Broward County Public Schools Student Generation Rate and School Impact Fee Study Update

FINAL REPORT

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Table of Contents

Introduction

School impact fees were implemented in Broward County in 1979 and were last updated in 2014. Consistent with the State statutes, Broward County Public Schools (BCPS) updates the student generation rate and impact fee calculations at least once every three years as required in the Third Amended and Restated Interlocal Agreement (TRILA) for public school facility planning to reflect the most recent and localized data. For the current update, BCPS retained Tindale Oliver to prepare a technical study that reflects the updated student generation rates and impact fee calculations.

An impact fee is a one-time capital charge levied against new development to fund new capacity or capacity expansion projects. In Florida, legal requirements related to impact fees have primarily been established through case law since the 1980's. Generally speaking, impact fees must comply with the "dual rational nexus" test, which requires that they:

- Be supported by a study demonstrating that the fees are proportionate in amount to the need created by new development paying the fee; and
- Be spent in a manner that directs a proportionate benefit to new development, typically accomplished through a list of capacity-adding projects included in the School District's Capital Improvement Plan, or another planning document/Master Plan.

In 2006, the Florida legislature passed the "Florida Impact Fee Act," which recognized impact fees as "an outgrowth of home rule power of a local government to provide certain services within its jurisdiction." § 163.31801(2), Fla. Stat. The statute – concerned with mostly procedural and methodological limitations – did not expressly allow or disallow any particular public facility type from being funded with impact fees. The Act did specify procedural and methodological prerequisites, such as the requirement of the fee being based on most recent and localized data, a 90-day requirement for fee changes, and other similar requirements, most of which were common to the practice already. In 2009, the Act was amended to clarify that in any action challenging an impact fee, the government has the burden of proving by a preponderance of the evidence that the imposition or amount of the fee meets the requirements of state legal precedent or the Impact Fee Act and that the court may not use a deferential standard.

This technical report has been prepared to support legal compliance with existing case law and statutory requirements. The study methodology is documented in the following 10 sections of this technical report:

- Student Generation Rates
- Methodology
- Inventory
- Service Area and Enrollment
- Facility Service Delivery
- Cost Component
- Credit Component
- Net Impact Cost per Student
- Calculated School Impact Fee Schedule
- School Impact Fee Schedule Comparison

The analysis included in this report was completed in 2017 and information utilized was obtained from BCPS, as well as, other sources, as indicated herein.

Methodology

The methodology used to update the school impact fee is a consumption-based impact fee methodology, which has also been used to calculate the current adopted school impact fee for Broward County as well as several school impact fees throughout Florida, including, but not limited to fees in Palm Beach, Orange, Osceola, Lake, Collier, Indian River, Highlands, and Brevard Counties. A consumption-based impact fee charges new development based upon the student generation rate (demand), or the number of students a dwelling unit is expected to generate over the life of the home. A consumption-based impact fee is intended to charge new growth the proportionate share of the cost of providing a new student station available for use by new growth.

A consumption-based methodology has been used for this study.

The impact fee calculations contained in this report are based on the most current and localized data available at the time of the analysis, consistent with the 2006 Florida Impact Fee Act. Should one or more variables affecting the impact fee change significantly, a recalculation of the impact fee would be necessary prior to the scheduled update of the study. Changes that could potentially trigger a recalculation of the impact fee include, but are not limited to, significant changes in the student generation rate, a considerable change in the cost per student, a change in amount or source of revenue available for capital expansion, or a decision to incur additional debt to fund new capacity.

Student Generation Rates

The demand component of school impact fees are typically measured based on specific student generation rates (SGR), or students per housing unit, for each type of residential category. The Broward County school impact fee schedule includes the following residential categories:

- ***Single Family*** – One (1) dwelling unit, other than a mobile home, sharing no walls with another dwelling unit.
- ***Townhouse*** – Three (3) or more attached dwelling units attached by a common party or firewall, with each unit having two (2) or more residential stories (exclusive of parking levels) and direct access from the ground floor.
- ***Duplex*** – Two (2) dwelling units, attached by a common party or firewall, in one (1) building.
- ***Villa*** – Three (3) or more dwelling units, attached by a common party or firewall, in a building not exceeding one (1) residential story.
- ***Garden Apartment*** – Three (3) or more attached dwelling units in a two (2) or three (3) residential story building with each unit being only one (1) story.
- ***Mid-Rise*** – Four (4) or more attached dwelling units in a building with four (4) to eight (8) residential stories (exclusive of parking levels).
- ***High-Rise*** – Nine (9) or more attached dwelling units in a building with nine (9) or more residential stories (exclusive of parking levels).
- ***Mobile Home*** – "Mobile Home" has the same meaning given in Section 320.01(2), Florida Statutes, and includes only those mobile homes in which permanent residential habitation is permitted by applicable land development regulations.

Many of these land uses are tiered by bedroom under the current adopted methodology. BCPS' current adopted methodology calculates SGR based on generation rates of homes built/permitted over the past several years. Consistent with the last study's approach, this study reviewed the generation rate of homes built over the past seven years (2010-2016). Given the decrease in permitting over the past several years, use of multiple years increases the sample size, potentially resulting in more stable figures.

In addition to measuring the SGR of new homes, this study also reviewed an alternative approach and calculated the SGR of all homes, regardless of year built. This second approach

reflects the fact that impact fees are a one-time payment for the life of the home and any given housing unit is occupied by various sets of individuals/families. As such, SGR of a given home changes over time. Given the limited number of units constructed in the last several years, this approach may also increase the accuracy of the calculations.

Finally, based on input received on initial draft results, a third approach was developed using all available data, including generation rate of new homes and all homes as well as data used in the past two technical studies. It is important to note that given the small sample size of the data from homes built over the past seven years, and resulting fluctuations in SGR, Tindale Oliver recommends using either the data from All Homes or this hybrid method, which incorporates all available data while still trying to be sensitive to changes reflected by new home data.

The following paragraphs provide an explanation of the methodology and resulting recommended student generation rates for Broward County.

To determine the SGR by residential category, Geographic Information Systems (GIS) was used to link each student address to its respective parcel in the Broward County Property Appraiser's database in order to generate the number of students per unit by residential type for the current school year. The following data was utilized in this analysis:

- Broward County Public Schools (BCPS) geocoded student addresses for students attending the traditional schools listed in Appendix A, Table A-1. It is important to note that the student generation calculations are based strictly on traditional school students and exclude students attending non-traditional schools, such as charter school students, private schools, etc.
- Broward County Property Appraiser (BCPA) tax roll parcel data from January 2017.
- Broward County's POSSE permit and licensing database to supplement the BCPA data.
- Bedroom data from the Cities and the County.

The development of the SGR estimates is a three-step process:

- First, using the tax roll database provided by BCPA, parcels were grouped into the appropriate residential categories using the definitions and parameters previously presented. The Property Appraiser's building assessments data file (BAS) was also utilized to retrieve data on the number of stories for each residential building within

the county. With each parcel assigned to the appropriate land use grouping, the total number of residential units was summarized. The BCPA database does not record units for condominium buildings; however, because condominiums are owned individually as opposed to rental apartment buildings, each parcel corresponds to one dwelling unit. Similarly, the database did not include unit data for mobile home parks. The mobile home parks data was retrieved from the Florida Department of Health.[1]

- Second, each traditional school student living in Broward County was matched to the appropriate residential category, similar to the unit analysis. BCPS provided the geocoded student address database and through a GIS analysis, the student addresses were linked to the corresponding parcel ID in the BCPA database. This analysis includes an in-depth clean-up process to correct inaccurate links. For example, in some cases the student address point would show up in the roadway in front of the residential parcel and needed to be corrected to align with the appropriate parcel. Additionally, a number of students are located at parcels that do not include land use data or parcels with non-residential land use designation. Approximately 88% of the traditional school students that reside in Broward County were successfully linked to a parcel. Of these, students that are linked to non-residential or vacant property were excluded from the calculations to ensure residential land use categories are not overcharged. This 88% match rate is within the range of what is typically observed in other jurisdictions when conducting the same type of analysis and provides a reliable sample size to calculate student generation rates. Appendix C, Table C-1 provides additional detail.

- Lastly, the students and units were grouped into residential categories tiered by bedroom, and the number of students is divided by total units to determine the student generation rate.

Based on the results of this analysis, following observations and recommendations are made as part of this study:

- Because the bedroom data was not available for all residential parcels included in the BCPA database, the available information was supplemented by data from Broward County's POSSE permit and licensing database and from individual municipalities to

[1] www.floridahealth.gov

increase the sample of units with bedroom data. This process resulted in obtaining bedroom data for approximately 60% of the units built over the past seven years. See Appendix C, Table C-4 for more information. It is recommended that going forward, BCPA maintain the bedroom information.

- In the case of all homes, the Property Appraiser database does not include the number of floors for condominiums, which limits the ability of combining condominiums with other categories that are defined based on building height/floors. Floor data for newer condominiums was reviewed and it was determined that the current structure of placing condominiums units within the proper mid-rise of high-rise category was appropriate. It is recommended that the BCPA add the floor information to its database.

- The Broward County student generation rates are tiered based on the number of bedrooms, but the relationship between student generation rates and square footage was also reviewed. The results of this review (presented in Appendix C, Figures C-1 through C-4) illustrate that distinct SGR tiers are related to unit size. These tiers generally align with the bedroom tiers and confirm that charging "per bedroom" is reasonable and appropriate.

- Per legislative requirements, the recommended student generation rates reflect the most recent and localized data available.

Table 1 presents the recommended student generation rates for Broward County.

Table 1
Recommended Student Generation Rates
(Hybrid Method)

Dwelling Unit Type	Bedrooms	2017 Study
Single Family	3 or fewer	**0.368**
	4 or more	**0.500**
Townhouse, Duplex & Villa	2 or fewer	**0.200**
	3 or more	**0.300**
Garden Apartment	1 or fewer	**0.140**
	2 bedrooms	**0.200**
	3 or more	**0.240**
Mid-Rise	1 or fewer	**0.030**
	2 or more	**0.080**
High-Rise	Combined	**0.030**
Mobile Home	2 or fewer	**0.150**
	3 or more	**0.326**

Source: Appendix C, Table C-4 (Item 4)

Inventory

BCPS provides public education facilities that are available to all school-age residents of Broward County. As such, this study will consider all public elementary, middle, and high school level facilities and the students attending these facilities located throughout and living within Broward County. Currently, BCPS operates 236 traditional public schools. Of these, 222 traditional public schools were included in the impact fee calculations, as provided in Appendix A, Table A-1. The breakdown of these schools by school level is as follows:

- 135 elementary schools;
- 37 middle schools;
- 7 combination (or multi-level schools);
- 31 high schools; and
- 12 centers (multi-level).

In addition to these schools, BCPS also provides services for virtual schools, alternative education centers and adult education at buildings that are not owned by BCPS. These as well as charter schools are excluded from the impact fee calculations. Similarly, students attending non-traditional schools are also excluded from the student generation rate calculations.

Service Area and Enrollment

BCPS provides public education facilities for all school-age residents of Broward County. As such, this analysis includes all traditional public schools located throughout Broward County and operated by BCPS. Attendance boundaries can be redrawn to balance school enrollment with available school capacity and, therefore, can serve different geographic areas over time. In addition, the Florida Department of Education (DOE) has been increasing its support of Choice programs where students can attend schools outside of their designated attendance boundary. Therefore, school impact fee calculations are prepared on a countywide basis.

Table 2 presents student enrollment trends between 2001 and 2017. To be consistent with the inventory used in the impact fee analysis, the enrollment figures presented in this table only include those students attending the schools listed in Appendix A, Table A-1. In addition to the student enrollment, the annual percent change as well as a three-year average to account for any random fluctuations are presented. As shown, the traditional student enrollment within Broward County has remained stable for the past five years, averaging 223,000 students.

Table 2
Broward County Public Schools Enrollment Summary

Year	Enrollment[1]	Annual Percent Change[2]	Three Year Average[3]
2000-01	243,551	-	-
2001-02	251,382	3.2%	-
2002-03	253,959	1.0%	-
2003-04	257,937	1.6%	1.9%
2004-05	257,902	0.0%	0.9%
2005-06	254,676	-1.3%	0.1%
2006-07	244,733	-3.9%	-1.7%
2007-08	239,826	-2.0%	-2.4%
2008-09	234,833	-2.1%	-2.7%
2009-10	232,901	-0.8%	-1.6%
2010-11	230,749	-0.9%	-1.3%
2011-12	226,038	-2.0%	-1.2%
2012-13	222,972	-1.4%	-1.4%
2013-14	222,658	-0.1%	-1.2%
2014-15	223,224	0.3%	-0.4%
2015-16	223,231	0.0%	0.1%
2016-17	223,219	0.0%	0.1%

1) Source: Broward County Public Schools; includes only the students attending traditional schools as shown in Appendix A, Table A-1
2) Annual percentage change in traditional students (Item 1)
3) Average of the annual percent change (Item 2) for three consecutive years

Facility Service Delivery

Existing school facilities are used to measure the service delivery levels.

Table 3 illustrates the facility service delivery in Broward County based on the inventory of existing schools included Appendix A, Table A-1. Service delivery is measured in terms of Florida Inventory of School Houses (FISH) net permanent square footage per permanent station. As shown, the facility service delivery for elementary schools is 131.3 FISH net square feet per permanent student station, 137.3 FISH net square feet per permanent student station for middle schools, and 136.4 FISH net square feet per permanent student station for high schools. The weighted average FISH net square feet per permanent student station for all schools amounts to 134.2.

Table 3
Facility Service Delivery

Description	School Type			
	Elementary	Middle	High	Total
Net Permanent Square Footage[(1)]	15,095,485	7,515,915	10,425,633	33,037,033
Permanent Capacity[(1)]	114,932	54,751	76,439	246,122
Net Permanent Square Feet per Student Station[(2)]	131.3	137.3	136.4	134.2

1) Source: Table A-1, based on existing schools. Combination schools and center's figures are distributed amongst elementary, middle, and high school levels based on the distribution of 2016/17 enrollment by grade level.
2) Net permanent square footage divided by permanent capacity

Cost Component

The capital costs of providing educational facilities includes several components, such as the school facility cost, transportation cost, and ancillary facility costs. This section addresses each of these components.

Facility Cost per Student Station

The cost of a school includes various components, such as facility cost (buildings and land), transportation costs, and ancillary facility costs.

The first step in determining the cost of providing public schools in Broward County is to calculate the facility cost per student station. Several cost components must be considered when calculating the total cost of constructing a school, including architect/design, site improvement, construction, and furniture, fixtures, and equipment (FF&E) costs, and the cost of land. The facility cost per student station for each level of school is developed based on these cost components, which are described in more detail in the following subsections.

Construction, Non-Construction, and FF&E

To determine the architect/design, site improvement, construction, FF&E, and other costs associated with building a new school in Broward County, the following information was evaluated:

- Recently built schools in Broward County;
- Estimates obtained from architects/contractors who are involved in constructing schools in Broward, Palm Beach, and Miami-Dade counties;
- School cost information for other Florida counties; and
- Discussions with representatives from Broward County Public Schools.

Additionally, based on the comments received during the presentation of initial results, Tindale Oliver reviewed the cost of schools built by the BCPS going back ten years to 2006. The results of this review are included in Appendix B, Table B-2, which indicated higher cost levels than the initial estimates. During this time period, construction costs fluctuated significantly and at times were very high. Given these fluctuations and that the estimates included in the study are based on more current data that suggests lower costs, the initial

cost estimates (current proposed estimates) were found to be reasonable and maintained for impact fee calculation purposes.

Please refer to Appendix B for more detailed information on cost estimates.

Table 4 presents the cost per net square foot figures for the non-construction, construction, and FF&E cost components for each school level. For illustration purposes, Table 4 also presents the weighted average figure for each cost component, based on the distribution of the existing inventory.

