SCHOOL IMPACT FEE STUDY

DRAFT

Prepared for

Orange County, North Carolina

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Executive Summary

TischlerBise was retained by Orange County, North Carolina, to calculate impact fees for public schools to meet the demands generated by new residential development for school facilities in the county. The County has been granted authority by the State to implement impact fees for Schools.[1] The purpose of the legislation is to "help defray the costs to the county of constructing certain capital improvements, the need for which is created in substantial part by the new development that takes place within the county."[2]

Impact fees are one-time payments used to defray the cost impacts of school facilities necessary to accommodate new development. The payment amount represents new growth's fair share of capital facility needs. TischlerBise evaluated possible methodologies and documented appropriate demand indicators by type of development for the fee amounts. Specific capital costs have been identified using local data and current dollars. Level-of-Service (LOS) standards and cost factors are presented in this report and are the basis for the calculations. It should be noted that although growth affects both capital and operating expenses incurred by schools, the impact fee analysis addresses new development's impact on *capital* facilities only. It is further limited to capital improvements that provide additional capacity as opposed to maintenance or rehabilitation.

Orange County is served by two school systems, OCS and CHCCS. TischlerBise analyzed and calculated school impact fees for each school system. This report details the results of the OCS impact fees. The CHCCS report is issued under separate cover.

IMPACT FEE METHODOLOGIES

There are three basic *methodologies* used to calculate impact fees. The **incremental expansion method** documents the current LOS for each type of public facility in both quantitative and qualitative measures. The intent is to use fee revenue to expand or provide additional facilities, as needed to accommodate new development, based on the current cost to provide capital improvements. The **plan-based method** is commonly used for public facilities that have adopted plans or engineering studies to guide capital improvements, such as utility systems. A third approach, known as the **cost recovery method**, is based on the rationale that new development is paying for its share of the useful life and remaining unused capacity of an existing facility or land.

Maximum supportable school impact fees for OCS are derived using the incremental expansion approach. For school capital improvements, the most common methodology employed is typically the incremental expansion method when future capacity needs are anticipated. This approach allows for the greatest

[1] S.L. 1987-460 ("An Act Making Sundry Amendments Concerning Local Governments In Orange And Chatham Counties, Title VI: Orange County Impact Fees"). In addition to schools, other community service facility categories are allowed such as: the acquisition of land for open space and greenways, capital improvements to public streets, bridges, sidewalks, bikeways, on- and off-street surface water drainage ditches, pipes, culverts, other drainage facilities, water and sewer facilities and public recreation facilities. (See Appendix B for a copy of the applicable section of the Act.)

[2] Ibid, Sec. 17 (b) (1).

flexibility in providing future capacity improvements. Under this methodology, the fees are based on current LOS and project costs for each type of school facility (i.e., elementary, middle, and high), support facilities, portable classrooms, and buses. . Land for school sites is not a component of the fee, since the draft 2016 *Orange County, NC Schools Adequate Public Facilities Ordinance Annual Report* indicates "renovation and expansion to existing facilities may delay construction of new schools further into the future."[3] Therefore, new land acquisition is not required at this time. The LOS is documented and the intent is to use fee revenue to provide additional or expanded public school and related facilities as needed to accommodate new development.

The current LOS and capital costs for new or expanded facilities are used to derive a cost per student for each type of school facility. Using the cost per student and the average OCS student generation rate by type of unit, a cost by type of residential unit is derived. The term "student generation rate" refers to the average number of public school students per housing unit in the OCS system. Further discussion on student generation rate calculations is provided in the body of this report and in Appendix A.

A general requirement common to impact fee calculations is the evaluation of *credits*. Two types of credits should be considered, **future revenue credits** and **site-specific credits**. Revenue credits are necessary to avoid potential double payment situations arising from the payment of a one-time impact fee plus the payment of other revenues that may also fund growth-related capital improvements. Revenue credits are dependent upon the fee methodology used in the cost analysis. To avoid this potential double payment situation, future revenue credits are integrated into the fee to account for outstanding debt on OCS school facilities. A credit is necessary since new residential units that will pay the fee will also contribute to future principal payments on this remaining debt through property taxes. A credit is not necessary for interest payments because interest costs are not included in the costs.

The second type of credit, a **site-specific credit,** is for system improvements that have been included in the fee calculations. Policies and procedures related to site-specific credits for system improvements should be addressed in the ordinance that establishes the County's impact fees. However, the general concept is that developers may be eligible for site-specific credits or reimbursements *only if they provide system improvements that have been included in the fee calculations*. Project improvements normally required as part of the development approval process are not eligible for credits against impact fees.

MAXIMUM SUPPORTABLE SCHOOL IMPACT FEES

Figure 1 provides the schedule of *maximum supportable school impact fees* for OCS in Orange County, North Carolina. For a single-family detached housing unit, the maximum supportable fee amount is $12,044 for a 0-3 bedroom unit, $8,952 for a 4+ bedroom unit, and $3,317 for a unit that is less than 800 square feet; for a single family attached unit, the fee is $3,665 for a 0-2 bedroom unit and $5,558 for a 3+ bedroom unit; for a multifamily unit, the fee is $2,656 for a 0-2 bedroom unit and $20,677 for a 3+ bedroom unit; and for a manufactured home, the maximum fee amount is $8,127 per unit. Additionally,

[3] SAPFOTAC, 2016 *Orange County, NC Schools Adequate Public Facilities Ordinance* (draft), p. iii.

age-restricted units (those units in developments that restrict the number of units with occupants aged under 55 years old) have a maximum fee amount of $623. All fees should be collected when building permits are issued.

School impact fees are applied only to residential development and are per housing unit, reflecting the proportionate demand by type of unit. The amounts shown are "maximum supportable" amounts based on the methodologies, LOS, and costs for the capital improvements identified herein. The fees represent the highest amount feasible for each type of applicable development, which represent new growth's fair share of the capital costs as detailed in this report. The County can adopt amounts that are lower than the maximum amounts shown. However, a reduction in fee revenue will necessitate an increase in other revenues, a decrease in planned capital expenditures, and/or a decrease in LOS.

Figure 1. Maximum Supportable School Impact Fees: OCS

MAXIMUM ALLOWABLE SCHOOL IMPACT FEES: Orange County Schools				
Impact Fee per Housing Unit	*Elementary*	*Middle*	*High*	***TOTAL***
Single Family Detached				
0-3 Bedrooms	$4,502	$3,239	$4,303	**$12,044**
4+ Bedrooms	$3,417	$2,540	$2,995	**$8,952**
Single Family Detached Average	*$4,122*	*$2,981*	*$3,856*	***$10,959***
Single Family Detached (<800 Sq. Ft.)	$1,790	$736	$791	**$3,317**
Single Family Attached				
0-2 Bedrooms	$1,600	$1,067	$998	**$3,665**
3+ Bedrooms	$1,763	$1,730	$2,065	**$5,558**
Single Family Attached Average	*$1,735*	*$1,656*	*$1,928*	***$5,319***
Multifamily				
0-2 Bedrooms	$895	$625	$1,136	**$2,656**
3+ Bedrooms	$10,388	$4,712	$5,577	**$20,677**
Multifamily Average	*$2,386*	*$1,288*	*$1,824*	***$5,498***
Manufactured Unit	$3,688	$2,098	$2,341	**$8,127**
Age-Restricted Unit				**$623**

As another option, the County could choose to adopt fees that consolidate bedroom count subcategories within a broader housing unit category. For instance, Single Family Detached homes, which the proposed fee schedule currently divides into two subcategories (0-3 Bedrooms and 4+ Bedrooms), could be charged a single fee regardless of size. If the County decides to pursue this alternative option, the average impact fee by type of unit provided in this report would be the impact fee amount on the adopted schedule.

A note on rounding: Calculations throughout this report are based on an analysis conducted using Excel software. Most results are discussed in the report using one, two, and three digit places, which represent rounded figures. However, the analysis itself uses figures carried to their ultimate decimal places; therefore, the sums and products generated in the analysis may not equal the sum or product if the reader

replicates the calculation with the factors shown in the report (due to the rounding of figures shown, not in the analysis).

Overview

Impact fees are one-time payments used to fund capital improvements necessitated by new growth. This type of fee has been utilized by local governments in various forms for at least 50 years. Impact fees have limitations and should not be regarded as the total solution for infrastructure financing needs. Rather, they should be considered one component of a comprehensive portfolio to ensure adequate provision of public facilities with the goal of maintaining current LOS in a community in the face of new growth. Any community considering impact fees should note the following limitations:

- Impact fees can only be used to finance capital infrastructure and cannot be used to finance ongoing operations and/or maintenance and rehabilitation costs;
- Impact fees cannot be deposited in the local government's General Fund: the funds must be accounted for separately in individual accounts and earmarked for the capital expenses for which they were collected; and
- Impact fees cannot be used to correct existing infrastructure deficiencies unless there is a funding plan in place to correct the deficiency for all current residents and businesses in the community.

LEGAL FRAMEWORK

U.S. Constitution. Like all land use regulations, development exactions—including impact fees—are subject to the Fifth Amendment prohibition on taking of private property for public use without just compensation. Both state and federal courts have recognized the imposition of impact fees on development as a legitimate form of land use regulation, provided the fees meet standards intended to protect against regulatory takings. To comply with the Fifth Amendment, development regulations must be shown to substantially advance a legitimate governmental interest. In the case of impact fees, that interest is the protection of public health, safety, and welfare by ensuring that development is not detrimental to the quality of essential public services.

