

Performance Buffering

Seminole County Planning & Development

I. How It works

Seminole County recently adopted a "performance" approach to landscape buffering between land uses. Performance buffering is a concept that adjusts landscaping requirements according to the unique needs of a particular development and its neighbors. This booklet will help you understand the purpose of buffering, how the new system is different from previous regulations, and how to calculate the required buffers on your development site. Whether you are a developer designing a project, or a citizen trying to understand the rules, you will find that the basic ideas are simple and will make sense with a bit of practice.

The Basics

All land uses are not the same. Take a look around the County and take note of what you see. Large areas are devoted to shopping and entertainment, other areas to industry, still others to institutional uses like schools and churches. In between are miles of subdivisions made up of single family homes. People typically work in one place, shop in another, and live in still another.

The use of land varies not only by type but also by intensity – think of a mall compared to a plant nursery, or a rural home compared to an apartment complex. The range of types and intensities of land uses creates a high potential for conflict where different properties come together. If you are a homeowner, you don't want excessive noise, glare or traffic. But if you operate a business, you may welcome nearby activity bringing customers to your door.

In an urban county like ours, there is little room for new development to spread out as it has in the past. It's inevitable that incompatible uses and intensities will come close to each other, with lots of potential for trouble between neighbors. Buffering is a tool that places a barrier between some-



thing that causes an impact and the people who might be disturbed by that impact.



What is a Buffer?

A buffer is a designated area of land along the perimeter of a development, reserved for the planting of trees and shrubs, possibly having a fence or wall, which functions as a screen between two neighboring land uses. Buffers may not contain buildings or parking spaces, and must have a natural ground cover in addition to required trees. Buffers are required in new projects to mitigate their impacts on adjoining developments that were there first – particularly where older uses are less intensive than new ones.

County regulations determine the required width of a buffer, measuring inward from the property line, how many landscape plantings are to be installed, and whether a fence or wall is needed. Earlier regulations set the required width at 15, 25, 50, or 100 feet, depending on the circumstances, and in all cases prescribed a 6-foot masonry wall. Planting requirements were either 4 or 8 canopy trees per 100 feet. Buffer requirements for a given site were inflexible.



What is a Performance Buffer?

Under the performance system now in effect, the buffer criteria for a site may be tailored to the unique needs of the development being proposed. In order to achieve this, the regulations must operate in a different way than before. Rather than simply dictate a minimum buffer yard width and tree planting formula, Seminole County's new standards establish a required "opacity" between different land Opacity refers to the degree of uses. screening needed between neighboring properties, based on how similar they are and how much they differ in intensity.

Opacity ratings range from 0.1 (very light) to 0.8 (very heavy) or greater in some instances. As used in our ordinance, the term opacity views space as an element of screening in addition to trees, shrubs, and fences or walls. As a result, a substantial buffer may be easy to see through, but the use generating the impacts will be farther away from neighbors.

The key point is that by requiring a certain opacity instead of a specific buffer design, the regulations allow a variety of solutions. A developer may alter the width or planting density of the buffer depending on the amount of land available within the site. In a tight situation, buffer width may be reduced in exchange for more plants. On the other hand, if the property has plenty of room for the proposed use, plant requirements may be reduced in return for reserving wider buffer areas. In either case, the choice is made by the developer; the County recognizes a range of alternatives as equivalent to each another. Regardless of which alternative is chosen, the degree of protection for neighboring properties is the same.

Measuring Intensity

Every property – along with the human activities that take place there – has an intensity, a measure of how strongly it affects its neighbors. High intensity uses are associated with heavy traffic, noise, light and glare, etc. Low intensity uses are quiet, with fewer people present, and generally do not attract much attention.

Of course, there are many shades of intensity between highest and lowest. Most development falls between the extremes. The performance buffering system seeks to measure these gradations and relate them to each other along any property line where different uses or intensities come together. Where the differences are great, the system requires a heavy buffer, while small differences may require a light buffer or none at all. Performance buffering is aimed not just at requiring a buffer, but requiring the *appropriate* buffer, between any two uses.