Land Cost

For each school level, the land cost per net square foot is based on land value estimate of $215,000 per acre. This cost per acre is based on primarily on the following:

- A review of estimated land value of parcels that were dedicated to the School District over the past few years;
- A review of the current market value of land from the Property Appraiser database where the existing schools are located;
- An analysis of vacant residential land sales (non-BCPS purchases) in Broward County between 2013 and 2016 for parcels of similar size;
- An analysis of market value of vacant residential land from the Property Appraiser database for parcels of similar size to the current inventory; and
- Discussions with BCPS staff.

Appendix B documents the results of land value analysis in further detail. The estimated land cost per acre is converted to cost per net square foot based on the ratio of acres per 1,000 net square feet of the existing inventory of schools. The resulting land cost figures for each school level are also presented in Table 4.

Table 4
School Facility Cost per Student Station

Cost Component	Elementary School	Middle School	High School	Weighted Average
Existing Net Permanent Square Feet per Student Station[1]	131.3	137.3	136.4	134.2
Permanent Student Stations[2]	114,932	54,751	76,439	246,122
School Facility Cost Components				
Non-Construction Cost per Net Sq Ft[3]	$24.18	$27.56	$30.29	$26.88
Construction Cost per Net Sq Ft[4]	$186.00	$212.00	$233.00	$206.75
FF&E Cost per Net Sq Ft[5]	$14.88	$16.96	$18.64	$16.54
Land Cost per Net Sq Ft[6]	$21.93	$21.72	$24.94	$22.83
Total Facility Cost per Net Sq Ft[7]	$246.99	$278.24	$306.87	$273.00
Total Facility Cost per Student Station[8]	**$32,430**	**$38,202**	**$41,857**	**$36,642**

1) Source: Table 3
2) Source: Table 3
3) Estimated at 13% of construction cost based on estimates obtained from BCPS, discussions with architects/contractors, discussions with representatives from BCPS, and recent costs obtained from other Florida School Districts. See Appendix B for further detail.
4) Construction cost is estimated to range from $186 per net square foot to $233 per net square foot based on estimates obtained from BCPS, discussions with architects/contractors, discussions with representatives from BCPS, and recent costs obtained from other Florida School Districts. See Appendix B for further detail.
5) Estimated at 8% of construction cost based on estimates obtained from BCPS, discussions with architects/contractors, discussions with representatives from BCPS, and recent costs obtained from other Florida School Districts. See Appendix B for further detail.
6) The land cost per square foot for each school level is based on the acreage per 1,000 net square feet of existing schools listed in Appendix A, Table A-1 at a cost of $215,000 per acre. See Appendix B for further detail on land value estimates.
7) Sum of the school facility cost per net square foot (Items 3 through 6)
8) The net square feet per student station (Item 1) multiplied by the total school facility cost per net square foot (Item 7) for each respective school level. Weighted average is based on the current inventory distribution of permanent student stations for each school level (Item 2).

Weighted Average Total Facility Cost per Student by School Level

The total facility impact cost per student for each school level is based on the facility cost per student station figures derived in Table 4, and is typically calculated by multiplying the cost per student station by the number of total permanent stations and dividing by current student enrollment. This adjustment of dividing the cost per student station by the ratio of current student enrollment to available capacity converts the cost per student station to a cost per student. In addition, this calculation accounts for the current availability or shortage in permanent capacity and adjusts the costs accordingly. If there is available capacity (e.g., currently more permanent student stations than students), then the total facility cost per student increases to reflect that more than one station is being built for each student to allow for operational capacity. Similarly, if there are currently more students enrolled than available capacity, the cost per student is adjusted downward.

In the case of BCPS, on a districtwide basis, there is currently 10% to 13% available capacity depending on school level. This would suggest that BCPS is providing slightly more than one station per student. However, this availability represents a temporal fluctuation in service levels since the District's current practice calls for an enrollment to permanent capacity of 100 percent for all school levels. While the existing service level reflects the community's investment into educational facilities infrastructure, the adopted standard of 100 percent enrollment to permanent capacity reflects BCPS' intended service level in the future. As such, impact fee calculations use the 100 percent service level, which results in more conservative impact fee levels. As shown in Table 5, utilizing the existing service level results in an weighted average total facility impact cost per student of $40,280 versus $36,642 calculated using BCPS' intended service level of 100 percent.

It is important to note that in 2016, the Florida Legislature passed House Bill 7029, requiring that beginning July 1, 2017, schools districts may not use funds from any other sources for new construction of educational plant space that exceeds the statutory maximum cost per student station. The legislation also required the Office of Economic and Demographic Research (EDR) to conduct a study of the cost per student station. EDR report was completed in January 2017. The Florida Department of Education (FDOE) continued to use the indexed 2006 construction cost figures until January 1, 2020. By January 2020, the FDOE will develop a revised statewide average construction cost per station, which will be indexed going forward. FDOE will collaborate with EDR to select an industrywide accepted construction cost index.

Table 5
Weighted Facility Impact Cost per Student

Calculation Step	Elementary School	Middle School	High School	Weighted Average/ Total
Facility Impact Cost per Student				
Facility Cost per Permanent Student Station[(1)]	$32,430	$38,202	$41,857	$36,642
2016-2017 Student Enrollment[(2)]	102,924	47,752	72,543	223,219
Existing Permanent Capacity[(3)]	114,932	54,751	76,439	246,122
Achieved Service Level (Ratio of Enrollment to Permanent Capacity)[(4)]	90%	87%	95%	91%
Targeted Service Level (Enrollment to Permanent Capacity)[(5)]	100%	100%	100%	N/A
Total Facility Impact Cost per Student - Using Achieved Service Level[(6)]	$36,033	$43,910	$44,060	$40,278
Total Facility Impact Cost per Student - Using Targeted Service Level[(7)]	**$32,430**	**$38,202**	**$41,857**	**$36,642**

1) Source: Table 4
2) Source: Broward County Public Schools
3) Source: Table 3
4) Student enrollment (Item 2) divided by existing permanent capacity (Item 3)
5) Source: Broward County Public Schools
6) Facility cost per student station (Item 1) divided by the achieved ratio of enrollment to permanent capacity (Item 4)
7) Facility cost per student station (Item 1) divided by the targeted service level (Item 5)

Total Cost per Student

In addition to the facility cost per student calculated in Table 5, the total facility cost per student includes two additional cost components: the capital costs associated with providing transportation services and ancillary facilities. Both of these cost components are calculated on a per-student basis and are not dependent on school level. Each of these additional cost components is discussed in further detail below.

Transportation Costs

The first additional cost component is the cost of providing transportation to students. BCPS currently owns 1,301 buses. Based on information provided by the BCPS staff, the current cost of a bus averages $101,000, which is within the range of school bus cost observed in other jurisdictions. In addition to buses, BCPS owns and operates 888 vehicles that are part of the "white fleet," which includes vehicles such as vans, trucks, and trailers. The average cost of the white fleet was estimated by the BCPS staff at approximately $32,000 per vehicle. The result is a total fleet value of $159.9 million; $28.2 million of which is for the white fleet and $131.7 million is for buses. The total value of the transportation fleet was then divided by the 2016/2017 student enrollment. As shown in Table 6, the total transportation services cost per student amounts to $716.

Ancillary and Administrative Facilities Costs

The other capital cost component is for the ancillary facilities that are necessary for the District to provide support services for students, schools, transportation services, and administrative personnel. BCPS currently has approximately 1.2 million net square feet of ancillary facilities for transportation, maintenance, warehouse, and administrative functions. Based primarily upon a review of cost information from other school districts throughout Florida, an estimated value of $200 per net square foot is used, which results in total building value of approximately $238.8 million.

The cost of land for ancillary facilities also is included in the ancillary facility values. The land value for ancillary facilities is the same as that used for schools ($215,000 per acre), which results in total land value of approximately $42.4 million.

As presented in Table 6, the total ancillary facility cost per student totals $1,260, which is calculated by dividing the total ancillary facility value by the 2016/2017 student enrollment.

Table 6
Transportation and Ancillary Facility Cost per Student

Description	Figure
Transportation Services Cost per Student	
Total Current Value of Transportation Services[(1)]	$159,916,950
2016/2017 Enrollment [(2)]	223,219
Total Transportation Services Cost per Student[(3)]	**$716**
Ancillary Facility Cost per Student	
Building Value for Ancillary Facilities[(4)]	$238,824,000
Land Value for Ancillary Facilities[(5)]	$42,355,000
Total Current Value for Ancillary Facilities[(6)]	$281,179,000
Total Ancillary Facility Cost per Student[(7)]	**$1,260**

1) Source: Broward County Public Schools
2) Source: Table 2
3) Total current value of transportation services (Item 1) divided by the current enrollment (Item 2)
4) Square footage inventory obtained from Broward County Public Schools multiplied by $200 per net square foot based on ancillary facility costs reported by other school districts throughout Florida
5) Acreage obtained from Broward County Public Schools multiplied by $215,000 per acre (please see Appendix B for further explanation on this unit cost)
6) Sum of the building value (Item 4) and land value (Item 5) of the District's current inventory of ancillary facilities
7) Total value for ancillary facilities (Item 6) divided by the current enrollment (Item 2)

Credit Component

To ensure that new residential development is not being overcharged for the capital costs associated with new public schools, a credit for non-impact fee revenue generated by new development that is used towards capital expansion of school facilities must be considered in the credit component of the school impact fee. A credit for school impact fees is not given for revenue generated by new development that is used for capital renovation of existing education facilities or for maintenance and operational costs, as these costs are not included in the calculations of impact fees and impact fee revenues can only be used for new capacity and related capacity expansion projects.

Based upon a review of the capacity addition expenditures planned over the next five years, it has been determined that, in addition to impact fees, BCPS uses primarily capital millage, along with a limited amount of other local, state, and federal revenues to fund the capital expansion of school facilities. Also, because the District has previously utilized Certificates of Participation (COPs) for capacity expanding projects, a credit for the remaining debt service payments is also given.

Capital Improvement "Cash" Credit

The School Board of Broward County, Florida has the authority to levy up to 1.5 mils of the countywide ad valorem tax to generate revenue for education. In Broward County, the current millage rate is equal to the 1.5-mil maximum, which is the primary revenue source for programmed capacity projects over the next five years. In addition to the capital improvement tax, BCPS uses other local funds as well as state and federal revenues to fund the capital expansion of public schools in Broward County.

As shown in Table 7, BCPS programmed approximately $398.5 million over the next five years for capacity projects. To calculate the revenue credit per student, the average annual appropriations (approximately $80 million) is divided by the average annual enrollment for the same time period (approximately 224,000 students). As shown, this credit amounts to $356 per student per year.

Once the capital improvement credit per student is calculated, an adjustment is made to account for the fact that new homes tend to pay higher property taxes. This adjustment factor was estimated based on a comparison of the average taxable value per square foot of newer

homes to that of all homes. As shown in Table 7, this adjusted credit amounts to $513 per student per year.

Finally, the total credit over a 25-year period, which is considered to be the time frame when major repairs or replacements are needed for structures built, is calculated at $8,007 per student.

Table 7
Capital Improvement Credit per Student

Expenditure	Total (FY 2017-21)
Ad Valorem, State, and Federal Revenues [1]	
Educational Facilities	$398,471,236
Average Annual Expenditures[2]	$79,694,247
Average Annual Enrollment[3]	223,889
Revenue Credit per Student[4]	**$355.95**
- Portion Funded with Ad Valorem Tax Revenues[5]	$313.24
- Portion Funded with Other Revenues[6]	$42.71
Credit Adjustment Factor[7]	1.50
Adjusted Revenue Credit per Student (Ad Valorem Portion Only)[8]	$469.86
Total Adjusted Revenue Credit per Student[9]	**$512.57**
Capitalization Rate[10]	4.00%
Capitalization Period, Years[11]	25
Present Value of Capital Improvement Revenue Credit per Student[12]	**$8,007**

1) Source: Broward County District Educational Facilities Plan, Fiscal Years 2016-17 to 2020-21
2) Total expenditures divided by 5 to calculate the average annual expenditure
3) Source: Estimated average annual enrollment over the next 5 years based on enrollment trends shown in Table 2
4) Average annual expenditures (Item 2) divided by the average annual enrollment (Item 3)
5) Portion of the revenue credit per student funded with ad valorem tax revenues (88%)
6) Revenue credit per student (Item 4) less the portion funded with ad valorem tax revenues (Item 5)
7) Adjustment factor to reflect higher ad valorem taxes paid by new homes
8) Revenue credit per student funded with ad valorem tax revenues (Item 5) multiplied by the credit adjustment factor (Item 7)
9) Sum of the revenue credit per student funded with other revenues (Item 6) and the adjusted revenue credit per student (Item 8)
10) Interest rate the District is likely to pay for future bonds, estimated based on interest rate on recent COPs issues
11) Time period after which major repairs are needed
12) Present value of the total adjusted revenue credit per student (Item 9) at 4.00% interest rate (Item 10) over a 25-year capitalization period (Item 11)

Debt Service Credit per Student

As mentioned previously, BCPS has utilized COPs to pay for a portion of the capacity expansion projects, and given that there is still an outstanding debt service, a credit is calculated for the future payments related to capacity expansion projects. In addition to impact fees, the District uses primarily ad valorem revenues to pay the debt service.

It is important to note that many communities use impact fee revenues to pay debt service associated with capacity addition projects. Given the high cost of adding school capacity, it is common to fund new schools through issuance of bonds/COPs as opposed to cash payments to ensure the necessary capacity can be built in a timely manner and is available for additional students. Use of impact fees for the payment of debt service is similar to building school capacity with cash payments of impact fee revenues. In both cases, impact fee revenues are used to fund new/additional capacity. However, stations that were built with bonds that are to be repaid with impact fee revenue are excluded from the impact fee calculations, which further supports the ability to use impact fee revenues to pay debt service associated with capacity addition projects.

To calculate the debt service credit per student, the remaining payments were brought back to present value, based on the number of years and annual interest rate of each COP issue. Once the present value of remaining payments is calculated, each debt issue is divided by the average annual enrollment for the time period remaining.

Similar to the capital improvement credit, the portion of the debt service credit per student paid back with ad valorem tax revenues (99% of the non-impact funding) is adjusted to account for the fact that newer homes tend to pay higher property taxes than older homes. As presented in Table 8, the adjusted total debt service credit per student amounts to $6,022.

Table 8
Debt Service Credit per Student

Description	Funding Source[1]	Number of Years of Remaining Payments[1]	Remaining Payments Due for Expansion[1]	Present Value of Total Remaining Payments[2]	Average Annual Enrollment[3]	Debt Service Credit per Student[4]
Certificates of Participation						
Series 2004A	Ad Valorem Tax	1	$5,719,385	$5,719,385	223,219	$26
Series 2004B	Ad Valorem Tax	1	$11,694,938	$11,694,938	223,219	$52
Series 2007A	Ad Valorem Tax	1	$5,077,332	$5,077,332	223,219	$23
Series 2008A	Ad Valorem Tax	2	$8,159,583	$7,987,672	223,331	$36
Series 2009A - QSCB	AdVal/Other	18	$30,116,608	$18,317,195	225,126	$81
Series 2010A	AdVal/Other	11	$15,416,916	$9,590,340	224,338	$43
Series 2011A	Ad Valorem Tax	8	$164,115,392	$138,413,188	224,002	$618
Series 2012A	Ad Valorem Tax	12	$260,735,803	$202,723,421	224,451	$903
Series 2012B	Ad Valorem Tax	5	$30,773,583	$29,279,288	223,666	$131
Series 2014A	Ad Valorem Tax	13	$122,780,783	$91,572,981	224,563	$408
Series 2015A	Ad Valorem Tax	14	$235,144,231	$170,513,343	224,675	$759
Series 2015B	Ad Valorem Tax	16	$118,604,346	$81,781,434	224,901	$364
Series 2015C	Ad Valorem Tax	15	$68,327,249	$44,325,743	224,788	$197
Series 2016A	Ad Valorem Tax	17	$122,078,668	$84,777,117	225,013	$377
Series 2016B	AdVal/Other	11	$4,916,387	$3,434,688	224,338	$15
Total Debt Service Credit per Student						**$4,033**
- Portion Funded with Ad Valorem Tax Revenues[5]						$3,978
- Portion Funded with Non-Ad Valorem Tax Revenues[6]						$55
Credit Adjustment Factor[7]						1.50
Adjusted Credit per Student (Ad Valorem Portion ONLY)[8]						$5,967
Adjusted Total Debt Service Credit per Student[9]						**$6,022**

1) Source: Broward County Public Schools
2) Present value of the total remaining payments due, based on the interest rate of each payment and the number of years of remaining payments
3) Source: Estimated average annual enrollment over the life of remaining payments. Future year enrollment is estimated based on enrollment trends shown in Table 2.
4) Present value of total remaining payments (Item 2) divided by the average annual enrollment over the life of the remaining payments (Item 3)
5) Portion of the total debt service credit per student funded with ad valorem tax revenues (99%)
6) Portion of the total debt service credit per student funded with non-ad valorem revenues
7) Adjustment factor to reflect higher ad valorem taxes paid by new homes
8) Portion of the total debt service credit per student funded with ad valorem tax revenues (Item 5) multiplied by the credit adjustment factor (Item 7)
9) Adjusted credit per student (Item 8) plus the portion of the total debt service funded with non-ad valorem tax revenues (Item 6)

Net Impact Cost per Student

The net impact cost per student is the difference between the cost component and the credit component. Table 9 summarizes the three-step process used to calculate the net impact cost per student for public schools in Broward County.

