



SCHOOL ASSIGNMENT OPTIMIZATION AND FACILITY CONDITION ASSESSMENT GUILFORD COUNTY SCHOOLS

Final Report

January 9, 2019

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In December 2017, Guilford County Schools (“GCS” or “the district”) contracted with MGT of America Consulting, LLC (“MGT”) to conduct a School Assignment Optimization and Facility Condition Assessment to address future optimization and facility needs. The goal of a master plan is to create a blueprint or roadmap, based on best practice facility standards, that identifies and prioritizes facility needs and presents strategies for effective and efficient facility improvement and usage over the planning period. For this project, the MGT team gathered facility and community data, as well as input from the school board, county commissioners, the superintendent, and executive-level staff. This report provides findings and recommendations based on that information.

The project included the following tasks:

- ◆ Project initiation
- ◆ Development of facilities and site inventory system
- ◆ Programmatic review of school facilities to establish facility standards
- ◆ Facility assessments
- ◆ Analysis of community demographics, enrollment, and capacities
- ◆ Review of educational trends and best practices
- ◆ Budget estimates
- ◆ Prioritization and budgeting
- ◆ Preparation and presentation of final facilities master plan

This report consists of seven sections. Sections 1-6 include a description of the methodology and the data gathered in that section. The final section contains the findings and recommendations, as well as supporting recommendations that may assist with implementation. The report also includes appendices that contain enrollment projections and capacity review details, the *Educational Suitability Guide* used for facility assessments, and the facility reports for each school.

The report sections are as follows:

Section 1.0 – Executive Summary

Section 2.0 – Background

Section 3.0 – Demographics, Enrollment History and Projections

Section 4.0 – Educational Program Review

Section 5.0 – Capacity and Utilization

Section 6.0 – Facility Assessments

Section 7.0 – Master Plan Recommendations

Appendix A – Educational Suitability and Technology Readiness Reference Guide

Appendix B – GCS Space Guidelines and Capacity



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I.0 EXECUTIVE SUMMARY

Appendix C – Capacity and Utilization Model Comparison

Appendix D – Detailed School Reports

Appendix E – BASYS and eCOMET Assessment Reports



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2.0 BACKGROUND

2.1 DISTRICT INFORMATION

Guilford County Schools (GCS) is the third largest school district in North Carolina with approximately 72,000 students and encompasses Greensboro, High Point, and many surrounding neighborhoods. There are 126 schools in the district, including 69 elementary schools, 22 middle schools, and 28 high schools.¹

Of the 72,000 students currently in attendance, GCS services 10,324 students who receive special education services and 14,490 advanced learners. There are 112 languages/dialects spoken throughout the student population, and the current poverty rate is 64 percent. GCS is diverse in language, social economic status, learning differences, and ethnicity.

2017-2018 Student Ethnic Composition (20th Day)²

American Indian - 0.39%
Asian - 6.42%
Black - 40.65%
Hispanic - 15.70%
Multi-Racial - 4.20%
Pacific Islander - 0.15%
White - 32.49%

To support such a large and diverse student population, GCS is broken down into seven different Learning Areas for elementary schools and six different Learning Areas for four middle and high schools and one specialty school. School Support Officers (SSO) provide supervision and support to principals and school leaders.

District Personnel

Administrators, managers - 65
Principals - 126
Assistant Principals - 126
Elementary Teachers - 2,381
Secondary Teachers - 1,153
Other Classroom Teachers - 1,259
Guidance - 200
Psychological - 43
Media Coordinators, Audiovisual - 112

Total Full-Time Personnel - 9,177

Total Full-time and Part-time personnel - 10,027

Consultant, Supervisors of Instruction - 43
Other Professionals – 595
Teacher Assistants - 1,094
Technicians - 86
Clerical, Secretarial - 488
Service Workers - 1,269
Skilled Crafts - 122
Laborers - 15

Source: Guilford County Schools, <https://www.gcsnc.com/Page/4313>, 2018.

The district is directed by the Guilford County Board of Education which is made up of nine members who are elected by citizens in partisan elections every four years. Terms are staggered to ensure continuity of services. Board of Education members create policies that govern the district including its

¹ Guilford County Schools, <https://www.gcsnc.com/Page/4313>, 2018.

²Id.



curriculum, facilities, financial resources, and personnel. The board also evaluates the district's academic performance and monitors its progress.

Adopted by the Guilford County Board of Education on December 12, 2000, the mission of GCS is as follows:

“Guilford County students will graduate as responsible citizens prepared to succeed in higher education, or in the career of their choice.”

GCS will accomplish this mission through a commitment to the following core values:

DIVERSITY - We are committed to creating an educational organization where a variety of persons and perspectives are welcome. We are committed to providing an environment where students and staff from all cultures and backgrounds may succeed.

EMPATHY - We are committed to developing a culture where our employees identify with and understand the feelings of our students and parents as well as their colleagues.

EQUITY - We are committed to creating equitable and inclusive schools where adults take ownership for student learning outcomes and make sure students have what they need to succeed in school and in life. We will acknowledge and dismantle systems, processes, and mindsets that perpetuate race, poverty, disability, and English language status as predictors of achievement. We will align resources to create equitable opportunities for students and employees. We will eradicate achievement gaps.

INNOVATION - We are committed to fostering a work environment where the goal is not to manage innovations, but to become innovative. Problems are identified, adults in the district assume ownership of the problems, and everyone works together as agents of the solution until the problems are solved. We will not stop until obstacles are removed, solutions are found, and clear and compelling goals are established.

INTEGRITY - We are committed to creating a school district that acts with honesty and forthrightness, holding ourselves to high academic and ethical standards and treating everyone with respect.

Guilford County (the county) has approximately 526,953³ residents with a clear majority residing in the cities of Greensboro and High Point. Morehead, High Point, and Gilmer townships house approximately 70 percent of the total population for the entire county.⁴ However, GCS serves students in urban, suburban, and rural areas.

Though Guilford County is large and encompasses several densely populated townships, there has been minimal change to student enrollment numbers over the past ten years, a trend that is expected to continue throughout the next ten years. See **Section 3.0** for historical and projected enrollment numbers.

The county population has grown from 594,833 in the 2010 census to an estimated 2015 level of 599,498. Twenty-two percent of the population is under 18, or school age. As of July 1, 2017, there

³ U.S. Census Bureau population estimates 2017,

<https://www.census.gov/quickfacts/fact/table/guilfordcountynorthcarolina/PST045217>, 2018.

⁴ Statistical Atlas, <https://statisticalatlas.com/county/North-Carolina/Guilford-County/Population>, 2018.

were 228,357 housing units with an average of 2.47 people living in each home, and approximately 34 percent of the population holds at least a bachelor's degree or higher level of education. The county

has low unemployment rates (less than 1.2%), and over 255,000 of its residents are currently employed.⁵ Live birth data over the past eight years has held steady and is projected that those trends will continue.⁶

The first school in Guilford County opened in 1841, following the passing of the state's Commons School Act of 1839. According to the National Center for Statistics, GCS is the 47th largest school district in the country.⁷ The Facilities, and Technology department are responsible for servicing over 12,000,000 sq. ft of school building space. Many schools were built before the 1975 passage of PL 94-142 that supported students with special needs, and many were also constructed before 1990 when the Americans with Disabilities Act (ADA) passed.

The result of the original build dates may impact the number of available spaces for small group instruction and classrooms with restrooms and changing areas to support specialized instruction. They may also lack ramps and elevators to provide universal access to all spaces.