FAR = Floor Area ÷ Gross Site Area

ISR = Impervious Surface Area ÷ Gross Site Area

Density = Dwelling Units ÷ Gross Site Area (units / acre) To find the appropriate buffer, you must first determine the intensity of the proposed new development, as well as the intensities of neighboring uses on all sides. Different yardsticks of intensity may be used, depending on the type of development being considered:

- Floor Area Ratio (FAR): Total floor area of all buildings divided by gross site area.
- Impervious Surface Ratio (ISR): Total area of paved surfaces and building footprints divided by gross site area.

Section 30.1285 of the Seminole County Land Development Code specifies in detail how these factors and others may be used to establish intensity ratings for various types of land uses. Additional measures of intensity include building height, setbacks, and hours of operation. In situations where these factors may determine the results, a complete buffer analysis, looking at all provisions of the Code, will be needed.

However, the simpler method of determining intensity described in this booklet will work well in most cases. We recommend that you begin with the easier process, and contact the Planning & Development Division with any questions or issues that come up.

Use the table shown at right to determine the land use intensities of the subject property (your development) and all neighboring properties and land uses.

*Other factors may increase intensity rating, such as building heights greater than 50', unlimited operating hours, etc.

LAND USE	Factor	Range	INTENSITY
General Commercial	FAR	0-0.15	V
	FAR	0.151- 0.20	VI
	FAR	0.201- 0.25	VII
	FAR	0.251-0.35	VIII
	FAR	0.351-0.50	IX
	FAR	0.501-1.00	Х
Heavy Commercial	FAR	0-0.25	VII
	FAR	0.251-0.35	VIII
	FAR	0.351-0.50	IX
	FAR	0.501-1.00	х
Heavy Industrial			Х
High Density Residential	Density	10.1-12.0 units/acre	IX
	Density	exceeding 12.0 units/acre	х
Institutional & Group Living	FAR	0-0.10	IV
	FAR	0.101-0.15	V
	FAR	0.151-0.45	VI
	FAR	0.451-0.60	VII
	FAR	0.601-0.75	VIII
Light Industrial	ISR	0-0.50	VIII
-	ISR	0.501-0.75	IX
	ISR	0.75+ *	х
Low Density Residential	Density	0.34-2.0 units/acre	П
	Density	2.01-3.0 units/acre	Ш
	Density	3.01-4.0 units/acre	IV
	, Density	4.01-5.0 units/acre	V
Medium Density Residential	, Density	5.01-6.0 units/acre	VI
	, Density	6.01-8.0 units/acre	VII
	, Density	8.01-10.0 units/acre	VIII
Office	FAR	0-0.20	V
	FAR	0.201-0.25	VI
	FAR	0.251-0.50	VII
	FAR	0.501-0.75	VIII
	FAR	0.751-1.00	IX
Outdoor Recreation	ISR	0-0.20	
	ISR	0.201-0.35	
	ISR	0.351-0.50	IV
	ISR	0.501-0.60	V
	ISR	0.601-0.70	VI
	ISR	0.701-0.75	VII
	ISR	0.701-0.75	VII
Dublic Comico			
Public Service	ISR	0-0.20	V
	ISR	0.201-0.35	VI
	ISR	0.351-0.50	VII
	ISR	0.501-0.60	VIII
	ISR	0.601-0.65	IX
	ISR	0.651-0.75	Х
Rural/Agricultural	Density	0-0.33 unit/acre	I

In order to use the intensity table, you will need to consult a site plan, survey, Property Appraiser's parcel record or other source of information to determine density, FAR, or ISR for the various sites. (If you can't find specific information, use an aerial photograph to come up with your best estimate.) Intensity ratings range from I through IX. For each land use category, look at the table row that covers the property you are looking at; the intensity rating is in the far-right column.