First, the total impact cost per student is determined, which is the sum of the weighted average facility impact cost per student from Table 5 and the transportation and ancillary facility cost components per student from Table 6. As previously mentioned, the transportation and ancillary cost components are calculated on a per-student basis and do not differ by school level or by type of residential category.

Second, the total revenue credit per student is determined. This is the sum of the capital improvement credit per student and the debt service credit per student found in Tables 7 and 8.

Third, the net impact cost per student is determined, which is the difference between the total impact cost per student and total revenue credit per student and is calculated at $24,589 per student.

Table 9
Net Impact Cost per Student

Total Impact Cost	Per Student
Facility Impact Cost[1]	$36,642
Transportation Impact Cost[2]	$716
Ancillary Facility Cost[3]	$1,260
Total Impact Cost[4]	**$38,618**
Revenue Credit	**Per Student**
Capital Improvement Credit[5]	$8,007
Debt Service Credit[6]	$6,022
Total Revenue Credit[7]	**$14,029**
Net Impact Cost	**Per Student**
Net Impact Cost[8]	**$24,589**

1) Source: Table 5
2) Source: Table 6
3) Source: Table 6
4) Sum of the total facility impact cost per student (Item 1), transportation impact cost per student (Item 2), and ancillary facility cost per student (Item 3)
5) Source: Table 7
6) Source: Table 8
7) Sum of the capital improvement credit per student (Item 5) and the debt service credit per student (Item 6)
8) Total impact cost per student (Item 4) less the total revenue credit per student (Item 7)

Calculated School Impact Fee Schedule

To determine the calculated school impact fee for each residential category, the net impact cost per student from Table 9 was multiplied by the SGR from Table 1. The resulting net impact fees are presented in Table 10 along with the current adopted fees.

Table 10
Calculated School Impact Fee Schedule

Dwelling Unit Type	Bedrooms	Total Students per Unit[1]	Net Impact Cost per Student[2]	Total Impact Fee[3]	Current Adopted Fee[4]
Single Family	3 or fewer	0.368	$24,589	**$9,049**	$6,888
	4 or more	0.500	$24,589	**$12,295**	$8,656
Townhouse, Duplex & Villa	2 or fewer	0.200	$24,589	**$4,918**	$3,974
	3 or more	0.300	$24,589	**$7,377**	$6,741
Garden Apartment	1 or fewer	0.140	$24,589	**$3,442**	$375
	2 bedrooms	0.200	$24,589	**$4,918**	$4,393
	3 or more	0.240	$24,589	**$5,901**	$7,980
Mid-Rise	1 or fewer	0.030	$24,589	**$738**	$293
	2 or more	0.080	$24,589	**$1,967**	$1,153
High-Rise	Combined	0.030	$24,589	**$738**	$361
Mobile Home	2 or fewer	0.150	$24,589	**$3,688**	$3,103
	3 or more	0.326	$24,589	**$8,016**	$6,764

1) Source: Table 1
2) Source: Table 9
3) Total students per unit (Item 1) multiplied by the net impact cost per student (Item 2)
4) Source: Broward County Planning and Development Management Division; fees are reviewed annually for potential indexing.

Table 11 provides a comparison of fees calculated in the last two studies to the calculated fees shown in Table 10. As presented, the fees fluctuated significantly historically for certain categories due primarily to small sample sizes used to estimate SGR.

Table 11
Calculated School Impact Fee Comparison

Dwelling Unit Type	Bedrooms	2007 Report[1]	Current Adopted[2]	2017 Calculated[3]	%Δ Adopted to 17[4]	%Δ 07 to Adopted[5]	%Δ 07 to 17[6]
Single Family	3 or fewer	$6,267	$6,888	**$9,049**	31%	10%	44%
	4 or more	$9,116	$8,656	**$12,295**	42%	-5%	35%
Townhouse, Duplex & Villa	2 or fewer	$2,125	$3,974	**$4,918**	24%	87%	131%
	3 or more	$4,937	$6,741	**$7,377**	9%	37%	49%
Garden Apartment	1 or fewer	$1,906	$375	**$3,442**	818%	-80%	81%
	2 bedrooms	$3,352	$4,393	**$4,918**	12%	31%	47%
	3 or more	$4,415	$7,980	**$5,901**	-26%	81%	34%
Mid-Rise	1 or fewer	$811	$293	**$738**	152%	-64%	-9%
	2 or more	$811	$1,153	**$1,967**	71%	42%	143%
High-Rise	Combined	$71	$361	**$738**	104%	408%	939%
Mobile Home	2 or fewer	$2,814	$3,103	**$3,688**	19%	10%	31%
	3 or more	$6,132	$6,764	**$8,016**	19%	10%	31%

1) Source: Student Generation Rate/School Impact Fee Study Countywide; June 16, 2014
2) Source: Broward County Planning and Development Management Division; fees are reviewed annually for potential indexing.
3) Source: Table 10
4) Percent change from the current adopted impact fee (Item 2) to the calculated impact fee (Item 3)
5) Percent change from the 2007 study impact fee (Item 1) to the adopted impact fee (Item 2)
6) Percent change from the 2007 study impact fee (Item 1) to the calculated impact fee (Item 3)

Capping Fee Increases

Broward County recommended limiting the increase to an appropriate percentage for all categories given the concerns related to housing affordability, among others. Based on discussions with the County and School Board staff, several cap options were tested, including a 75%- and a 49%-cap. These caps affect the following residential categories, which were subject to an increase ranging from 71% to 818%:

- Garden apartments (1 or fewer bedroom tier)
- Mid-rise (both tiers)
- High-rise

Tindale Oliver recommends the following process to help achieve this goal.

1. The School Board and the County should document the importance of these residential categories in relation to the County's affordable housing / workforce housing goals. The Board of County Commissioners recently adopted the BrowardNEXT update to the Broward County Land Use Plan, which includes policies

to increase the supply of affordable housing. In addition, the School Board has in place an Affordable Housing Waivers program with an annual funding allocation of $375,000. This program was recently expanded to include both low and very-low income affordable housing projects, doubled the "per-project" maximum dollar amount to $50,000, and increased the redemption of fee waiver period from 30 days to 60 days. Limiting the increase in multifamily housing categories listed above would be supportive of these policies and initiatives.

2. To comply with legal requirement of protecting the equity among residential categories, the additional fee reduction offered to select residential categories should not prevent the School Board from providing the infrastructure the remaining categories paid for. Given this, it is possible to provide differential discounts under two conditions:

    a. The School Board or the County uses general tax revenue to make up for the differential revenue so that impact fee program remains whole. Recently approved House Bill 7103 provides an exception to this requirement for impact fee discounts or waivers given to affordable housing projects.

    b. The reduced revenue amount is considered "de-minimis" in terms of impact on total revenues and this additional discount does not affect the program adversely. As a general rule of thumb, if the revenue reduction due to the discounted rates is less than 5% of total impact fee revenues, the impact of offering differential discount is considered to be de-minimis. Tindale Oliver calculated revenue loss due to capping the increase for the four residential categories listed previously. Based on permitting levels over the past seven years, the revenue loss amounted to approximately 1.5% to 2.3%. These calculations, shown in Appendix D, were reviewed and concurred by the School Board's Chief Financial Officer.

3. If the School Board and the County decide to proceed with this program, it is important that revenue reduction due to this cap be reviewed annually to ensure it remains de-minimis. If the revenue loss exceeds 5% of total revenues, either an adjustment to the fee level/cap should be made, which reduces the loss below the 5% threshold or the amount above the 5% should be paid back from other revenue sources.

Table 12 provides a comparison of the fully calculated fee for each residential category against the 75-percent capped fees and the 49-percent capped fees.

Table 12
Broward County School Impact Fees at 75% Cap and 49% Cap

Dwelling Unit Type	Bedrooms	Full Calculated Rate[1]	Calculated Rate Capped @75% Increase[2]	Calculated Rate Capped @49% Increase[3]
Single Family	3 or fewer	**$9,049**	**$9,049**	**$9,049**
	4 or more	**$12,295**	**$12,295**	**$12,295**
Townhouse, Duplex & Villa	2 or fewer	**$4,918**	**$4,918**	**$4,918**
	3 or more	**$7,377**	**$7,377**	**$7,377**
Garden Apartment	1 or fewer	**$3,442**	**$656**	**$559**
	2 bedrooms	**$4,918**	**$4,918**	**$4,918**
	3 or more	**$5,901**	**$5,901**	**$5,901**
Mid-Rise	1 or fewer	**$738**	**$513**	**$437**
	2 or more	**$1,967**	**$2,018**	**$1,718**
High-Rise	Combined	**$738**	**$632**	**$538**
Mobile Home	2 or fewer	**$3,688**	**$3,688**	**$3,688**
	3 or more	**$8,016**	**$8,016**	**$8,016**

1) Source: Table 10
2) Updated impact fee rate with a capped increase of 75% from the current adopted fee, Appendix D, Table D-1
3) Updated impact fee rate with a capped increase of 49% from the current adopted fee, Appendix D, Table D-2

Table 13 summarizes the 49-percent capped fees.

Table 13
Recommended Broward County
School Impact Fees at 49% Cap

Dwelling Unit Type	Bedrooms	Calculated Rate Capped @49% Increase
Single Family	3 or fewer	**$9,049**
	4 or more	**$12,295**
Townhouse, Duplex & Villa	2 or fewer	**$4,918**
	3 or more	**$7,377**
Garden Apartment	1 or fewer	**$559**
	2 bedrooms	**$4,918**
	3 or more	**$5,901**
Mid-Rise	1 or fewer	**$437**
	2 or more	**$1,718**
High-Rise	Combined	**$538**
Mobile Home	2 or fewer	**$3,688**
	3 or more	**$8,016**

Source: Table 12, Item 3

School Impact Fee Schedule Comparison

Approximately 40% of Florida counties implemented a school impact fee.

As part of the work effort in updating Broward County's schools impact fee program, Table 14 presents a comparison of the adopted and calculated single family school impact fee for Broward County to the single family school impact fees adopted by other counties throughout Florida. The impact fee adoption percentage and the full rate are also shown based on available information.

Table 14
School Impact Fee Schedule Comparison

County[1]	Date of Last Update[2]	Adoption Percent[2]	Adopted Single Family Fee[2]	Single Family Fee @ 100%[3]
Miami-Dade County	1995	100%	$2,448	$2,448
Citrus County	2014	50%	$1,261	$2,522
Nassau County	2011	100%	$3,268	$3,268
Hillsborough County	2004	92%	$4,000	$4,348
Volusia County	2013	67%	$3,000	$4,483
Lee County	2015	45%	$2,043	$4,540
Flagler County	2004	76%	$3,600	$4,756
St. Lucie County[4]	2009	100%	$6,269	$5,447
Martin County	2006	100%	$5,567	$5,567
St. Johns County[4]	2010	100%	$6,581	$5,779
Indian River County	2014	28%	$1,702	$6,077
Manatee County[5]	2017	100%	$6,127	$6,127
Broward County (Current Adopted Fee)[6]	**2014**	**100%**	**$6,558**	**$6,558**
Hernando County	2013	30%	$2,133	$7,103
Marion County[4]*	2006	48%	$3,967	$7,375
Sarasota County	2015	26%	$2,032	$7,835
Palm Beach County[7]	2015	N/A	$1,866	$7,981
Orange County	2016	100%	$8,784	$8,784
Pasco County[8]	2017	79%	$7,128	$9,028
Broward County (Calculated Fee)[9]	**2017**	**N/A**	**N/A**	**$9,049**
Clay County	2009	77%	$7,034	$9,096
Lake County	2015	100%	$9,324	$9,324
Osceola County	2014	100%	$10,187	$10,187
Brevard County	2015	50%	$5,097	$10,193
Polk County	2015	50%	$5,242	$10,483
Collier County[4]	2015	67%	$7,710	$11,164
Seminole County[7]	2017	N/A	$5,000	$12,230

1) County's tagged with an asterisk (*) have fees that are currently suspended
2) Source: Published impact fee schedules and discussions with representatives from each County
3) Represents the full calculated fee from each respective technical study
4) Fees adjusted annually based on an index
5) Rates shown go into effect on November 13, 2017
6) Adopted impact fee shown is for the 3 or fewer bedrooms.
7) Rates shown under Single Family Impact Fee at 100% (Item 3) reflect most recent on-going technical study
8) Rates shown go into effect on January 1, 2018
9) Source: Table 10; 3 or fewer bedrooms option shown

Summary of Recommendations

The primary recommendations included in this study related to the student generation rate calculations and the approach to capping the fee increase for select residential categories. In terms of the student generation rate calculations, Tindale Oliver recommends using the hybrid method developed in this study, followed by the data from All Homes. The hybrid method incorporates all available data while still trying to be sensitive to changes reflected by new home data.

Therefore, the recommended student generation rates are as depicted in Table 1, and the recommended school impact fee rates are as depicted in Table 13.

In addition, it is recommended that the Broward County Property Appraiser keep track of number of floors in condominium buildings and the number of bedrooms in all units. In terms of capping the fee increase for select residential categories, it is important to establish whether the result is de-minimis in terms of impact fee revenue loss from these categories. If not, the differential should be bought down with general tax revenues. In addition, it is important to keep track of revenue impact of capping select categories on an annual basis.

Appendix A
Broward County Public Schools Inventory

Appendix A – Inventory

This Appendix includes an inventory of traditional schools that are owned and operated by BCPS and included in the impact fee calculations.