There is little federal case law specifically dealing with impact fees, although other rulings on other types of exactions (e.g., land dedication requirements) are relevant. In one of the most important exaction cases, the U. S. Supreme Court found that a government agency imposing exactions on development must demonstrate an "essential nexus" between the exaction and the interest being protected (see *Nollan v. California Coastal Commission,* 1987). In a more recent case (*Dolan v. City of Tigard, OR,* 1994), the Court ruled that an exaction also must be "roughly proportional" to the burden created by development. However, the *Dolan* decision appeared to set a higher standard of review for mandatory dedications of land than for monetary exactions such as impact fees.

REQUIRED FINDINGS

There are three reasonable relationship requirements for impact fees that are closely related to "rational nexus" or "reasonable relationship" requirements enunciated by a number of state courts. Although the

term "dual rational nexus" is often used to characterize the standard by which courts evaluate the validity of impact fees under the U.S. Constitution, we prefer a more rigorous formulation that recognizes three elements: "impact or need," "benefit," and "proportionality." The dual rational nexus test explicitly addresses only the first two, although proportionality is reasonably implied, and was specifically mentioned by the U.S. Supreme Court in the *Dolan* case. The reasonable relationship language of the statute is considered less strict than the rational nexus standard used by many courts. Individual elements of the nexus standard are discussed further in the following paragraphs.

Demonstrating an Impact. All new development in a community creates additional demands on some, or all, public facilities provided by local government. If the supply of facilities is not increased to satisfy that additional demand, the quality or availability of public services for the entire community will deteriorate. Impact fees may be used to recover the cost of development-related facilities, but only to the extent that the need for facilities is a consequence of development that is subject to the fees. The *Nollan* decision reinforced the principle that development exactions may be used only to mitigate conditions created by the developments upon which they are imposed. That principle clearly applies to impact fees. In this study, the impact of development on improvement needs is analyzed in terms of quantifiable relationships between various types of development and the demand for specific facilities, based on applicable level-of-service standards.

Demonstrating a Benefit. A sufficient benefit relationship requires that fee revenues be segregated from other funds and expended only on the facilities for which the fees were charged. Fees must be expended in a timely manner and the facilities funded by the fees must serve the development paying the fees. Procedures for the earmarking and expenditure of fee revenues are typically mandated by the State enabling act, as are procedures to ensure that the fees are expended expeditiously or refunded. All of these requirements are intended to ensure that developments benefit from the fees they are required to pay. Thus, an adequate showing of benefit must address procedural as well as substantive issues.

Demonstrating Proportionality. The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the *Dolan* case (although the relevance of that decision to impact fees has been debated) and is logically necessary to establish a proper nexus. Proportionality is established through the procedures used to identify development-related facility costs, and in the methods used to calculate impact fees for various types of facilities and categories of development. The demand for facilities is measured in terms of relevant and measurable attributes of development. For example, the need for school improvements is measured by the number of public school-age children generated by development.

METHODOLOGIES AND CREDITS

Any one of several legitimate methods may be used to calculate impact fees. The choice of a particular method depends primarily on the service characteristics and planning requirements for the facility type being addressed. Each method has advantages and disadvantages in a particular situation, and to some

extent can be interchangeable, because each allocates facility costs in proportion to the needs created by development.

Reduced to its simplest terms, the process of calculating impact fees involves two main steps: (1) determining the cost of development-related capital improvements and (2) allocating those costs equitably to various types of development. In practice, though, the calculation of impact fees can become quite complicated because of the many variables involved in defining the relationship between development and the need for facilities. The following paragraphs discuss three basic methods for calculating impact fees and how those methods can be applied.

Plan-Based Fee Calculation. The plan-based method allocates costs for a specified set of improvements to a specified amount of development. The improvements are identified by a facility plan and development is identified by a land use plan. In this method, the total cost of relevant facilities is divided by total demand to calculate a cost per unit of demand. Then, the cost per unit of demand is multiplied by the amount of demand per unit of development (e.g. housing units or square feet of building area) in each category to arrive at a cost per specific unit of development (e.g., single family detached unit).

Cost Recovery Fee Calculation. The rationale for the cost recovery approach is that new development is paying for its share of the useful life and remaining capacity of facilities already built or land already purchased from which new growth will benefit. This methodology is often used for systems that were oversized such as sewer and water facilities. To calculate a fee using the cost recovery approach, the facility cost is divided by ultimate number of demand units the facility will serve.

Incremental Expansion Fee Calculation. The incremental expansion method documents the current LOS for each type of public facility in both quantitative and qualitative measures, based on an existing service standard (such as square feet per student). The LOS standards are determined in a manner similar to the current replacement cost approach used by property insurance companies. However, in contrast to insurance practices, the fee revenues would not be for renewal and/or replacement of existing facilities. Rather, revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments, with LOS standards based on current conditions in the community.

Credits. Regardless of the methodology, a consideration of "credits" is integral to the development of a legally valid impact fee methodology. There are two types of "credits" each with specific, distinct characteristics, but both of which should be addressed in the development of impact fees. The first is a credit due to possible double payment situations. This could occur when contributions are made by the property owner toward the capital costs of the public facility covered by the impact fee. This type of credit is integrated into the impact fee calculation. The second is a credit toward the payment of a fee for dedication of public sites or improvements provided by the developer and for which the impact fee is imposed. This type of credit is addressed in the administration and implementation of an impact fee program.

Orange County Schools Impact Fee Overview

The County has seen significant residential growth over the past several years and with it increased enrollment. Growth is expected to continue in the future. Appendix A provides detail on land use and demographic assumptions and projections. To ensure that OCS have adequate capacity to accommodate growth, Orange County is considering implementation of updated impact fees for schools. The County has been granted authority by the State to implement impact fees for schools.[4] The purpose of the legislation is to "help defray the costs to the County of constructing certain capital improvements, the need for which is created in substantial part by the new development that takes place within the County."[5]

Orange County is served by two school systems, OCS and CHCCS. TischlerBise analyzed and calculated school impact fees for each school system. This report details the results of the OCS impact fees. The report on the other school system is issued under separate cover. The reports comply with relevant requirements for calculation of impact fees.

OCS impact fees are derived using the incremental approach. This approach determines current LOS standards for school buildings (elementary, middle, and high), portable classrooms, support facilities, and buses. Land for school sites is not a component of the fee, since the draft 2016 *Orange County, NC Schools Adequate Public Facilities Ordinance Annual Report* indicates "renovation and expansion to existing facilities may delay construction of new schools further into the future."[6] Therefore, new land acquisition is not required at this time. LOS standards are derived using the adopted standards per the County's Schools Adequate Public Facility Ordinance (SAPFO) and are expressed as follows:

- School buildings: Square feet per student by type of school,
- Portable classrooms: Classrooms per student by type of school;
- Support facilities: Square feet per student; and
- Buses/other vehicles: Number of vehicles per student

A credit is included in the impact fee to account for outstanding debt on OCS improvements. Further detail on the approach, LOS, costs, and credits is provided in the body of this report.

[4] S.L. 1987-460 ("An Act Making Sundry Amendments Concerning Local Governments In Orange And Chatham Counties, Title VI: Orange County Impact Fees"). In addition to schools, other community service facility categories are allowed such as: the acquisition of land for open space and greenways, capital improvements to public streets, bridges, sidewalks, bikeways, on- and off- street surface water drainage ditches, pipes, culverts, other drainage facilities, water and sewer facilities and public recreation facilities. (See Appendix B for a copy of the applicable section of the Act.)

[5] Ibid, Sec. 17 (b) (1).

[6] SAPFOTAC, 2016 *Orange County, NC Schools Adequate Public Facilities Ordinance* (draft), p. iii.

Student Generation Rates

Demand for additional school capacity will come from new residential development. To determine the level of this demand, student generation rates are used. The term "student generation rate" refers to the number of public school students per housing unit in the OCS system.[7] Public school students are a subset of school-aged children, which includes students in private schools and home-schooled children.

Student generation rates are important demographic factors that help account for variations in demand for school facilities by type of housing. Students per housing unit are held constant over the projection period since the impact fees represent a "snapshot approach" of current LOS and costs.

TischlerBise obtained student generation data for each school system in the county from Orange County. The student generation rates were calculated using 2013-2014 student address data geocoded to Orange County land records tracking housing unit types. These data were analyzed for units built during two different time periods: prior to 2004, and from 2004 through 2013. Data were collated for these two discrete periods in order to evaluate whether new development patterns and demand trends in the residential market had impacted student generation rates for recently built units. Student generation rates for units constructed from 2004 to 2013 were drawn from an earlier TischlerBise study, finished in May 2015. In some cases, data from these two periods are combined due to availability limitations, as detailed in Appendix A.

Rates are provided for each of the five housing unit types used in the impact fee analysis for each level of school facility: (1) Elementary; (2) Middle; and (3) High. For single family detached homes, separate rates are included for 0-3 bedroom and 4+ bedroom units. For single family attached and multifamily units, separate rates are provided for 0-2 bedroom and 3+ bedroom units. Rates for single family detached (less than 800 square feet) units and manufactured homes are not segmented by bedroom count given the smaller square footage of these types of units. Student generation rates for OCS are shown below in Figure 2.

[7] Student generation rates are calculated separately for each school system in the County. (See Appendix A for more detail.)

