Memorandum

To: Brian Fields. P,E., Director of Development Services and Coastal Environmental Resiliency

From: Patricia Tyjeski, AICP

Date: January 31, 2019

Subject: Density Calculations Study

The City of New Smyrna Beach requested an assessment of their methodology for calculating residential density and recommended changes to that methodology as a result of the evaluation, if necessary. The attached Density Calculations Study analyzes the methodology for calculating density in New Smyrna Beach and other local municipalities and provides a recommendation for changes/clarification in the Land Development Regulations (LDR).

The study addresses the differences between gross and net densities, the effect of site development standards on density, and the perception of density. It concludes that the City's practice of calculating density (excluding only surface waters from the calculation) is consistent with the practice in other jurisdictions and the State Statute requirements for density in comprehensive plans. The study also explains in detail the fact that the traditional zoning districts have site development standards (lot size, setbacks, lot coverage, building height, etc.) that control the intensity of residential development at the zoning level, but it is not the case for Planned Unit Developments (PUD), which have no specific site development standards other than density and minimum open space.

The report includes a case study analysis. S&ME compared the approved densities of four projects in the City with the potential densities of those projects if the calculation of density were to exclude wetlands. The report addresses the effects of such a change and discusses other code changes that could have better results guiding development in the City.

The final recommendations include adding a definition of "gross density" based on the current calculation methodology with some adjustments to make it easier to implement, adding a "net density" definition to the LDRs, slight modification to the wetland definition to ensure it is consistent with the State Statutes if those are amended, and adding a definition of wetland boundaries. The recommendations also include assessing lot sizes in the various residential zoning districts to ensure they are implementing the purpose of each district, and considering changes to the PUD regulations to ensure that PUDs in different parts of the City achieve the intended character of development.

Density Calculations Study
Draft

Background

The City of New Smyrna Beach Comprehensive Plan sets a maximum density value for each future land use category. However, it is not readily evident that residential density is supposed to be calculated on a gross or net land area basis. This only becomes apparent in footnote number two (2) under Table II-5 – Residential Zoning, which shows density ranges for the residential future land use categories as dwelling units per gross acre.

The City's LDRs address maximum densities only for two zoning districts (R-2A and R-3 allow eight (8) units per gross acre) and the Planned Unit Development district. The PUD densities, similar to the Comprehensive Plan, are not specified as gross or net. The LDRs, however, state that density shall be calculated "by multiplying the acreage by the number of allowable units" (Section 504.01.D), and list several site features that are not included as part of the site acreage when calculating density (Section 504.01.L):

- Land that has been dedicated or reserved for any public use, including but not limited to, recreational or park use;
- Land that is within the beach/dune system;
- Land that is underneath a public right-of-way;
- Land that is submerged by ocean, natural lake, natural pond or other natural waters, or land that is under water from the mean high water line waterward.

There is also a definition of *Net Land* in the LDRs, "*Total high, dry land area that excludes existing water bodies or watercourses such as lakes, ponds, streams, canals, and tidal waters. Also referred to as 'net land area' or 'net acreage of land',*" but the term "net" is not used anywhere in the LDRs when referring to density. On recent projects, the City has been applying the calculation stated in Section 504.01.L of the LDRs.

"Net" density is supposed to be based on *developable* land. To ensure it only includes developable acreage, several features are typically excluded from the net acreage. The list of features to be excluded, however, varies from jurisdiction to jurisdiction.

Based on the lack of clarity in the Comprehensive Plan and LDRs, questions have come up regarding the application of density requirements in the City. Also, whether wetlands are, or should also be excluded from the site acreage to calculate density has been discussed. S&ME was retained by the City to review the code definitions and density calculations and propose clear and concise language to help staff with the implementation of the code and help developers/designers better understand the methodology. S&ME also reviewed the density definitions used in other jurisdictions in Volusia County and neighboring counties to determine how the local regulations compare to other jurisdictions.

Analysis

When discussing site density, it is important to understand the concepts and purpose of "gross density" and "net density," as well as the effects of site standards (lot size, building setbacks, lot coverage, and building height) and permitted uses on the maximum number of units that can be built on a site and the resulting character of that

development. Another important concept when discussing density is "perceived" density. What a person sees from the street may not necessarily reflect the actual density of the development.

Gross vs. Net Density:

Gross density typically refers to the number of units allowed based on the total (developable and undevelopable) acreage of an entire site, excluding natural water bodies. Gross density is generally used to calculate the maximum number of units that could potentially be accommodated on a development site. Density allowance, however, does not guarantee that the development will be able to attain the maximum number of units allowed. The application of other development standards may decrease the number of units allowed.

Gross density is commonly used in comprehensive plans to estimate the number of units that could accommodate the forecasted population growth within the boundaries of a jurisdiction and estimate the future need for public services and facilities (including parks, utilities, traffic and other services). However, gross density alone cannot determine the size of the lots in a subdivision or ensure compatibility between developments. The maximum gross density does not typically match the lot size standards as it assumes that there will be some environmentally sensitive areas, parks and recreation facilities, rights-of-way and other features that will be incorporated into the development. For example, a land use category that allows 4 dwellings per gross acre, does not necessarily translate to four 10,890-square-foot lots due to site constraints and other development requirements. See **Figure 1** below showing how two subdivisions may have the same gross density (same number of lots) but different lot sizes (character).

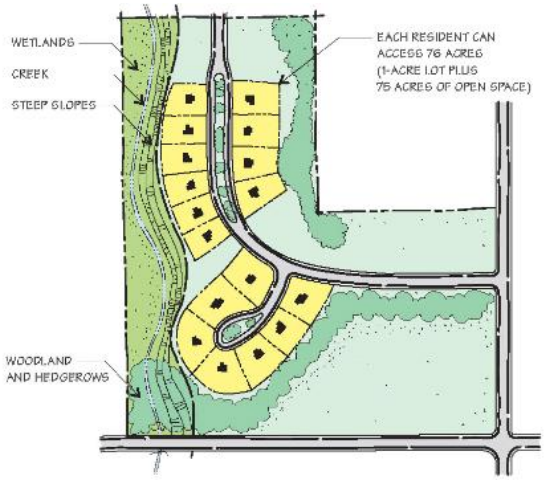
Net density determines how many units can be built on the *developable* residential portion of the site, which usually excludes the acreage of natural and manmade water bodies, wetlands, common areas, and/or other areas not used for residential purposes. The list of features that get excluded varies from one jurisdiction to another.

Net density is typically used to ensure the lot size requirements stay consistent with the desired character of the area. For instance, a 4 unit per gross acre density could yield four ¼-acre lots, or four 3,500 square-foot lots (if that lot size is allowed by the zoning district or there is no minimum lot size requirement). In the case of the 3,500 square foot lots, the resulting *net* density would be 12 units per acre. **Figure 1** shows two subdivisions with the same gross density but different net density. The effect of minimum lot size requirements on density is discussed later in this report.

New Smyrna Beach's LDRs already contain minimum lot sizes and dimensions for all agricultural, single-family, duplex and multi-family zoning categories, except for R-2A. Establishing net densities for these zoning districts is not necessary since the dimensional requirements were established to ensure they met the density restrictions imposed by the Comprehensive Plan. In this way, net density calculations are rendered duplicative and unnecessary. In the case of R-2A, the LDRs specify a maximum gross density but no net density or minimum lot size. That means that the units allowed by the gross density could vary in size to the point where very small lots could be approved and, if multi-family is allowed, the developer may choose that use to reach the maximum number of units allowed.

While most communities rely on gross density alone, some include both, gross and net. Those using gross density only, rely on lot size parameters adopted in the LDRs to ensure the development meets the intent of the zoning district. Communities that use both gross and net densities do it mainly because Planned Development districts typically do not have minimum lot size standards and would only be required to meet the maximum densities adopted in the comprehensive plan.

Figure 1: Gross and Net Density



Total Acreage: 104 acres
Lots: 17
Gross Density: 1 unit per 6 acres
Net Density: 1 unit per 6 acres
Average Lot Size: 6 acres
Common Open Space: 0 acres

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Lots: 17
Gross Density: 1 unit per 6 acres
Net Density: 1 unit per 1 acre
Average Lot Size: 1 acre
Common Open Space: 87 acres

Site Standards in Traditional Zoning Districts:

In addition to density parameters, most communities use site standards such as lot size, building setbacks, lot coverage, and building height to shape the character/form of development within the various zoning districts.

Minimum lot size (and/or width and depth) standards are another effective way to regulate density. When drafting lot size standards, jurisdictions try to match the lot size to the maximum ***net*** density permitted. For instance, if the maximum net density allowed is 6 units per acre, the minimum lot size would be around 5,500 square feet, calculated as follows:

Gross area 43,560 sq. ft. lot
Minus approx. 25% (10,890 sq. ft.) for stormwater, open space, right-of-way
Net buildable area 32,670 sq. ft.
Divided by 5,500 sq. ft. per lot
Yields 6 lots

This minimum lot size requirement allows for the use of some of the site acreage (assuming 25% for this example) for open space, stormwater and rights-of-way. If a site has wetlands or other non-buildable acreage in addition to the 25% noted above, the maximum density cannot be achieved because the minimum lot size would still have to be met.