Table A-1
Broward County Public Schools Inventory [1]

Number	Schools	Year Acquired	Grade	Acreage	Permanent Capacity	FISH Permanent Net Square Footage
Elementary Schools						
1	Atlantic West	1973	PK 05	8	759	84,701
2	Banyan	1970	PK 05	10	747	88,989
3	Bayview	1957	PK 05	2	572	71,788
4	Bennett	1948	PK 05	8	542	80,616
5	Bethune, Mary M.	1959	PK 05	18	1,106	138,680
6	Boulevard Heights	1958	PK 05	10	812	120,614
7	Broadview	1960	PK 05	10	926	96,384
8	Broward Estates	1955	PK 05	10	695	97,600
9	Castle Hill	1963	PK 05	9	533	87,249
10	Central Park	1974	PK 05	13	939	123,809
11	Challenger	1999	PK 05	8	1,000	129,308
12	Chapel Trail	1981	PK 05	10	1,054	131,177
13	Coconut Creek	1962	PK 05	10	737	81,292
14	Coconut Palm	1999	PK 05	12	820	109,440
15	Colbert	1949	PK 05	10	812	130,180
16	Collins	1957	PK 05	10	371	49,663
17	Cooper City	1960	PK 05	10	701	99,093
18	Coral Cove	1999	PK 05	12	830	112,106
19	Coral Park	1986	PK 05	11	705	111,764
20	Country Hills	1988	PK 05	15	849	109,266
21	Country Isles	1981	PK 05	9	980	129,178
22	Cresthaven	1957	PK 05	10	705	108,458
23	Croissant Park	1943	PK 05	12	802	100,810
24	Cypress	1968	PK 05	13	873	112,118
25	Dania	1912	PK 05	7	569	101,890
26	Davie	1962	PK 05	9	741	85,428
27	Deerfield Beach	1924	PK 05	14	611	117,084
28	Deerfield Park	1949	PK 05	11	804	108,123
29	Dillard	1948	PK 05	10	759	116,292
30	Discovery	2007	PK 05	15	942	121,733
31	Dolphin Bay	2000	PK 05	12	830	117,744
32	Drew	1989	PK 05	15	631	90,357
33	Driftwood	1957	PK 05	8	558	80,701
34	Eagle Point	1994	PK 05	12	1,228	157,859
35	Eagle Ridge	1993	PK 05	12	872	129,983
36	Embassy Creek	1991	PK 05	14	1,087	129,856
37	Endeavour Primary Learning Ctr	1991	PK 03	12	468	55,310
38	Everglades	1980	PK 05	10	1,060	141,302
39	Fairway	1966	PK 05	11	970	124,758
40	Flamingo	1974	PK 05	14	613	87,649
41	Floranada	1958	PK 05	11	814	113,410
42	Forest Hills	1974	PK 05	8	795	84,170
43	Foster, Stephen	1957	PK 05	9	743	82,499
44	Fox Trail	1994	PK 05	25	1,178	143,886
45	Gator Run	1996	PK 05	12	1,140	130,038
46	Griffin	1978	PK 05	10	615	88,741
47	Harbordale	1953	PK 05	4	480	67,550
48	Hawkes Bluff	1988	PK 05	12	852	102,855
49	Heron Heights	2006	PK 05	12	942	121,733
50	Hollywood Central	1926	PK 05	7	687	123,320
51	Hollywood Hills	1926	PK 05	12	768	112,703
52	Hollywood Park	1969	PK 05	12	593	80,690
53	Horizon	1973	PK 05	8	663	79,469
54	Hunt, James	1969	PK 05	13	841	104,054
55	Indian Trace	1990	PK 05	12	669	99,829
56	King, Dr. Martin Luther Jr. Montessori Academy	1965	PK 05	11	809	104,506
57	Lake Forest	1957	PK 05	11	714	109,098
58	Lakeside	1996	PK 05	12	744	111,459
59	Larkdale	1957	PK 05	10	623	74,763
60	Lauderhill, Paul Turner	1960	PK 05	11	872	125,658
61	Liberty	2001	PK 05	12	1,260	139,001
62	Lloyd Estates	1958	PK 05	8	593	82,022
63	Manatee Bay	2001	PK 05	7	1,140	136,843
64	Maplewood	1977	PK 05	11	813	83,589

Table A-1 (Continued)
Broward County Public Schools Inventory [1]

Number	Schools	Year Acquired	Grade	Acreage	Permanent Capacity	FISH Permanent Net Square Footage
Elementary Schools						
65	Margate	1959	PK 05	11	1,305	158,898
66	Markham, Robert C	1966	PK 05	9	637	85,301
67	Marshall, Thurgood	1991	PK 05	8	781	95,689
68	McNab	1957	PK 05	10	677	104,253
69	Meadowbrook	1957	PK 05	15	701	103,305
70	Miramar	1956	PK 05	10	929	123,557
71	Mirror Lake	1968	PK 05	13	679	96,475
72	Morrow	1976	PK 05	10	831	91,474
73	Nob Hill	1974	PK 05	8	723	75,660
74	Norcrest	1955	PK 05	10	921	143,999
75	North Andrews Gardens	1956	PK 05	10	813	109,783
76	North Fork	1960	PK 05	10	713	85,831
77	North Side	1926	PK 05	5	608	74,193
78	Nova, Blanche Forman	1962	PK 05	10	769	78,920
79	Nova D Eisenhower	1962	PK 05	10	777	91,070
80	Oakland Park	1924	PK 05	7	840	87,616
81	Oakridge	1958	PK 05	8	605	85,264
82	Orange Brook	1956	PK 05	9	830	113,512
83	Oriole	1968	PK 05	9	722	90,234
84	Palm Cove	1985	PK 05	12	871	121,715
85	Palmview	1959	PK 05	10	665	90,940
86	Panther Run	1996	PK 05	12	778	109,668
87	Park Lakes	1999	PK 05	15	1,214	121,382
88	Park Ridge	1969	PK 05	10	546	80,669
89	Park Springs	1989	PK 05	12	1,189	135,762
90	Park Trails	2000	PK 05	12	1,276	139,246
91	Parkside	1996	PK 05	10	980	123,269
92	Pasadena Lakes	1970	PK 05	10	710	91,531
93	Pembroke Lakes	1974	PK 05	8	653	98,478
94	Pembroke Pines	1960	PK 05	9	599	101,560
95	Peters	1958	PK 05	11	629	98,314
96	Pines Lakes	1978	PK 05	10	927	112,764
97	Pinewood	1978	PK 05	10	836	84,154
98	Plantation	1999	PK 05	12	814	114,255
99	Plantation Park	1960	PK 05	10	579	71,445
100	Pompano Beach	1958	PK 05	19	571	90,329
101	Quiet Waters	1988	PK 05	23	1,366	154,256
102	Ramblewood	1975	PK 05	10	985	98,544
103	Riverglades	1979	PK 05	10	669	102,734
104	Riverland	1948	PK 05	10	633	102,281
105	Riverside	1986	PK 05	10	731	107,079
106	Rock Island	1999	PK 05	14	580	95,818
107	Royal Palm	1970	PK 05	12	874	120,197
108	Sanders Park	1958	PK 05	12	661	80,654
109	Sandpiper	1986	PK 05	14	909	125,922
110	Sawgrass	1991	PK 05	12	1,184	128,120
111	Sea Castle	1989	PK 05	12	1,034	120,101
112	Sheridan Hills	1969	PK 05	7	607	82,939
113	Sheridan Park	1966	PK 05	13	810	115,742
114	Silver Lakes	1996	PK 05	12	778	110,310
115	Silver Palms	1995	PK 05	14	816	112,299
116	Silver Ridge	1987	PK 05	13	882	135,459
117	Silver Shores	2000	PK 05	12	820	109,372
118	Stirling	1957	PK 05	9	701	96,609
119	Sunland Park Academy	1957	PK 03	4	480	82,563
120	Sunset Lakes	1996	PK 05	12	1,300	151,903
121	Sunshine	1961	PK 05	9	803	101,443
122	Tamarac	1974	PK 05	8	1,290	137,424
123	Tedder	1957	PK 05	12	1,240	136,308
124	Tradewinds	1995	PK 05	17	1,214	146,358
125	Tropical	1956	PK 05	10	932	136,135
126	Village	1967	PK 05	12	870	132,158
127	Walker	1933	PK 05	10	1,017	159,841
128	Watkins	1954	PK 05	10	814	108,966

Table A-1 (Continued)
Broward County Public Schools Inventory [1]

Number	Schools	Year Acquired	Grade	Acreage	Permanent Capacity	FISH Permanent Net Square Footage
Elementary Schools						
129	Welleby	1978	PK 05	13	791	99,593
130	West Hollywood	1948	PK 05	11	597	101,714
131	Westchester	1975	PK 05	10	1,038	104,564
132	Westwood Heights	1956	PK 05	9	783	120,342
133	Wilton Manors	1948	PK 05	8	615	95,094
134	Winston Park	1988	PK 05	12	1,191	120,630
135	Young Virginia Shuman	1936	PK 05	8	687	104,785
	Subtotal - Elementary Schools			**1,464**	**110,361**	**14,491,010**
Middle Schools						
1	Apollo	1969	06 08	15	1,241	158,440
2	Attucks	1941	06 08	24	1,227	169,937
3	Bair	1973	06 08	10	1,198	153,407
4	Coral Springs	1973	06 08	19	1,899	207,745
5	Crystal Lake	1970	06 08	14	1,365	151,418
6	Dandy, William	1958	06 08	19	1,133	180,410
7	Deerfield Beach	1958	06 08	32	1,403	181,798
8	Driftwood	1957	06 08	22	1,670	183,719
9	Falcon Cove	1996	06 08	21	1,319	202,781
10	Forest Glen	1987	06 08	20	1,625	208,966
11	Glades	2000	06 08	20	1,842	232,535
12	Indian Ridge	1994	06 08	26	1,718	229,666
13	Lauderdale Lakes	1968	06 08	14	926	140,666
14	Lyons Creek	1990	06 08	22	1,901	234,216
15	Margate	1955	06 08	23	1,308	167,766
16	McNicol	1953	06 08	12	1,303	200,437
17	Millennium	1999	06 08	11	1,618	210,054
18	New Renaissance	1999	06 08	20	1,547	194,973
19	New River	1958	06 08	18	1,374	201,707
20	Nova	1962	06 08	14	1,245	143,441
21	Olsen	1953	06 08	20	1,125	248,786
22	Parkway	1955	06 08	15	2,192	289,042
23	Pines	1971	06 08	21	1,769	222,213
24	Pioneer	1975	06 08	16	1,175	151,448
25	Plantation	1955	06 08	22	1,345	167,367
26	Pompano Beach	1913	06 08	12	1,029	158,903
27	Ramblewood	1974	06 08	17	1,306	158,540
28	Rickards, James	1968	06 08	13	1,069	146,277
29	Sawgrass Springs	1993	06 08	20	1,175	178,803
30	Seminole	1969	06 08	21	1,119	130,902
31	Silver Lakes	1981	06 08	20	1,057	158,560
32	Silver Trail	1991	06 08	22	1,448	208,317
33	Sunrise	1951	06 08	18	1,245	179,853
34	Tequesta Trace	1988	06 08	23	1,364	190,940
35	Westglades	1995	06 08	24	1,449	199,872
36	Westpine	1970	06 08	18	1,272	184,116
37	Young Walter C	1987	06 08	30	1,302	227,056
	Subtotal - Middle Schools			**708**	**51,303**	**6,955,077**
Combination Schools						
1	Beachside Montessori Village	2006	PK 08	6	747	119,161
2	Coral Springs PK-8	1973	PK 08	10	907	94,153
3	Gulfstream Academy of Hallandale Beach	1958	KG 08	27	1,488	209,770
4	Lauderhill 6-12	1960	06 12	22	896	144,571
5	North Lauderdale PK-8	1970	PK 08	13	948	97,702
6	Perry, Annabel C PK-8	1969	PK 08	10	899	87,238
7	Dillard 6-12	1948	06 12	51	2,709	451,427
	Subtotal - Combination Schools			**139**	**8,594**	**1,204,022**
High Schools						
1	Anderson, Boyd	1968	09 12	32	2,829	385,467
2	Atlantic Tech. (bldg 24, bldg 18)[2]	1968	VE VE	5	566	44,271
3	Coconut Creek	1966	09 12	40	2,100	292,242
4	Cooper City	1970	09 12	30	2,267	328,947
5	Coral Glades	2002	09 12	45	2,613	301,497
6	Coral Springs	1959	09 12	37	2,935	336,869
7	Cypress Bay	1999	09 12	45	3,288	360,011

Table A-1 (Continued)
Broward County Public Schools Inventory [1]

Number	Schools	Year Acquired	Grade	Acreage	Permanent Capacity	FISH Permanent Net Square Footage
High Schools						
8	Deerfield Beach	1968	09 12	41	2,349	332,317
9	Ely, Blanche	1950	09 12	39	2,786	410,833
10	Everglades	1987	09 12	45	2,457	334,312
11	Flanagan, Charles W	1992	09 12	45	2,298	366,487
12	Fort Lauderdale	1957	09 12	27	2,016	314,212
13	Hallandale	1951	09 12	28	1,631	239,940
14	Hollywood Hills	1967	09 12	30	2,216	279,521
15	McArthur	1955	09 12	40	2,211	264,536
16	McFatter, William Tech. (bldg 3,4)[2]	1962	VE VE	34	566	86,028
17	Miramar	1968	09 12	38	2,570	335,559
18	Monarch	1994	09 12	55	2,122	268,669
19	Northeast	1960	09 12	52	2,318	315,119
20	Nova	1962	09 12	51	1,548	267,039
21	Piper	1970	09 12	30	2,600	324,622
22	Plantation	1963	09 12	35	2,632	341,164
23	Pompano Beach Inst of Int'l Studies	1949	09 12	18	1,139	218,233
24	Sheridan Technical High[2]	1952	VE VE	13	578	115,185
25	South Broward	1947	09 12	25	2,289	351,341
26	South Plantation	1970	09 12	32	2,328	345,712
27	Stoneman Douglas	1985	09 12	45	3,082	429,048
28	Stranahan	1950	09 12	38	2,375	315,626
29	Taravella, J P	1978	09 12	31	3,357	342,416
30	West Broward	2006	09 12	43	2,755	357,761
31	Western	1978	09 12	40	3,208	379,336
	Subtotal - High Schools			**1,109**	**70,029**	**9,384,320**
Centers						
1	Bright Horizons	1957	PK 12	6	325	79,001
2	Cross Creek	1989	PK 12	15	180	60,625
3	Cypress Run	2007	PK 12	6	240	60,474
4	Dave Thomas Education Center	2002	06 12	10	565	86,188
5	Henry D. Perry Education Center	1958	PK AE	20	1,217	174,317
6	Lanier-James Education Center	1951	KG 12	5	262	59,082
7	Pine Ridge	1957	KG 12	5	252	59,456
8	Seagull School	1956	KG 12	3	538	60,001
9	The Quest	1960	PK 12	9	313	73,903
10	Whiddon Rogers Education Center	1956	PK AE	15	1,478	156,093
11	Whispering Pines	1968	KG 12	16	180	61,825
12	Wingate Oaks	1958	PK 12	20	285	71,639
	Subtotal - Centers			**130**	**5,835**	**1,002,604**
222	**Grand Total - All Schools**			**3,550**	**246,122**	**33,037,033**

1) Source: Broward County Public Schools
2) Only reflects capacity associated with High School Programs

Appendix B
Building and Land Cost Analysis

Appendix B – Building and Land Cost

This Appendix provides additional information on the data and analysis used to estimate building and land values for the Broward County school impact fee.

Building Construction Costs

To determine the architect/site improvement, construction, FF&E, and other costs associated with building a new school in Broward County, the following information was evaluated:

- Recently built schools in Broward County;
- Estimates obtained from architects/contractors who are involved in constructing schools in Broward, Palm Beach, and Miami-Dade counties;
- School cost information for other Florida counties; and
- Discussions with representatives from Broward County Public Schools.

The following paragraphs provide further detail on this research and analysis.

Construction Cost

A review of recent and upcoming construction suggested that at this time, BCPS is building primarily wings to add classroom capacities at some schools and core facilities at other schools to allow for additional wings, as opposed to building completely new schools. As such, these figures are not reflective of the full value of existing inventory. The most recent construction of a complete school was the rebuilding of Lanier James Educational Center in 2011. This is a KG – 12 combination school and the construction cost for this school was $209 per FISH net square foot. Additionally, based on the comments received during the presentation of initial results, Tindale Oliver reviewed the cost of schools built by the BCPS going back ten years to 2006. The results of this review is included in Table B-2, which reflects a time period when construction costs fluctuated significantly. Given these fluctuations and that the estimates included in the study are based on more current data, the initial cost estimates (current proposed estimates) were found to be reasonable and maintained for impact fee calculation purposes.