Figure 2. Student Generation Rates: OCS

Type of Unit	School Level			Total
	Elementary (PK-5)	Middle (6-8)	High (9-12)	
Single Family Detached				
0-3 Bedrooms	0.166	0.088	0.125	0.379
4+ Bedrooms	0.126	0.069	0.087	0.283
Total	0.152	0.081	0.112	0.346
Single Family Detached (< 800 Sq. Ft.)	0.066	0.020	0.023	0.108
Single Family Attached				
0-2 Bedrooms	0.059	0.029	0.029	0.118
3+ Bedrooms	0.065	0.047	0.060	0.172
Total	0.064	0.045	0.056	0.165
Multifamily				
0-2 Bedrooms	0.033	0.017	0.033	0.083
3+ Bedrooms	0.383	0.128	0.162	0.673
Total	0.088	0.035	0.053	0.176
Manufactured	0.136	0.057	0.068	0.262

As shown above, a 0-3 bedroom single family detached unit is estimated to generate a total of 0.379 students (with 0.166 in elementary grades, 0.088 in middle school grades, and 0.125 in high school grades), a 4+ bedroom single family detached unit is estimated to generate a total of 0.283 students, and a single family detached unit with less than 800 square feet generates a total of 0.108. For single family attached, a 0-2 bedroom unit is estimated to generate a total of 0.118 students and a 3+ bedroom unit is estimated to generate a total of 0.172; for multifamily units, a 0-2 bedroom unit is estimated to generate a total of 0.083 students and 3+ bedroom unit is estimated to generate 0.673; and a manufactured home is estimated to generate a total of 0.262 students per unit.

Additionally, TischlerBise calculated a generation rate for age-restricted units (those units in developments that restrict the number of units with occupants aged under 55 years old) based on data provided by Epcon Communities. This type of community is relatively new to the development landscape in the Raleigh-Durham-Chapel Hill region. Figure 3 shows available data, which yields a student generation rate of 0.019. As these developments reach maturity and other age-restricted communities come to market, TischlerBise recommends updating the student generation rate calculation for age-restricted units.

Figure 3. Age-Restricted Unit Generation Rates

Development	Location	Homes	Head of Household <55 y.o.	School Age Children
Courtyards at Culp Arbor	Durham, NC	69	2	0
Courtyards at Cary	Cary, NC	15	0	0
Courtyards at Okelly-Chapel	Cary, NC	22	2	0
Villas at Maple Creek	Westerville, OH	52	2	3
		158	6	3

Student Generation Rate	0.019

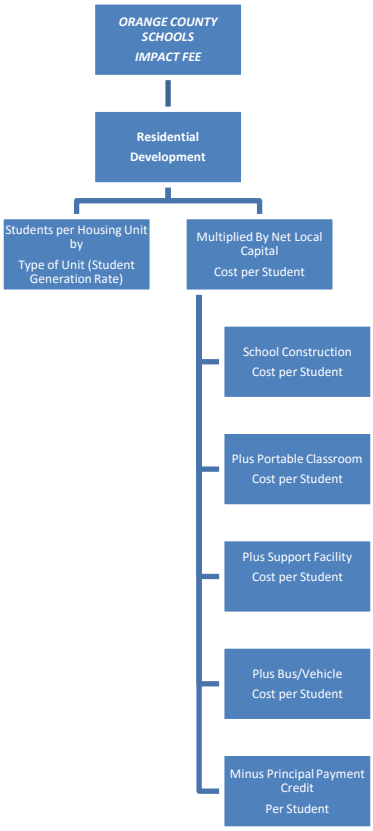
Source: Epcon Communities

Impact Fees: Orange County Schools

METHODOLOGY

The OCS impact fee methodology is based on current average public school student generation rates, LOS standards, and local costs. Figure 4 illustrates the methodology used to calculate the fee. The school impact fees use an incremental expansion approach, which documents the current LOS for public facilities in both quantitative and qualitative measures. The intent is to use impact fee revenue to expand or provide additional facilities, as needed to accommodate new development, based on the current LOS and cost to provide capital improvements. All school levels are included in the fees. Costs for school buildings, portable classrooms, support facilities, and buses/vehicles are included in the fee. The costs are adjusted to account for estimated State funding for capacity projects; therefore, the fees reflect the County's share of the total costs. Finally, a credit for future principal payments on existing debt is included.

Figure 4. Impact Fee Methodology Chart: OCS



BUILDING LEVEL OF SERVICE STANDARDS

This section provides current inventories of elementary, middle, and high schools in the OCS system. The data contained in these tables are used to determine infrastructure standards for school buildings and sites on which the impact fees are based. The draft 2016 *Orange County, NC Schools Adequate Public Facility Ordinance Annual Report* provides current adopted LOS by school type that are used for the impact fee study. LOS means the amount of students that can be accommodated at a certain school system level. Figure 5 provides the adopted LOS standards.

Figure 5. LOS Standards: OCS

LEVEL OF SERVICE STANDARDS	*OCS*
Elementary (K-5)	105%
Middle (6-8)	107%
High (9-12)	110%

Source: Orange County, NC, Schools Adequate Public Facilities Ordinance Annual Report 2016 (Draft)

OCS Elementary Schools

The inventory and current LOS for OCS elementary schools are shown below in Figure 6. As indicated below, elementary school buildings have a total of 530,612 square feet of floor area and six portable classrooms. Total enrollment in all elementary schools is 3,318. LOS factors for OCS elementary schools are also shown in Figure 6. The adopted LOS standards (based on 105 percent capacity) for school buildings and portables are shown highlighted in the figure below. As shown, the LOS factors on which the impact fees are based are 136.80 square feet and 0.0015 portable classrooms per student. It should be noted that the capacity figures reflect mandated reduced class size for Grades K-3 from 1:23 to 1:21, reflecting actual current LOS and the standards by which new schools will be planned and built.

Figure 6. OCS Elementary Schools

ELEMENTARY SCHOOLS (K-5) *Inventory, Enrollment, and Levels of Service* *Facility*	*Building Square Feet*	*Portables Classrooms*	*SAPFO SY 15-16 Membership [1]*	*Capacity*	*Current Level of Service*
Cameron Park Elementary	70,812	2	609	565	108%
Central Elementary	61,382	0	319	455	70%
Efland Cheeks Elementary	65,084	0	428	497	86%
Grady Brown Elementary	75,016	1	486	544	89%
Hillsborough Elementary	72,872	0	466	471	99%
New Hope Elementary	100,164	2	621	586	106%
Pathways Elementary	85,282	1	389	576	68%
TOTALS	**530,612**	**6**	**3,318**	**3,694**	**90%**

Elementary School Levels of Service	*Demand Units (Students)*	*Building SF*	*Portables*
LOS per Student based on Current Enrollment	3,318	159.92	0.0018
LOS per Student based on Capacity	3,694	143.64	0.0016
LOS based on Adopted LOS Standard (105%)	**3,879**	**136.80**	**0.0015**

[1] SAPFO Capture Date Membership, Nov. 13, 2015
Source: Orange County; OCS

OCS Middle Schools

The inventory and current LOS for OCS middle schools are shown below in Figure 7. As indicated below, middle school buildings have a total of 390,933 square feet of floor area. There are no portable classrooms. Total enrollment in all middle schools is 1,739. LOS factors for OCS middle schools are shown in Figure 7. The adopted LOS standards (based on 107 percent capacity) for school buildings and portables are shown highlighted in the figure below. As shown, the LOS factors on which the impact fees are based are 168.68 square feet and 0.000 portable classrooms per student.

Figure 7. OCS Middle Schools

MIDDLE SCHOOLS (6-8) *Inventory, Enrollment, and Utilization* *Facility*	*Building Square Feet*	*Portables Classrooms*	*SAPFO SY 15-16 Membership [1]*	*Capacity*	*Level of Service*
A.L. Stanback Middle	136,000	0	635	740	86%
C.W. Stanford Middle	132,140	0	654	726	90%
Gravelly Hill Middle	122,793	0	450	700	64%
TOTALS	**390,933**	**0**	**1,739**	**2,166**	**80%**

Middle School Levels of Service	*Demand Units (Students)*	*Building SF*	*Portables*
LOS per Student based on Current Enrollment	1,739	224.80	0.000
LOS per Student based on Capacity	2,166	180.49	0.000
LOS based on Adopted LOS Standard (107%)	**2,318**	**168.68**	**0.000**

[1] SAPFO Capture Date Membership, Nov. 13, 2015
Source: Orange County; OCS

OCS High Schools

The inventory and current LOS for OCS high schools are shown below in Figure 8. As indicated below, high school buildings have a total of 430,703 square feet of floor area. There are no portable classrooms. Total enrollment in all high schools is 2,469. LOS factors for OCS high schools are shown in Figure 8. The adopted LOS standards (based on 110 percent capacity) for school buildings and portables are shown highlighted in the figure below. As shown, the LOS factors on which the impact fees are based are 160.54 square feet and 0.000 portable classrooms per student.

Figure 8. OCS High Schools

HIGH SCHOOLS (9-12) *Inventory, Enrollment, and Utilization* *Facility*	*Building Square Feet*	*Portables Classrooms*	*SAPFO SY 15-16 Membership [1]*	*Capacity*	*Level of Service*
Orange High	217,203	0	1,298	1,399	93%
Cedar Ridge High	206,900	0	1,140	1,000	114%
Partnership Academy	6,600	0	31	40	78%
TOTALS	**430,703**	**0**	**2,469**	**2,439**	**101%**

High School Levels of Service	*Demand Units (Students)*	*Building SF*	*Portables*
LOS per Student based on Current Enrollment	2,469	174.44	0.000
LOS per Student based on Capacity	2,439	176.59	0.000
LOS based on Adopted LOS Standard (110%)	**2,683**	**160.54**	**0.000**

[1] SAPFO Capture Date Membership, Nov. 13, 2015
Source: Orange County; OCS

SCHOOL CONSTRUCTION COSTS

TischlerBise analyzed costs for school construction in the OCS system. Costs for completed and planned school projects in OCS were provided by the Orange County Finance Office and OCS. TischlerBise adjusted previous costs to current (2016 Q1) dollars, where appropriate, using the Turner Building Index, a well-known and widely available construction price index. Current school costs represent the average costs to construct elementary, middle, and high schools in the OCS System. As shown in Figure 9, construction costs average between $202 and $252 per square foot. Specifically, the costs are as follows—elementary: $202 per square foot; middle: $223 per square foot; and high: $219 per square foot.