That said, it is important to note that GCS has a long history of consistently upgrading its school buildings through renovations and replacements to mitigate these challenges. For example, the following schools have been built since 2008:

Hunter Elem. Northern High
Northern Elem. Haynes-Inman Education Center
McNair Elem. Herbin-Metz Education Center
Simkins Elem. Joyner-Greene Education Center
Union Hill Elem. Western Guilford Middle School
Jamestown Middle Eastern Guilford High School

MGT and project partner Parsons performed a physical condition, educational suitability, technology readiness, and comprehensive site review of each school building as a part of this project. Any limitations in appropriate and adequate condition, educational suitability, technology readiness, or site condition was captured in the Detailed School Report for each school building in **Appendix D**.

Based on the last available data from the National Center for Statistics (2013), GCS receives approximately \$686 million in revenue. Those dollars are comprised of federal, state, and local dollars, with the bulk of the funds, 55 percent, coming from the state. GCS received \$26,822,000 in Title I funding to service students in 2015.⁸

⁵ U.S. Census Bureau population estimates 2017, <https://www.census.gov/quickfacts/fact/table/guilfordcountynorthcarolina/PST045217>, 2018. ⁶ MGT of America Consulting, LLC, Demographics Study for Guilford County Schools, 2018. ⁷ National Center for Education Statistics 2015, https://nces.ed.gov/programs/digest/d15/tables/dt15_215.30.asp, 2018. ⁸ National Center for Education Statistics 2015, https://nces.ed.gov/programs/digest/d15/tables/dt15_215.20.asp, 2018.

According to the district website, GCS receives funding (in dollar amounts) from the following revenue streams:⁹

State Funds - \$404,135,654
County Funds - \$195,860,398
Federal Funds - \$59,496,194
Other Local Funds - \$4,703,424
School Food Services - \$41,872,322
ACES - \$7,203,221
Local Special Revenue - \$11,657,214
Capital Outlay - \$5,000,000

Those funds were distributed throughout GCS in the following manner:

Salaries - \$411,472,206
Benefits - \$155,464,282
Purchased Services - \$83,478,261
Supplies and Materials - \$53,773,300
Capital Outlay - \$7,132,634
Transfers - \$18,607,744

It is important to note that these numbers are current expenditures and may not completely align with the figures that were reported in the 2013 data from the National Center for Statistics.

2.2 PROJECT BACKGROUND

In March of 2018, MGT of America Consulting, LLC (MGT) began the process of developing recommendations for a facility master plan that would address the long-term facility needs of the district. The goal of the master plan is to provide long-range facility planning services using best practice facility standards that identify and prioritize facility needs. The plan will also present a blueprint for effective and efficient facility improvement and usage over the planning period.

The project included the following tasks:

- ◆ Project initiation
- ◆ Development of facilities and site inventory system
- ◆ Programmatic review of school facilities to establish facility standards
- ◆ Facility assessments
- ◆ Analysis of school and community demographics
- ◆ Review of school capacity and efficiency
- ◆ Budget estimates
- ◆ Prioritization and budgeting

⁹ Guilford County Schools, <https://www.gcsnc.com/Page/4313>, 2018.

- ◆ Preparation and presentation of final recommendations

To develop recommendations for a long-range facility master plan, MGT gathers and analyzes both *quantitative* and *qualitative* data. The quantitative data includes facility assessments, capacity and enrollment projections, and demographic analysis. Qualitative data is collected from interviews with district officials familiar with educational programs and facilities. Both forms of data are critical to the preparation of a comprehensive set of recommendations for the district that will meet planning needs into the future.

The timeline for the project is shown below.

WORK TASKS	Feb			March			April			May			June			July			August			
	1	2	4	1	2	4	1	2	4	1	2	4	1	2	4	1	2	4	1	2	4	
Project Initiation																						
PHASE 1 Conduct Facilities Assessment																						
PHASE 2 Develop Master Planning Options																						
PHASE 3 Create Scenarios and Develop Capital Plan																						
PHASE 4 Adoption and Implementation of Master Plan																						

PROJECT INITIATION

The MGT team reviewed the goals of the project with district staff during the project initiation meeting, established lines of communication, and the work plan and project schedule were reviewed and finalized.

ENROLLMENT PROJECTIONS

The MGT team prepared enrollment projections for the school district and compared these with district estimates. Understanding current and future enrollment in a district are critical: funding, staffing, and facility decisions hinge on having accurate information about enrollment. MGT gathered demographic data from several sources and prepared the projections using four different projection models. To the extent possible, the projections reflect the current housing trends in the district.



CAPACITY AND UTILIZATION

MGT worked with district staff to understand the current program offerings and the current capacity and utilization numbers for each building. During the onsite review, MGT staff discussed program needs and plans with the administrative staff at each site. The capacity information used in this report came from the district's data and captured as an "efficiency score." The score reflects the proportion of classroom space used for instruction. A school with a defined capacity of 300 and enrollment of 150 has a utilization score of 50 percent; if the school had an enrollment of 450, the utilization score would be 150 percent.

PROGRAMMATIC REVIEW

The MGT team conducted extensive interviews with school district leaders and staff to develop an understanding of the educational programs delivered in each of the school facilities. These discussions were used to establish facility standards by which the facilities could be evaluated for educational suitability and program support. For more information about the facility standards related to the educational suitability of each site, please see **Section 6.0** for assessment data about each school and **Appendix A** for the *Educational Suitability Reference Guide* used for the assessments.

FACILITY ASSESSMENTS

Facility assessments were conducted at each school site using MGT's BASYS® and Parsons' eComet Facility Assessment software. The assessments included:

- ◆ **Building condition** – based on an assessment by Parsons staff who are experienced, national assessors who used eCOMET® software to gather information about all building systems. These data were used to identify systems that are out of date or in need of replacement and define the condition of the facility, often described as a Facility Condition Index (FCI).
- ◆ **Site condition** - based on an assessment by Parsons staff who are experienced, national assessors who used eCOMET® software to gather information about all site systems.
- ◆ **Educational suitability** – based on a walk-through by MGT staff with the building principal/designee that gathered data regarding how well the facility supported the educational programs, including the learning environment, size, location, and fixed equipment. Data were gathered using MGT's BASYS® software system.
- ◆ **Technology readiness** – based on a walk-through by MGT staff reviewing the infrastructure available in each school to support current and future technology applications. Data were gathered using MGT's BASYS® software system.

Each assessment results in a score based on a 100-point scale. The BASYS® and eComet software produce a detailed report for each facility assessment which includes each deficiency identified. See **Section 6.0** for information about the assessment scores for each building and **Appendix E** for BASYS and eComet assessment reports.

The results of the assessments were reviewed with district staff to ensure accuracy and completeness.



MASTER PLAN FINDINGS AND RECOMMENDATIONS

The MGT team identified findings based on the data gathered throughout the project. The findings were used to develop recommendations to address the facility needs of the district. The recommendations provide a guide for long-range planning and facility improvements.

This study could not have been conducted without the assistance of GCS staff who have provided valuable information and data. MGT has met with and gathered information from each of the departments and individuals listed below.