Industry architects who work with Broward, Palm Beach and Miami-Dade County Public Schools provided the following information:

- Construction cost per gross square foot ranges from $170 to $190 for elementary schools. The range for middle schools is $185 per gross square foot to $230 per gross square foot. Finally, the range per gross square foot is $205 to $250 in the case of high schools. The range of these costs depend on the availability of facilities, level of competition in a given market, and other similar factors.
- Estimates provided by the architects are based on "gross" square footage while the School District uses "FISH" square footage established by the Florida Department of Education (DOE) to measure its inventory, which tends to exclude outside walls, uncovered walkways, etc. The difference is estimated to be approximately 6%. The estimates provided by the industry architects were adjusted to reflect this difference.
- A recent presentation made by the Palm Beach County Public Schools (PBCPS) suggested that the School District is working toward reducing its construction costs. Using the current school design, the construction cost for an elementary schools is estimated to be $250 per square foot. The District is working toward reducing it to $220 per square foot to ensure the stations can be built within the budget established by the DOE.
- In Collier County, another beach-front community with cost levels similar to Broward County, school construction costs were estimated to range from $180 to $220 per FISH net square foot in 2015. Since then, the costs have been increasing in markets with activity, such as Southeast Florida and Central Florida.
- Costs experienced in additional jurisdictions since 2011 are summarized in Tables B-3 and B-5.

Given this data and information, construction costs per FISH net square foot of $186 for elementary schools, $212 for middle schools, and $233 for high schools were estimated to be reasonable, if not conservative, estimates. Table B-1 provides a summary of this information.

Table B-1
School Construction Cost Analysis – Broward County

Source	Date	Construction Cost per Square Foot		
		Elementary	Middle	High
Local Projects (9)[1]	2006-2011	$190	$125	$214
Industry Architects[2]	2017	$170 - $190	$185 - $230	$205 - $250
Palm Beach County Public Schools[3]	2017	$220	N/A	N/A
Collier County Public Schools[4]	2015	$180	$200	$220
Other Florida Jurisdictions[5]	2011 - 2017	$96-$220	$113 - $256	$117-$239
Used in the Study[6]		**$175**	**$200**	**$220**
Study Estimates per FISH Net Sq Ft [7]		**$186**	**$212**	**$233**

1) Source: Table B-2 (per gross square foot). Includes the average for 6 elementary schools, 2 middle schools and 1 high school. In addition, the District also constructed 2 centers.
2) Source: Discussions with architects who are active in designing public schools in Broward, Palm Beach and Miami-Dade counties – estimates are shown on a per gross square foot basis
3) Source: Palm Beach County Public Schools – figures for per FISH net sf. Reflects the target cost to comply with Florida Department of Education allowance for construction. Current cost is $250 per net sf.
4) Source: Collier County Public Schools – figures are per FISH net sf and based on the most recent impact fee study, completed in 2015
5) Source: Florida Department of Education (see Table B-3) – figures are per FISH net sf
6) Estimates on a per gross square foot basis
7) Study estimates (Item 6) increased by 6% to reflect the reduced FISH net square footage, which excludes certain section of a building

Table B-2
Broward County Construction Cost Trend, Since 2006

Year	District	Type	Facility Name	Student Stations	Gross Sq Ft	Construction	Total Cost	Construction Cost per GSF	Total Cost per GSF
2006	Broward	Center	Pine Ridge Education Center	200	57,442	$8,821,931	**$10,792,617**	$154	$188
2007	Broward	Elem	Dolphin Bay Elementary	830	117,744	$14,957,291	**$20,078,277**	$127	$171
2007	Broward	Elem	Orangebrook Elementary	884	110,000	$17,219,818	**$20,883,269**	$157	$190
2007	Broward	Middle	Pines Middle	1,785	221,373	$29,226,449	**$33,437,581**	$132	$151
2007	Broward	Middle	Glades Middle	2,108	243,878	$29,007,270	**$42,452,613**	$119	$174
2008	Broward	High	West Broward High	3,050	349,536	$74,974,472	**$83,938,686**	$214	$240
2009	Broward	Elem	Discovery Elementary (K-6)	954	127,779	$24,813,884	**$28,656,238**	$194	$224
2009	Broward	Elem	Heron Heights Elementary	1,000	126,653	$25,377,383	**$29,369,374**	$200	$232
2010	Broward	Elem	Norcrest Elementary	866	68,015	$22,286,245	**$24,467,358**	$328	$360
2011	Broward	Center	Lanier James Education Center	262	60,862	$8,889,147	**$12,412,686**	$146	$204
			Grand Total	**11,939**	**1,483,282**	**$255,573,890**	**$306,488,699**	**$172**	**$207**
			Grand Total (Excluding Centers)	**11,477**	**1,364,978**	**$237,862,812**	**$283,283,396**	**$174**	**$208**
			Elementary (5)	4,534	550,191	$104,654,621	**$123,454,516**	$190	$224
			Middle (2)	3,893	465,251	$58,233,719	**$75,890,194**	$125	$163
			High (1)	3,050	349,536	$74,974,472	**$83,938,686**	$214	$240
			Center (2)	462	118,304	$17,711,078	**$23,205,303**	$150	$196

Source: Florida Department of Education, based on figures reported and confirmed by Broward County Public Schools. Total cost excludes land purchase.

Table B-3
Construction Cost Analysis – Broward County and Other Florida Jurisdictions

Year	District	Type	Facility Name	Construction Cost	Net Sq Ft	Student Stations	Construction Cost per NSF	Construction Cost per Station
Elementary Schools:								
2011	Duval	Elem	Waterleaf Elementary	$14,882,021	82,062	873	$181	$17,047
2011	Osceola	Elem	Highlands Elementary	$14,534,309	106,918	1,020	$136	$14,249
2011	Charlotte	Elem	Meadow Park Elementary	$12,696,116	89,652	843	$142	$15,061
2011	Pasco	Elem	Connerton Elementary "R"	$11,598,590	84,972	762	$136	$15,221
2011	Orange	Elem	Wetherbee Elementary	$11,795,072	99,704	817	$118	$14,437
2011	Escambia	Elem	Global Learning Academy	$17,019,155	120,015	856	$142	$19,882
2012	Orange	Elem	SunRidge Elementary	$10,031,097	66,645	842	$151	$11,913
2012	Lee	Elem	Tortuga Preserve	$16,021,554	129,936	1,050	$123	$15,259
2012	Alachua	Elem	Meadowbrook Elementary	$12,388,973	97,000	760	$128	$16,301
2012	Volusia	Elem	Citrus Grove Elementary	$13,854,183	98,842	764	$140	$18,134
2012	St. Johns	Elem	Palencia Elementary	$12,677,682	102,314	738	$124	$17,178
2012	Indian River	Elem	Vero Beach Elementary	$17,243,103	110,495	796	$156	$21,662
2012	Hillsborough	Elem	Thompson Elementary	$15,397,254	94,121	950	$164	$16,208
2013	Hillsborough	Elem	Lamb Elementary	$16,699,759	92,876	950	$180	$17,579
2013	Orange	Elem	Sun Blaze Elementary	$10,269,207	64,410	832	$159	$12,343
2013	Orange	Elem	Hackney Prairie Road Area Elementary	$11,261,094	75,189	856	$150	$13,155
2013	Marion	Elem	Legacy Elementary	$10,047,310	104,324	873	$96	$11,509
2013	Palm Beach	Elem	Gove Elementary	$28,528,459	129,500	924	$220	$30,875
2013	Palm Beach	Elem	Galaxy Elementary	$22,515,045	108,674	605	$207	$37,215
2014	Orange	Elem	Shingle Creek ES (Replacement)	$8,633,484	79,038	832	$109	$10,377
2014	Orange	Elem	John Young ES (Replacement)	$8,810,724	79,038	832	$111	$10,590
2014	Orange	Elem	Pineloch ES	$9,343,280	82,167	830	$114	$11,257
2014	Orange	Elem	Dr. Phillips ES	$8,150,993	69,297	660	$118	$12,350
2014	Orange	Elem	Spring Lake ES	$9,768,510	70,056	627	$139	$15,580
2014	Orange	Elem	Washington Shores ES (Replacement)	$10,068,768	77,692	684	$130	$14,720
2014	Orange	Elem	Little River ES	$8,202,194	61,570	500	$133	$16,404
2014	Orange	Elem	Wheatley ES (Replacement)	$9,153,883	77,207	560	$119	$16,346
2014	Pasco	Elem	Schrader Elementary	$10,620,622	75,826	498	$140	$21,327
2014	Palm Beach	Elem	The Conservatory School of North Palm Beach	$21,499,851	117,529	753	$183	$28,552
2015	Orange	Elem	Eagle Creek Elementary	$9,248,244	79,374	832	$117	$11,116
2015	Orange	Elem	Independence Elementary	$9,394,386	81,664	832	$115	$11,291
2015	Orange	Elem	Ocoee ES (Replacement)	$9,286,970	82,167	830	$113	$11,189
2017	Hillsborough	Elem	Hope Dawson Elementary	$14,863,889	72,193	920	$206	$16,156
Total/Weighted Average -- Elementary Schools				**$426,505,781**	**2,962,467**	**26,301**	**$144**	**$16,216**
Middle Schools:								
2011	Walton	Middle	Emerald Coast Middle	$15,918,884	126,770	820	$126	$19,413
2011	Polk	Middle	Boone Middle	$17,900,963	69,921	305	$256	$58,692
2011	Hernando	Middle	Winding Waters K-8	$21,182,866	183,190	1,605	$116	$13,198
2012	Dade	Middle	North Dade Middle	$18,921,534	94,660	993	$200	$19,055
2012	Orange	Middle	Lake Nona Middle	$16,923,455	149,897	1,328	$113	$12,744
2012	Orange	Middle	SunRidge Middle	$23,617,116	152,436	1,352	$155	$17,468
2012	Lee	Middle	Hams Marsh Middle	$23,750,925	164,662	1,345	$144	$17,659
2012	Collier	Middle	Bethune Education Center	$5,538,155	34,581	182	$160	$30,429
2013	Monroe	Middle	Horace O'Bryant	$30,596,297	196,598	1,217	$156	$25,141
Total/Weighted Average -- Middle Schools				**$174,350,195**	**1,172,715**	**9,147**	**$149**	**$19,061**
High Schools:								
2011	Polk	High	Winter Haven Senior	$26,374,234	140,940	2,039	$187	$12,935
2011	Polk	High	Auburndale Senior	$19,522,053	101,466	1,236	$192	$15,795
2011	Polk	High	Davenport School of the Arts	$29,136,512	157,446	1,510	$185	$19,296
2011	Orange	High	Evans High Replacement	$55,507,691	289,061	2,599	$192	$21,357
2011	Calhoun	High	Blountstown High	$19,407,910	100,366	825	$193	$23,525
2011	Okeechobee	High	Okeechobee Achievement Academy	$5,499,975	43,024	347	$128	$15,850
2011	Polk	High	Kathleen Senior	$24,323,662	112,017	800	$217	$30,405
2011	Charlotte	High	Charlotte High	$61,755,842	258,700	1,828	$239	$33,783
2011	Lake	High	Lake Minneola High	$46,988,193	294,664	1,932	$159	$24,321
2011	Broward	High	Lanier James Education Center	$8,889,147	42,608	262	$209	$33,928
2012	Dade	High	International Studies SHS	$7,192,325	35,137	603	$205	$11,928
2012	St. Lucie	High	Lincoln Park Academy	$10,928,736	93,703	978	$117	$11,175
2012	Dade	High	Medical Academy or Science and Technology	$9,303,705	78,845	800	$118	$11,630
2013	Martin	High	Martin County High	$7,623,316	63,601	703	$120	$10,844
Total/Weighted Average -- High Schools				**$332,453,301**	**1,811,578**	**16,462**	**$184**	**$20,195**
Total/Weighted Average -- High Schools (Excluding Broward County)				**$323,564,154**	**1,768,970**	**16,200**	**$183**	**$19,973**
Total/Weighted Average (All Schools)				**$933,309,277**	**5,946,760**	**51,910**	**$157**	**$17,979**
Total/Weighted Average (All Schools - Excluding Broward County)				**$924,420,130**	**5,904,152**	**51,648**	**$157**	**$17,898**

Source: Florida Department of Education and previous Tindale Oliver school impact fee studies, when available

Architectural, Design, Site Preparation, Furniture, Fixture and Equipment Costs

The architectural, design, site preparation (including on-site improvement and traffic control costs), and FF&E costs (including technology) are calculated based on the ratio of these costs to the construction costs observed in Broward County and other jurisdictions. These figures were also discussed with the industry architects and are estimated at 21% of construction cost for facility planning, which includes 6% for architectural/design and contract administration, 7% for site preparation, and 8% for FF&E costs. These estimates are based primarily on the average of other jurisdictions due to the limited sample of schools in Broward County. Table B-4 provides a summary of costs in Broward County compared to other Florida jurisdictions. As presented, other building cost percentages experienced in Broward County is higher than the average of other Florida jurisdictions. However, due to the limited sample size (1 school only since 2011), the estimates were based on statewide averages.

Table B-4
Other Building Costs

Component	Broward County[1]	Other Florida Jurisdictions (2009-2015)[2]		Estimate of Impact Fee Calculations[3]
		Average	Range	
A/E - Design	12%	7%	1% to 17%	**6%**
Site Prep	10%	7%	0% to 72%	**7%**
FF&E	15%	9%	0% to 30%	**8%**

1) Source: Based on Lanier James Education Center, which was the most recent complete school constructed
2) Source: Florida Department of Education
3) Final estimate used in the 2017 school impact fee study for Broward County Public Schools

Tables B-5 and B-6 provide further detail on the cost experienced in other Florida jurisdictions.

Table B-5
Architectural/Civil Design and FF&E Cost Analysis - Broward County and Other Florida Jurisdictions