Figure 9. School Project Costs

School	Year	Cost	Index Factor	Adjusted Cost [1]	Square Feet	Cost per SF	Capacity	Cost per Seat
Elementary School Prototype (per seat) [2]	-	$27,678	-	$27,678	136.80	$202	1	$27,678
Gravelly Hill Middle	2006	$22,369,811	122%	$27,362,821	122,793	$223	700	$39,090
Cedar Ridge High	2003	$27,987,060	156%	$43,715,698	206,900	$211	1,000	$43,716
Planned Cedar Ridge High Addition [3]	2017	$12,583,000	N/A	$12,583,000	50,000	$252	500	$25,166
			High Subtotal	*$56,298,698*	*256,900*	*$219*	*1,500*	*$37,532*
		$62,967,549		$83,689,196	379,830	$220	2,201	$38,023

[1] Adjusted using the Turner Building Cost Index, 2016 First Quarter Forecast
[2] Derived as a percentage of the CHCCS cost per sq. ft. for elementary schools. TischlerBise defined a) the relationship between OCS and CHCCS of the average cost per sq. ft. for all recent school projects and b) the relationship between CHCCS's elementary school and its middle and high schools. These two percentages are then multiplied by CHCCS's cost per sq. ft. for middle schools to derive the OCS cost.
[3] The cost estimate for this project is in 2015 dollars and was not index-adjusted. Adjusted cost subtotals and totals include this unadjusted cost.

PORTABLE CLASSROOM COSTS

Orange County currently uses portable classrooms for additional classroom capacity with a total of 6 classrooms in use currently. The cost for each portable classroom is $78,000, per Orange County staff.

SUPPORT FACILITIES

The impact fees also include costs to provide support facilities such as administrative office space, maintenance facilities, and bus garages. For OCS, support facilities include Board of Education office space and the Maintenance Shop. The joint-use Transportation Facility serves both school systems in the county and, therefore, costs are allocated to current enrollment in *both districts* (see Appendix A). Costs were confirmed with OCS staff. The following two figures reflect current LOS and cost factors for these facilities.

Figure 10. Support Facilities – OCS

Facility	*Square Feet*	*Cost Per Sq Ft*	*Bldg Cost*
Board of Education (OCS)	6,210	$200	$1,242,000
Maintenance Shop (OCS)	17,559	$200	$3,511,800
Total	***23,769***	***$200***	***$4,753,800***

Current Total OCS Enrollment	7,526
Building LOS (sq. ft. per student)	3.16
Building Cost per Student	*$631.65*

Source: Orange County Schools

Figure 11. Support Facilities – Serving OCS and CHCCS

Facility	Square Feet	Cost Per Sq Ft	Total Cost
Transportation Facility*	11,704	$200	$2,340,800
Total	**11,704**	**$200**	**$2,340,800**

Current Total CHCCS and OCS Enrollment	19,572
LOS (sq. ft. per student)	0.5980
Cost per Student	**$119.60**

** Serves both OCS and CHCCS Districts*

Source: Orange County Schools

BUS / VEHICLES COSTS

Another infrastructure component included in the impact fee is buses and vehicles. New buses and vehicles will need to be purchased to accommodate increased enrollment. Total current value of the fleet is estimated at approximately $8.8 million, which equates to a current cost of almost $1,200 per student. LOS and costs are provided below in Figure 12 for the OCS fleet.

Figure 12. Buses / Vehicles LOS and Costs: OCS

Type	Number of Units	Cost/Bus	Total Cost
OCS Buses	79	$83,690	$6,611,510
OCS Activity Buses	15	$84,144	$1,262,160
Other Vehicles	30	$30,000	$900,000
Total	**124**	**$70,755**	**$8,773,670**

Source: OCS

Current Total OCS Enrollment	7,526
Buses/Vehicles per Student	0.016
Cost per Student	**$1,165.78**

ADJUSTMENT FOR NON-LOCAL FUNDING

To adequately reflect the local share of capacity costs, the impact fees need to be adjusted to account for State funding for capacity improvements. Orange County estimates that the County receives one percent of the costs for capacity improvements from the state. Therefore the local share is adjusted to represent 99 percent of the total. (Other contributions from the State are used for maintenance and other non-capacity related improvements.)

CREDIT FOR FUTURE PRINCIPAL PAYMENTS ON SCHOOL IMPROVEMENTS

Because the County debt-financed a portion of recent school capacity expansion construction costs, a credit is included for future principal payments on outstanding debt. A credit is necessary since new residential units that will pay the impact fee will also contribute to future principal payments on this remaining debt through property taxes. A credit is not necessary for interest payments because interest costs are not included in the costs.

Information on outstanding debt for OCS was provided by Orange County Finance Department staff. School improvements and applicable bond issues are indicated in Figure 13 below. As shown, total outstanding debt from school capacity expansion projects for OCS is estimated at approximately $21 million. Annual principal payments are divided by student enrollment in each year to get a per student credit. (For example, in FY 2018, the total amount of projected principal to be paid of $2,182,155 is divided by enrollment of 7,610 for a payment per student of $287.) To account for the time value of money, annual payments per student are discounted using a net present value formula based on an average current interest rate of 2.55 percent. The total net present value of future principal payments per student is $2,429.24. This amount is subtracted from the gross capital cost per student amount to derive a net capital cost per student for school facilities.

Figure 13. Credit for Future Principal Payments: OCS

Fiscal Year	*2010 Projected Principal (1)*	*2011 Projected Principal (2)*	*2012 Projected Principal (3)*	*2015 Projected Principal (4)*	*Total*	*Total Students*	*Payment Per Student*
2016	$667,145	$310,276	$420,569	$989,831	$2,387,821	7,560	$316
2017	$660,406	$304,394	$412,115	$957,458	$2,334,373	7,597	$307
2018	$665,460	$624,964	$0	$891,731	$2,182,155	7,610	$287
2019	$1,034,411	$908,771	$653,044	$131,454	$2,727,680	7,654	$356
2020	$1,031,042	$901,419	$1,020,777	$0	$2,953,237	7,678	$385
2021	$1,025,988	$1,626,377	$0	$0	$2,652,365	7,708	$344
2022	$587,963	$1,980,768	$0	$0	$2,568,732	7,778	$330
2023	$0	$446,506	$1,642,120	$0	$2,088,626	7,807	$268
2024	$0	$0	$1,082,066	$0	$1,082,066	7,817	$138
Total	**$5,672,414**	**$7,103,476**	**$5,230,690**	**$2,970,475**	**$20,977,055**		**$2,731**

Discount Rate [6] *2.55%*

Net Present Value $2,429.24

(1) Cedar Ridge HS, Gravelly Hill MS, Hillsborough Elem (issued in March 2010) - Refunding 2010
(2) Gravelly Hill MS (issued in November 2011) - Refunding 2011
(3) Gravelly Hill MS (issued in December 2012) - Refunding 2012
(4) Cedar Ridge HS, Pathways Elem (issued in April 2015) - Refunding 2015
(5) See Appendix for enrollment projections
(6) To account for the time value money, total payment per student is discounted using a net present value formula assuming the average interest rate from outstanding debt as shown.

SCHOOL IMPACT FEE INPUT VARIABLES

Factors used to derive the OCS impact fee are summarized in Figure 14. Impact fees for schools are based on student generation rates (i.e., public school students per housing unit) and are only implemented on residential development. LOS standards are based on current costs per student for school buildings, portable classrooms, support facilities, and buses/vehicles as described in the previous sections and summarized below. Also included in the fee is the cost for preparation of the impact fee study. The consultant study cost per student is calculated based on the projected increase in student enrollment (based on SAPFO projections; see Appendix A) in CHCCS and OCS over the next three years and is added to the capital cost per student to derive the total cost per student. Three years reflect the typical length of time before the impact fees should be reexamined to reflect changes in development and levels of service.

The total gross capital cost per student is the sum of the boxed cost components. For example, for the elementary school portion, the calculation is as follows: *$27,687.24 [building construction] + $120.66 [portable] + $751.25 [support facilities] + $1,165.78[buses] + $134.92 [consultant cost] = $29,850.85 total gross cost per student.*

This cost is then adjusted to reflect the local share of the cost at 99 percent, or $29,552.34 per student. The credit for future principal payments ($2,429.24) is then subtracted from the gross local capital cost per student to derive the net local capital cost per student ($27,123.09) for elementary schools. The same approach is followed for middle and high schools.