Minimum lot size is an important tool to establish the character of a neighborhood. All city zoning districts (except for R-2A) have such a requirement. **Appendix 1** shows a comparison of density, lot size and lot coverage for the residential districts in New Smyrna Beach. Minimum lot sizes for single-family homes range in size from 20 acres in the Forestry Resource district to 5,000 sq. ft. in the R-3A and R-4 districts. When compared to the "gross" densities listed in Table II-5 of the Future Land Use Element of the Comprehensive Plan, it can be observed that the densities in the comprehensive plan are noted as *gross* densities, but function as *net* densities (e.g. Low Density Residential allows a "gross" density of 5 units per acre. The minimum lot size allowed for single-family residential in R-2 is 8,625 square feet. One acre divided by 8,625 is 5. There is no room for providing common open space without losing lots.

Building height has one of the most direct effects on the perception of density. The City of New Smyrna Beach has a policy in the Comprehensive Plan restricting building heights on the beachside to 3 stories in Low-Density Residential, 4 stories in Medium, and 8 stories in High (1 additional story may be allowed for parking). The LDC restricts building heights in the residential zoning districts to 35 feet (3 stories), except for R-4 which allows 45 feet (4 stories) for multi-family dwellings, R-5 and R-6 which allow 80 feet (8 stories) or 95 feet (9 stories), if the first floor is used for parking. There is no maximum height specified in the LDRs for Planned Unit Developments. Standards such as building height, setbacks and lot coverage can be more efficient methods for implementing the vision/expectation for each zoning district. The placement and spacing of buildings on a site affect the perception of density (closer, taller, tighter buildings feel more urban, denser).

Site Standards in PUD Districts:

Most subdivisions in the City occur within Planned Unit Developments. Unlike traditional zoning districts, PUDs do not have minimum lot sizes, building setbacks, building heights, or other dimensional standards typically found in traditional zoning districts. The dimensional standards are typically proposed by the applicant and decided by the City Commission when the PUD is approved. Section 504.00 of the LDR contains "dimensional requirements" for PUDs which emphasize density maximums and open space but do not provide minimum lot sizes. That section includes the following use and dimensional requirements for PUDs:

Allowed Uses: The LDRs contain a list of permitted and conditional uses allowed in PUDs, which vary depending on whether the PUD is within the Corridor Overlay Zone (COZ), west of the interstate, or in other areas of the city. All areas allow single-family and most allow multi-family residential uses.

Project Site Size: Ranges from 0.75 to 5 acres minimum.

Parking: Per code.

Density*: 18 units per acre (upa) on the mainland and 12 beachside. Exceptions to that include:

- Hospitality: 48 upa
- Southeast Volusia Activity Center: 60 upa
- Marina Future Land Use: 24 upa up to 48 if certain conditions are met
- All other transient lodging: 24 upa.

** Note: The density of the PUD cannot exceed the maximum density of the site's future land use designation.*

Open Space: The following minimum open space requirements apply to various sectors of the City. A minimum of 35% of the required open space must be designated as common open space.

- Activity Center Future Land Use Designation: 40% for residential; 30% for non-residential or mixed-use.
- Traditional City: 30% for residential; 20% for non-residential or mixed-use.
- West of I-95, within the W NSB Urban Overlay Zone: 50% all PUDs.

- East of I-95, west of Traditional City Area and within Corridor Overlay Zone: 60% for residential; 50% for non-residential or mixed-use.

As noted earlier, all other development standards (e.g. lot sizes, setbacks, building height, etc.) are decided during the review of the PUD.

The density provisions in the PUD section of the LDRs do not specify if it is intended to be gross or net, but it has been applied based on the methodology included in Section 504.01.D of the code.

Land Use:

The permitted uses on a site can also determine how dense it feels, regardless of the actual density of the development. An apartment complex may have the same gross density as a single-family subdivision, but the apartments are always tied to the concept of "high density" (See **Figure 2**, below). The various zoning districts in the City, including PUD, have a list of permitted and special exception uses. The PUD list is more encompassing than the conventional zoning districts. For instance, single-family, two-family and multi-family are allowed in all PUDs as permitted uses. The permitted uses in the Activity Center and west of I-95 PUDs are not listed in the Code and are instead to be determined through the PUD review.

Once a certain density is approved in a PUD, it opens up the possibility that any of the residential uses listed in the PUD section could be included. It is up to the City Commission to approve or deny certain uses if they determine them to be incompatible with the surrounding area. A maximum density noted in the Comprehensive Plan is not assumed to be an entitlement, but a necessary component when combined with a zoning district. A PUD does not have to be approved at the maximum density allowed in the Comprehensive Plan. For instance, if the Beacon Apartments site had been located in a different part of the City where the multi-family use was not appropriate, the development could have been restricted by the City Commission to single-family homes at a lower density.

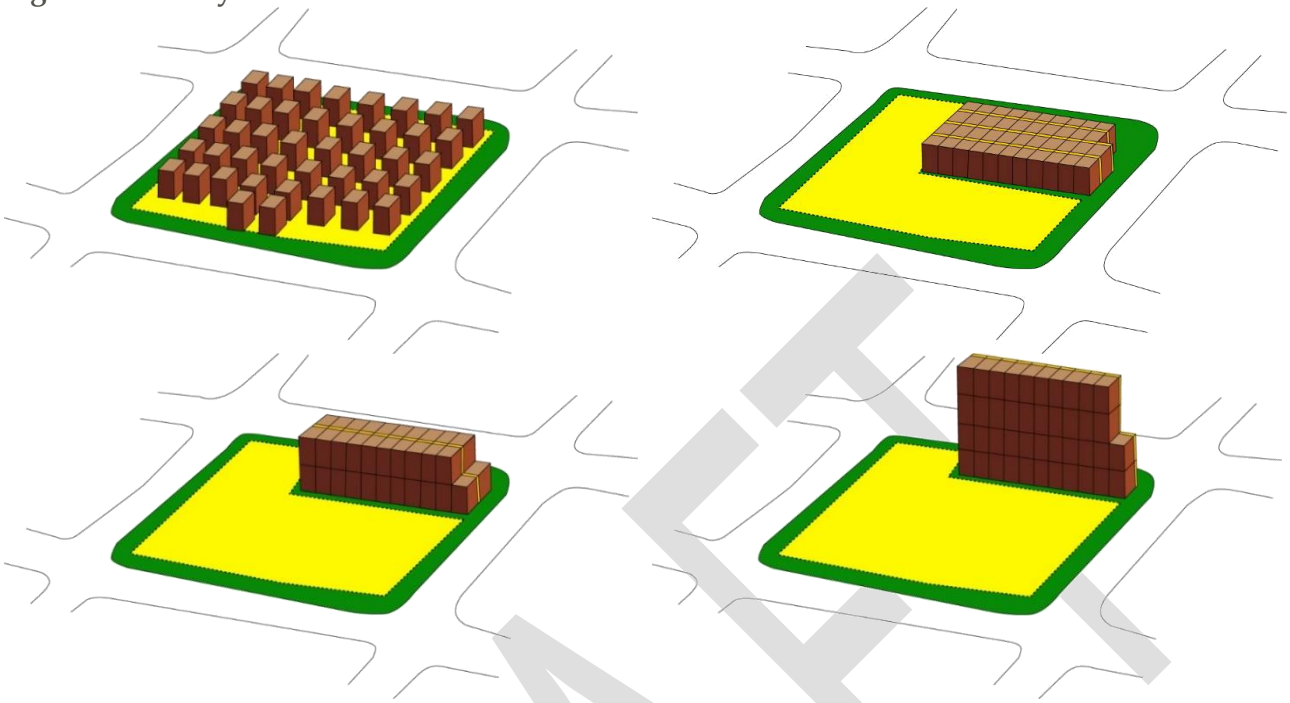
Perceived Density:

Another important concept when discussing density is "perceived" density. As shown in **Figures 1** and **2**, the view from the roadways adjacent to the development site can be very different in each example. In Figure 1, the development on the left gives a sense of openness as the houses have larger setbacks between them, but the one on the right has a different sense of openness provided in common open space areas.