Acknowledgements

Dr. Sharon Contreras – Superintendent

Superintendent's Council

Brian Schultz – Chief Academic Officer

Angie Henry – Chief Financial Officer

Dr. Shirley Morrison – Chief Human Resources Officer

Scott McCully – Chief Operations Officer

Wanda Legrand – Chief Student Support Officer

Dr. Tony Watlington – Chief of Schools

Dr. Nora Carr – Chief of Staff



2.0 BACKGROUND

Additional Acknowledgements

Julius Monk – Executive Director of Facilities Ken Woody – Director of Technology Services

Noah Tiluk - Demographer Amy Pendergrass – Director of Early Learning

Holly Nuttall – Facilities Planner Whitney Oakley –Assistant Superintendent of Teaching, Learning, and Professional Development

Joy Cantey – Director of Literacy K-12 Kimberly Scott, Montlieu Elementary – Principal Jen Arberg –

Director Math K-12 Marcy Roan, Gibsonville Elementary – Principal Jonathan Permar – Director of Social

Studies Sheila Gorham, Allen Middle – Principal

Faith Freeman – Director of STEM Ged O'Donnell, Kiser Middle – Principal

Karen Meadows – Supervisor Elem/Middle School

Counseling Marcus Gause, Andrews High – Principal Becki Haislip – Supervisor Health/PE Noel

Keener, Northeast High – Principal

Bob Gantt – Director CTE/Secondary Pathways Tammy Gruer – Director Library Media Services

Brandon Haxton – Program Administrator/Maintenance Chris Nowlin – Executive Director of Emergency Management

Curtis Stacey – Asst. Director of Transportation Paul Perrotta – Assistant Superintendent Exceptional Children Services

Nathan Street – Director of Fine Arts Lessley Mader – Director of EC School Support Charles Blanchard –

Executive Director of CTE Faith Freeman – Director of STEM

Michelle Hayes – Director of Extended Learning Jim Faggione – Director School Nutrition

Dibrelle Turret – Executive Director of Advanced

Learners Linda Marshburn – Business Manager School Nutrition Doyle Craven – Director of Student Assignment

Richard Sumner – Information Technology Coordinator

Sharon McCleese – Director of Student Information Donna Bell – Director of Planning

Zalonda Purcell – Program Manager (ACES) Quentin Trent – Director School Safety

Barry Brinkley – Executive Director Equity/Student

Achievement Thomas Griffis – Manager Standards & Design Leigh Hebbard – Director of Athletics/Drivers Education

3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

This section provides information about Guilford County demographics as well as Guilford County Schools (GCS), enrollments and projected enrollments.

3.1 DEMOGRAPHICS

POPULATION

The population in Guilford County, NC, has been growing over the last several years showing a 3.8 percent increase in total population from 2010 to 2015. **Exhibit 3-1** shows the estimated increase in total population from 2010 to 2015.

EXHIBIT 3-1
GUILFORD COUNTY, NC
TOTAL POPULATION
2010 TO 2015 EST



Source: U.S. Census Bureau.

A closer look at the Guilford County population data reveals the community is getting slightly older. From

2010 to 2015, the Guilford County median age increased from 36.3 to 36.9. **Exhibit 3-2** shows the increase in median age from 2010 to 2015.

EXHIBIT 3-2
GUILFORD COUNTY, NC
MEDIAN AGE OF POPULATION
2010 TO 2015 EST



Source: U.S. Census Bureau.

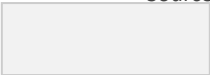


Except for age groups 15-19 and 35-44, all other age groups show an increase between 2010 and 2015. The age group 65-74 showed a 19 percent increase, contributing to the slight increase in median age. **Exhibit 3-3** illustrates the changes in the Guilford County age structure.

EXHIBIT 3-3
 GUILFORD COUNTY, NC
 POPULATION AGE STRUCTURE
 (TOTAL BY AGE GROUP)
 2010 TO 2015 EST



Source: U.S. Census Bureau.



3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

LIVE BIRTHS

There are two key segments within the age structure that have the most bearing on future GSC enrollment: the school age population and the child-bearing age population. These two segments affect either current potential students or future potential students. Both population groups have increased since 2010. **Exhibit 3-4** identifies the change in the population of these two segments between 2010 and 2015.

EXHIBIT 3-4
GUILFORD COUNTY, NC
CHANGE IN PERCENT OF POPULATION
2010 TO 2015 EST.
(BY AGE SEGMENT)

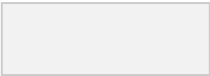
ELEMENT	AGE SEGMENT	2010	2015	% CHANGE
School Age	Under 19	131,964	133,091	1%
Child-Bearing Age	15-44	208,306	211,500	2%

Source: U.S. Census Bureau.

The slight increase in the child-bearing age population has likely contributed to an increase in the number of live births over most of the last 14 years, which has, in turn, led to more school-age children.

RACE

The racial structure in 2015 for Guilford County consisted of 52 percent White, 33 percent African American, 8 percent Hispanic or Latino (any race), 4 percent Asian, and 3 percent other races. As a proportion of the total population, there was minimal change between 2010 and 2015 for all races. **Exhibits 3-5A** and **3-5B** illustrates the racial structure in Guilford County for 2010 and estimated for 2015.



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3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

EXHIBIT 3-5A
GUILFORD COUNTY, NC
2010 RACIAL STRUCTURE BY PERCENT OF POPULATION

Asian, 4%
Native Hawaiian and Other
Pacific Islander, 0%

American Indian and
Alaska Native, 0%

*Hispanic or Latino,
7%

*Hispanic or Latino (any race)
Source: U.S. Census Bureau.

EXHIBIT 3-5B
Two or more races, 2%

GUILFORD COUNTY, NC
2015 EST. RACIAL STRUCTURE BY PERCENT OF POPULATION

Asian, 4%

Native Hawaiian and Other Pacific
Islander, 0%

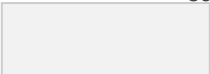
Two or more races, 2%

American Indian and Alaska Native, 0% Latino, 8%

*Hispanic or

*Hispanic or Latino (any race)

Source: U.S. Census Bureau.



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3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

3.2 HISTORICAL ENROLLMENT

HISTORICAL ENROLLMENT

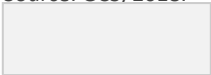
Total PK-12 enrollment in Guilford County Schools stood at 72,118 students in 2008-09. Since then, enrollment has remained consistent at 72,137 in 2017-18. **Exhibit 3-6** details the enrollment history of PK-12 students, while **Exhibit 3-7** illustrates the slight increase in overall enrollment. These numbers include EC/AC (Exceptional Children/Adaptive Curriculum) students.

The following schools excluded from the analysis do not occupy GCS facilities: MC at Bennett, Greensboro College MCHS, Early College at Guilford MCHS, GTCC GSO MCHS, Early Middle College at GTCC, HP GTCC MCHS, NC A&T Middle College HS, STEM Early College @ A&T, and UNC-G Middle College.

EXHIBIT 3-6
 GUILFORD COUNTY SCHOOLS
 PK-12 ENROLLMENT HISTORY INCLUDING EC/AC
 2008-2017

GRADE	08 – 09	09 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 – 15	15 - 16	16-17	17-18
PK	1,499	1,568	1,581	1,549	1,497	1,526	1,624	1,594	1,592	1,587
K	5,334	4,870	5,554	5,485	5,516	5,574	5,398	5,193	5,002	5,265
1	5,529	5,479	4,995	5,624	5,545	5,479	5,630	5,479	5,199	5,119
2	5,576	5,542	5,489	4,970	5,587	5,449	5,417	5,607	5,431	5,252
3	5,672	5,574	5,519	5,575	4,969	5,492	5,469	5,474	5,592	5,538
4	5,440	5,607	5,580	5,519	5,529	4,889	5,441	5,486	5,483	5,693
5	5,559	5,505	5,672	5,597	5,525	5,483	4,841	5,449	5,484	5,549
6	5,392	5,533	5,524	5,720	5,529	5,390	5,352	4,765	5,395	5,406
7	5,333	5,299	5,486	5,451	5,698	5,445	5,334	5,347	4,879	5,430
8	5,362	5,432	5,376	5,525	5,528	5,698	5,495	5,317	5,442	5,028
9	6,478	6,295	6,124	6,101	6,135	6,177	6,313	6,019	5,970	6,015
10	5,677	5,761	5,700	5,763	5,781	5,783	5,805	5,861	5,786	5,624
11	4,903	5,088	5,186	5,189	5,295	5,384	5,387	5,498	5,649	5,496
12	4,364	4,457	4,602	4,574	4,738	4,826	4,905	4,965	4,999	5,135
PK-5	34,609	34,145	34,390	34,319	34,168	33,892	33,820	34,282	33,783	34,003
6-8	16,087	16,264	16,386	16,696	16,755	16,533	16,181	15,429	15,716	15,864
9-12	21,422	21,601	21,612	21,627	21,949	22,170	22,410	22,343	22,404	22,270
PK-12	72,118	72,010	72,388	72,642	72,872	72,595	72,411	72,054	71,903	72,137

Source: GCS, 2018.