Figure 14. Schools Impact Fee Input Variables: OCS

Current Level of Service Standards	*Elementary*	*Middle*	*High*
Square Feet per Student	136.80	168.68	160.54
Cost per Sq. Ft.	$202	$223	$219
Total Building Construction Cost per Student	$27,678.24	$37,587.84	$35,180.96
Portable Classrooms per Student	0.0015	0.0000	0.0000
Cost per Portable Classroom	$78,000	$78,000	$78,000
Portable Classroom Cost per Student	$120.66	$0.00	$0.00
OCS Support Facilities per Student (Sq. Ft.)	3.16	3.16	3.16
Cost per Sq. Ft.	$200	$200	$200
OCS/CHCCS Transp. Facility per Student (Sq. Ft.)	0.60	0.60	0.60
Cost per Sq. Ft.	$200	$200	$200
Support Facility Cost per Student	$751.25	$751.25	$751.25
Buses/Vehicles per Student	0.01648	0.01648	0.01648
Weighted Average Cost per Bus/Vehicle	$70,755	$70,755	$70,755
Bus/Vehicle Cost per Student	$1,165.78	$1,165.78	$1,165.78
Consultant Study Cost per Student	$134.92	$134.92	$134.92
Total Gross Cost Per Student	**$29,850.85**	**$39,639.79**	**$37,232.91**
Local Share of Capacity Cost	99%	99%	99%
Total Gross Local Capital Cost per Student	$29,552.34	$39,243.39	$36,860.58
Principal Payment Credit per Student	($2,429.24)	($2,429.24)	($2,429.24)
Total Net Local Capital Cost per Student	**$27,123.09**	**$36,814.15**	**$34,431.34**
Average Capital Cost per Student (all levels)			**$32,789.53**

MAXIMUM SUPPORTABLE IMPACT FEES FOR ORANGE COUNTY SCHOOLS

Figure 15 shows the schedule of maximum supportable impact fees for OCS. The fees are calculated by multiplying the student generation rate for each housing type (shown at the top of Figure 15) by the net capital cost per student for each type of school. Each component is then added together to derive the total public school impact fee.

For example, for a 0-3 bedroom single family detached unit, the elementary school portion of the fee is calculated by multiplying the student generation rate of 0.166 by the net local capital cost per elementary student of $27,123.09, which results in a fee of $4,502 (truncated). This is repeated for the other school levels. The three portions of the fee are added together to calculate the total fee by type of residential

unit (i.e., for 0-3 bedroom single family detached: $4,502 + $3,239 + $4,303 = $12,044.)[8] For age-restricted units, the student generation rate of 0.019 is multiplied by the average total net local capital cost per student for all school levels ($32,789.53), since the school level of generated pupils was not available in the Epcon Communities data. This results in a fee of $623 per unit.

Figure 15. Maximum Supportable Schools Impact Fees: OCS

INPUT VARIABLES: Orange County Schools				
	School Level			
Public School Students per Housing Unit	*Elementary*	*Middle*	*High*	*Total*
Single Family Detached				
0-3 Bedrooms	0.166	0.088	0.125	0.379
4+ Bedrooms	0.126	0.069	0.087	0.283
Average	0.152	0.081	0.112	0.346
Single Family Detached (<800 Sq. Ft.)	0.066	0.020	0.023	0.108
Single Family Attached				
0-2 Bedrooms	0.059	0.029	0.029	0.118
3+ Bedrooms	0.065	0.047	0.060	0.172
Average	0.064	0.045	0.056	0.165
Multifamily				
0-2 Bedrooms	0.033	0.017	0.033	0.083
3+ Bedrooms	0.383	0.128	0.162	0.673
Average	0.088	0.035	0.053	0.176
Manufactured Unit	0.136	0.057	0.068	0.262
Age-Restricted Unit				0.019
Cost Factors				
Total Net Local Capital Cost per Student	$27,123.09	$36,814.15	$34,431.34	
Average Capital Cost per Student (all levels)			$32,789.53	
MAXIMUM ALLOWABLE SCHOOL IMPACT FEES: Orange County Schools				
Impact Fee per Housing Unit	*Elementary*	*Middle*	*High*	***TOTAL***
Single Family Detached				
0-3 Bedrooms	$4,502	$3,239	$4,303	**$12,044**
4+ Bedrooms	$3,417	$2,540	$2,995	**$8,952**
Single Family Detached Average	*$4,122*	*$2,981*	*$3,856*	***$10,959***
Single Family Detached (<800 Sq. Ft.)	$1,790	$736	$791	**$3,317**
Single Family Attached				
0-2 Bedrooms	$1,600	$1,067	$998	**$3,665**
3+ Bedrooms	$1,763	$1,730	$2,065	**$5,558**
Single Family Attached Average	*$1,735*	*$1,656*	*$1,928*	***$5,319***
Multifamily				
0-2 Bedrooms	$895	$625	$1,136	**$2,656**
3+ Bedrooms	$10,388	$4,712	$5,577	**$20,677**
Multifamily Average	*$2,386*	*$1,288*	*$1,824*	***$5,498***
Manufactured Unit	$3,688	$2,098	$2,341	**$8,127**
Age-Restricted Unit				**$623**

[8] Because the analysis uses figures carried to their ultimate decimal places, the sums and products shown may not equal the sum or product if the reader replicates the calculation with the factors shown in the report.

Cash Flow Projections

This section summarizes the potential cash flow to Orange County if impact fees are implemented for OCS at the maximum supportable amounts as detailed in this report. Figure 16 provides a summary of the projected cash flow from the impact fees and associated capital costs over a five- year period.

School impact fee revenue averages approximately $3.5 million per year over the first five years, or almost $17.7 million, if the fees are implemented at the maximum supportable level. The related school local capital costs average approximately $3.8 million per year, or $19 million over five years. Based on the projected impact fee revenues and associated costs, the fees are projected to cover approximately 93 percent of the projected related capital costs. Funds can be accumulated for several years in order to construct a major project.

Since the school impact fee includes a credit for existing debt, an overall deficit for schools is projected. The projected deficit, indicated by "( )" around the numbers, will require supplemental revenue of approximately $278,000 per year. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the fee revenue and related capital costs. See Appendix A of this report for discussion of the development projections that drive the cash flow analysis.

Figure 16. Cash Flow Projections: OCS

	1 2016	2 2017	3 2018	4 2019	5 2020	*5-Year Average Annual*	*5-Year Cumulative Total*	*10-Year Average Annual*	*Cumulative Total*
PROJECTED REVENUES									
SCHOOLS									
1 Single Family Detached	$2,617	$2,617	$2,617	$2,617	$2,617	$2,617	$13,085	$2,617.01	$26,170
2 Single Family Attached	$318	$318	$318	$318	$318	$318	$1,588	$318	$3,175
3 Multifamily	$438	$438	$438	$438	$438	$438	$2,188	$438	$4,376
4 Manufactured	$162	$162	$162	$162	$162	$162	$809	$162	$1,617
Subtotal Schools Fees	$3,534	$3,534	$3,534	$3,534	$3,534	$3,534	$17,670	$3,534	$35,339
TOTAL FEE REVENUE	$3,534	$3,534	$3,534	$3,534	$3,534	$3,534	$17,670	$3,534	$35,339
PROJECTED CAPITAL COSTS (Local Share)									
SCHOOLS									
Schools - Elementary	$1,474	$1,474	$1,474	$1,474	$1,474	$1,474	$7,371	$1,474	$14,743
Schools - Middle	$1,020	$1,020	$1,020	$1,020	$1,020	$1,020	$5,102	$1,020	$10,203
Schools - High	$1,317	$1,317	$1,317	$1,317	$1,317	$1,317	$6,586	$1,317	$13,172
Subtotal Schools Costs	$3,812	$3,812	$3,812	$3,812	$3,812	$3,812	$19,059	$3,812	$38,119
TOTAL CAPITAL COSTS	$3,812	$3,812	$3,812	$3,812	$3,812	$3,812	$19,059	$3,812	$38,119
NET CAPITAL FACILITIES CASH FLOW *Schools*								*Current $ in thousands*	
Annual Surplus (or Deficit)	($278)	($278)	($278)	($278)	($278)	($278)		($278)	
Cumulative Surplus (or Deficit)	($278)	($556)	($834)	($1,112)	($1,390)		($1,390)		($2,779)

Implementation and Administration

ACCOUNTING

Impact fees should be paid at time of building permit. Certain accounting procedures should be followed by the County. For example, monies received should be placed in a separate fund and accounted for separately and may only be used for the purposes authorized in the impact fee ordinance. Interest earned on monies in the separate fund should be credited to the fund.

COST UPDATES

All costs in the impact fee calculations are given in current dollars with no assumed inflation over time. Necessary cost adjustments can be made as part of the recommended annual evaluation and update of the fees. One approach is to adjust for inflation in construction costs by means of an index specific to construction as opposed to the consumer price index (CPI), which is more general in nature. TischlerBise recommends using the Marshall Swift Valuation Service, which provides comparative cost multipliers for various geographies and types of construction. The multipliers can be applied against the calculated impact fee. If cost estimates or other factors change significantly the County should redo the fee calculations. A full update is recommended every 3 to 5 years to reflect changes in development trends, infrastructure capacities, costs, funding formulas, etc.

CREDITS AND REIMBURSEMENTS

Future Revenue Credits

OCS impact fees are calculated using an incremental approach. This method documents current factors and is best suited for public facilities that will be expanded incrementally in the future. Because new development will provide front-end funding of infrastructure, there is a potential for double payment of capital costs due to future principal payments on existing debt for public facilities. A credit is not necessary for interest payments because interest costs are not included in the fees. This type of credit is incorporated into the County schools impact fees due to outstanding debt on OCS school capacity expansions and land acquisition.