Year	District	Type	Facility Name	Construction Cost	Architect & Eng Fees	Ratio of Architect & Eng Fees to Construction Cost	Furniture & Equip	Ratio of FF&E to Construction Cost
2011	Broward	High	Lanier James Education Center	$8,889,147	$1,075,459	12%	$1,304,137	15%
2011	Calhoun	High	Blountstown High	$19,407,910	$1,968,893	10%	$994,719	5%
2011	Charlotte	Elem	Meadow Park Elementary	$12,696,116	$944,273	7%	$674,842	5%
2011	Charlotte	High	Charlotte High	$61,755,842	$6,502,129	11%	$2,676,408	4%
2011	Duval	Elem	Waterleaf Elementary	$14,882,021	$1,621,628	11%	$1,899,236	13%
2011	Escambia	Elem	Global Learning Academy	$17,019,155	$1,682,415	10%	$2,861,931	17%
2011	Hernando	Middle	Winding Waters K-8	$21,182,866	$880,709	4%	$4,279,500	20%
2011	Lake	High	Lake Minneola High	$46,988,193	$3,030,934	6%	$6,483,383	14%
2011	Okeechobee	High	Okeechobee Achievement Academy	$5,499,975	$453,761	8%	$427,114	8%
2011	Orange	High	Evans High Replacement	$55,507,691	$3,568,884	6%	$3,743,130	7%
2011	Orange	Elem	Wetherbee Elementary	$11,795,072	$812,505	7%	$1,081,762	9%
2011	Osceola	Elem	Highlands Elementary	$14,534,309	$666,978	5%	$1,650,318	11%
2011	Pasco	Elem	Connerton Elementary "R"	$11,598,590	$858,671	7%	$1,298,389	11%
2011	Polk	High	Winter Haven Senior	$26,374,234	$853,483	3%	$2,360,389	9%
2011	Polk	High	Auburndale Senior	$19,522,053	$1,462,146	7%	$3,124,050	16%
2011	Polk	High	Davenport School of the Arts	$29,136,512	$1,042,674	4%	$2,330,971	8%
2011	Polk	High	Kathleen Senior	$24,323,662	$875,094	4%	$2,267,250	9%
2011	Polk	Middle	Boone Middle	$17,900,963	$1,080,157	6%	$1,331,348	7%
2011	Walton	Middle	Emerald Coast Middle	$15,918,884	$1,709,689	11%	$700,000	4%
2012	Alachua	Elem	Meadowbrook Elementary	$12,388,973	$1,010,997	8%	$1,974,896	16%
2012	Collier	Middle	Bethune Education Center	$5,538,155	$561,233	10%	$734,057	13%
2012	Dade	High	International Studies SHS	$7,192,325	$684,965	10%	$757,496	11%
2012	Dade	Middle	North Dade Middle	$18,921,534	$867,900	5%	$1,122,762	6%
2012	Dade	High	Medical Academy or Science and Technology	$9,303,705	$762,932	8%	$919,966	10%
2012	Hillsborough	Elem	Thompson Elementary	$15,397,254	$1,117,623	7%	$1,614,056	10%
2012	Indian River	Elem	Vero Beach Elementary	$17,243,103	$1,476,006	9%	$1,342,512	8%
2012	Lee	Middle	Hams Marsh Middle	$23,750,925	$721,076	3%	$1,814,273	8%
2012	Lee	Elem	Tortuga Preserve	$16,021,554	$214,042	1%	$1,487,461	9%
2012	Orange	Elem	SunRidge Elementary	$10,031,097	$580,395	6%	$951,358	9%
2012	Orange	Middle	Lake Nona Middle	$16,923,455	$1,277,253	8%	$1,795,567	11%
2012	Orange	Middle	SunRidge Middle	$23,617,116	$1,137,698	5%	$1,591,755	7%
2012	St. Johns	Elem	Palencia Elementary	$12,677,682	$956,170	8%	$1,500,000	12%
2012	St. Lucie	High	Lincoln Park Academy	$10,928,736	$1,623,543	15%	$3,246,193	30%
2012	Volusia	Elem	Citrus Grove Elementary	$13,854,183	$1,098,766	8%	$1,555,729	11%
2013	Hillsborough	Elem	Lamb Elementary	$16,699,759	$1,159,221	7%	$1,494,022	9%
2013	Marion	Elem	Legacy Elementary	$10,047,310	$675,267	7%	$1,680,825	17%
2013	Martin	High	Martin County High	$7,623,316	$1,274,200	17%	$419,893	6%
2013	Monroe	Middle	Horace O'Bryant	$30,596,297	$3,221,414	11%	$1,320,362	4%
2013	Orange	Elem	Sun Blaze Elementary	$10,269,207	$587,445	6%	$1,035,369	10%
2013	Orange	Elem	Hackney Prairie Road Area Elementary	$11,261,094	$890,931	8%	$1,057,127	9%
2013	Palm Beach	Elem	Gove Elementary	$28,528,459	$1,871,815	7%	$917,852	3%
2013	Palm Beach	Elem	Galaxy Elementary	$22,515,045	$1,595,664	7%	$790,823	4%
2014	Orange	Elem	Shingle Creek ES (Replacement)	$8,633,484	$636,833	7%	$1,235,140	14%
2014	Orange	Elem	John Young ES (Replacement)	$8,810,724	$644,485	7%	$1,037,820	12%
2014	Orange	Elem	Pineloch ES	$9,343,280	$632,269	7%	$1,048,977	11%
2014	Orange	Elem	Dr. Phillips ES	$8,150,993	$837,933	10%	$835,624	10%
2014	Orange	Elem	Spring Lake ES	$9,768,510	$646,909	7%	$874,049	9%
2014	Orange	Elem	Washington Shores ES (Replacement)	$10,068,768	$591,793	6%	$964,395	10%
2014	Orange	Elem	Little River ES	$8,202,194	$1,212,762	15%	$705,810	9%
2014	Orange	Elem	Wheatley ES (Replacement)	$9,153,883	$740,790	8%	$803,731	9%
2014	Palm Beach	Elem	The Conservatory School of North Palm Beach	$21,499,851	$1,746,723	8%	$781,394	4%
2014	Pasco	Elem	Schrader Elementary	$10,620,622	$741,224	7%	$781,652	7%
2015	Orange	Elem	Eagle Creek Elementary	$9,248,244	$503,008	5%	$1,168,200	13%
2015	Orange	Elem	Independence Elementary	$9,394,386	$454,954	5%	$1,168,200	12%
2015	Orange	Elem	Ocoee ES (Replacement)	$9,286,970	$669,660	7%	$1,039,087	11%
2017	Hillsborough	Elem	Hope Dawson Elementary	$14,863,889	$781,268	5%	$0	0%
Total/Weighted Average				**$933,309,277**	**$67,297,649**	**7%**	**$85,057,310**	**9%**
Total/Weighted Average (Broward County Schools ONLY)				**$8,889,147**	**$1,075,459**	**12%**	**$1,304,137**	**15%**
Total/Weighted Average (Excluding Broward County Schools)				**$924,420,130**	**$66,222,190**	**7%**	**$83,753,173**	**9%**

Source: Florida Department of Education and previous Tindale Oliver school impact fee studies, when available

Table B-6
Site Development Cost Analysis - Broward County and Other Florida Jurisdictions

Year	District	Type	Facility Name	Construction Cost	Site Improvement	Ratio of Site Development to Construction Cost
2011	Broward	High	Lanier James Education Center	$8,889,147	$918,943	10%
2011	Calhoun	High	Blountstown High	$19,407,910	$1,362,604	7%
2011	Charlotte	Elem	Meadow Park Elementary	$12,696,116	$1,802,689	14%
2011	Charlotte	High	Charlotte High	$61,755,842	$7,904,370	13%
2011	Duval	Elem	Waterleaf Elementary	$14,882,021	$1,361,500	9%
2011	Escambia	Elem	Global Learning Academy	$17,019,155	$200,000	1%
2011	Hernando	Middle	Winding Waters K-8	$21,182,866	$0	0%
2011	Lake	High	Lake Minneola High	$46,988,193	$454,710	1%
2011	Okeechobee	High	Okeechobee Achievement Academy	$5,499,975	$1,300	0%
2011	Orange	High	Evans High Replacement	$55,507,691	$2,151,931	4%
2011	Orange	Elem	Wetherbee Elementary	$11,795,072	$0	0%
2011	Osceola	Elem	Highlands Elementary	$14,534,309	$1,293,639	9%
2011	Pasco	Elem	Connerton Elementary "R"	$11,598,590	$2,313,586	20%
2011	Polk	High	Winter Haven Senior	$26,374,234	$0	0%
2011	Polk	High	Auburndale Senior	$19,522,053	$0	0%
2011	Polk	High	Davenport School of the Arts	$29,136,512	$0	0%
2011	Polk	High	Kathleen Senior	$24,323,662	$0	0%
2011	Polk	Middle	Boone Middle	$17,900,963	$0	0%
2011	Walton	Middle	Emerald Coast Middle	$15,918,884	$1,717,116	11%
2012	Alachua	Elem	Meadowbrook Elementary	$12,388,973	$86,278	1%
2012	Collier	Middle	Bethune Education Center	$5,538,155	$479,652	9%
2012	Dade	High	International Studies SHS	$7,192,325	$0	0%
2012	Dade	Middle	North Dade Middle	$18,921,534	$0	0%
2012	Dade	High	Medical Academy or Science and Technology	$9,303,705	$0	0%
2012	Hillsborough	Elem	Thompson Elementary	$15,397,254	$0	0%
2012	Indian River	Elem	Vero Beach Elementary	$17,243,103	$1,196,000	7%
2012	Lee	Middle	Hams Marsh Middle	$23,750,925	$2,100,258	9%
2012	Lee	Elem	Tortuga Preserve	$16,021,554	$1,367,613	9%
2012	Orange	Elem	SunRidge Elementary	$10,031,097	$1,296,632	13%
2012	Orange	Middle	Lake Nona Middle	$16,923,455	$0	0%
2012	Orange	Middle	SunRidge Middle	$23,617,116	$1,051,252	4%
2012	St. Johns	Elem	Palencia Elementary	$12,677,682	$0	0%
2012	St. Lucie	High	Lincoln Park Academy	$10,928,736	$7,901,452	72%
2012	Volusia	Elem	Citrus Grove Elementary	$13,854,183	$415,026	3%
2013	Hillsborough	Elem	Lamb Elementary	$16,699,759	$0	0%
2013	Marion	Elem	Legacy Elementary	$10,047,310	$477,607	5%
2013	Martin	High	Martin County High	$7,623,316	$536,994	7%
2013	Monroe	Middle	Horace O'Bryant	$30,596,297	$2,740,572	9%
2013	Orange	Elem	Sun Blaze Elementary	$10,269,207	$658,487	6%
2013	Orange	Elem	Hackney Prairie Road Area Elementary	$11,261,094	$657,635	6%
2014	Orange	Elem	Shingle Creek ES (Replacement)	$8,633,484	$1,188,410	14%
2014	Orange	Elem	John Young ES (Replacement)	$8,810,724	$1,438,471	16%
2014	Orange	Elem	Washington Shores ES (Replacement)	$10,068,768	$1,395,463	14%
2014	Orange	Elem	Wheatley ES (Replacement)	$9,153,883	$1,083,517	12%
2014	Orange	Elem	Pineloch ES	$9,343,280	$1,409,183	15%
2014	Orange	Elem	Dr. Phillips ES	$8,150,993	$1,850,611	23%
2014	Orange	Elem	Spring Lake ES	$9,768,510	$1,276,130	13%
2014	Orange	Elem	Little River ES	$8,202,194	$1,142,327	14%
2014	Pasco	Elem	Schrader Elementary	$10,620,622	$1,217,102	11%
2015	Orange	Elem	Eagle Creek Elementary	$9,248,244	$1,934,060	21%
2015	Orange	Elem	Independence Elementary	$9,394,386	$1,649,461	18%
2015	Orange	Elem	Ocoee ES (Replacement)	$9,286,970	$1,470,388	16%
2017	Hillsborough	Elem	Hope Dawson Elementary	$14,863,889	$1,425,699	10%
Total/Weighted Average				**$860,765,922**	**$60,928,668**	**7%**
Total/Weighted Average (Broward County Schools ONLY)				**$8,889,147**	**$918,943**	**10%**
Total/Weighted Average (Excluding Broward County Schools)				**$851,876,775**	**$60,009,725**	**7%**

Source: Florida Department of Education and previous Tindale Oliver school impact fee studies, when available

Land Value Analysis

To estimate the current land value, the following analysis is conducted:

- A review of estimated land value of parcels that were dedicated to the School District over the past few years;
- A review of the current market value of land from the Property Appraiser database where the existing schools are located;
- An analysis of vacant residential land sales (non-BCPS purchases) in Broward County between 2013 and 2016 for parcels of similar size;
- An analysis of market value of vacant residential land from the Property Appraiser database for parcels of similar size and location to the current inventory; and
- Discussions with BCPS staff.

The last two sites dedicated to BCPS were valued at $217,000 per acre. The 2014 technical study estimated cost at $153,000 per acre based on a set of specific properties and their value as reported by the Broward County Property Appraiser (BCPA) at that time. The same set of properties are estimated to cost $248,000 per acre at this time, again based on BCPA's current estimates. When BCPA's estimate for the change in all just values since the last study is applied to the last study figure of $153,000 per acre, the value increases to $182,000 per acre.

The value of parcels where the existing schools are located, as estimated by BCPA, indicates an average land value of $245,000 per acre. Vacant residential land sales of similar size in Broward County between 2013 and 2016 averaged $461,000 per acre. During the same period, there was only one sale for institutionally zoned property and three sales for governmental property. These ranged from $171,000 per acre to $286,000 per acre. Finally, the value of all vacant property of similarly sized parcels range from $196,000 per acre for institutional properties to $228,000 per acre for residential properties. Given this information, a unit cost of $215,000 per acre is found to be a reasonable and even a conservative estimate for impact fee calculation purposes. Table B-7 provides a summary of this information.

Table B-7
Land Value Analysis

Variable	Cost per Acre
2014 Study Estimate[1]	$152,654
Adjusted 2014 Estimates[2]	$248,242
	$181,658
Value of Dedications Received by the School District: [3]	
2012	$217,255
Value of Parcels where Existing Schools Are Located: [4]	
2017 Average Value	$244,945
Vacant Land Sales (2013-2016): [5]	
Residential (21 sales)	$461,416
Institutional (1 sale)	$171,435
Governmental (3 sales)	$286,154
Vacant Land Values (2017): [6]	
Residential	$227,703
Institutional	$196,365
Governmental	$219,359
Estimate for the Study:	**$215,000**

1) Source: *Student Generation Rate/School Impact Fee Study, Technical Report 1, June 16, 2014*, based on a set of School District owned properties
2) The first figure ($248,242) reflects the current value of the same set of properties used in the previous technical study. The second figures ($181,658) is based on the overall value change for all Broward County properties since the last study, as reported by the Broward County Property Appraiser
3) Source: Broward County Public Schools
4) Source: Broward County Property Appraiser's database
5) Source: Broward County Property Appraiser's database
6) Source: Broward County Property Appraiser's database

Appendix C
Student Generation Rate Analysis

Appendix C – Student Generation Rate Analysis

This Appendix provides detailed calculations of student generation rates (SGR) used in the study. As mentioned previously, BCPS's current adopted methodology calculates the SGR based on new homes. This study provides SGR calculations for both new homes and all homes as well as using a hybrid approach that incorporates all available data.

As discussed previously, the initial steps of the SGR analysis includes matching student addresses to the BCPA database. As part of this analysis, only the students attending traditional schools are included and the remaining students as well as those coming from outside of Broward County are excluded. In other words, students attending charter schools, private schools, etc. are excluded from the beginning of the analysis. Table C-1 provides a summary of student counts.

As shown, a total of 223,300 traditional school student address points were geocoded using GIS. Of these, approximately 0.4% were located outside of Broward County. Of the remaining 222,319, approximately 12% of students were matched to parcels that did not include land use data. An additional 5% were matched to non-residential or vacant/right-of-way parcels, which were also excluded not to overcharge residential land uses. To better represent the full enrollment figures for Broward County, the following was completed:

- The student counts were compared to traditional school enrollment figures for the current schools year. This review suggested that the student counts for traditional schools were within 0.04% of reported enrollment. The counts were adjusted by this percentage to account for the difference between the total geocoded students and the enrollment data.
- The traditional school students with no land use tag were allocated to residential and non-residential land use categories based on the distribution of those students with land use data. As shown, this re-allocation results in 14% increase in the number of students at residential uses.
- The two adjustment factors results in an overall adjustment of almost 14%, which is only used in the case of SGR calculations for all homes, regardless of year built. In the case of new homes, because the data used represents a sample, rather than the population of all students and homes in the county, such an adjustment was not made.

Table C-1

Enrollment Adjustment

Description	Traditional School Students[1]	County Enrollment Data[2]	Adjusted Students[3]	Residential vs. Non-Res[4]	No Land Use Tag Allocation[5]	Students w/Land Use Allocation[6]	Percent Increase in Students[7]
Total Geocoded	223,300	223,219	223,219	-	-	-	-
Outside Broward County	981	-	981	-	-	-	-
In Broward County	222,319	-	222,238	-	-	-	-
No Land Use Tag	26,942	-	26,932	-	-	-	-
Remaining Students	195,377	-	195,306	-	-	-	-
Non-Residential/ROW/Vacant	11,482	-	11,478	5.9%	1,589	13,067	13.8%
Residential	**183,895**	-	183,828	94.1%	25,344	209,172	**13.7%**

1) Source: Broward County Public Schools Geocoded Student Database
2) Source: Broward County Public Schools 2016/2017 Enrollment in traditional schools
3) The county enrollment data (Item 2) is 0.86% higher than the geocoded students. To compensate, the count of students for each item description (Item 1) was increased by 0.86%.
4) The portion of non-residential students (11,580) and residential students (185,472) compared to the total adjusted student count (197,053)
5) Portion of the students with no land use tag (27,173 from Item 3) allocated proportionally to non-residential and residential adjusted students
6) Total of adjusted students (Item 3) and re-allocated students (Item 5)
7) Percent difference between the adjusted students plus the re-allocated students (Item 6) and the geocoded students (Item 1)

Student Generation Rate Calculations of New Homes

Table C-2 provides the number of units and students at each residential category for homes built between 2010 and 2016.