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80,000 70,000 60,000 50,000 40,000 30,000 20,000 10,000 -

HISTORICAL PK-12 ENROLLMENT INCLUDING EC/AC
2008-2017

72,118 72,010 72,388 72,642 72,872 72,595 72,411 72,054 71,903 72,137

PK K-5 6-8 9-12

Source: GCS, 2018.



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3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

A closer look at GCS data on the historical enrollment at individual grade levels reveals two trends of note. First, at the elementary level, there was a low enrollment bubble in Kindergarten 2009. That bubble is evident in subsequent grade levels as that cohort moved on through 8th grade. Grades K,1,2,3, and 4 have all declined since 2008. Second, grades 11 and 12 have increased by 12 percent and 19 percent, respectively, since 2008. The following **Exhibits 3-8, 3-9, and 3-10** illustrate the historical enrollment for each grade level.

Exhibit 3-8 shows a fluctuating history for K-5th grades.

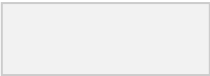
EXHIBIT 3-8
GUILFORD COUNTY SCHOOLS
HISTORICAL K-5 ENROLLMENT

Elementary Historical Enrollment -
by Grade Level

5,800
5,600
5,400
5,200
5,000
4,800
4,600

K 1 2 3 4 5

Source: GCS, 2018.



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3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

Exhibit 3-9 shows a stable 6-8th grade enrollment until the low enrollment bubble begins in 2015 for 6th grade and continues through 8th grade.

EXHIBIT 3-9
GUILFORD COUNTY SCHOOLS
HISTORICAL ENROLLMENT – GRADES 6-8

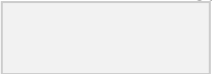
**Middle School Historical Enrollment -
by Grade Level**

6,000
5,800
5,600

5,400
5,200
5,000
4,800
4,600
4,400
4,200
4,000

678

Source: GCS, 2018.



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3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

Exhibit 3-10 illustrates that 9th and 10th- grade enrollment has declined while 11th and 12th-grade enrollment has increased since 2008.

EXHIBIT 3-10 GUILFORD COUNTY SCHOOLS HISTORICAL 9-12 ENROLLMENT

High School Historical Enrollment - by Grade Level

7,000

6,500
6,000
5,500
5,000
4,500
4,000

9 10 11 12

Source: GCS, 2018.

The trends observed in the historical enrollment data will form a key component of the enrollment projections prepared as a part of this master plan.



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3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

LIVE BIRTHS AND KINDERGARTEN ENROLLMENT

A key component to analyzing potential future enrollment is to examine live-birth trends in the area and the live-births-to-kindergarten capture rate.

EXHIBIT 3-11
GUILFORD COUNTY SCHOOLS
HISTORICAL KINDERGARTEN ENROLLMENT AND HISTORICAL BIRTH DATA

Live Births v. Kindergarten Enrollment

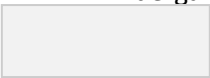
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0

Live Birth 5 yrs earlier K Enrollment

Source: MGT of America Consulting, LLC, 2018.

Two statistics are critical to understanding the relationship between live births and kindergarten enrollment in the district: the correlation coefficient and the capture rate.

The correlation coefficient calculates the strength or weakness of the relationship between two series of data. A correlation coefficient of 1 or -1 indicates a strong relationship; a correlation coefficient of 0 indicates a weak relationship. For GCS, the correlation coefficient for kindergarten enrollment to live births is .623 which indicates a moderately positive relationship, and therefore the live birth rate may be a good indicator of future kindergarten enrollment.



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3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

The capture rate measures the percentage of live births that resulted in kindergarten enrollment five years later. Over the last ten years, the district's Kindergarten capture rate has averaged 87.3 percent. The capture rate has shown a decreasing trend since 2010 as **Exhibit 3-12** illustrates.

HISTORICAL CAPTURE RATES

Historical Capture Rates

94%
92%
90%
88%
86%
84%
82%
80%
78%
76%

Kindergarten Capture Rate

Source: MGT of America Consulting, LLC, 2018.

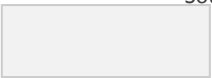
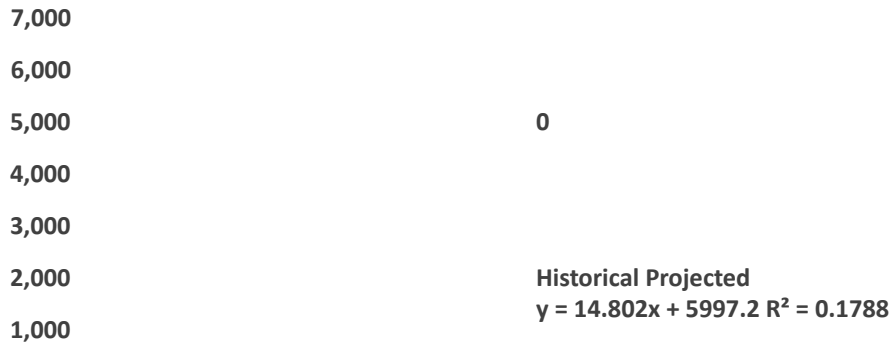


Exhibit 3-13 illustrates the historical and projected live births for the county. Live births are projected using a linear regression model based on 14 years of historical resident live births in Guilford County. The linear regression analysis predicts a slow but steady increase in live births. For these reasons, we expect that kindergarten enrollment will fluctuate but increase in the coming years.

EXHIBIT 3-13
GUILFORD COUNTY, NC
HISTORICAL AND PROJECTED LIVE BIRTHS



Source: MGT of America Consulting, LLC, 2018.



3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

HOUSING

The volume of permits since 2008 reflects the impact of the Great Recession in 2008 with the decline in permitting activity between 2009 and 2012. There has been some rebound in permitting volume since 2012, but the sustainability of that rebound is questionable. If the recent rebound continues over the next ten years, future permitting can be projected to increase.

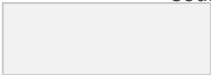
Exhibit 3-14 illustrates the historical building permits and the projected building permits over the next ten years using a simple linear regression forecasting model.