In a paper written by Vicky Cheng titled "Understanding Density and High Density"[1], she lists site features that impact the perception of density, which include overall size of buildings, space between buildings, variety in building façade, building height, building height to street width ratio, visual access to open and green space, space complexity, the number of people, the number of street signs, traffic, light level, naturalness of the environment, the rhythm of activity, and the balance between built-up and vacant spaces. The following graphics (**Figure 2**) show developments with the same gross density, but very different character. The difference between them cannot be addressed with gross density alone. Provisions, such as net density, use, and site standards are factors that change building form and address the perception of density. For instance, if the code only allows single-family homes, only the first example would meet code, but if the code allows both single-family and multi-family – and has no minimum lot size requirements and no height restrictions – all four examples could be achieved and still meet the density restriction.

[1] Cheng, Vicky. Understanding Density and High Density.
https://pdfs.semanticscholar.org/42cf/b357a6725b9db679fc3e5a0a73545d426c5a.pdf

Figure 2: Density



Wetlands:

Another key site feature to consider when calculating density is wetlands. As noted above, gross densities typically provide some room for the protection of the environment. Net densities typically exclude wetlands, as net acreage is supposed to only include developable land. Given that the math for setting up gross densities cannot account for every possible site configuration, there may be instances where the permitted gross density hypothetically allows for more units than can be accommodated on the site. For example, a 10-acre site with a density allowance of 4 units per acre and no wetlands, will have no problem accommodating 40 dwelling units. However, if the same 10-acre site has 5 acres of wetlands, it may not be possible to accommodate the same 40 units within the 5 developable acres if the net density or the minimum lot size requirement do not allow it. **Appendix 2** shows several examples of the number of units that could be accommodated on a 10-acre site depending on the features present.

The density calculation in New Smyrna Beach excludes, among other things, "land that is submerged by ocean, natural lake, natural pond or other natural waters, or land that is under water from the mean high water line waterward." Mean high water line is defined in Section 177.27, Florida Statutes (F.S.), as "the intersection of the tidal plane of mean high water with the shore." As such, this statement only addresses lands under tidal waters, not wetlands.

Wetlands should be an obvious feature to exclude from *net* density to ensure their protection and to give a more realistic expectation when allocating density. Not many jurisdictions exclude wetlands from the calculation of gross density. Past approvals in the City have not excluded the acreage of wetlands from the density calculation. For example, as shown in **Table 1**, Beacon Apartments was approved for 253 units, which was consistent with the allowable density calculated only excluding natural water bodies (gross). The developable area of the 22-acre site accounts for about 9.6 acres (excluding the existing and proposed lakes/ponds and wetlands). It would be unfeasible to develop 253 single-family homes in 9.6 acres. Multi-family was the only way the maximum density could be achieved.

The definition of wetland in Section 206.00 of the LDRs is already consistent with Section 373.019, F.S., which reads; "….those areas that are inundated or saturated by surface water or groundwater at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils." Any other definition would be prone to legal challenge.

Section 701.07 of the LDRs addresses wetland delineation. It states that the applicant shall secure a determination from a biologist with credentials approved by the city manager or may request the city perform a survey pursuant to identifying wetlands as defined in the LDRs. Pursuant to subsection 373.421(1), F.S., the methodology for delineating wetlands shall be as stated in Section 62-340.100, F.A.C., which reads, "The landward extent of wetlands shall be determined by the dominance of plant species, soils and other hydrologic evidence indicative of regular and periodic inundation or saturation." This methodology is binding on the Florida Department of Environmental Protection, the water management districts, local governments, and any other governmental entities. A delineation methodology other than use of the unified statewide methodology found in Chapter 62-340, F.A.C. may be unlawful and difficult to defend.

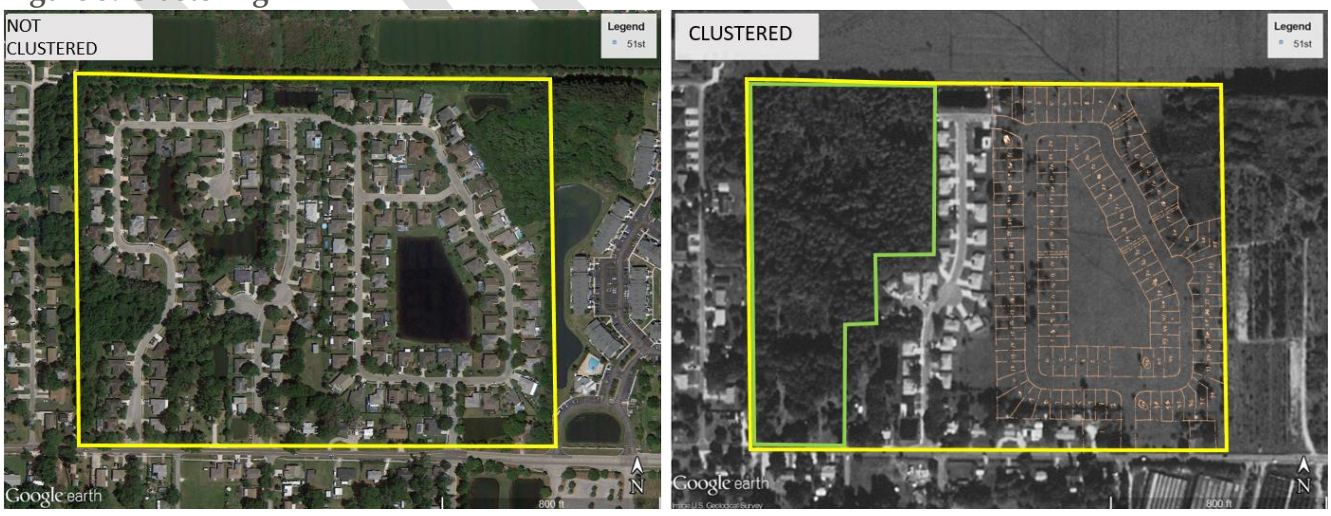
Clustering:

The City's Comprehensive Plan encourages clustering to protect environmentally sensitive land and upland buffers while allowing higher densities. There is a common misconception that cluster development, with its smaller ***lot sizes***, yields higher ***gross densities*** of development. However, there is no increase in the number of lots because the gross density is still applicable. Clustering means that the developer gets approval to use smaller lot sizes to group the same number of lots within a portion of the site.

The City of New Smyrna Beach, with its minimum lot sizes matching the densities, does not allow room for clustering within the conventional zoning districts. In order to facilitate clustering in traditional districts, regulations would need to be drafted to indicate how small the lots could get to facilitate clustering.

In Planned Unit Developments, clustering is more feasible due to the flexibility in lot sizes and has been implemented in the City. **Figure 3** shows an example of a subdivision that could have saved a wooded area if they had utilized smaller lot sizes clustered on the east side of the site. **Figures 8** and **9** show approved developments with clustering. Coastal Woods, for instance, shows a gross density of 1.94 units per acre (average of about ½ acre lots) and a net density of 7.21 units per acre (average 6,000 sq. ft. lots). Note that acreages shown below the plans are not exact. Due to the absence of detailed information, the acreages were derived by measuring the approved plans. Those acreages, though, serve the purpose of comparing density calculation methodologies.

Figure 3: Clustering



Density Methodology Comparison

An inventory of density provisions of other municipalities was completed to determine if the City's methodology for calculating density is in line with other jurisdictions. Most jurisdictions reviewed do not go into a lot of detail explaining how to calculate density in their comprehensive plans or LDRs. **Appendix 2** contains excerpts from those codes.

Chapter 163, Florida Statutes, requires comprehensive plans to determine the approximate acreage and the general range of density or intensity of use for the gross land area included in each existing land use category. Therefore, most comprehensive Plans address gross densities. One exception is the City of Edgewater, which specifies density based on net acreage. The following are the main observations:

Gross Density:

- Most communities exclude natural water bodies from the gross density calculations (Ormond Beach, Volusia County, Melbourne, DeLand).
- Volusia and Ormond Beach also exclude artificial water bodies (e.g. stormwater ponds, borrow pits, etc.).
- Ormond Beach and Palm Coast exclude wetlands, and DeLand excludes conservation areas. Ormond Beach and Palm Coast restrict how much of the gross acreage can be counted if it is unbuildable (10% Ormond Beach, 25% Palm Coast).
- Four communities exclude existing rights-of-way (Port Orange, Ormond Beach, Volusia County and Palm Coast).
- None of them exclude (or at least do not specify it) public recreation areas.
- Ormond Beach also has a different approach for Planned Residential Developments. They may use gross density, but the City classifies a site into varying degrees of developable land based on environmental features and availability of water and sewer. Zoning district densities match lot size.

