrow and/or disposing of the waste, these areas are considered a separate land-disturbing activity. The name

and location of any borrow and/or waste areas must be provided to the Durham County Erosion Control Office upon request.

7.9.7. Access and Haul Roads

Temporary access and haul roads, other than public roads, constructed or used in connection with any land-disturbing activity are considered a part of that activity.

7.9.8. Operations in Lakes or Natural Watercourses

Land-disturbing activity in connection with construction in, on, over, or under a lake or natural watercourse must minimize the extent and duration of disruption of the stream channel. Where relocation of a stream forms an essential part of the proposed activity, the relocation must minimize unnecessary changes in the stream flow characteristics.

7.9.9. Responsibility for Maintenance

A. During the development of a site, temporary and permanent erosion and sedimentation control measures must be installed and maintained as required by the North Carolina Sedimentation Pollution Control Act of 1973, as amended, and all rules and orders adopted pursuant to it (the Act), this section, rules or orders adopted or issued pursuant to this section or the Act, or an approved sedimentation and erosion control plan.

B. After site development, the land owner or person in possession or control of the land must install and/or maintain all necessary permanent erosion and sediment control measures, except those measures installed within a road or street right-of-way or easement accepted for maintenance by a governmental agency.

7.9.10. Self-Inspections

Where inspections are required by 3.8.6, Self-Inspections, the following applies:

A. The site inspection must be documented as follows:

1. All erosion and sedimentation control measures, practices and devices, as called for in a construction sequence consistent with the approved erosion and sedimentation control plan, including but not limited to sedimentation control basins, sedimentation traps, sedimentation ponds, rock dams, temporary diversions, temporary slope drains, rock check dams, sediment fence or barriers, all forms of inlet protection, storm drainage facilities, energy dissipaters, and stabilization methods of open channels, have initially been installed and do not significantly deviate (as defined in *7.9.10.A.5* from the locations, dimensions and relative elevations shown on the approved erosion and sedimentation plan. Documentation must be accomplished by initialing and dating each measure or practice shown on a copy of the approved erosion and sedimentation control plan or by completing, dating and signing an inspection report that lists each measure, practice or device shown on the approved erosion and sedimentation control plan. This documentation is required only upon the initial installation of the erosion and sedimentation control measures, practices and devices as set forth by the approved erosion and sedimentation control plan or if the measures, practices and devices are modified after initial installation;

2. The completion of any phase of grading for all graded slopes and fills shown on the approved erosion and sedimentation control plan, specifically noting the location and condition of the

graded slopes and fills. Documentation must be accomplished by initialing and dating a copy of the approved erosion and sedimentation control plan or by completing, dating and signing an inspection report;

3. The location of temporary or permanent ground cover, and that the installation of the ground cover does not significantly deviate (as defined in *7.9.10.A.5*) from the approved erosion and sedimentation control plan. Documentation must be accomplished by initialing and dating a copy of the approved erosion and sedimentation control plan or by completing, dating and signing an inspection report;

4. That maintenance and repair requirements for all temporary and permanent erosion and sedimentation control measures, practices and devices have been performed. Documentation must be accomplished by completing, dating and signing an inspection report (the general stormwater permit monitoring form may be used to verify the maintenance and repair requirements); and

5. Any significant deviations from the approved erosion and sedimentation control plan, corrective actions required to correct the deviation and completion of the corrective actions. Documentation must be accomplished by initialing and dating a copy of the approved erosion and sedimentation control plan or by completing, dating and signing an inspection report. A significant deviation means an omission, alteration, or relocation of an erosion or sedimentation control measure that prevents the measure from performing as intended.

B. The documentation, whether on a copy of the approved erosion and sedimentation control plan or an inspection report, must include the name, address, affiliation, telephone number, and signature of the person conducting the inspection and the date of the inspection. Any relevant licenses and certifications may also be included. Any documentation of inspections that occur on a copy of the approved erosion and sedimentation control plan must occur on a single copy of the plan and that plan must be made available on the site. Any inspection report must also be made available on the site.

C. The inspection must be performed during or after each of the following phases of a plan:

1. Installation of perimeter erosion and sediment control measures;

2. Clearing and grubbing of existing ground cover;

3. Completion of any phase of grading of slopes or fills that requires provision of temporary or permanent ground cover pursuant to NCGS § 113A-57(2);

4. Completion of storm drainage facilities;

5. Completion of construction or development; and

6. Quarterly until the establishment of permanent ground cover sufficient to restrain erosion or until the financially responsible party has conveyed ownership or control of the tract of land for which the erosion and sedimentation control plan has been approved and the agency that approved the plan has been notified. If the financially responsible party has conveyed ownership or control of the tract of land for which the erosion and sedimentation control plan has been approved, the new owner or person in control must conduct and document inspections quarterly until the establishment of permanent ground cover sufficient to restrain erosion.

7.9.11. Additional Measures

Whenever the Sedimentation and Erosion Control Officer determines that significant sedimentation is occurring as a result of land-disturbing activity, despite application and maintenance of protective practices, additional protective action must be undertaken.

SEC. 7.10. STORMWATER MANAGEMENT

7.10.1. Stormwater Management

A. Any land-disturbing activity may be required to provide stormwater management facilities or make other improvements to the existing drainage system to address water quantity concerns, water quality concerns, or both if the proposed development will increase potential flood damages to existing properties or significantly increase pollutant levels in downstream receiving waters.

B. Stormwater management facilities adequate to accommodate a 10-year or greater storm must be provided that generally follow existing natural drainage systems. Piping and modification of streams and other natural water courses should be minimized and considered on a case-by-case basis to determine if it is necessary and environmentally sound. Facilities must be designed, constructed and maintained to minimize flooding, protect downslope properties, preserve water quality, and adequately transport existing and projected stormwater flows.

C. Development plans, site plans, and preliminary plats must include a stormwater impact analysis that complies with the requirements of the City Public Works Director or County Engineer, and which determines the impact of the increased stormwater runoff on downstream stormwater facilities and properties.

D. The need for stormwater management facilities to address off-site impacts is determined by the City Public Works Director or County Engineer.

7.10.2. Regulation

A. City Stormwater

City stormwater facilities are regulated pursuant to the applicable City code. (Chapter 70, Article X, Stormwater Performance Standards for Development)

B. County Stormwater

County stormwater facilities are regulated pursuant to the applicable County code. (Chapter 14, Article V, Stormwater)

SEC. 7.11. INVENTORY SITE PROTECTION

7.11.1. Durham Inventory Site Protection Standards

Sites listed in the *Durham County Inventory of Important Natural Areas, Plants and Wildlife*, which in the case of a conflict may be superseded or supplemented by more current information from the North Carolina Heritage Program as determined by the Planning Director, are protected through a series of development standards, including, but not limited to:

A. Site plan review procedure in Sec. 3.7;

B. Special use permits in Sec. 3.9;

C. Conservation subdivisions in 6.2.4;

D. Open space in *Sec. 7.2*; and

E. Tree protection and tree coverage in *Sec. 7.2*.