Site-Specific Credits

A site-specific credit should be considered for contributions of system improvements that have been included in the impact fee calculations. If a developer constructs the type of system improvements included in the fee calculations, it will be necessary to either reimburse the developer or provide a credit against the fees for that portion of the fee. The latter option is more difficult to administer because it creates unique fees for specific geographic areas. Based on TischlerBise's experience, it is better for the County to establish a reimbursement agreement with the developer constructing the system improvement. The reimbursement agreement should be limited to a payback period of no more than ten

years and the County should not pay interest on the outstanding balance. The developer must provide sufficient documentation of the actual cost incurred for the system improvement. The County should only agree to pay the lesser of the actual construction cost or the estimated cost used in the impact fee analysis. If the County pays more than the cost used in the fee analysis, there will be insufficient fee revenue. Reimbursement agreements should only obligate the County to reimburse developers annually according to actual fee collections from the benefiting area.

COLLECTION AND EXPENDITURE ZONES

The reasonableness of impact fees is determined in part by their relationship to the local government's burden to provide necessary public facilities. The need to show a substantial benefit usually requires communities to evaluate collection and expenditure zones for public facilities that have distinct geographic service areas.

TischlerBise analyzed school impact fees in the County separately for each school system that serves residential development in Orange County—OCS and CHCCS. The end result is two separate fee studies with two impact fee schedules. For the County School system, one area is appropriate because capacity improvements are needed at all levels throughout the County system and County schools will occasionally re-district to accommodate growth and available capacity.

IMPACT FEE ACT

The Act providing Orange County with the authority to collect school impact fees is provided in Appendix B.

Appendix A: Demographic Data

OVERVIEW

As part of our Work Scope, TischlerBise has prepared documentation on demographic data and development projections used in the Schools Impact Fee Studies. Two studies have been conducted for Orange County: (1) OCS and (2) CHCCS. This Appendix covers both school systems in the County, while the body of the report reflects CHCCS only. (The OCS report is issued under separate cover.) The demographic data estimates for the school year 2006-2007 are used in the fee calculations.

Impact fees can be defined as new growth's fair share of the cost to provide necessary capital facilities. Fee revenue must be used for capacity expansions and cannot be used for operations or maintenance costs. In determining the reasonableness of these one-time fees, the fee must meet three requirements: (1) **Impact / Need:** The needed capital facilities are a consequence of new development; (2) **Proportionality:** Fees represent a proportionate share of the cost; and (3) **Benefit:** Revenues are managed and expended in such a way that new development receives a substantial benefit. The demographic data and analysis provided in this section provide the foundation to meet the first two requirements listed above.

The development projections are used to establish a need for future infrastructure due to growth as well as to have an understanding of the possible future pace of service demands, revenues from impact fees, and projected capital expenditures. To the extent development slows or accelerates, there will be virtually no effect on the fee amount.

Please note that calculations throughout are based on an analysis that was conducted using Excel software. Results are discussed using whole numbers or one- to three-digit places, which represent rounded figures. However, the analysis itself uses figures carried to their ultimate decimal places; therefore the sums and products generated in the analysis may not equal the sum or product if the reader replicates the calculation with the factors shown in the report (due to the rounding of figures shown, not in the analysis).

POPULATION AND HOUSING GROWTH

To provide context for public school student enrollment growth in Orange County, the following section provides information on population and housing growth in the county. The total population residing in housing units in the county in 2010, according to the U.S. Census (corrected), was 124,244. In addition, 9,557 persons were estimated to reside in group quarters. When added together, the total estimated county population in 2010 was 133,801 (up from 115,531 in 2000, an increase of 18,270 residents over ten years). The estimated number of housing units in the county in 2010 was 55,597, an increase of 7,891 housing units since 2000.

Estimated average household size for all types of units is 2.23 persons, which is derived by dividing persons residing in housing units by total number of housing units (124,244 population in households / 55,597 housing units = 2.23 persons per housing unit).

Figure A1 provides further detail on a comparison of 2000 and 2010 Census data for Orange County.

Figure A1. U.S. Census Population and Housing Units

	2000	2010	Increase / (Decrease)
Population in Households	105,585	124,244	18,659
Group Quarters Population	9,946	9,557	(389)
Total County Population	115,531	133,801	18,270
Estimated Housing Units	47,706	55,597	7,891
Average Persons per Housing Unit	**2.21**	**2.23**	

Source: U.S. Census Bureau 2010 Census

The U.S. Census Bureau estimates that the July 2014 population in Orange County rose to 140,420. Additionally, TischlerBise obtained total housing unit estimates for May 2014 from Orange County, based on the County's Land Records and May 2014 Addresses GIS shapefile. Figure A2 details May 2014 housing unit counts for Orange County, CHCCS, and OCS. For CHCCS, the housing unit counts reflect units located in Chapel Hill and Carrboro and the portion of Orange County that falls within CHCCS. For OCS, building permit data includes other units in the county and the Town of Hillsborough within the OCS system.

Figure A2. 2014 Housing Units

	Orange County Housing Units				
	SF Detached	SF Attached	Multifamily	Manufactured	Total
Total Orange County Housing Stock	36,443	2,191	14,621	4,674	57,929
Share by Type	63%	4%	25%	8%	100%
Subtotal Housing Stock in CHCCSD	18,778	1,493	13,472	513	34,256
Share by Type	55%	4%	39%	2%	100%
Subtotal Housing Stock in OCSD	17,665	698	1,149	4,161	23,673
Share by Type	75%	3%	5%	17%	100%

Source: Orange County Land Records/GIS May 2014 Addresses shapefile

It is assumed that the group quarters data remained the same from 2010 (this figure is not separated from total population in non-decennial census estimates), since this figure is largely driven by University of North Carolina at Chapel Hill dormitory populations. Under that assumption, the total population living in housing units in 2014 was approximately 130,863.

Orange County Schools (OCS)

Based on household characteristics and discussions with County staff, as well as to ensure proportionality, five housing unit types are recommended for the OCS impact fees: (1) Single Family Detached, (2) Single Family Detached Units Less than 800 Sq. Ft., (3) Single Family Attached (e.g., townhomes), (4) Multifamily (e.g., apartments), and (5) Manufactured Homes. In the previous study, Single Family Attached and Multifamily were grouped into one category. However, they are separated in this update to track with changing development patterns. Impact fees are calculated by type of unit and bedroom count (the latter is further detailed below).

As shown, a total of 3,320 new housing units were built from January 1, 2004, to December 31, 2013. The majority of new units are single family detached (almost 69 percent), followed by approximately 17 percent multifamily, and 9 percent single family attached/duplex. The remainder are manufactured homes. The mix of new units by type is used to project future housing unit growth later in this report. Further detail is provided below in Figure A3.

Figure A3. Housing Unit Growth 2004-2013: OCS

Housing Units	2004	2013	Net Increase 2004-2013	% of New Units
SF Detached	13,096	15,390	2,294	69%
SF Attached/Duplex	162	451	289	9%
Multifamily/Other	1,176	1,746	570	17%
Manufactured Home	5,451	5,618	167	5%
Total	19,885	23,205	3,320	100%

Source: Orange County

Chapel Hill-Carrboro City Schools (CHCCS)

Based on household characteristics and to ensure proportionality, five housing unit types are recommended for the CHCCS impact fees: (1) Single Family Detached, (2) Single Family Detached Units Less than 800 Sq. Ft., (3) Single Family Attached (e.g., townhomes), (4) Multifamily (e.g., apartments) and (5) Manufactured Homes. CHCCS has a significant number of multifamily units that do not generate a large number of school-age children due to the presence of the University of North Carolina at Chapel Hill. Impact fees are calculated by type of unit and bedroom count (the latter is further detailed below).

As shown, a total of 2,730 new housing units were built from January 1, 2004, to December 31, 2013. Units are relatively split between single family detached (38 percent), multifamily (34 percent), and single family detached (28 percent). Nine manufactured units were added during this time, a negligible amount. The mix of new units by type is used to project future housing unit growth later in this report. Further detail is provided below in Figure A4.

Figure A4. Housing Unit Growth 2004-2013: CHCCS

Housing Units	2004	2013	Net Increase 2004-2013	% of New Units
SF Detached	14,261	15,304	1,043	38%
SF Attached/Duplex	2,243	3,005	762	28%
Multifamily/Other	16,052	16,968	916	34%
Manufactured Home	1,060	1,069	9	0%
Total	33,616	36,346	2,730	100%

Source: Orange County

ESTIMATED STUDENT GENERATION RATES

TischlerBise calculated student generation rates for each school system in Orange County based on data from Orange County. The term "student generation rate" refers to the number of public school students per housing unit in each school system: OCS and CHCCS. Public school students are a subset of school-aged children, which includes students in private schools and home-schooled children.

Student generation rates are important demographic factors that help account for variations in demand for school facilities by type of housing. Students per housing unit are held constant over the projection period since the impact fees represent a "snapshot approach" of current levels of service and costs.

The student generation rates were calculated using student address data geocoded to Orange County land records tracking housing unit types. These data were analyzed for units built during two different time periods: prior to 2004, and from 2004 through 2013. Data were collated for these two discrete periods in order to evaluate whether new development patterns and demand trends in the residential market had impacted student generation rates for recently built units. Student generation rates for units constructed from 2004 to 2013 were drawn from an earlier TischlerBise study, finished in May 2015.

Student generation rates were provided by housing unit type for the categories used in each district. That is, for Orange County, rates are provided for each type of unit: (1) Single Family Detached, (2) Single Family Attached/Multifamily, and (3) Manufactured Homes. For CHCCS, rates are provided for: (1) Single Family Detached, (2) Single Family Attached, (3) Multifamily, and (4) Manufactured Homes. In addition, the rates reflect demand by type of school level—elementary, middle, and high.