EXHIBIT 3-14
GUILFORD COUNTY, NC
HISTORICAL AND PROJECTED HOUSING PERMITS*

3,000
2,500
2,000
1,500
1,000
500
0

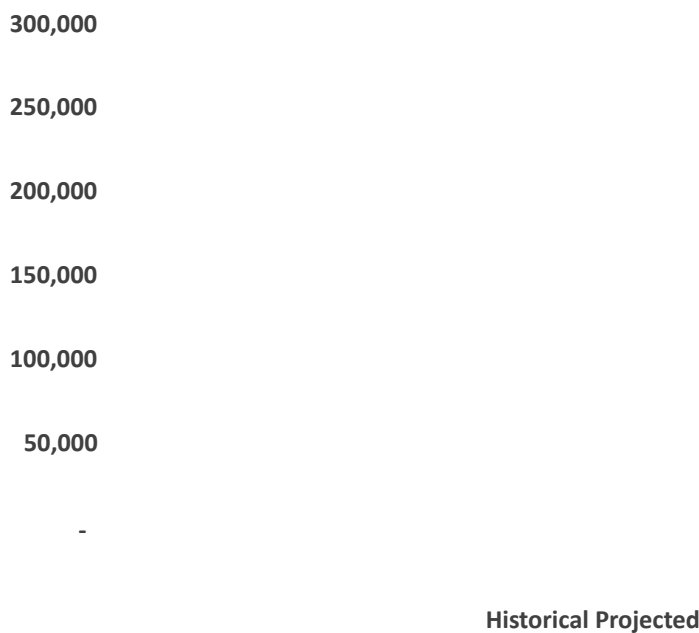
*Includes single and multifamily units.

Source: U.S. Census Bureau, Building Permits Survey; Projections by MGT, 2018.



The U.S. Census Bureau recorded 180,391 housing units in Guilford County in the 2000 Census and 218,017 housing units in 2010. Using the projected residential building permits (converted to housing units) and if each unit results in a built residence, the number of housing units in Guilford County is expected to increase. This assumption is dependent upon several variables, including the economy, the cost of debt, job creation in the county, and federal, state, and local government policies that might encourage or discourage new housing investment and affect demand for housing. **Exhibit 3-15** illustrates this projected increase in housing units from 2010.

EXHIBIT 3-15
GUILFORD COUNTY, NC
HISTORICAL AND ESTIMATED RESIDENTIAL HOUSING UNITS



Source: MGT of America Consulting, LLC, 2018.

3.3 CONCLUSIONS AND OBSERVATIONS ABOUT HISTORICAL DATA

Based on the analysis of data presented in this section, we have concluded the following regarding the demographics of GCS and Guilford County:

1. Over the previous ten years, the PK-12 enrollment in Guilford County Schools has increased by 0.03 percent.
2. The general population and demographics in Guilford County are changing, with an increase in the *Under 5* (1.3%), *5 to 9* (2.1%), *10 to 14* (1.5%) population segments, and a decrease in the *15 to 19* (-1.1%) population segments, indicating an overall increase in the school-aged student population.
3. The numbers of live births have increased. The capture rate of those born in the county has averaged 87 percent but has been declining since 2010, which has had a negative impact on kindergarten enrollment.

3.4 ENROLLMENT PROJECTION METHODOLOGY

Enrollment projections are merely an *estimate* of future activity based on the historical data and information provided. As demonstrated by the district calculations over the past ten years, there can be constant variations in growth. These numbers can be highly accurate, but it must be remembered that the numbers are still a projection or estimate. If prioritization projects are planned in the future, it is critical that the district reassess these numbers on a regular basis and adjust plans accordingly.

To identify trends and prepare for adequate spaces, teaching staff, and materials and supplies, educational leaders use several methods of projecting enrollment. The *Average Percentage Annual Increase*, *Cohort Survival*, *Linear Regression*, and *Student-per-Housing Unit* models are among the most commonly used models. Because no one model is foolproof, MGT generates a weighted average of these four “base” models to arrive at its enrollment projection.

A rule of thumb when forecasting enrollment is that the models should use as many years of historical data as there are years in the projection period. In other words, if the model is projecting enrollment for five years from now, then five years of historical data is used. If the model is projecting enrollment for ten years from now, then ten years of historical data is used. Each of the following “base” models draw data in this manner for their calculations.

AVERAGE PERCENTAGE ANNUAL INCREASE MODEL

The *Average Percentage Annual Increase Model* calculates future school enrollment growth based on the historical average growth from year to year for each grade level. This simple model multiplies the historical average percentage increase (or decrease) by the prior year’s enrollment to project future enrollment estimates. For example, if enrollment in the first grade decreased 5 percent from 2010 to 2011 and decreased 7 percent from 2011 to 2012, then the average percentage change would be a 6 percent decrease, and 6 percent would be the factor used to project future enrollment in this model.

COHORT SURVIVAL MODEL

The *Cohort Survival Model* calculates the growth or decline between grade levels over a period of ten years based on the ratio of students who attend each of the previous years, or the “survival rate.” This ratio is then applied to the incoming class to calculate the trends in that class as it “moves” or graduates through the school system. For example, if history shows that between the first and second grades, the classes for the last ten years have grown by an average of 3.5 percent, then the size of incoming classes for the next ten years is calculated by multiplying them by 103.5 percent. If the history shows a declining trend, the multiplying factor would be 100 percent minus the declining trend number.

The determination of future kindergarten enrollment estimates is critical, especially for projections exceeding more than five years. There are two methods of projecting kindergarten enrollment. The first model is based on the correlation between historical resident birth rates (natality rates) and historical kindergarten enrollment. The second model uses a linear regression line based on the historical kindergarten enrollment data. The correlation method was used for GCS due to the moderately strong correlation coefficient (0.623) between live births and kindergarten enrollment.

LINEAR REGRESSION MODEL

The *Linear Regression Model* uses a statistical approach to estimate an unknown future value of a variable by performing calculations on known historical values. Once calculated, future values for different future dates

3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

can then be plotted along a “regression line” or “trend line”. MGT has chosen a “straight-line” regression model to estimate future enrollment values, a model that finds the “best fit” based on the historical data.

STUDENTS-PER-HOUSEHOLD MODEL

The *Students-Per-Household Model* utilizes the estimated number of housing units as its base data. Using the housing unit data and historical enrollment data, MGT created a student generation factor for each projected grade level. By taking the 2010 enrollment by grade level and dividing it by the 2010 census housing levels, a *student generation factor* (SGF) was calculated for each grade level. This factor indicates the number of students within each grade level that will be generated by each new housing unit.

MODEL WEIGHTING

MGT calculates each of the four base models and generates a weighted average of each of the models. A weighted average allows the analysis to reflect all the trends observed in the historical data and the overarching themes from the qualitative information gathered in this process. The weighted average also works to maximize the strengths of each of the “base” models.

Two models, the Average Percentage Annual Increase Model and the Linear Regression Model, emphasize historical data. These models are quite effective predictors if there is no expectation of unusual community growth or decline and student population rates have had minimal fluctuation.

The Cohort Survival Model also uses historical enrollment numbers but considers student mobility patterns and the effects of the natality rates in prior years. The Cohort Survival Model is perhaps the best-known predictive tool using this type of data. However, like the Annual Percentage Annual Increase Model and the Linear Regression Model, the Cohort Survival Model loses its predictive capabilities in communities that experience, or are expecting to experience, rapid growth or decline.

The Students-Per-Household Model allows the planner to consider projections for housing developments and general growth in the county. This model looks forward and is based on the input from local planners. The planning information is important, and the district should continue to monitor this information.

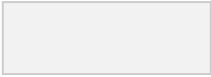
Exhibit 3-16 identifies the weights used for district projections in this analysis.

EXHIBIT 3-16
WEIGHTS APPLIED TO DISTRICT “BASE” MODEL

PROJECTION WEIGHTING FACTORS	
BASE MODEL	MODEL WEIGHT
Average Percentage Annual Increase	45%
Students-per-Household	6%
Cohort Survival	43%

Linear Regression	6%
-------------------	----

Source: MGT of America Consulting, LLC, 2018.



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 3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

Exhibit 3-17 illustrates the four enrollment projection models and the one combined weighted model.