An intensity rating means little by itself. But once you have evaluated your site and adjoining developments, the relationships between them become clear. If you plan to build a retail commercial site and the property next door has a similar use, then minimal buffering, if any, is necessary. However, if your neighbor is a single family home, substantial buffering will be needed to maintain compatibility. The performance buffering system offers a way of measuring the need for buffering between different uses, and providing alternatives for meeting that need.

Finding the Appropriate Buffer

Once you have determined the intensities of the proposed and existing uses, you can easily find the amount of buffering needed between them. The regulations provide for a required opacity between every intensity level, I through IX, and every other intensity level. For purposes of this booklet, opacities are expressed as a series of diagrams showing minimum buffer widths, numbers of trees and shrubs per 100 feet, and any hedges or walls that may be needed. Note that the buffering requirements are based on *actual* development and not on zoning districts. This means that your buffers are determined by land uses and development that exist, not by any greater density or intensity that might be allowable under a given zoning classification.

In addition to neighboring development, the buffer requirements are triggered by adjacent roads and vacant property. In these cases, you must still determine the intensity of your site, but the required buffer is simply read off the tables provided on the facing page. In order to use the tables, you will need to know the future land use (FLU) designation of adjacent vacant properties and the classification(s) of the road(s) fronting your development site.

FLU designations are established by the Seminole County Comprehensive Plan and can be obtained through the Property Appraiser's property search mapping system. This information is also available from the Planning & Development Division.

Roadway classifications are arterial, collector, local, and railroad. The Land Development Code provides the following definitions (check with the Planning & Development Division if you aren't sure which one applies):

Arterial: A street which provides a direct route for long, local trips and also provides access to interstates, expressways, and freeways.

Collector: A street which conducts traffic between local streets and arterials and also provides access to abutting property.

Local Street: A street which provides access to property, serving as the first level of roadway for a neighborhood. It serves as a feeder to collector streets.

The table indicates the required buffer between your site and adjacent street or railroad.

			Arterial	Collector	Local	Railroad
		1	*	*	*	*
		Ш	А	*	*	F
Buffers Adjacent to Roads		Ш	А	Α	А	F
-	sed	IV	В	Α	Α	E
	LUI Proposed	V	С	В	Α	D
	Pr	VI	С	С	Α	В
	2	VII	D	С	Α	Α
		VIII	D	D	в	*
		IX	Е	E	D	*
		х	E	E	Е	*
			* No buffer	required		•

						LUI E	xisting				
		I.	Ш	Ш	IV	V	VI	VII	VIII	IX	Х
	1	*	*	*	*	*	*	*	*	*	*
	Ш	В	*	Α	В	С	D	D	F	G	Н
	ш	В	Α	*	Α	В	С	D	D	F	G
sed	IV	С	В	Α	*	Α	В	С	D	D	F
Proposed	V	Е	С	В	Α	*	Α	В	С	D	Е
	VI	D	С	C	В	Α	*	Α	В	С	D
Ľ	VII	Е	D	C	С	В	Α	*	Α	В	С
	VIII	F	Е	D	С	С	В	Α	*	Α	В
	IX	G	F	Е	D	С	С	В	Α	*	*
	X	Н	G	F	Е	D	С	С	В	*	*
	-	*	- No buffe	er require	ed						





Buffers Adjacent to Vacant Land



A Word About Utilities

The road frontage of a development may have overhead utility lines with the potential, over time, to interfere with required buffer plantings. For that reason, Seminole County's buffer regulations provide an alternative planting scheme for use where low-level landscaping is needed to avoid these conflicts. The buffer diagrams shown on pages 14 through 17 include alternate buffer designs to be used where overhead utilities are present. The alternative design is *optional* for any buffer, but *required* where overhead lines are present.

Parking Buffers

Parking areas can present a special problem for buffering. Often located along the edge of a site, they may have impacts on adjoining properties that go beyond ordinary activities associated with a commercial, industrial or office use. Parking lots generate noise, glare, odors, and pedestrian movement that can disturb neighbors on properties with a lower intensity.