Initially, TischlerBise and County staff attempted a simple combination of the older and newer student generation and housing unit type data in order to derive student generation rates for housing type categories that are representative of the impact of a housing unit on required school capacity over the entire life of that unit. In order to enhance the specificity of its student generation rates, the County tasked TischlerBise with determining these rates by the size of the unit, measured by bedroom count. To facilitate this process, the County had begun to gather bedroom count attributes for most new units constructed since 2004. Therefore, for the most part, student addresses for new units could be matched to a bedroom count record.

However, bedroom counts were unavailable for units constructed prior to 2004. To determine these figures for the pre-2004 housing stock, TischlerBise used 2005-2007 American Community Survey (ACS) Public Use Microdata Sample (PUMS) data for Public Use Microdata Area (PUMA) 2900 (which includes Orange County and Chatham County) to determine the estimated mix of units by bedroom count for each housing type category. This sample period was the closest to the 2004 cut-off that was still large enough to yield accurate data. The results of this analysis are displayed below in Figure A5.

Figure A5: ACS PUMS Data Bedroom Count by Category Analysis (Unweighted Sample)

Housing Type	Bedroom Count	Count	%
Single Family Detached*	0-3	1,014	66.4%
	4	401	26.3%
	5+	112	7.3%
	Total	*1,527*	*100%*
Single Family Attached	0-2	64	55.7%
	3+	51	44.3%
	Total	*115*	*100%*
Multifamily	0-2	383	88.5%
	3+	50	11.5%
	Total	*433*	*100%*
Manufactured	0-2	100	41.2%
	3+	143	58.8%
	Total	*243*	*100%*

**SF Detached <800 Sq. Ft. was not included because there are no bedroom count subcategories*

Source: 2005-2007 ACS PUMS data for PUMA 2900

However, the same problems were present with data regarding **students** living in units constructed prior to 2004. As shown in Figure A6 and Figure A7 below, a large number of students generated were from units with unknown bedroom counts. This problem is particularly problematic in the Multifamily and Single Family Attached categories.

Figure A6: OCS Student Counts

	Manufactured		Multifamily			Single Family Attached			Single Family Detached					Total
	Known 0-2	Known 3+	Unknown	Known 0-2	Known 3+	Unknown	Known 0-2	Known 3+	Unknown	Known <800 Sq. Ft.	Known 0-3	Known 4	Known 5+	
Unadjusted														
Elementary	580	136	96	4	3	14	5	1	153	23	1,242	319	44	2,620
Middle	231	77	42	2		1	1	1	94	7	669	177	38	1,340
High	253	107	35	1	1	2	5	1	123	8	993	235	49	1,813
Total	*1,064*	*320*	*173*	*7*	*4*	*17*	*11*	*3*	*370*	*38*	*2,904*	*731*	*131*	*5,773*

Figure A7: CHCCS Schools Student Counts

	Manufactured		Multifamily			Single Family Attached			Single Family Detached					Total
	Known 0-2	Known 3+	Unknown	Known 0-2	Known 3+	Unknown	Known 0-2	Known 3+	Unknown	Known <800 Sq. Ft.	Known 0-3	Known 4	Known 5+	
Unadjusted														
Elementary	88	3	719	465	37	19	151	58	112	12	1,308	1,176	348	4,496
Middle	44	2	269	167	16	9	65	26	62	9	701	745	216	2,331
High	42	5	300	228	26	15	75	40	77	3	923	1,078	378	3,190
Total	*174*	*10*	*1,288*	*860*	*79*	*43*	*291*	*124*	*251*	*24*	*2,932*	*2,999*	*942*	*10,017*

After testing various strategies to accurately allocate students in units with unknown bedroom counts, TischlerBise, in consultation with the County, determined there was insufficient data to include the entire housing stock. Therefore, TischlerBise, in consultation with County staff, recommends using local data on recently built units (with bedroom counts) and geocoded students data for Multifamily and Single Family Attached rates. This solution avoids a skewed student-to-units ratio that might have resulted from an inaccurate allocation of students from units with unknown bedroom counts.

For Single Family Detached, Single Family Detached <800 Sq. Ft., and Manufactured Homes, students in units with unknown bedroom counts reflect less than 10 percent of the total. Therefore, pre-2004 and 2004-2013 data were combined to derive the student generation rates. For Single Family Detached, students from unknown units were allocated based upon the breakdown of students generated from units with known bedroom counts, as shown in Figure A8 and Figure A9.

For instance, for OCS, a portion of the 153 elementary-level students in unknown bedroom count single family detached units (see Figure A7) are placed in the 0-3 bedroom category by calculating percentage of known students in the category out of all the known students living in single family detached homes (77.1 percent, or 2,904 / [2,904 + 731 + 131]). Therefore, 118 students (77.1% x 153) are added to the known 0-3 bedroom category (1,242 students) to yield a combined known and unknown student count of 1,360 elementary students.

Figure A8: OCS Single Family Detached Units – Unknown Bedroom Count Student Allocation

	Single Family Detached			
	Unknown	Known 0-3	Known 4	Known 5+
Unadjusted				
Elementary	153	1,242	319	44
Middle	94	669	177	38
High	123	993	235	49
Total	*370*	*2,904*	*731*	*131*
		77.1%	19.4%	3.5%
Adjusted		**Known + Unknown**		
Elementary		1,360	349	49
Middle		741	195	41
High		1,088	259	53
Total		*3,189*	*803*	*144*

Figure A9: CHCCS Single Family Detached Units – Unknown Bedroom Count Student Allocation

	Single Family Detached			
	Unknown	Known 0-3	Known 4	Known 5+
Unadjusted				
Elementary	112	1,308	1,176	348
Middle	62	701	745	216
High	77	923	1,078	378
Total	*251*	*2,932*	*2,999*	*942*
		42.5%	43.5%	13.7%
Adjusted		**Known + Unknown**		
Elementary		1,356	1,225	363
Middle		727	772	224
High		956	1,111	389
Total		*3,039*	*3,108*	*976*

STUDENT GENERATION RATES

The 2013-2014 student generation rates for OCS and CHCCS are shown below in Figures A10 and A11, respectively. Rates are provided for each of the five housing unit types used in the impact fee analysis for each level of school facility: (1) Elementary; (2) Middle; and (3) High. For Single Family Detached homes, separate rates are included for 0-2 bedroom, 3 bedroom, and 4+ bedroom units. For Single Family Attached and Multifamily units, separate rates are provided for 0-2 bedroom and 3+ bedroom units. Rates for Single Family Detached <800 Sq. Ft. Units and Manufactured homes are not segmented by bedroom count given the smaller square footage of these types of units.

Additionally, student generation rates are adjusted for the presence of age-restricted developments, as noted in the figure footnotes. A separate rate schedule for age-restricted developments is currently under consideration.

Appendix B: Impact Fee Act

Orange County has been granted authority by the State of North Carolina to implement impact fees for schools, the acquisition of land for open space and greenways, capital improvements to public streets, bridges, sidewalks, bikeways, on and off street surface water drainage ditches, pipes, culverts, other drainage facilities, water and sewer facilities and public recreation facilities. The County is pursuing impact fees for schools at this time. A copy of the applicable sections of the Act is provided in this Appendix.

Note: Only Title VI (Orange County Impact Fees) is shown.

GENERAL ASSEMBLY OF NORTH CAROLINA
1987 SESSION

CHAPTER 460
HOUSE BILL 917

AN ACT MAKING SUNDRY AMENDMENTS CONCERNING LOCAL GOVERNMENTS IN ORANGE AND CHATHAM COUNTIES.

///

TITLE VI. ORANGE COUNTY IMPACT FEES.

Sec. 17. G.S. 153A-331 is amended by identifying the existing provisions as subsection (a) and by adding new subsections to read:

"(b) Impact Fees Authorized.

(1) Orange County may provide by ordinance for a system of impact fees to be paid by developers to help defray the costs to the County of constructing certain capital improvements, the need for which is created in substantial part by the new development that takes place within the County.

(2) For purposes of this subsection, the term capital improvements includes the acquisition of land for open space and greenways, capital improvements to public streets, schools, bridges, sidewalks, bikeways, on and off street surface water drainage ditches, pipes, culverts, other drainage facilities, water and sewer facilities and public recreation facilities.

(3) An ordinance adopted under this subsection may be made applicable to all development that occurs within the County.

(c) Amount of Fees. In establishing the amount of any impact fee, the County shall endeavor to approach the objective of having every development contribute to a capital improvements fund an amount of revenue that bears a reasonable relationship to that development's fair share of the costs of the capital improvements that are needed in part because of that development. In fulfilling this objective, the County shall, among other steps and actions:

(1) Estimate the total cost of improvements by category (e.g., streets, sidewalks, drainage ways, etc.) that will be needed to provide in a reasonable manner for the public health, safety and welfare of persons residing within the County during a reasonable planning period not to exceed 20 years. The Board of County Commissioners may divide the County into two or more districts and estimate the costs of needed improvements within each district. These estimates shall be periodically reviewed and updated and the planning period used may be changed from time to time.

(2) Establish a percentage of the total costs of each category of improvement that, in keeping with the objective set forth above, should fairly be borne by those paying the impact fee.