Net Density:

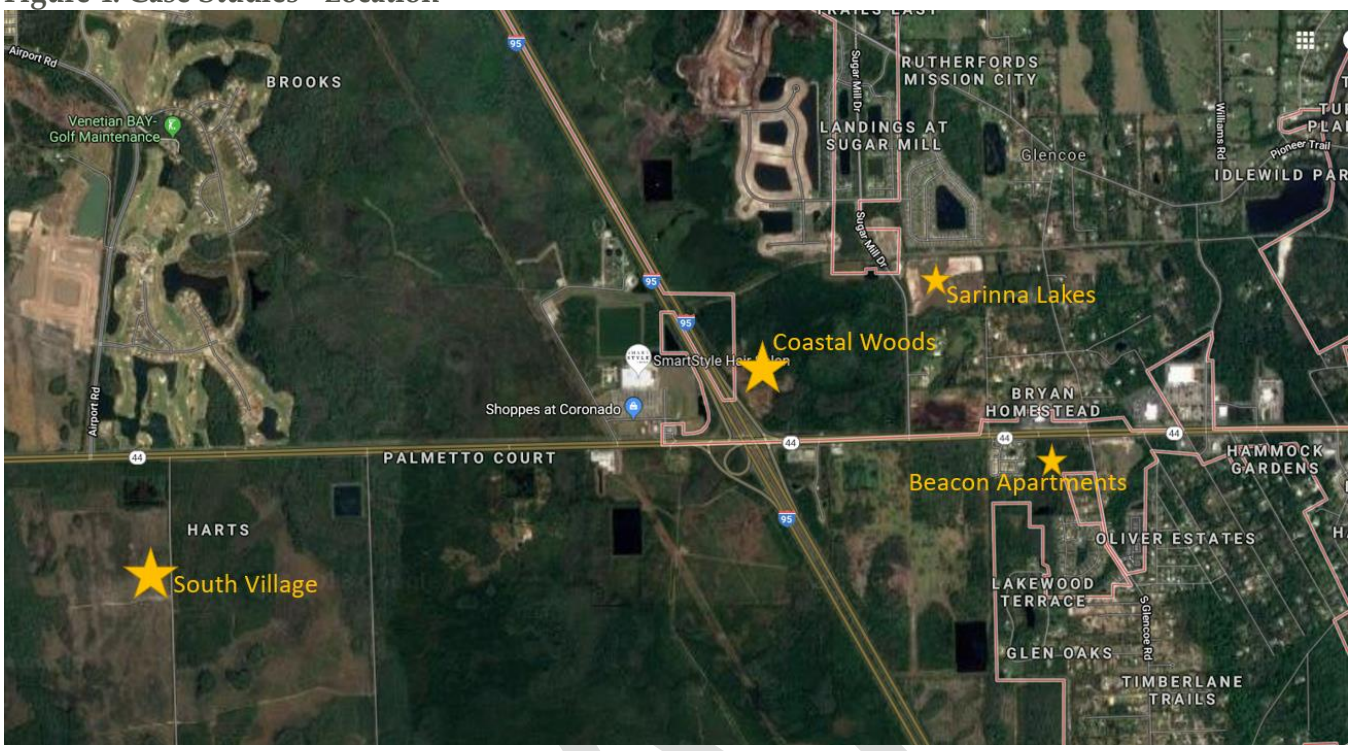
- The majority of the jurisdictions do not address net density.

Case Studies

S&ME analyzed four residential development plans (**Figure 4**) that have been approved by the City to compare the outcome of using different density calculations. They include Sarinna Lakes, Beacon Apartments, South Village, and Coastal Woods.

Note: The acreages shown below the plans are not exactly as approved. Due to the absence of detailed information, the acreages were derived by measuring the approved plans. Although not exact, the acreages do serve the purpose of comparing density calculation methodologies.

Figure 4. Case Studies - Location



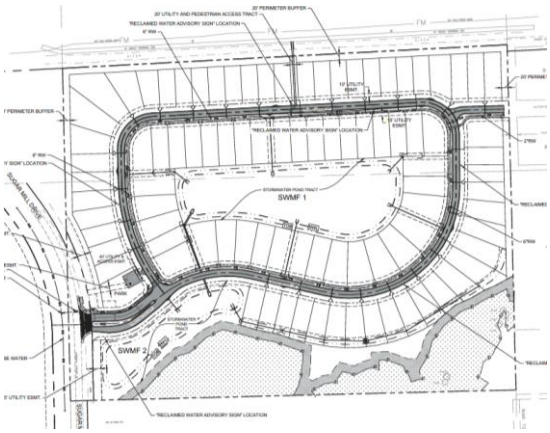
Using the acreages of these developments, densities were calculated using three methods:

- Gross density excluding only natural waters (none in the examples),
- Gross density excluding wetlands, and
- Net density (excluding water bodies, wetlands, open space, rights-of-way, land dedicated to the public (utilities, recreation) or land used for a different use (commercial, civic).

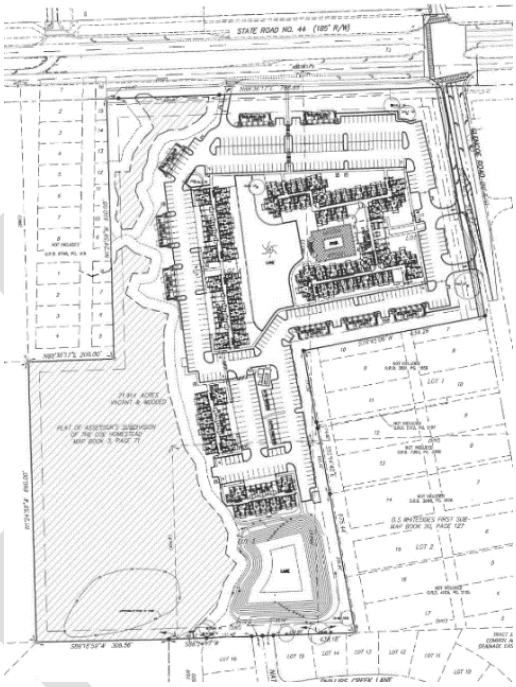
Table 1 shows the four case study sites listing the total size of various site features and further broken down into the future land use designation(s) for each site.

Three of the four sites had more than one future land use designation. The table shows how many units could have been approved if the density had been calculated differently.

Sarinna Lakes could have (theoretically) had a total of 155 units if the density had been calculated based on gross acreage (total site area minus existing water bodies) or 132 units subtracting wetlands from the total acreage. Applying a net density calculation, the development could have only achieved 44 units. Sarinna Lakes was approved by the City for 100 dwelling units. The resulting density was 3.2 units per acre, as opposed to the allowable density of 5 units per acre. S&ME reviewed the site plan to see if they could have added more units and were able to add only 13 lots (using smaller sized lots overall). The pre-development wetlands and stormwater areas restricted how much



development could be accommodated on the site. The property is currently pending approval of a subdivision plan for 91 lots.



Approximately half of the ***Beacon Apartments*** site is located in the SR 44 PUD future land use category (11.34 ac.). The other half is within the Low Density Residential category (5 units per acre). The Future Land Use Element states that the intent of the SR 44 PUD is "to foster high quality business activities, office, financial institutions, and housing of a density up to 18 units per acre, as well as other uses, which are compatible with the surrounding area." LDR Section 504.02 (PUD) lists single-family and multiple-family as permitted uses. Based on a gross density calculation, they could have been approved for 254 units. Based on gross acreage minus wetlands, 195 units could have been approved. Using a net acreage calculation, only 147 units could have been approved. The final development plan shows 253 units (11.5 units per acre). If the development had included detached single-family homes, they could not have been able to accommodate as many units because about one third of the site consists of wetlands. But, since multi-family units are allowed and encouraged in the SR 44 PUD, the developer was able to achieve the maximum density permitted.

Issues that were taken into account include the fact that the southern half of the site is within the LDR category, which only allows 5 units per acre. That is also the part of the site that contains the wetlands, so the number of units within this portion of the site meet the maximum density permitted. The heavier density was required to be located withtin the SR 44 PUD zone. S&ME reviewed the approved development plan to determine if they could have built more units than the 253 approved and were able to add only a few more. To address the issue of density perception along SR 44, the alternative plan shows the relocation of the 2-story units to other portions of the site so that the view from SR 44 does not include units near the road. These are design issues that should be resolved during the PUD approval process and cannot be addressed through density.

Coastal Woods, just like Sarinna Lakes, had wetlands restricting the number of units to less than allowed. The single-family area of the PUD includes two future land use designations: Residential Estates (1 unit per acre) and Low Density Residential (5 units per acre), each requiring 60% open space. Approximately 45% of the site consists of wetlands. In addition to the wetland and stormwater areas, the development shows additional open space.

Table 2 shows that, based on gross density calculations, they could have potentially been approved for 2,297 units (1,342 based on gross acreage minus wetlands). For purposes of this case study, the originally approved development plan with a maximum of 1,250 units was utilized.

South Village is a good example of the intent of gross density. The entire site is 1,363 acres and is located in future land use categories that allow up to 1.5 dwelling units per acre. That is a very low suburban density. However, because it is a gross density, they will be able to accommodate apartments at higher densities in the Village Core, as long as the overall density for the site does not exceed 1.5. South Village was approved for 1,995 units.