Table C-2: Housing Units Built During 2010-2016
Student Generation Rates – Students and Units

Dwelling Unit Type	Bedrooms	All Students[1]	Units[2]	Adjusted SGR[3]
Single Family	3 or fewer	280	850	**0.329**
	4 or more	1,354	2,265	**0.598**
	Combined	1,634	3,115	-
	Total*	2,121	4,195	**0.506**
Townhouse/Duplex/Villa[4]	2 or fewer	30	229	**0.131**
	3 or more	312	1,897	**0.164**
	Combined	342	2,126	-
	Total*	641	4,488	**0.143**
Garden Apartment[4]	1 or fewer	132	350	**0.377**
	2 bedrooms	277	2,769	**0.100**
	3 or more	234	802	**0.292**
	Combined	643	3,921	-
	Total*	1,073	6,311	**0.170**
Mid-Rise[4]	1 or fewer	9	117	**0.077**
	2 or more	119	1,207	**0.099**
	Combined	128	1,324	-
	Total*	251	4,224	**0.059**
High-Rise[4]	Combined	66	1,647	**0.040**
Mobile Home	2 or fewer	-	-	-
	3 or more	-	-	-
	Combined	-	-	-
	Total*	-	-	-
Total: All Residential Categories	Total*	**4,152**	**20,865**	**0.199**

1) Source: Broward County Public Schools; Student Address Geocoding
2) Source: Broward County Property Appraiser
3) Students (Item 1) divided by units (Item 2)
4) These land uses include any students/units within condominiums, if applicable

*This figure includes all students and units including those records without bedroom data

Table C-6 provides a detailed breakdown of the student and unit counts used to calculate the student generation rates for all homes in Broward County regardless of year built. The student counts reflect the 13.7% adjustment detailed in Table C-1.

Table C-3: All Homes in Broward County
Student Generation Rates – All Homes

Dwelling Unit Type	Bedrooms	All Students[1]	Adjusted Students[2]	Units[3]	Adjusted SGR[4]
Single Family	3 or fewer	46,684	53,080	144,115	**0.368**
	4 or more	20,609	23,432	46,710	**0.502**
	Combined	67,293	76,512	190,825	-
	Total*	119,939	136,371	323,922	**0.421**
Townhouse/Duplex/Villa	2 or fewer	4,034	4,587	20,515	**0.224**
	3 or more	12,060	13,712	38,768	**0.354**
	Combined	16,094	18,299	59,283	-
	Total*	30,577	34,766	108,253	**0.321**
Garden Apartment	1 or fewer	249	283	740	**0.382**
	2 bedrooms	384	437	3,233	**0.135**
	3 or more	6,373	7,246	28,050	**0.258**
	Combined	7,006	7,966	32,023	-
	Total*	18,013	20,481	82,811	**0.247**
Mid-Rise	1 or fewer	9	10	117	**0.085**
	2 or more	803	913	4,629	**0.197**
	Combined	812	923	4,746	-
	Total*	2,440	2,774	16,687	**0.166**
High-Rise	Combined	142	161	3,241	**0.050**
Mobile Home	2 or fewer	-	-	-	-
	3 or more	-	-	-	-
	Combined	-	-	-	-
	Total*	3,954	4,496	18,891	**0.238**
Condominiums[5]	Total*	8,830	10,040	253,978	**0.040**
Total: All Residential Categories	Total*	**183,895**	**209,089**	**807,783**	**0.259**

1) Source: Broward County Public Schools; Student Address Geocoding
2) All students (Item 1) adjusted by 13.7% (see Table C-1)
3) Source: Broward County Property Appraiser
4) Adjusted students (Item 2) divided by units (Item 3)
5) Due to the absence of floor data, condominium students/units were unable to be allocated to the proper land use category from the County's impact fee schedule

*This figure includes all students and units including those records without bedroom data

Given the fluctuations in SGR among categories and between the two approaches and the limited sample size by tier, the student generation rates calculated in Tables C-2 and C-3 were compared to those calculated in the previous Broward County School Impact Fee Studies, as shown in Table C-4.

In addition, a review of generation rate by size of home for each residential category was conducted, as shown in Figures C-1 through C-4, starting on page C-10. The purpose of this review was to confirm that SGR is changing by size for each residential category, and the current number of sub-categories is reasonable. As shown, these graphics indicate that each land use has distinct size breaks that correspond to significant changes in SGR and that SGR tends to increase as the unit size increases. The number of tiers included in the current adopted impact fee schedule is supported by this analysis.

Based on this information, a set of recommended SGR was developed for Broward County. As previously mentioned, Table C-4 (Item 4) presents the recommended student generation rates for Broward County. These recommended rates are the result of an analysis of the sample data for new homes, all homes, the 2007 and 2014 SGR calculations. Each land use and bedroom tier was evaluated for sample size, trend, and relationship to other tiers. In addition, as shown in Figures C-1 through C-4, changes in SGR by square footage for each residential category were evaluated to verify the relation of SGR to size/bedrooms. Additional explanation for recommended SGR for each residential category is provided in the following paragraphs.

- **Single Family**: A review of all four datasets suggested that a generation rate of 0.5 is reasonable for the "4 bedrooms or more" tier. This is consistent with the 2007 study and 2017 study "All Homes" data, which has a large sample size. Although this figure is higher than the rate included in the 2014 study, it is below the 2017 study "New Homes" data, providing a conservative estimate. Reduction of this tier also helps moderate the relation between the two tiers for single family homes. The "3 bedrooms or fewer" tier was determined through a review of tiering differentials for the datasets. The change from one tier to another ranged from 26% to 45% for three of the datasets with the 2017 study "New Homes" data set suggesting an increase of 82%. Given that this tier also reflects the smallest sample size, a conservative ratio of 36% (average of the previous studies and the "All Homes" datasets) was applied to estimate a SGR of 0.368. This figure is consistent with the SGR in the 2007, 2014 and "All Homes" datasets.

Table C-4
Student Generation Rates - Detailed Comparison

Dwelling Unit Type	Bedrooms	2007 Report[1]		2014 Report[1]				2017 Report: New Homes (2010-2016)[2]				2017 Report: All Homes[3]				Recommended[4]	
		SGR	Ratio[5]	Students	Units	SGR	Ratio[5]	Students	Units	SGR	Ratio[5]	Students	Units	SGR	Ratio[5]	SGR	Ratio[5]
Single Family	3 or fewer	**0.348**	-	751	2,026	**0.371**	-	280	850	**0.329**	-	53,080	144,115	**0.368**	-	**0.368**	-
	4 or more	**0.504**	45%	1,853	3,978	**0.466**	26%	1,354	2,265	**0.598**	82%	23,432	46,710	**0.502**	36%	**0.500**	36%
	Combined	**0.467**	-	**2,604**	**6,004**	**0.434**	-	**1,634**	**3,115**	**0.525**	-	**76,512**	**190,825**	**0.401**	-	-	-
	Total	***0.467***	-	***2,604***	***6,004***	***0.434***	-	***2,121***	***4,195***	***0.506***	-	***136,371***	***323,922***	***0.421***	-	***0.454***	-
Townhouse, Duplex & Villa	2 or fewer	**0.073**	-	380	1,813	**0.210**	-	30	229	**0.131**	-	4,587	20,515	**0.224**	-	**0.200**	-
	3 or more	**0.271**	271%	1,735	4,783	**0.363**	73%	312	1,897	**0.164**	25%	13,712	38,768	**0.354**	58%	**0.300**	50%
	Combined	**0.227**	-	**2,115**	**6,596**	**0.321**	-	**342**	**2,126**	**0.161**	-	**18,299**	**59,283**	**0.309**	-	-	-
	Total	***0.227***	-	***2,115***	***6,596***	***0.321***	-	***641***	***4,488***	***0.143***	-	***34,766***	***108,253***	***0.321***	-	***0.267***	-
Garden Apartment	1 or fewer	**0.107**	-	25	1,237	**0.020**	-	132	350	**0.377**	-	283	740	**0.382**	-	**0.140**	-
	2 bedrooms	**0.185**	73%	597	2,526	**0.236**	1080%	277	2,769	**0.100**	-74%	437	3,233	**0.135**	-65%	**0.200**	43%
	3 or more	**0.244**	32%	493	1,148	**0.429**	82%	234	802	**0.292**	192%	7,246	28,050	**0.258**	91%	**0.240**	20%
	Combined	**0.185**	-	**1,115**	**4,911**	**0.227**	-	**643**	**3,921**	**0.164**	-	**7,966**	**32,023**	**0.249**	-	-	-
	Total	***0.185***	-	***1,115***	***4,911***	***0.227***	-	***1,073***	***6,311***	***0.170***	-	***20,481***	***82,811***	***0.247***	-	***0.204***	-
Mid-Rise	1 or fewer	**0.046**	-	16	1,014	**0.016**	-	9	117	**0.077**	-	10	117	**0.085**	-	**0.030**	-
	2 or more	**0.046**	-	142	2,289	**0.062**	288%	119	1,207	**0.099**	29%	913	4,629	**0.197**	132%	**0.080**	167%
	Combined	**0.046**	-	**158**	**3,303**	**0.048**	-	**128**	**1,324**	**0.097**	-	**923**	**4,746**	**0.194**	-	-	-
	Total	***0.046***	-	***158***	***3,303***	***0.048***	-	***251***	***4,224***	***0.059***	-	***2,774***	***16,687***	***0.166***	-	***0.060***	-
High-Rise	All	**0.004**	-	71	3,653	**0.019**	-	66	1,647	**0.040**	-	161	3,241	**0.050**	-	**0.030**	-
Mobile Home	2 or fewer	**0.167**	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.150**	-
	3 or more	**0.364**	118%	-	-	-	-	-	-	-	-	-	-	-	-	**0.326**	117%
	Total	***0.266***	-	-	-	-	-	-	-	-	-	***4,496***	***18,891***	***0.238***	-	***0.238***	-
Condominiums[6]	All	-	-	-	-	-	-	-	-	-	-	10,040	253,978	**0.040**	-	**0.030**	-
Total - All Residential Categories		-	-	**6,063**	**24,467**	**0.248**	-	**4,152**	**20,865**	**0.199**	-	**209,089**	**807,783**	**0.259**	-	-	-

1) Source: Student Generation Rate/School Impact Fee Study Countywide; June 16, 2014
2) Source: Appendix C, Table C-2
3) Source: Appendix C, Table C-3
4) Recommendation based on a review of 2007, 2014, and 2017 Report data
5) Percent change from one tier to another
6) Due to the absence of floor and bedroom data, condominium students/units were unable to be allocated to the proper land use category from the County's impact fee schedule

- **Townhouse, Duplex, Villa:** In estimating the SGR for the 1st tier, data from the 2014 study and the "All Homes" dataset were considered. The 2007 report rate seemed unusually low and the 2017 study "New Homes" dataset suffered from a lack of sample. Therefore, an estimate of 0.200 for the 1st tier was used. Next, percent change between tiers was reviewed to calculate the 2nd tier, which ranged from 25% to 73%, with an average of 54% for the three datasets, excluding the 2007 study. Based on this distribution, a conservative increase of 50% was determined for the tier differential. Therefore, an SGR of 0.300 was used for the 2nd tier.

- **Garden Apartment**: In this category, significant fluctuations amongst the tiers and smaller sample sizes were observed compared to the single family and townhouse categories. First, it was determined that the total SGR (regardless of bedroom count) should be approximately 0.200 which lies in between the totals for each of the four datasets. Based on the fact that both the 2014 study and the 2017 study "New Homes" showed a dominance of 2-bedroom units being built, it was determined that this tier would be weighted the heaviest and equal to the group average. The relation of SGR by size of home shown in Figure C-3 was then used to establish the differential of approximately 45% between the 1st and 2nd tiers, followed by a gradual increase to 3rd tier, reflecting a differential of approximately 20%, which is between the relation indicated in Figure C-3 and the 2007 report. It should be noted that the "All Homes" dataset does not include condominium units, as information on number of floors was not available in the case of older condominiums.

- **Mid-Rise**: Similar to garden apartment, the SGR for all mid-rise parcels was determined first. This figure (0.060) was based on the total SGR from the 2017 study "New Homes" dataset, regardless of bedroom count. This represents a larger sample of data compared to the 2014 study and 2007 study did not tier these homes. As previously mentioned, due to lack of floor information, condominiums units, which typically have low SGR's, were not incorporated into the 2017 study "All Homes" dataset. The lack of these parcels is likely inflate the "All Homes" dataset. The bedroom tiers were subsequently established through a review of the remaining datasets and verified for reasonableness through sample weighting and tier ratios. This tiering was compared to the relation of SGR to size as shown in Figure C-4, and was found to be reasonable, and even conservative.

- **High-Rise**: A review of the four datasets suggested that the 2007 study figures are significantly different than the other datasets, and as such, are excluded. Based on the 2014 and 2017 datasets, a conservative SGR of 0.30 was estimated.

- **Mobile Home**: With no recent permitting of mobile homes, the average SGR was based on the "All Homes" dataset. Due to a lack of available bedroom data, the tiers were calculated based on the relationship of the mobile home tiers to the average from the 2007 study.

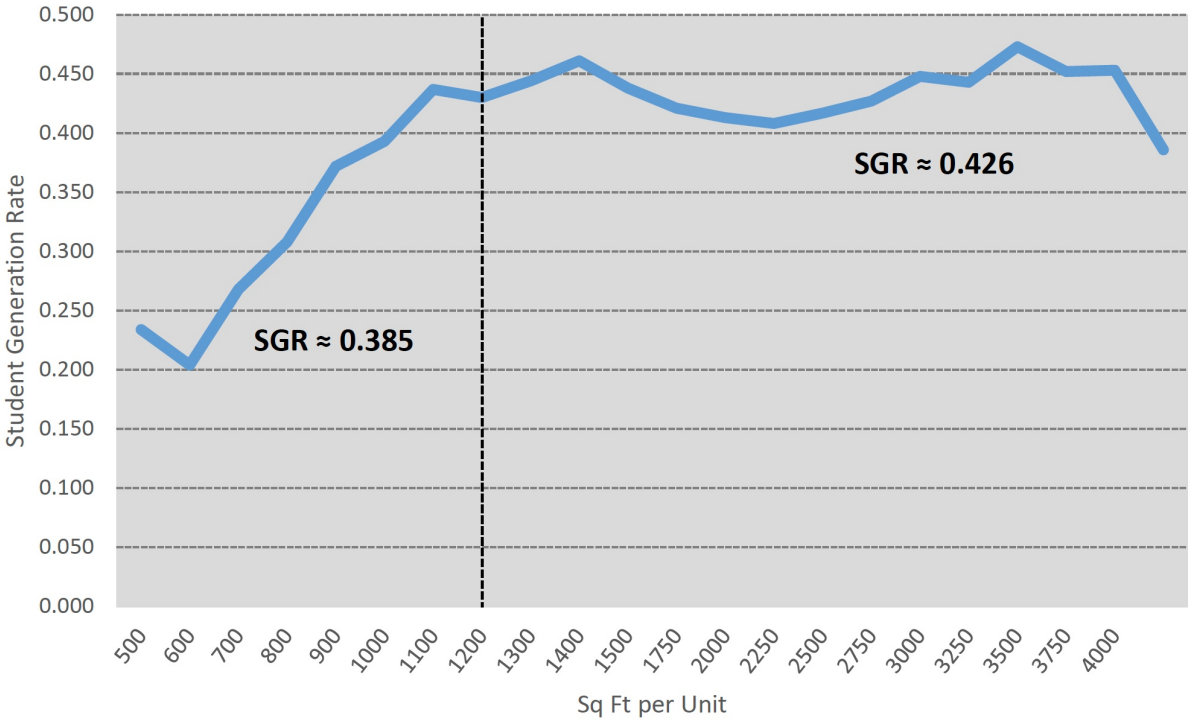
Table C-5 summarizes the student generation rates from the 2007 and 2014 reports, as well as the recommended student generation rates.