For that reason, the Code requires special buffering around a parking lot where it is located within 25 feet of a residential zoning district or future land use designation. Parking buffers are based on Buffer Diagram A on page 14, with some increased requirements. Minimum buffer width is 10 feet, and required plants per 100 feet must be increased by 5 percent. Also, there must be a 3-foot masonry wall

within the buffer. These requirements are in addition to any standard buffering required along the property line.

Again, parking buffers are required only on development next to residential uses. The Planning & Development Division can help you determine whether a parking buffer is needed on your site.



Nuisance Buffers

Many commercial or industrial sites include supporting features or activities which create noise, smells, or other impacts limited to small areas of the property. Examples include truck loading areas, outdoor storage, equipment operation, and solid waste disposal. Where such situations occur, and they are either adjacent to residential property or visible from a public right-of-way, augmented buffers are needed along the property lines.

In all such cases, the required buffer is upgraded by two steps (A to C, B to D, etc.). For loading and refuse disposal areas, the buffer must include a 6-foot masonry wall. For outdoor storage, equipment operation or materials handling, the buffer must include a berm and/or evergreen hedge high enough to prevent visibility from outside the property. Contact the Planning & Development Division with any questions about how the requirements apply to your project.



Summing Up

Performance buffering is a sophisticated tool for creating compatibility between different land use types and intensities. While simpler systems can ensure compatibility, they may also require more landscaping, fencing, and land area than needed to do the job in a given location. The performance approach matches the *degree* of buffering with the *degree* of potential incompatibility between uses. In other words, some situations justify more buffering while others need less.

The guidelines described in this booklet will create buffers that meet County standards. From here, study the following pages, which provide a sample worksheet for calculating planting requirements, along with diagrams A through H, representing the full range of buffering required by the Code.

While relatively simple, the process presented here may not bring desirable results in every case. For example, you may be forced to adjust proposed parking or building locations, or there may simply not be enough room on the site for required buffers. In some situations you may find that some fine tuning of the requirements would be helpful.

The complete version of Seminole County's buffer regulations can be found in Chapter 30, Part 67 of the Land Development Code. Though somewhat more complex than what is described in this booklet, the full process may give you greater flexibility in designing buffers for the unique needs of your site. You may be able to:

- Reduce the buffer width with increased landscape plantings and fencing;
- Increase the buffer width and reduce required plantings and fencing;
- Reduce overall buffer area on small or oddly shaped parcels;
- Exchange required masonry walls for lesser forms of fencing.

The Planning & Development Division will assist you in creating a buffer plan for your site that takes advantage of all features of the Code that may benefit you. Please contact us if you need help.

II. Here's an Example



First, take notice of the location, shape and size of your property. How many neighbors do you have, and what activities are happening on adjacent properties? Be aware of vacant land and any roads that touch your site.



Next, think about the physical aspects of your proposed development site. How many buildings will you have and how large will they be? Where will you provide parking? And don't forget about retention areas for stormwater runoff. In this example, you are planning a retail commercial use with total floor area equal to about 30% of the site. Based on that information, the intensity table (page 5) indicates that your land use intensity rating is VIII.

Meanwhile, your site borders residential developments of 2-3 units per acre on the west and about 5.5 units per acre on the southeast. These uses have intensity ratings of III and VI respectively. The existing commercial development to your east has a slightly lower intensity than your proposal, with a rating of VII.

Finally, the vacant land to the north has a future land use designation of COM (commercial), and the road is an Arterial.

Relating your intensity VIII development to the road and to neighboring properties, the tables on Pages 6 and 7 specify the required buffers along each segment of the property line. Note that the same buffer is not required on all sides. The common boundary with the most similar use, the commercial to the south, requires an A buffer, while a much heavier D buffer is needed adjacent to the single family development at the rear of the site.

Diagrams provided on pages 14 through 17 illustrate buffer designs. A and B buffers need a width of only 10 feet, while D buffers require 15 feet with a continuous hedge. Besides varying in width, heavier buffers include increasing numbers of canopy trees, understory, and shrubs per 100 feet.