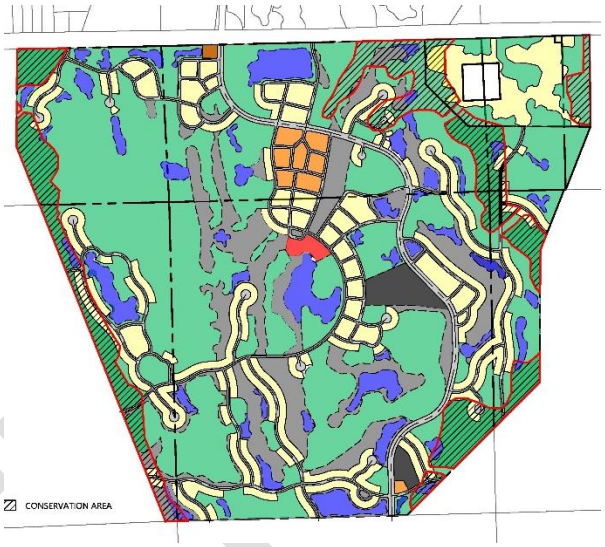


Table 1: Density Comparison of Case Study Sites

	Sarinna Lks	Beacon Apts.			Coastal Woods			South Village		
FLUM	LDR	SR 44 PUD	LDR	Total	Resid Estates	Low Dens Resid	Total	SCD	CON	Total
Max. Density Allowed	5	18	5		1	5		1.5	0	
Total Acreage	31	11	11	22	230	413	644	1,141	222	1,363
Existing water body		-	1	1	-	-	-	-	-	-
Existing ROW	-	-	-	-	-	-	-	-	-	-
Gross Acreage	31	11	10	21	230	413	644	1,141	222	1,363
Wetland Acreage	5	2	6	7	126	166	292	554	130	684
Retention Acreage	6	1	1	2	24	65	89	98	7	105
Other Open Space	2	1	1	3	20	29	49	144	10	154
Total Open Space Acreage	19	4	8	12	170	260	430	796	147	943
Proposed ROW	4	-	-	-	11	29	41	111	5	116
Commercial		-	-	-	-	-	-	15	-	15
Civic		-	-	-	-	-	-	14	-	14
Net Acreage (1)	9	8	2	10	60	154	214	316	75	391
Max. Permitted Units:				-			-			-
Based on Gross Acreage	155	204	50	254	230	2,067	2,297	1,711	-	1,711
Based on Gross minus Wetlands	132	174	21	195	104	1,238	1,342	880	-	880
Total Approved Units	100	253			1,250			1,995		
Average Density	3.2	11.5			1.9			1.5		

(1) Residential developable: Excluding wetlands, stormwater, other open space, other uses & existing water bodies and existing ROW.

Recommendations

The City has been applying the future land use element densities as gross densities (total acreage minus natural water bodies). The Land Development Regulations only mention densities in a couple of zoning districts. Those references should be deleted from the LDRs.

Based on the current practice of applying densities based on the calculation methodology included in the LDRs, the City should consider the following actions:

1. Modify the definitions Chapter to include definitions for gross and net densities. Even though the gross densities only apply to the comprehensive plan, the plan does not include a chapter with definitions. Having the definition in the LDC would help with interpretations. There are no references to Net density in the Plan or LRDs, but having a definition will help with the approval of projects, especially PUDs. The City Commission could restrict a PUD to a certain net density if necessary to ensure development compatibility.

   201.00. - General definitions.

   ~~Land, *net*. Total high, dry land area that excludes existing water bodies or watercourses such as lakes, ponds, streams, canals, and tidal waters. Also referred to as "*net* land area" or "*net* acreage of land."~~

   Residential Density, Gross. The total number of residential dwelling units divided by the gross residential acreage of the project, which is the total acreage of a site which is above the mean high water or mean high tide line of any natural water body.

   Residential Density, Net. The total number of residential dwelling units divided by the net residential acreage of the project. Net residential acreage consists of the total acreage within a project proposed for residential lots or parcels, excluding the following:

   a. Acreage above the mean high water or mean high tide line of any natural water body;
   b. Existing public rights-of-way;
   c. Wetlands as they exist prior to development (or any mitigation);
   d. Floodplains as they exist prior to development;
   e. Lands within the beach/dune system;
   f. Acreage to be dedicated or reserved for public use, such as parks, open space, stormwater, and/or public facilities (e.g., utility sites, schools); and
   g. Acreage to be dedicated to other uses (commercial, office, industrial).

   206.00. - Wetland protection regulations definitions.

   Wetlands. Per Section 373.019, F.S., as may be amended from time to time, wetlands are those ~~L~~lands which are identified by being inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do or would support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The definition includes all ~~natural~~ contiguous and noncontiguous or isolated wetlands to waters, water bodies, and watercourses. Wetlands include, but are not limited to, swamp hammocks, hardwood hybrid hammocks, riverine cypress, cypress ponds, bayheads, bogs, wet prairies, freshwater marshes, tidal flats, salt marshes, mangrove swamps and

marine meadows. Dominant wetland vegetation shall be determined as provided in ~~F.A.C. 17-3.022~~ Section 62-340, F.A.C.

Wetland Boundaries. Wetland boundaries shall be determined by the dominance of plant species, soils and other hydrologic evidence indicative of regular and periodic inundation or saturation in accordance with the unified statewide delineation method found in Chapter 62-340, Florida Administrative Code.

2. Modify the District Regulations as follows:

504.00. - District regulations and requirements.

504.01. General regulations.

* * *

~~L. Land that has been dedicated or reserved for any public use, including but not limited to, recreational or park use; land that is within the beach/dune system; land that is underneath a public right-of-way; land that is submerged by ocean, natural lake, natural pond or other natural waters, or land that is under water from the mean high water line waterward, shall not be used for calculation of density or lot area.~~

Recommend removing subsection M below due to its site specific nature and executing an agreement with the property owner that is impacted by this regulation.

~~M. Land that has been conveyed to or acquired by a governmental entity for right-of-way purposes or other public purposes, may be used in calculation of allowable density for the development of the remaining portion of the lot or parcel after the conveyance to the governmental unit, provided that the portion conveyed does not exceed 20 percent of the area of such lot or parcel prior to conveyance.~~

3. Review lot size standards to ensure they are serving the purpose of implementing the goals for the various areas of the city.
4. Review building heights.
5. Review setbacks.
6. Review uses allowed in various PUD zones.
7. Review development standards and approval criteria for PUDs.

APPENDIX 1: NEW SMYRNA BEACH DIMENSIONAL REQUIREMENTS

	A-1	A-2	A-3	A-4	RA	RE	R-1	R-2	R-2A	R-3 (1)	R-3A (2)	R-3B	R-4 (3)
Allowed Uses	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF / DUP	SF / DUP	SF	SF / DUP / MF
Max. Density						1*	3.6*	5*	8 units per gross acre	7.6*	8 units per gross acre	5.8	12 beachside 18 mainland
Minimum lot size	10 ac.	5 ac.	1 ac.	2.5 ac.	2.5 ac.	40,000 sf	12,000 sf	8,625 sf	NA	5,750/ 11,500 sf	5,000 / 10,000 sf	5,750 sf	5,000/ 7,500 / 3,630 sf beachside-2420 mainland
Minimum lot width	150’	150’	150’	150’	150’	100’	100’	75’		50’ / 100’	50’/ 100’	50’	50’ / 75’/ 100’
Minimum lot depth						150’	120’	115’		115’	100’	115’	100’
Front yard	50’	50’	40’	40’	45’	45’	35’	30’		20’	20’	20’	20’ / 20’ / 20’ + 1.5’ for ea. 5’ over 30’ in. ht.
Rear yard	50’	50’	40’	40’	25’	40’	10’	7.5’	10’	7.5’	10’	7.5’	7.5’
Side yard	25’	25’	25’	25’	25’	25’	20’ total, no side <8’	7.5’	10’	7.5’	5’ abutting zero lot line / 10 ft.	7.5’	7.5’ / 7.5’ / 10, 15 or 20 + 1.5’ for ea. 5’ over 30’ in. ht.
Street side yard										10’	10’	10’	10’
Waterfront yard	50’	50’	40’	40’	45’	n/a	n/a	n/a	n/a	n/a	n/a	n/a	20’ (4)
Max. bldg.. height	95’	95’	55’	55’	35’	35’	35’	35’	35’	3 stories/35’	3 stories /35’	3 stories/35’	SF/DUP: 3 stories/35’ MF: 4 stories/45’
Max. lot coverage	35%	35 %	35%	35%	35%	20%	40%	60%	60%	40%	40%	40%	35%
Min. floor area (sq. ft.)	750	750	1000	1000	1000	1700	1200.	1-2 BR: 750 3 BR: 1200 4 BR: 1300		1-2 BR: 650 3 BR: 1200 4 BR: 1300	1-2 BR: 650 3 BR: 1200 4 BR: 1300	1-2 BR: 650 3 BR: 1200 4 BR: 1300	1-2 BR: 600 3 BR: 1200 4 BR: 130 DUP: 1100 MF: 450-700
Max. Imp. Cvrg.					40%		60%	40%		60%	60%	60%	60%