EXHIBIT 3-17
 PK-12 MODEL COMPARISON
 HISTORICAL ENROLLMENT AND MODEL PROJECTION COMPARISON

87,000
 82,000
 77,000
 72,000
 67,000
 62,000

Historical Ave Pct Growth Students Per Household
 Cohort Survival Linear Regression Weighted

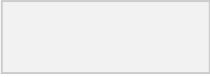
Source: MGT of America Consulting, LLC, 2018.

3.5 ENROLLMENT PROJECTIONS

MGT staff has utilized the methodology described above and worked closely with district staff to forecast enrollment for the district over the next ten years. MGT’s enrollment projections are shown in **Exhibit 3-18**. **Exhibit 3-19** illustrates the historical and projected enrollment by grade band.

Note: The difference in total projected enrollment for the district (**Exhibit 3-17**) and the total of the individual schools (**Exhibit 3-20**) is due to the mathematics of the models and the historical enrollment of a particular school. For example, a school may show significant growth from year-to-year, which would result in a high cohort survival rate and a high overall projection for that school. However, the abundance of growth at a particular school will be balanced by the other schools in the district-wide model, which leads to a lower cohort survival rate and a less significant increase in future enrollment. The same is true for grade band projections as compared to the sum of the individual schools within a particular grade band. In the end, the

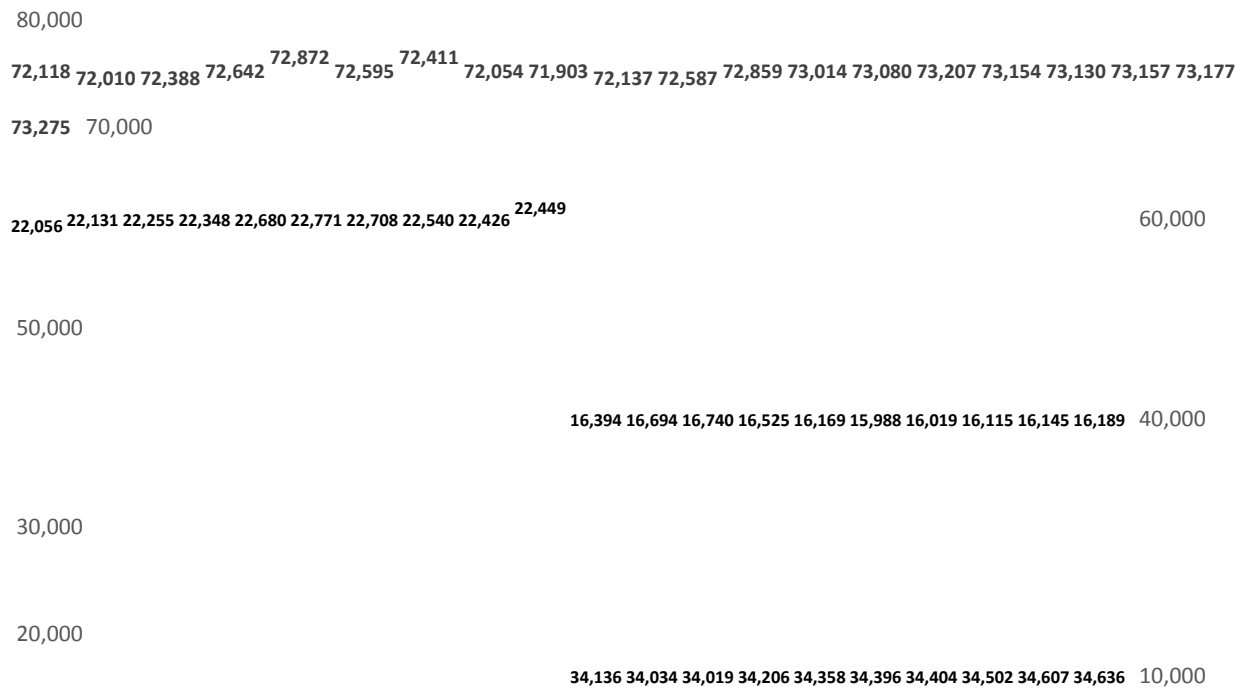
district-wide and grade band totals provide good macro views of potential future trends. The individual school projections provide micro views of the potential future of a school, which makes the individual school projections appropriate for planning for that particular building's future.



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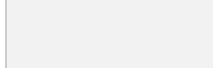
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 3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS EXHIBIT 3-18

**GUILFORD COUNTY SCHOOLS
 ENROLLMENT FORECAST BY GRADE BAND**



PK-5 6-8 9-12

Source: MGT of America Consulting, LLC, 2018.



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EXHIBIT 3-19
GUILFORD COUNTY SCHOOLS
ENROLLMENT FORECAST BY GRADE

ENROLLMENT FORECAST										
Grade	18 - 19	19 - 20	20 - 21	21 - 22	22 - 23	23 - 24	24 - 25	25 - 26	26 - 27	27 - 28
PK	1,578	1,578	1,591	1,593	1,611	1,621	1,623	1,624	1,630	1,640
K	5,393	5,399	5,358	5,366	5,315	5,307	5,303	5,337	5,379	5,390
1	5,142	5,119	5,000	4,959	4,996	4,958	4,977	5,010	5,007	4,998
2	5,147	5,156	5,176	5,144	5,123	5,197	5,210	5,203	5,200	5,196
3	5,468	5,426	5,547	5,604	5,615	5,646	5,691	5,671	5,670	5,673
4	5,727	5,687	5,661	5,853	5,955	5,899	5,895	5,954	5,949	5,981
5	5,683	5,669	5,687	5,687	5,743	5,767	5,704	5,702	5,771	5,759
6	5,633	5,886	5,928	5,782	5,687	5,733	5,762	5,720	5,730	5,807
7	5,545	5,646	5,667	5,602	5,451	5,363	5,450	5,512	5,487	5,505
8	5,216	5,162	5,145	5,142	5,031	4,891	4,807	4,884	4,927	4,877
9	5,871	6,132	6,099	6,073	6,143	6,075	5,949	5,860	5,938	5,963
10	5,634	5,408	5,607	5,612	5,621	5,689	5,621	5,490	5,401	5,501
11	5,441	5,476	5,348	5,576	5,602	5,636	5,723	5,677	5,585	5,547
12	5,110	5,116	5,201	5,087	5,313	5,371	5,414	5,514	5,502	5,439
PK-12	72,587	72,859	73,014	73,080	73,207	73,154	73,130	73,157	73,177	73,275

Source: MGT of America Consulting, LLC, 2018.

PK enrollment can vary based on local, state, and federal funding, board policy, parental choice, and student accommodations and needs. The enrollment numbers above are based on a 10-year historical analysis of GCS PK enrollment taking into consideration the aforementioned factors.

The district is strongly encouraged to continue to revisit these projections on an annual basis and update them to reflect current trends and data.

The methodologies discussed above were used to generate projections for each school. **Exhibit 3-20** provides the 2027 projection by school, and **Exhibit 3-21** displays the range and average projected enrollment by site type.