Table C-5
Student Generation Rates Comparison Summary

Dwelling Unit Type	Bedrooms	2007 Report[1]	2014 Report/ Adopted[1]	2017 Calculated[2]	%Δ 14 to 17[3]	%Δ 07 to 14[4]	%Δ 07 to 17[5]
Single Family	3 or fewer	0.348	0.371	**0.368**	-1%	7%	6%
	4 or more	0.504	0.466	**0.500**	7%	-8%	-1%
Townhouse, Duplex & Villa	2 or fewer	0.073	0.210	**0.200**	-5%	188%	174%
	3 or more	0.271	0.363	**0.300**	-17%	34%	11%
Garden Apartment	1 or fewer	0.107	0.020	**0.140**	600%	-81%	31%
	2 bedrooms	0.185	0.236	**0.200**	-15%	28%	8%
	3 or more	0.244	0.429	**0.240**	-44%	76%	-2%
Mid-Rise	1 or fewer	0.046	0.016	**0.030**	88%	-65%	-35%
	2 or more	0.046	0.062	**0.080**	29%	35%	74%
High-Rise	Combined	0.004	0.019	**0.030**	58%	375%	650%
Mobile Home	2 or fewer	0.167	0.167	**0.150**	-10%	0%	-10%
	3 or more	0.364	0.364	**0.326**	-10%	0%	-10%

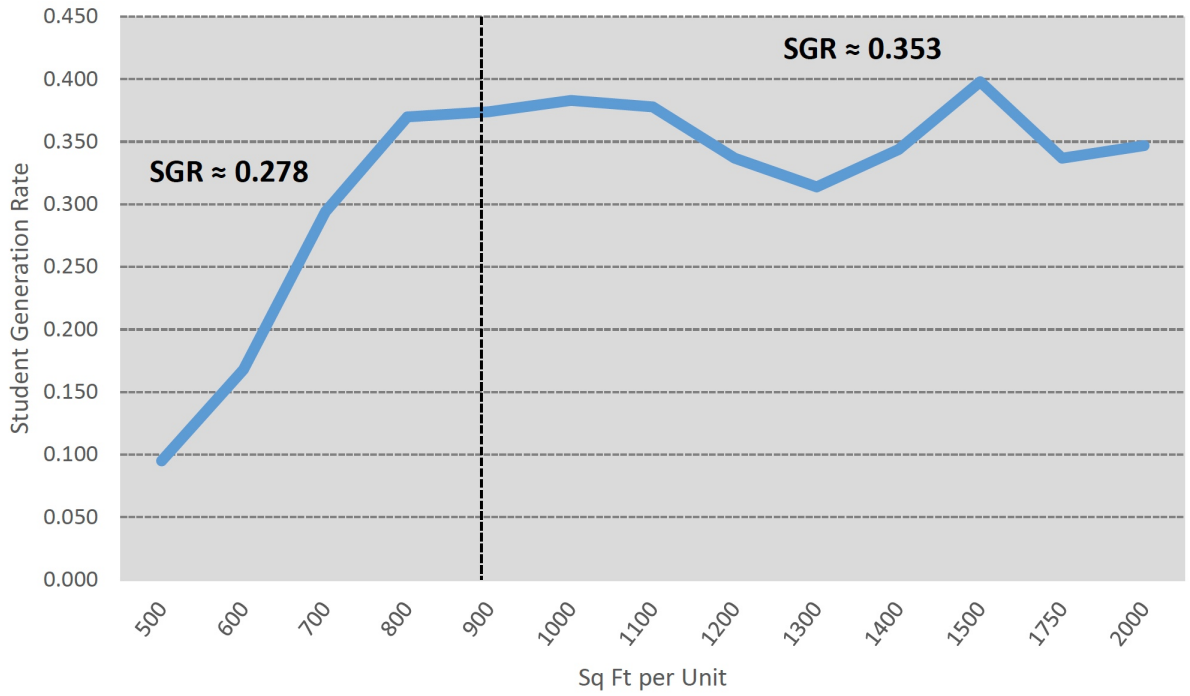
1) Source: Student Generation Rate/School Impact Fee Study Countywide; June 16, 2014
2) Source: Appendix C, Table C-4, Item 4
3) Percent change from the 2014 study/current adopted SGR to the calculated SGR (Item 2)
4) Percent change from the 2007 study SGR to the 2014 study/current adopted SGR
5) Percent change from the 2007 study SGR to the calculated SGR (Item 2)

Figure C-1: Single Family



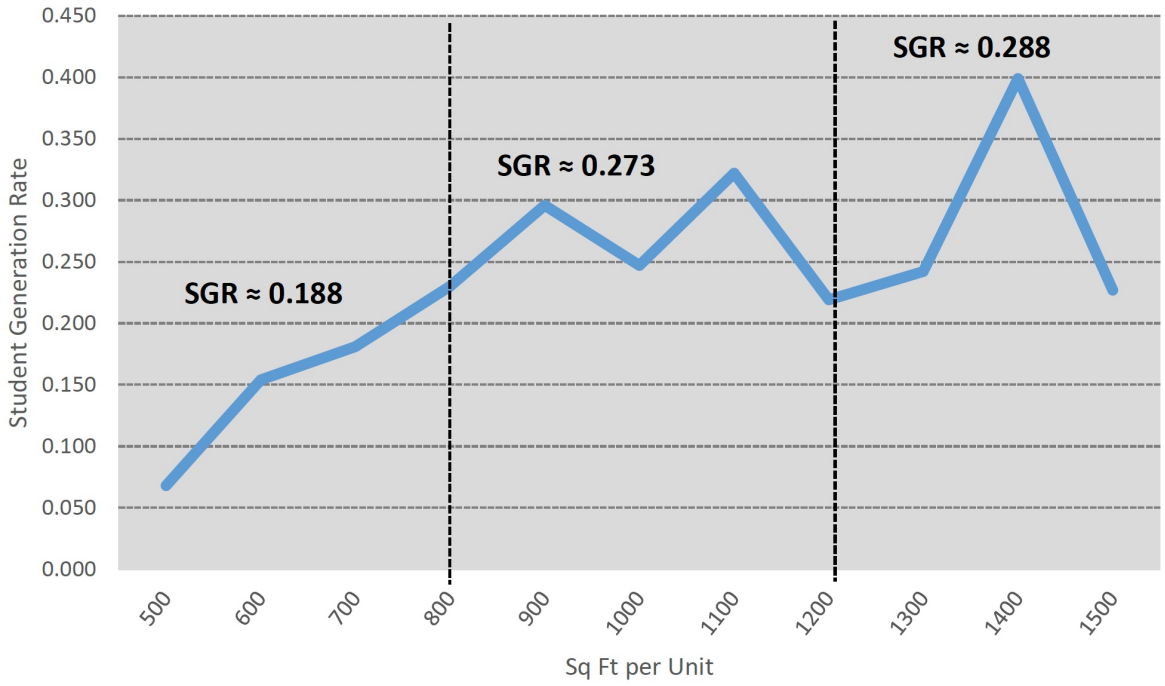
Source: Broward County Property Appraiser Database and Student Parcel GIS Layer

Figure C-2: Townhouse, Duplex, Villa



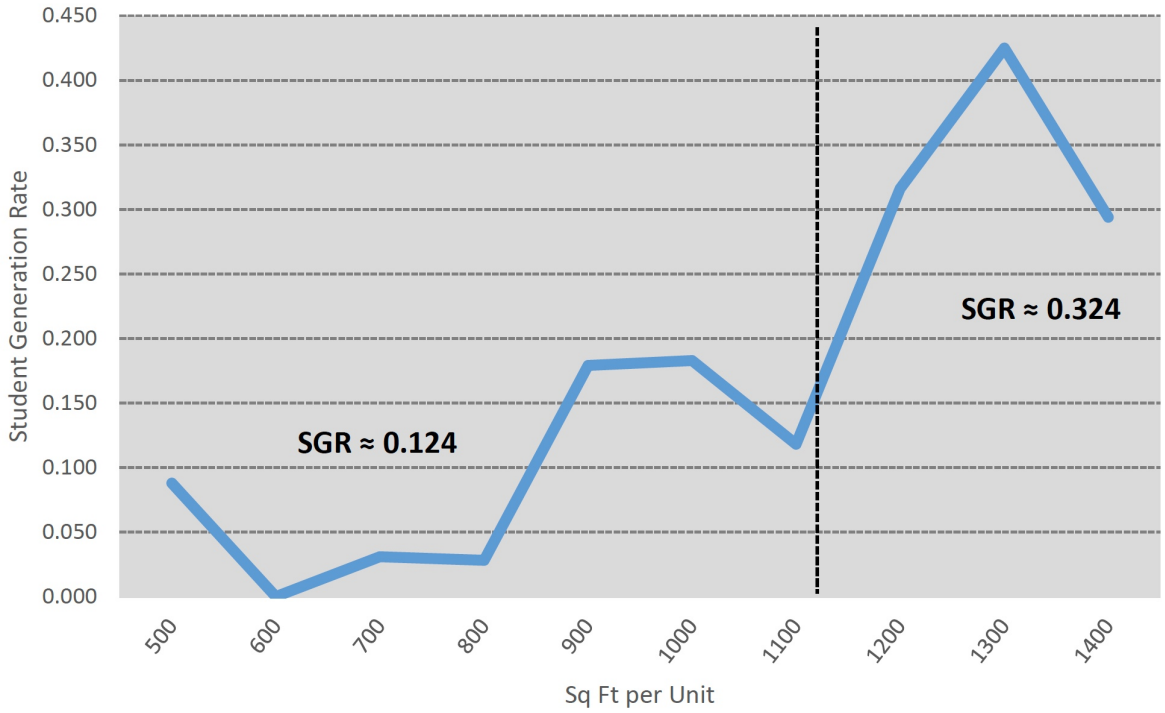
Source: Broward County Property Appraiser Database and Student Parcel GIS Layer

Figure C-3: Garden Apartment



Source: Broward County Property Appraiser Database and Student Parcel GIS Layer

Figure C-4: Mid-Rise



Source: Broward County Property Appraiser Database and Student Parcel GIS Layer

Appendix D
Revenue Impact of Capped Increase

Appendix D –Revenue Impact of Capped Increase

As discussed previously, Broward County is interested in capping the fee increase for select land uses. This Appendix provides detailed calculations of revenue impact of such a policy decision.

As presented in Table D-1, the fee increase cap of 75% affects four residential categories and results in a revenue loss of approximately 1.5% of school impact fee revenues.

As presented in Table D-2, the fee increase cap of 49% affects four residential categories and results in a revenue loss of approximately 2.3% of school impact fee revenues.

Table D-1

Revenue Impact of Capped Impact Fee Increase – 75%

Dwelling Unit Type	Bedrooms	Total Impact Fee[1]	Current Adopted Fee[2]	Percent Change[3]	75% Rate Cap[4]	Percent Change[5]	Sample of Units[6]	Revenue Full Rate[7]	Revenue 75% Cap[8]	Revenue Difference[9]
Single Family	3 or fewer	**$9,049**	$6,888	31%	**$9,049**	31%	850	$7,691,650	$7,691,650	$0
	4 or more	**$12,295**	$8,656	42%	**$12,295**	42%	2,265	$27,848,175	$27,848,175	$0
Townhouse, Duplex & Villa	2 or fewer	**$4,918**	$3,974	24%	**$4,918**	24%	229	$1,126,222	$1,126,222	$0
	3 or more	**$7,377**	$6,741	9%	**$7,377**	9%	1,897	$13,994,169	$13,994,169	$0
Garden Apartment	1 or fewer	**$3,442**	$375	818%	**$656**	**75%**	350	$1,204,700	$229,600	-$975,100
	2 bedrooms	**$4,918**	$4,393	12%	**$4,918**	12%	2,769	$13,617,942	$13,617,942	$0
	3 or more	**$5,901**	$7,980	-26%	**$5,901**	-26%	802	$4,732,602	$4,732,602	$0
Mid-Rise	1 or fewer	**$738**	$293	152%	**$513**	**75%**	117	$86,346	$60,021	-$26,325
	2 or more	**$1,967**	$1,153	71%	**$2,018**	**75%**	1,207	$2,374,169	$2,435,726	$61,557
High-Rise	Combined	**$738**	$361	104%	**$632**	**75%**	1,647	$1,215,486	$1,040,904	-$174,582
Mobile Home	2 or fewer	**$3,688**	$3,103	19%	**$3,688**	19%	-	-	-	-
	3 or more	**$8,016**	$6,764	19%	**$8,016**	19%	-	-	-	-
							Total:	$73,891,461	$72,777,011	-$1,114,450
							Percent of Full Rate Revenue[10]:	-	-	**1.51%**

1) Source: Table 10
2) Source: Broward County Planning and Development Management Division
3) Percent change from the current adopted impact fee (Item 2) to the total impact fee (Item 1)
4) Updated impact fee rate with a capped increase of 75% greater than the current adopted fee
5) Percent change from the current adopted impact fee (Item 2) to 75% rate cap (Item 4)
6) Source: Table C-4, new homes added from 2010 to 2016
7) Total impact fee (Item 1) multiplied by the sample of units (Item 6)
8) 75% rate cap (Item 4) multiplied by the sample of units (Item 6)
9) 75% cap revenue (Item 8) less the full rate revenue (Item 7)
10) Total of the "revenue difference" divided by the "revenue full rate" total

Table D-2

Revenue Impact of Capped Impact Fee Increase – 49%

Dwelling Unit Type	Bedrooms	Total Impact Fee[1]	Current Adopted Fee[2]	Percent Change[3]	49% Rate Cap[4]	Percent Change[5]	Sample of Units[6]	Revenue Full Rate[7]	Revenue 42% Cap[8]	Revenue Difference[9]
Single Family	3 or fewer	**$9,049**	$6,888	31%	**$9,049**	31%	850	$7,691,650	$7,691,650	$0
	4 or more	**$12,295**	$8,656	42%	**$12,295**	42%	2,265	$27,848,175	$27,848,175	$0
Townhouse, Duplex & Villa	2 or fewer	**$4,918**	$3,974	24%	**$4,918**	24%	229	$1,126,222	$1,126,222	$0
	3 or more	**$7,377**	$6,741	9%	**$7,377**	9%	1,897	$13,994,169	$13,994,169	$0
Garden Apartment	1 or fewer	**$3,442**	$375	818%	**$559**	**49%**	350	$1,204,700	$195,650	-$1,009,050
	2 bedrooms	**$4,918**	$4,393	12%	**$4,918**	12%	2,769	$13,617,942	$13,617,942	$0
	3 or more	**$5,901**	$7,980	-26%	**$5,901**	-26%	802	$4,732,602	$4,732,602	$0
Mid-Rise	1 or fewer	**$738**	$293	152%	**$437**	**49%**	117	$86,346	$51,129	-$35,217
	2 or more	**$1,967**	$1,153	71%	**$1,718**	**49%**	1,207	$2,374,169	$2,073,626	-$300,543
High-Rise	Combined	**$738**	$361	104%	**$538**	**49%**	1,647	$1,215,486	$886,086	-$329,400
Mobile Home	2 or fewer	**$3,688**	$3,103	19%	**$3,688**	19%	-	-	-	-
	3 or more	**$8,016**	$6,764	19%	**$8,016**	19%	-	-	-	-
							Total:	$73,891,461	$72,217,251	-$1,674,210
							Percent of Full Rate Revenue[10]:	-	-	**2.27%**

1) Source: Table 10
2) Source: Broward County Planning and Development Management Division
3) Percent change from the current adopted impact fee (Item 2) to the total impact fee (Item 1)
4) Updated impact fee rate with a capped increase of 49% greater than the current adopted fee
5) Percent change from the current adopted impact fee (Item 2) to 49% rate cap (Item 4)
6) Source: Table C-4, new homes added from 2010 to 2016
7) Total impact fee (Item 1) multiplied by the sample of units (Item 6)
8) 49% rate cap (Item 4) multiplied by the sample of units (Item 6)
9) 49% cap revenue (Item 8) less the full rate revenue (Item 7)
10) Total of the "revenue difference" divided by the "revenue full rate" total