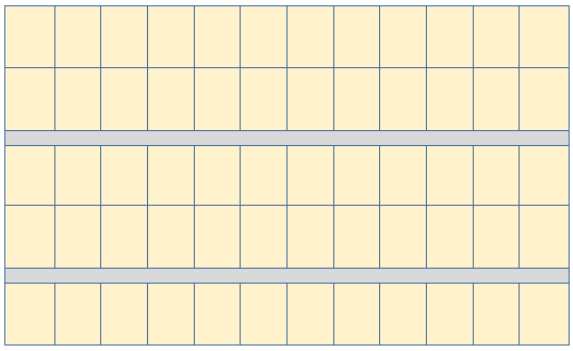
* Per Table II-5 of the Future Land Use Element of the Comprehensive Plan

SF = Single-Family; DUP = Duplex; MF = Multi-family

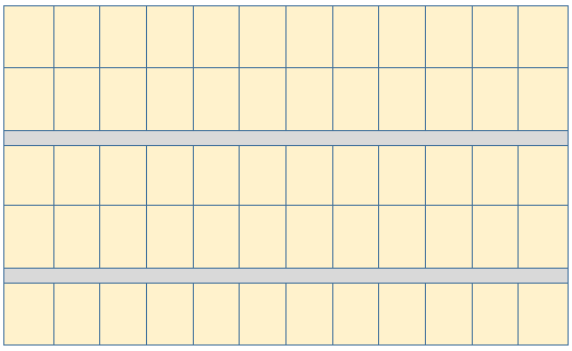
(1) Standards for Historic Westside Neighborhood not shown.
(2) Standards for zero-lot line and Duplex east of Atlantic not shown.
(3) Standards for townhomes not shown.
(4) On river or canal measured from bulkhead or mean high water line.

APPENDIX 2: EXAMPLE OF DENSITY CALCULATIONS – 10-acre site, Max. Density 6 upa.

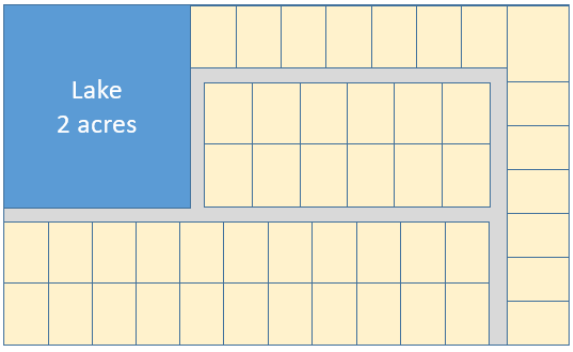
Assuming a permitted density of 6 units per acre, the examples show the lot yield based on ***gross*** acreage (excluding existing lakes) and ***net*** acreage (excl. lakes, wetlands, existing ROW, common areas, and public sites).



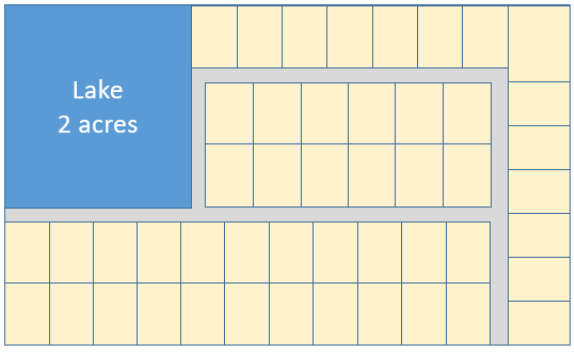
10 gross acres @ 6 upa = 60 units (7,260 sq. ft. lots)



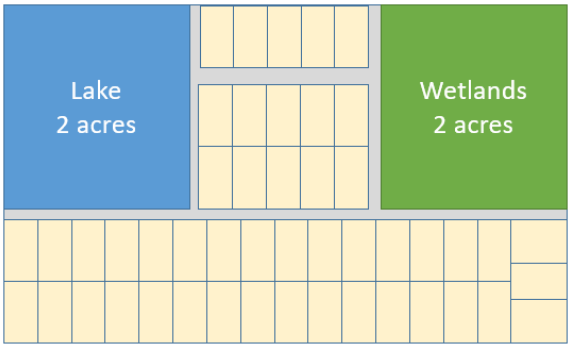
10 net acres @ 6 upa = 60 units (7,260 sq. ft. lots)



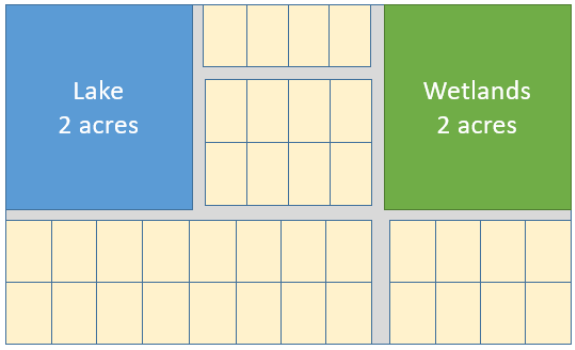
8 gross acres* @ 6 upa = 48 units (7,260 sq. ft. lots)



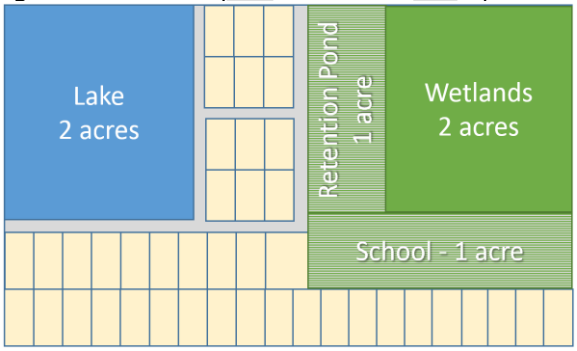
8 net acres @ 6 upa = 48 units (7,260 sq. ft. lots)



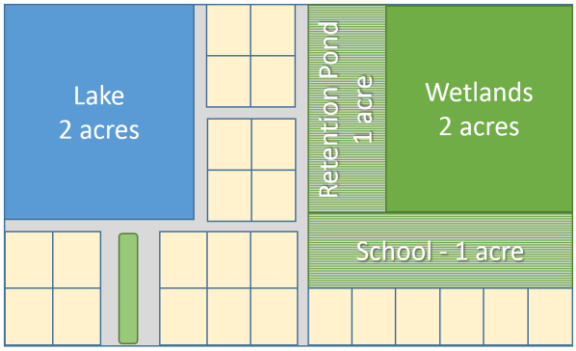
8 gross acres @ 6 upa = 48 units (5,445 sq. ft. lots)



6 net acres @ 6 upa = 36 units (7,260 sq. ft. lots)



8 gross acres @ 6 upa = 48 units (3,630 sq. ft. lots)



4 net acres @ 6 upa = 24 units (7,260 sq. ft. lots)

* Most jurisdictions exclude existing lakes (surface waters).

APPENDIX 3 - DENSITY DEFINITIONS:

Florida Statutes

(6) In addition to the requirements of subsections (1)-(5), the comprehensive plan shall include the following elements:

(a) A future land use plan element designating proposed future general distribution, location, and extent of the uses of land for residential uses, commercial uses, industry, agriculture, recreation, conservation, education, public facilities, and other categories of the public and private uses of land. The approximate acreage and the general range of density or intensity of use shall be provided for the *gross land area* included in each existing land use category. The element shall establish the long-term end toward which land use programs and activities are ultimately directed.

American Planning Association

"**Density" or "Net Density**" means the result of:

(a) dividing the total number of dwelling units existing on a housing site by the net area in acres; or

(b) multiplying the net area in acres times 43,560 square feet per acre and then dividing the product by the required minimum number of square feet per dwelling unit.

"**Density**" or "**Net Density**" is expressed as dwelling units per acre or per net acre.

"**Net Area**" means the total area of a site for residential or nonresidential development, excluding street rights of way and other publicly dedicated improvements such as parks, open space, and stormwater detention and retention facilities. "Net area" is expressed in either acres or square feet.

Volusia County

Density: The total number of dwellings per acre of land. For purposes of residential density calculation, land will not include the following:

- Existing artificial and natural waterbodies;
- watercourses;
- industrial; commercial and office sites;
- existing communication facility sites;
- utility sites;
- easements and rights-of-way that extend through the border of the project boundary, i.e., existing power line easements, public roads, etc.;
- nonlocal parks and nature preserves;
- universities and colleges and other institutional uses;
- any land that has been credited for other development;
- previously dedicated road rights-of-way and developed parcels.