(3) Establish a formula that fairly and objectively apportions the total costs that are to be borne by those paying impact fees among various types of developments. By way of illustration without limitation:

a. In the case of street improvements, the impact fee may be related to the number of trips per day generated by different types of uses according to recognized estimates;

b. In the case of drainage improvements, the impact fee may be related to the size of a development, the amount of impervious surface the development has, or other factors that bear upon the degree to which a development contributes to the need for drainage improvements made at public expense.

(d) Capital Improvements Reserve Funds: Expenditures.

(1) Impact fees received by the County shall be deposited in a capital improvements reserve fund or funds established under Chapter 159 of the General Statutes, Article 3, Part 2. Such funds may be expended only on the type of capital improvements for which such impact fees were established, and then only in accordance with the provision of subsection (2) of this section.

(2) In order to ensure that impact fees paid by a particular development are expended on capital improvements that benefit that development, the County may establish for each category of capital improvement for which it collects an impact fee at least two geographical districts or zones, and impact fees generated by developments within those districts or zones must be spent on improvements that are located within or that benefit property located within those districts or zones.

(e) Credits for Improvements. An impact fee ordinance shall make provision for credits against required fees when a developer installs improvements of a type that generally would be paid for by the County out of a capital reserve account funded by impact fees. The ordinance may spell out the circumstances under which a developer will be allowed to install such improvements and receive such credits.

(f) Appeals Procedure. An ordinance authorizing impact fees as provided herein may provide that any person aggrieved by a decision regarding an impact fee may appeal to the Orange County Board of Adjustment. If the ordinance establishes an appeals procedure, it shall spell out the time within which the appeal must be taken to the board of adjustment, the possible grounds for an appeal and the board's authority in the matter, whether the fee must be paid prior to resolution of the appeal, and other procedural or substantive matters related to appeals. Any decision by the board of adjustment shall be subject to review by the superior court by proceedings in the nature of **certiorari** in the same manner as is provided in G.S. 153A-345.

(g) Payment of Impact Fees. An ordinance authorizing impact fees as herein provided shall spell out when in the process of development approval and construction impact fees shall be paid and by whom. By way of illustration without limitation, the ordinance may provide that an applicant for a building permit shall submit the impact fee along with the permit application and that building permits shall not be issued until the impact fee has been paid.

(h) Refunds. If this section or any ordinance adopted thereunder is declared to be unconstitutional or otherwise invalid, then any impact fees collected shall be refunded to the person paying them together with interest at the rate established under G.S. 105-241.1, being the same rate paid by the Secretary of Revenue on refunds for tax overpayments.

(i) Limitations on Actions.

(1) Any action contesting the validity of an ordinance adopted as herein provided must be commenced not later than nine months after the effective date of such ordinance.

(2) Any action seeking to recover an impact fee must be commenced not later than nine months after the impact fee is paid."

Sec. 17.1. Section 17 of this act shall apply only to Orange County, and applies only within the planning jurisdiction of Orange County.

Sec. 18. G.S. 153A-340 is amended by identifying the existing provisions as subsection (a) and by adding new subsections to read:

"(b) Impact Fees Authorized.

(1) Orange County may provide by ordinance for a system of impact fees to be paid by developers to help defray the costs to the County of constructing certain capital

improvements, the need for which is created in substantial part by the new development that takes place within the County.

(2) For purposes of this subsection, the term capital improvements includes the acquisition of land for open space and greenways, capital improvements to public streets, schools, bridges, sidewalks, bikeways, on and off street surface water drainage ditches, pipes, culverts, other drainage facilities, water and sewer facilities and public recreation facilities.

(3) An ordinance adopted under this subsection may be made applicable to all development that occurs within the County.

(c) Amount of Fees. In establishing the amount of any impact fee, the County shall endeavor to approach the objective of having every development contribute to a capital improvements fund an amount of revenue that bears a reasonable relationship to that development's fair share of the costs of the capital improvements that are needed in part because of that development. In fulfilling this objective, the County shall, among other steps and actions:

(1) Estimate the total cost of improvements by category (e.g., streets, sidewalks, drainage ways, etc.) that will be needed to provide in a reasonable manner for the public health, safety and welfare of persons residing within the County during a reasonable planning period not to exceed 20 years. The Board of County Commissioners may divide the County into two or more districts and estimate the costs of needed improvements within each district. These estimates shall be periodically reviewed and updated and the planning period used may be changed from time to time.

(2) Establish a percentage of the total costs of each category of improvement that, in keeping with the objective set forth above, should fairly be borne by those paying the impact fee.

(3) Establish a formula that fairly and objectively apportions the total costs that are to be borne by those paying impact fees among various types of developments. By way of illustration without limitation:

a. In the case of street improvements, the impact fee may be related to the number of trips per day generated by different types of uses according to recognized estimates;

b. In the case of drainage improvements, the impact fee may be related to the size of a development, the amount of impervious surface the development has, or other factors that bear upon the degree to which a development contributes to the need for drainage improvements made at public expense.

(d) Capital Improvements Reserve Funds: Expenditures.

(1) Impact fees received by the County shall be deposited in a capital improvements reserve fund or funds established under Chapter 159 of the General Statutes, Article 3, Part 2. Such funds may be expended only on the type of capital improvements for which such impact fees were established, and then only in accordance with the provision of subsection (2) of this section.

(2) In order to ensure that impact fees paid by a particular development are expended on capital improvements that benefit that development, the County may establish for each category of capital improvement for which it collects an impact fee at least two geographical districts or zones, and impact fees generated by developments within those districts or zones must be spent on improvements that are located within or that benefit property located within those districts or zones.

(e) Credits for Improvements. An impact fee ordinance shall make provision for credits against required fees when a developer installs improvements of a type that generally would be paid for by the County out of a capital reserve account funded by impact fees. The ordinance may spell out the

circumstances under which a developer will be allowed to install such improvements and receive such credits.

(f) Appeals Procedure. An ordinance authorizing impact fees as provided herein may provide that any person aggrieved by a decision regarding an impact fee may appeal to the Orange County Board of Adjustment. If the ordinance establishes an appeals procedure, it shall spell out the time within which the appeal must be taken to the board of adjustment, the possible grounds for an appeal and the board's authority in the matter, whether the fee must be paid prior to resolution of the appeal, and other procedural or substantive matters related to appeals. Any decision by the board of adjustment shall be subject to review by the superior court by proceedings in the nature of **certiorari** in the same manner as is provided in G.S. 153A-345.

(g) Payment of Impact Fees. An ordinance authorizing impact fees as herein provided shall spell out when in the process of development approval and construction impact fees shall be paid and by whom. By way of illustration without limitation, the ordinance may provide that an applicant for a building permit shall submit the impact fee along with the permit application and that building permits shall not be issued until the impact fee has been paid.

(h) Refunds. If this section or any ordinance adopted thereunder is declared to be unconstitutional or otherwise invalid, then any impact fees collected shall be refunded to the person paying them together with interest at the rate established under G.S. 105-241.1, being the same rate paid by the Secretary of Revenue on refunds for tax overpayments.

(i) Limitations on Actions.

(1) Any action contesting the validity of an ordinance adopted as herein provided must be commenced not later than nine months after the effective date of such ordinance.

(2) Any action seeking to recover an impact fee must be commenced not later than nine months after the impact fee is paid."

Sec. 18.1. Section 18 of this act shall apply only to Orange County, and applies only within the planning jurisdiction of Orange County.

In the General Assembly read three times and ratified this the 23rd day of June, 1987.

Appendix C: Housing Unit Types

For the purposes of school impact fee analysis and calculations, the following housing type categories were used. A brief description of each housing category is provided.

Single Family Detached: a detached building located on a single lot containing one dwelling unit. In situations where an accessory dwelling unit (i.e., a "mother-in-law suite" or "granny flat") is located on the same lot, the principal dwelling is categorized as a Single Family Detached dwelling.

Examples of single family detached dwellings are site-built houses and modular houses.

Single Family Attached: a group of dwelling units which share a common floor-to-ceiling wall or share the wall of an attached garage or porch with an adjacent dwelling and in which all units have a ground-floor living space. Units are individually owned or intended to be individually owned after initial sales are complete.

Examples of single family attached dwellings are duplexes, triplexes, townhouses, row houses, and condominiums in which all units have a ground-floor living space.

Multifamily: a group of dwelling units which share a common floor-to-ceiling wall with an adjacent dwelling. All units may not have a ground-floor living space. Units may be individually owned (as is the case with condominiums) or may be owned by one entity and rented/leased to tenants. Also included in this category are dwelling units located above ground-floor non-residential (i.e., retail or office) uses. In situations where an accessory dwelling unit (i.e., a mother-in-law suite, granny flat, or efficiency apartment) is located on the same lot as a principal dwelling, the accessory dwelling unit is categorized as a multifamily dwelling provided the accessory dwelling unit is categorized as such by the local zoning code (i.e., less than 750-800 square feet, depending on the specifics of the local code).

Examples of multifamily dwellings include apartments, condominiums in a multi-story building in which all units do not have a ground-floor living space, mother-in-law suites and granny flats located on a lot containing a separate principal dwelling, and dwellings located above non-residential uses.

Manufactured Home: a dwelling built in a factory in accordance with the federal Manufactured Home Construction and Safety Standards, commonly referred to as the 'HUD' Code.

Examples of manufactured homes are single-wide, double-wide, and triple-wide "mobile" homes.

Age Restricted Unit: A dwelling, regardless of type (detached, attached, multi-family, etc.), located in a development that restricts the number of units with occupants aged under 55 years old and whereby the age restriction is achieved by deed restrictions, homeowners association documents, and/or restrictive covenants.