Now that you know the types and locations of buffers required for your site, you must turn that information into a specific list of plants and other features that make up a buffer. To do this, you must think spatially about the layout of the site, making sure that your planned improvements don't interfere with buffer elements required under these regulations. Remember that buffers have width as well as length. While a 10-foot buffer leaves considerable latitude to lay out buildings, parking, and other elements of the site, a buffer of 25 feet or more will require you to keep these things farther away from a property line.

Within the buffer, required plants must be arranged in an effective way. There are no hard and fast rules about spacing of plants; they may be clustered creatively to enhance their appearance. Just remember, they are supposed to function as a buffer, so spread them out enough to achieve their purpose. In order to design a buffer, you must know how many trees and shrubs are needed along each property line.





To do this, start by dividing the site boundary into segments corresponding with the respective buffers. As the diagrams on the previous page show, different buffers are needed adjacent to different properties or development types along the perimeter. Unfortunately, these don't always coincide conveniently with compass directions (i.e., north, south, east, west). When this happens, you must name or distinguish the segments in some other way, such as numbering (1,2,3) or lettering (a,b,c). The diagram above names the segments "north," "east," "southeast," "west," and "northwest."

Once you have done this, measure (or read from a site plan or survey) the length of each. This distance, divided by 100, serves as the multiplier for the plant counts shown in the buffer diagrams. For instance, a buffer length of 436 feet creates a multiplier of 4.36. This number multiplied by the plant counts in Buffer Diagram A leads to a required plant count of 4.36 canopy trees, 8.72 understory trees, and 74.12 shrubs. Of course, there are no fractional plants, so you must round up to the nearest whole number and provide 5 canopy trees, 9 understory trees, and 75 shrubs in that particular buffer.

In our example, we have five buffers, named as shown in the table at right. Each represents a different degree of opacity, based on different adjoining development types and uses. Three grades of buffering are included: A, B, and D. (See buffer diagrams on pages 14 through 17.) Minimum widths are 10 feet for buffers A and B, and 15 feet for buffer D.

The tables below show the following information for each required buffer:

- Plant types: canopy trees, understory trees, and shrubs;
- Buffer length in hundreds of linear feet;

NORTH "D" Plant Type	Hundreds of Linear Feet		Plants/ 100'		Planting Requirements
Canopy	5.37	х	0	=	0
Understory	5.37	х	15		81
Shrubs	5.37	х	48	=	258
Other	3' hedge				
EAST "A"					
	Hundreds of		Plants/		Planting
Plant Type	Linear Feet		100'		Requirements
Canopy	4.36	х	1	=	5
Understory		х	2	= _	9
Shrubs	4.36	x	17		75
SOUTHEAST "	В"				
Plant Type	Hundreds of Linear Feet		Plants/ 100'		Planting Requirements
Canopy	4.85	х	2	=	10
Understory	4.85	х	4	=	20
Shrubs	4.85	x	34	= _	165
WEST "D"					
	Hundreds of		Plants/		Planting
Plant Type	Linear Feet		100'		Requirements
Canopy		х	3	=	24
Understory	7.95	х	15	=	120
Shrubs	7.95	х	39	_ = _	311
Other	3' hedge				
NORTHWEST	"B"				
Diam(T	Hundreds of		Plants/		Planting
Plant Type	Linear Feet		100'		Requirements
Canopy		х	2		17
Understory		x	4		33
Shrubs	8.09	Х	34	=	276

Buffer	Туре	Width	Length
North	D	15'	537′
East	А	10'	436′
Southeast	В	10'	485'
West	D	15'	795′
Northwest	В	10′	809'

- Number of plants per 100 feet;
- Planting requirements for each type of tree or shrub within each buffer; and
- Required hedges in buffer "D".

(Note that the "North" buffer fronts on a major road and uses a design alternative that avoids requiring canopy trees where there are overhead utility lines.)