May be referred to as "gross residential acre."

For purposes of applying a specified density regulation, a fractional part of an acre will permit that fractional part of the number of dwellings allowed for a full acre; calculations resulting in a fractional part of a dwelling shall be rounded up to the next whole number of dwellings whenever the fractional part of a dwelling is 0.5 or greater.

Daytona Beach

Density. The ratio of the total number of residential dwelling units on a lot to total lot area.

Density (Dwelling Units per Acre). Density (expressed as dwelling units per acre) shall be determined by dividing the total number of dwelling units located or proposed on a lot by the area of the lot area (see paragraph A above) and multiplying the result by 43,560.

Lot Area. Lot area shall be determined by measuring the total horizontal land area (in square feet) within the lot lines of the lot—excluding any area within existing or proposed public street rights-of-way or private street easements, but including any submerged land.

Edgewater

DENSITY means an objective measurement of the number of residential units allowed per unit of land.

NET DENSITY means the number of dwelling units per acre of land devoted to residential uses and excludes right-of-ways, wetlands and lands below the 100-year flood plain.

Port Orange

Density. The total number of dwelling units per gross acre of land.

(h) The word "land" includes the words "water," "marsh," "swamp," "gross land area" and "gross acre of land."

Ormond Beach

Density means the total number of dwelling units per gross acre of land. For purposes of computing density allowances, the total amount of unbuildable area, including wetlands, retention ponds, and inaccessible areas shall not exceed ten percent (10%) of the gross acreage. Density, in turn relates to the total population load on the land in terms of families or persons per acre. In calculating maximum potential densities for any given parcel of property, such calculations shall be exclusive of that existing portion which is considered to be submerged lands.

Brevard County

Lot means a parcel of land shown on a recorded plat, or any piece of land described by a deed recorded in the official records book of the county. The mean high-water line of major natural water bodies will be used in computing lot size and density and the establishment of setbacks for waterfront property in tidal areas. The ordinary high-water level shall be utilized in nontidal areas.

Melbourne

Density. The total number of dwelling units or living units permitted per gross acre of the parcels of land under consideration. In calculating gross acreage for parcels of land abutting waterways, oceans, or lakes, only that portion of the parcel lying upland of the mean high water line of said parcel shall be included.

Density calculation. Adjacent to waterways, oceans, or lakes. In calculating gross acreage for parcels of land abutting waterways, oceans, or lakes, only that portion of the parcel lying upland of the mean or ordinary high water line of said parcel shall be included.

Within established subdivisions. In calculating gross acreage for parcels of land within a subdivision, the following acreage may be utilized to determine the total density:

- Subject property. Acreage of the subject property.
- Adjacent right-of-way. Half of the width of any immediately adjacent right-of-way, multiplied by the length of the right-of-way running parallel with the subject property.

- Portion of common infrastructure and property. A proportional share of any common infrastructure and property areas shown on the recorded subdivision plat, such as retention, open space, recreational facilities, common parking areas, conservation areas, and any other area used to calculate initial density during the subdivision process.

Cocoa

Density. An objective measurement of the number of residential units allowed per unit of land (acre).

Titusville

Density: The number of residential dwelling units permitted per gross acre of land. In the determination of the number of residential dwelling units to be permitted on a specific parcel of land, a fractional unit shall not entitle the developer to an additional unit or units.

Flagler County

Stated as gross density. No definitions included.

Palm Coast

Density: The number of dwelling units per gross acre of buildable land, which includes all streets, public right-of-ways, easements, open space, and onsite recreational facilities.

Residential densities.

1. The determination of the maximum number of residential dwelling units or lots permitted on a residentially zoned parcel shall be calculated based upon the gross upland acreage in the predevelopment condition (i.e. prior to the property being subdivided into lots).

2. Twenty-five percent of wetland and/or imperiled upland habitat areas preserved from the predevelopment condition may be counted as "net upland acreage" in determining the maximum number of units as discussed in Paragraph A above. To be counted as preserved area, a wetland and/or imperiled upland habitat must be placed in a conservation easement, a separate conservation tract, or otherwise perpetually protected in the post development condition.

3. Application of the density/intensity calculations provides only a theoretical maximum dwelling unit or lot yield. It does not guarantee that the development will be approved to attain the maximum lot yield. Application of other development standards may substantially decrease the lot yield.

Seminole County

Net residential density is the number of dwelling units per net buildable acre. Net buildable acreage is the number of acres within the boundary of a development excluding areas devoted to road rights-of-way, transmission power line easements, lakes and wetland or flood prone areas.

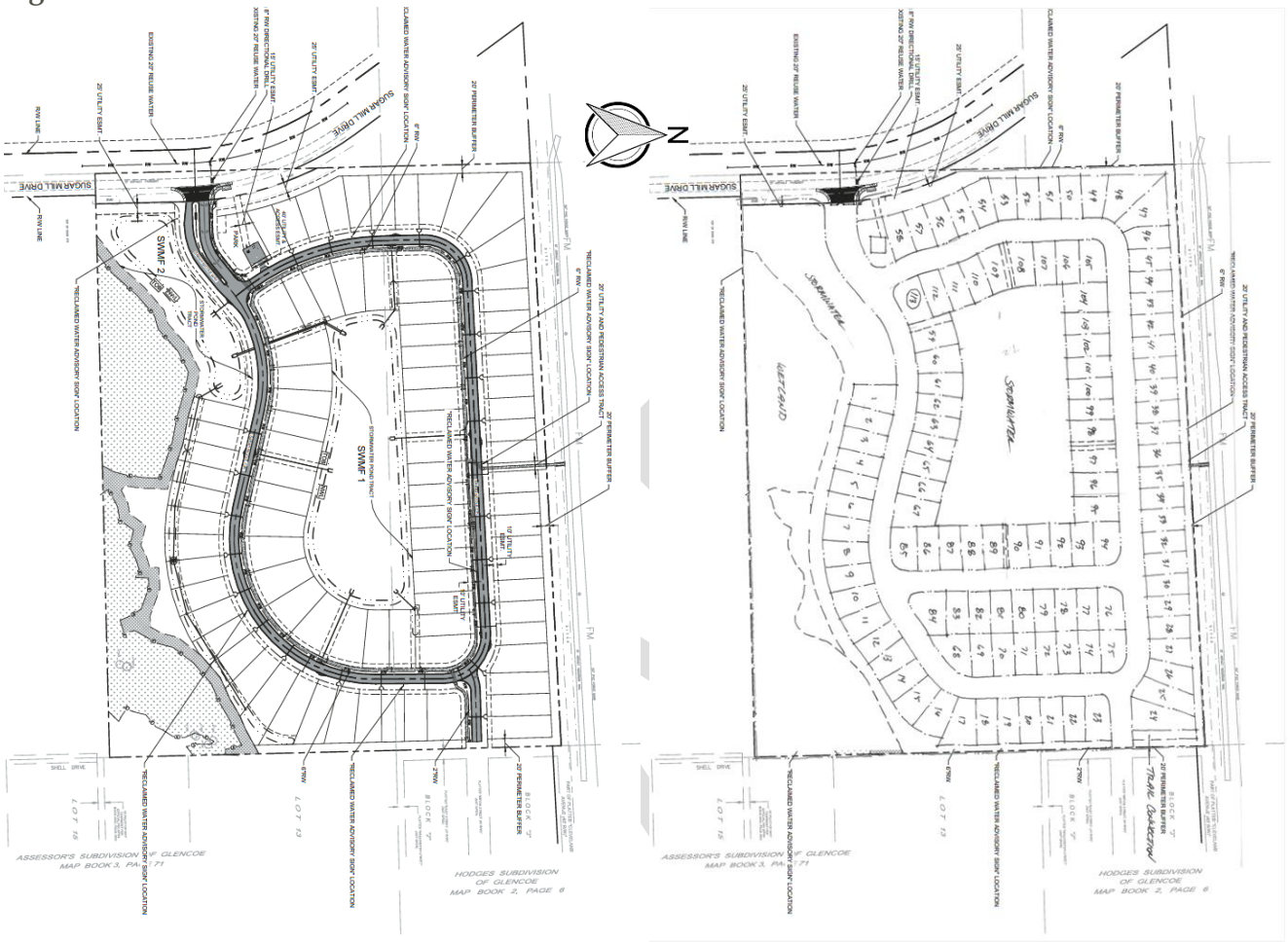
St. Augustine

Sec. 28-144. - Determining residential density. In determining the maximum allowable dwelling units per acre on a parcel of land, the gross density per acre established by the applicable zoning district may be credited only for that portion of the parcel determined to be "developable land" as defined in section 28-2. See section 28-119, Nonconforming lots of record.