EXHIBIT 3-20
GUILFORD COUNTY SCHOOLS
CURRENT AND PROJECTED ENROLLMENT

Alamance Elem. 544 557 628 Alderman Elem. 451 446 434 Allen Jay Elem. 472 487 434 Archer
Elem. 423 415 420 Bessemer Elem. 453 434 481 Bluford Elem. 276 274 255 Brightwood Elem.
571 565 588 Brooks Global Studies 393 386 369 Claxton Elem. 600 614 624 Colfax Elem. 632 643
655 Cone Elem. 489 489 512 Erwin Montessori 306 291 260 Fairview Elem. 429 451 382 Falkener
Elem. 593 603 614 Florence Elem. 717 725 694 Foust Elem. 378 384 421 Frazier Elem. 341 358
369 General Greene Elem. 488 500 529 Gibsonville Elem. 523 535 609 Gillespie Park Elem. 251
252 268 Guilford Elem. 554 553 603 Hampton Elem. 334 336 330 Hunter Elem. 579 511 543
Irving Park Elem. 589 582 594 Jamestown Elem. 441 449 433 Jefferson Elem. 691 714 663 Jesse
Wharton Elem. 514 533 548 Jones Elem. 720 722 717 Joyner Elem. 298 319 324 Kirkman Park
Elem. 351 340 355 Lindley Elem. 504 492 546 Madison Elem. 227 240 237 McLeansville Elem.
344 335 400 McNair Elem. 524 523 561 Millis Road Elem. 497 520 535 Monticello-Brown
Summit Elem. 400 402 403 Montlieu Elem. 642 559 622 Morehead Elem. 622 602 602 Murphey
Elem. 284 275 269

EXHIBIT 3-20 (CONTINUED)
GUILFORD COUNTY SCHOOLS
CURRENT AND PROJECTED ENROLLMENT

Nathanael Greene Elem. 261 267 252 Northern Elem. 632 650 680 Northwood Elem. 567 545
584 Oak Hill Elem. 476 477 525 Oak Ridge Elem. 755 765 801 Oak View Elem. 525 533 525
Parkview Elem. 340 326 294 Pearce Elem. 736 755 781 Peck Elem. 293 265 202 Peeler Elem. 291
274 248 Pilot Elem. 626 609 669 Pleasant Garden Elem. 456 445 425 Rankin Elem. 794 786 817
Reedy Fork Elem. 442 459 494 Sedalia Elem. 466 468 476 Sedgewood Elem. 537 543 566
Shadybrook Elem. 427 415 348 Simkins Elem. 542 552 606 Southern Elem. 312 316 347
Southwest Elem. 900 925 1,037 Sternberger Elem. 418 430 453 Stokesdale Elem. 557 579 603
Summerfield Elem. 643 665 624 Sumner Elem. 604 603 664 Triangle Lake Montessori 518 508

554 Union Hill Elem. 576 520 559 Vandalia Elem. 277 275 295 Washington Elem. 377 353 380
Wiley Elem. 334 326 347 **Elementary Total/Average 33,127 33,053 33,984**

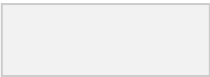


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3.0 DEMOGRAPHICS, ENROLLMENT HISTORY AND PROJECTIONS

EXHIBIT 3-20 (CONTINUED)
GUILFORD COUNTY SCHOOLS
CURRENT AND PROJECTED ENROLLMENT

Allen Middle 681 718 738 Allen Jay Middle - Prep Academy 395 400 400 Brown Summit Middle
243 246 246 Eastern Middle 960 978 927 Ferndale Middle 735 745 734 Hairston Middle 654 639
702 Jackson Middle 485 492 545 Jamestown Middle 1,095 1,133 1,175 Johnson Street Elem.
(K-8) 481 461 509 Kernodle Middle 779 797 734 Kiser Middle 868 889 986 Lincoln Academy (4-8)
665 675 681 Mendenhall Middle 709 729 665 Northeast Middle 706 692 625 Northern Middle
860 895 918 Northwest Middle 1,044 1,048 1,123 Penn Griffin Schl for the Arts 600 631 647
Southeast Middle 946 955 929 Southern Middle 752 773 738 Southwest Middle 1,196 1,214
1,251 Swann Middle 610 624 627 Welborn Middle 347 352 364 Western Guilford Middle School
637 677 666 **Middle Total/Average 16,448 16,762 16,932**



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EXHIBIT 3-20 (CONTINUED)
 GUILFORD COUNTY SCHOOLS
 CURRENT AND PROJECTED ENROLLMENT

Andrews High 780 759 814 Dudley High 1,433 1,431 1,358 Eastern High 1,274 1,317 1,232
 Grimsley High 1,732 1,747 1,699 High Point Central High 1,461 1,441 1,472 Northeast High 1,025
 1,020 927 Northern High 1,370 1,351 1,411 Northwest High 2,103 2,110 2,258 Page High 1,930
 1,917 1,938 Ragsdale High 1,494 1,492 1,463 Smith High 1,282 1,273 1,334 Southeast High 1,353
 1,332 1,350 Southern High 1,095 1,082 1,124 Southwest High 1,606 1,619 1,795 Western High
 1,255 1,225 1,219

Greensboro SCALE School 1 4 1 4 1 8

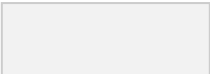
High School Total/Average 21,193 21,117 21,397 Dean B. Pruette SCALE School 7 7 8 Gateway Ed.
 Center 146 143 136

Herbin-Metz Education Center 7 4 7 3 8 0 Joyner-Greene Education Center 8 7 8 1 103

Guilford Newcomers School 266 239 331 Haynes Inman Education Center 129 126 129

Kearns Academy 129 123 142 Old McIver School Smith Academy 210 209 226
 Twilight High School Weaver Ed. Center 307 311 323 **Special Total/Average 1,369**
1,327 1,495

District Total/Average 72,137 72,259 73,808Source: MGT of America Consulting, LLC, 2018.



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EXHIBIT 3-21
 GUILFORD SCHOOL DISTRICT
 2027 PROJECTED ENROLLMENT RANGE AND AVERAGE BY SITE TYPE

SITE TYPE	MGT 2027		AVERAGE
	PK-12 PROJECTED ENROLLMENT		
	RANGE		
	LOW	HIGH	

Elementary Schools	202	1,037	500
Middle Schools	246	1,251	736
High Schools	814	2,258	1,426
Specialty Schools	8	331	150

Source: MGT of America Consulting, LLC, 2018.

3.6 FINDINGS

Enrollment across the district is expected to increase 0.95 percent by the end of the ten-year planning period.

- ◆ At the district level, there will be a projected increase at the PK-5 grade band of 1.5 percent, a decrease at the 6-8 grade band of 1.3 percent, and an increase to the 9-12 grade band of 1.8 percent.
- ◆ Live births are projected to slowly increase which could further lead to an increase in kindergarten enrollment. There is a mildly strong correlation between the live birth rate and kindergarten enrollment. The district capture rate has historically averaged 87 percent, but the capture rate has been slowly decreasing since 2010.¹⁰

Section 5.0 Capacity and Utilization will utilize these enrollment projections to measure the future utilization rates in Guilford County Schools and determine whether there will be excess space or a need for additional space.

¹⁰ MGT of America, 2018

4.0 EDUCATIONAL PROGRAM REVIEW

The focus for GCS is to offer high-quality programs for students and families across the school district. The district’s website has outlined six strategic drivers as its focus through 2022.

- ◆ Goal I: To increase the percentage of students who will read proficiently by the end of third grade to 63%.

- ◆ Goal II: To increase the percentage of incoming sixth-graders passing N.C. Math 1 (Algebra 1) with a C or better by the end of their ninth-grade year to 75%.
- ◆ Goal III: To increase the percentage of graduating seniors who complete a rigorous career pathway to 35%.
- ◆ Goal IV: To increase by 50% the number of schools that exceed growth.
- ◆ Goal V: To decrease the achievement gap between Black and Latino students and their white peers by seven percentage points.
- ◆ Goal VI: To increase organizational efficiency and effectiveness to better support student learning.

This educational suitability review directly supports Goal VI “to

increase organizational efficiency and effectiveness to better support student learning.” MGT’s educational suitability and technology assessment provided detailed and objective data to assist the school district in determining the extent to which school buildings serve as an instructional tool in delivering a 21st century educational environment for students.