Besides plant counts and buffer widths, you need to know about several other issues that affect buffer design:

- *Parking*. Buffers may not contain parking spaces, including overhang from adjacent parking spaces.
- *Roads & Driveways.* These are not permitted in a buffer, except that a driveway may cross a buffer. The width of a driveway is not counted as part of the length of a buffer for planting calculation purposes.
- Stormwater Retention, Utility Sites and Trails. Buffers may include these features where they do not interfere with the screening function of the buffer, and the required opacity can be maintained. These determinations are made by the Economic & Community Development Services Director, who may adjust the requirements as necessary.

With this information, you should have what you need to design your buffers in compliance with the regulations. Of course, you are free to provide additional plants and buffer areas as you wish.



BUFFER "D"

width	15'
canopy	3
understory	15
shrubs	39
3'hedge	



Adjacent to Overhead Utility Lines

BUFFER "D"

width	15'
canopy	0
understory	15
shrubs	48
3'hedge	



BUFFER "E"

width	25'
canopy	3
understory	6
shrubs	46
6' mason ry wall	



BUFFER "E"

width	25'
canopy	0
understory	15
shrubs	48
6' mason ry wall	



BUFFER "F"

width 25' canopy 4 understory 7 shrubs 60 6'masonry wall



Adjacent to Overhead Utility Lines

BUFFER "F"

width	25'
canopy	0
understory	20
shrubs	64
6' mason ry wa	1



BUFFER "G"

width 40' canopy 3 understory 6 shrubs 50 6' mason ry wall



Adjacent to Overhead Utility Lines

BUFFER "G"

width	40"
canopy	0
understory	15
shrubs	48
6' mason ry wall	



BUFFER DIAGRAMS

BUFFER "H"

width 50' canopy 4 understory 7 shrubs 55 6' masonry wall



Adjacent to Overhead Utility Lines

BUFFER "H"

width	50
canopy	0
understory	20
shrubs	64
6' mason ry wall	



IV. Sample Buffer Worksheet

DEVELOPMENT SITE BUFFER AND LANDSCAPE ANALYSIS

Seminole County Planning & Development

PROJECT NAME	
APPLICANT	
CASE NUMBER	

Use this space to draw a diagram or make notes about your buffer project.



PROJECT TOTALS		
Canopy	Understory	Shrubs
Fence or Wall Require	ements	

Note: Make additional copies of this page if your site has more than 4 buffers.

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Plant Type	Hundreds of		Plants/			Plant Pequirements
Other Requirement**						
Length						
Width						
Type						
BUFFER NAME*						
Shrubs		_ X		X		
Understory		_ X		Х	= .	
Canopy		X		Х	=	
Plant Type	Hundreds of Linear Feet		Plants/ 100'			Plant Requirements
Width Length Other Requirement**		_				
		_				
		_				
Туре		-				
BUFFER NAME*						

Plant Type	Linear Feet		100'			Plant Requirements
Canopy		Х		Х	=	
Understory		Х		X	=	
Shrubs		Х		Х	=	

BUFFER NAME*						
Туре		_				
Width		_				
Length		-				
Other Requirement**		_				
	Hundreds of		Plants/			
Plant Type	Linear Feet		100'			Plant Requirements
Canopy		X		Х	=	
Understory		x		Х	=	
Shrubs		- x		x	=	

BUFFER NAME*						
Туре		-				
Width		-				
Length		-				
Other Requirement**		_				
	Hundreds of		Plants/			
Plant Type	Linear Feet		100'			Plant Requirements
Canopy		Х		х	=	
Understory		x		Х	=	
Shrubs		x		х	=	

* Use a compass direction (north, south, etc.), a number, or other designation to identify an individual buffer segment.
** Note any hedge, fence or wall that may be required on this buffer segment.

Things you should know about Performance Buffering...

- Buffers are based on what you <u>plan</u> to build, not what you are <u>allowed to</u> build
- Smaller buffers for smaller impacts
- Larger buffers for larger impacts
- Protects neighbors without unnecessary burdens on you
- Avoids conflicts with utility lines



Please contact us for further information!



Seminole County Planning & Development Division

1101 East First Street Sanford FL 32771 Phone (407) 665-7371 Fax (407) 665-7385