Developable land means all of a parcel of land except lands lying within proposed public rights-of-way; marshlands, swamps, floodplains or other environmentally sensitive lands where local, state or federal regulations otherwise prohibit development; and bodies of water such as ponds, lakes and reservoirs, either natural or manmade.

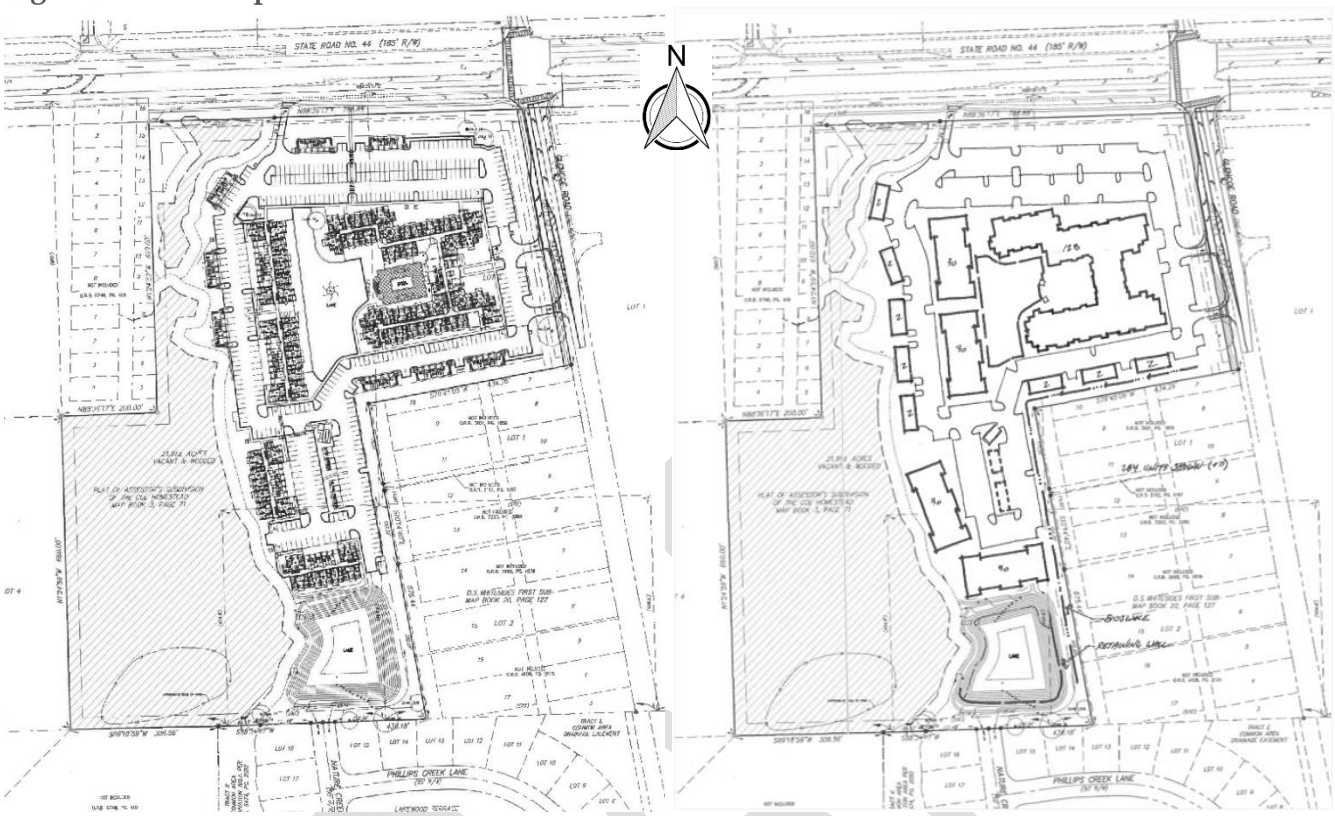
APPENDIX 4 – CASE STUDY SITES

Figure 5: Sarinna Lakes



FLUM: LDR (5 upa)
Zoning: PUD
Uses: Single-family
Required Open Space: 60% for LDR

Figure 6: Beacon Apartments

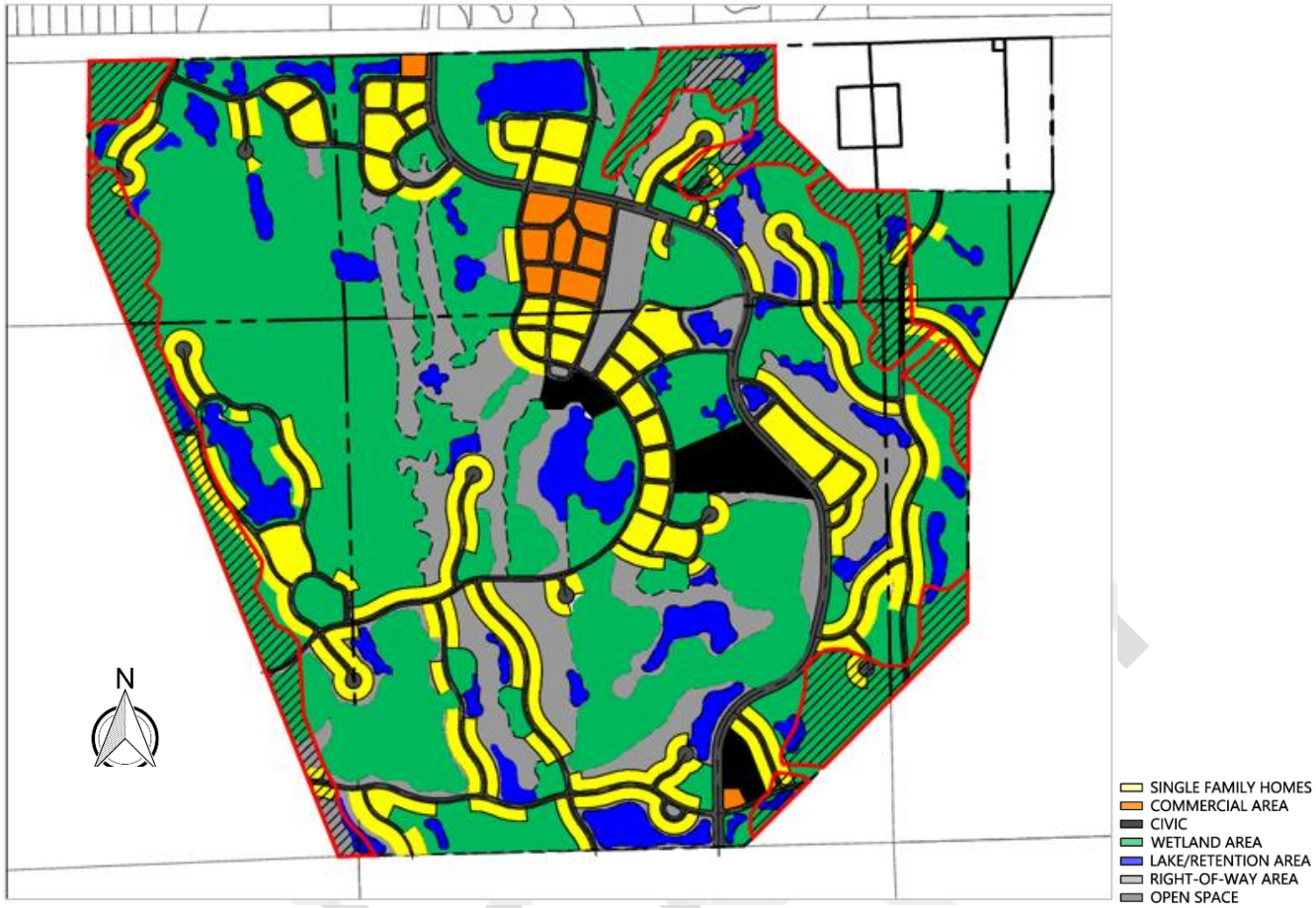


FLUM: SR 44 PUD (11.34 acres @ 18 upa) and LDR (10.66 gross acres, 9.95 excluding pond @ 5 upa)
Zoning: PUD
Uses: Multi-family
Required Open Space: 60%

Figure 7: Coastal Woods

FLUM: Residential Estate (1 upa) and Low Density Residential (LDR) (5 upa) [and Southeast Volusia Activity Center (18 upa) not depicted]
Zoning: PUD
Uses: Single-family, two-family, townhomes, multi-family (non-residential uses were also approved for the site to the south, but are not shown on the graphic above).
Required Open Space: 40% in Activity Center for residential/30% for mixed-use; 60% for LDR.

Figure 8: South Village



FLUM: Sustainable Community Development (5 upa) and Conservation (NA)
Zoning: PUD
Uses: Single-family, two-family and multi-family units. Also a mix of high-density residential, commercial and office uses in the Village Center and a golf course, 2 commercial sites, an elementary school site, a high school site and a civic site.
Required Open Space: 50%