GOAL VI:

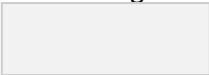
To increase organizational efficiency and effectiveness to better support student learning.

The activities related to the educational suitability

project focused on ensuring that MGT fully understood the district’s current and planned instructional programs, especially those with facility implications. To gather this information, MGT interviewed instructional department staff who described the programs of study available at each grade level and the facility needs for each program. These data are a critical component in this facility study as *MGT believes that the educational program should drive facility needs, not the reverse*. The district provides a comprehensive educational program, from early childhood through high school, including some unique and focused approaches.

Adjusting to changing program needs is a huge challenge for public school districts. Most schools in GCS were built long before there were programs for special education, English Language Learners, or Title I, each of which requires space to serve students appropriately. Buildings designed before the mid-1970’s had classrooms only. There were no spaces for itinerant Physical Therapy/Occupational Therapy staff to work with students, for psychologists to facilitate testing, or for staff to provide pull-out groups or instruction. Schools that lack these offices and instructional resource spaces may have to put counselors in closets, speech therapists on the stage, and English tutors out in the hallway.

GCS has committed to providing high-quality academic, athletic, and Career and Technical Education (CTE) programs. There are 45 magnet and choice schools with 54 programs ranging from Science, Technology, Engineering, and Math (STEM) to performing or visual arts.



GCS also offers 187 CTE courses in 50 schools, including programs in culinary arts, business, nursing, computers, and automotive technology, among others. CTE pathways begin in elementary school and continue through high school.

GCS high schools provide more than 30 Advanced Placement (AP) courses. AP courses are college-level classes that prepare students for the higher-level courses they will take upon entering colleges and universities.

GCS also offers the International Baccalaureate Program at four high schools. Only a small number of districts in North Carolina are authorized by the International Baccalaureate Organization to offer the Diploma Programme, and GCS has been a part of it since 1996.

Each of these course areas requires specialized spaces within the school. Schools that lack these spaces understandably use whatever space is available, but those spaces may not be adequate to support the instructional program fully. It is important to note that this educational suitability review provides key data for the development of the long-range facility master plan. This plan is intended to identify the places where the current facilities do not meet educational program needs and to develop strategies and priorities to address those needs.

Below is an overview of the educational programs offered at the elementary, middle, and high school level in GCS.

4.1 EXCEPTIONAL CHILDREN

GCS has a strong commitment to meet the needs of all its students. In this vein, GCS offers Exceptional Children services to students as determined by their Individual Education Plan (IEP).

Exceptional Children services, also called special education, is defined as:¹¹

- ◆ Specially designed instruction designed to meet the unique needs of a student with a disability.
- ◆ Access to the general curriculum and intervention programs designed to provide maximum opportunities for instruction in the general education setting.
- ◆ Full continuum of service.
- ◆ Curriculum driven instruction using the North Carolina Standard Course of Study and the North Carolina Extended Content Standards.
- ◆ Related services that include but are not limited to speech, occupational, and physical therapy.

Areas of eligibility for the Exceptional Children services include: Autism, Deaf-Blindness, Deafness, Developmentally Delayed, Serious Emotional Disability, Hearing Impairment, Intellectual Disability, Multiple Disabilities, Orthopedic Impairment, Other Health Impairment, Specific Learning Disability, Speech and Language Impairment, Traumatic Brain Injury, and Visually Impaired.

These services are delivered in the appropriate environment, which can be either in a home or a school setting. When in a school setting, additional space, storage, and equipment may be needed to fully meet the

¹⁰<https://www.gcsnc.com/domain/2414#calendar17067/20181022/month>

needs of each child. There is often a need for additional resource rooms, restrooms, and

paraprofessional personnel.

In GCS, Exceptional Children services can begin as early as six months old, in some cases, can continue until a student is 22 years old. While many services are offered in a traditional school setting, GCS does have specialty schools to ensure they fully meet the needs of all students who participate in the Exceptional Schools program.

GCS specialty schools include:

- ◆ Christine Joyner Greene Education Center
- ◆ Gateway Education Center
- ◆ Meredith Leigh Haynes-Bennie Lee Education Center
- ◆ Herbin-Metz Education Center

4.2 EARLY CHILDHOOD AND ELEMENTARY PROGRAMS

The Early Childhood Program provides effective teacher-child interactions based on the understanding that high-quality early childhood education is critical to a child's success. The district offers a full-day Pre-K program for four-year-olds who have been identified through a screening process. These programs are funded through Title I federal funds and North Carolina Pre-K state funds.

GCS also has an Exceptional Children's Preschool Program – beginning with three-year-old students. This program provides special education and related services to children as outlined by the child's IEP.

The district provides a robust and comprehensive elementary school model. The elementary program includes instruction in English Language Arts (ELA), math, science, and social studies. All schools are expected to provide spaces for physical education and performing arts. Those spaces can vary and are outlined in the Educational Suitability Guide developed in collaboration with the district.

In addition, there are identified elementary magnet schools with the following areas of specialization: Global Studies, Montessori, Spanish Immersion, International Baccalaureate (IB), Open/Performing Arts, Expressive Arts, and Science, Technology, Engineering, and Mathematics (STEM). These schools have unique facility requirements to allow for full curriculum implementation. Expressive Arts and Performing Arts magnet elementary schools (Morehead, Peeler, and Parkview) are required to have dance and theatre arts classrooms to meet program requirements.

GCS elementary school grade configurations are generally K-5 and PK-5.

4.3 MIDDLE SCHOOLS

GCS has implemented a wide-ranging program offering at the middle school level. Some of the CTE explorations available to students in 6th grade include Business, Computer Science, Family and Consumer Sciences, Technology, Engineering and Design, and Project Lead the Way.

A range of performing arts is required at the middle school level as well as appropriate spaces and storage needed for chorus, band, orchestra, and a keyboard lab. Middle schools should also have a multipurpose space with a platform for school performances. A separate dance and theatre arts classroom is required.

Magnet Programs at the middle school level include: Global Studies, Arts, Science & Technology, and International Baccalaureate Studies. Swann Middle School and Welborn Middle School are currently designated as STEM middle schools. These schools are required to have an identified and appropriate science lab.

GCS middle schools generally have a 6th-8th grade configuration. There are also schools with the following grade configurations:

- ◆ 4th-8th grade (The Academy at Lincoln)
- ◆ 6th-12th grade (Penn-Griffin School for the Arts)
- ◆ K-8th grade (Johnson Street Global Studies)

GCS also provides an interscholastic sports program at the middle school level. While each school may not offer all the courses listed below, there are many opportunities to participate in team sports at the middle school level. Currently, GCS offers the following team sports for middle school students.

Fall	Winter	Spring
Cheerleading	Cheerleading	Baseball
Football	Basketball (Boys and Girls)	Softball
Soccer (Boys and Girls)	Wrestling	Track and Field (Boys and Girls)
Volleyball (Boys and Girls)		

4.4 HIGH SCHOOLS

High schools in GCS have a 9th- 12th grade configuration. High schools provide a comprehensive curriculum, and some schools offer access to JROTC courses and training. Art and music are required offerings and all high schools are expected to have an auditorium or theatre, with a host of support spaces. These support spaces include dressing rooms, costume storage, and a scene building shop.

The CTE program is robust in GCS. The mission of CTE is to provide access for all students to obtain a high quality career and a technical education program that will prepare them for high-skill, high-demand jobs in a changing global economy. The district believes this will be achieved by providing programs that integrate rigorous academic content into technical subject matter. The district offers a variety of CTE course offerings in each high school.

GCS offers 14 CTE Pathways:

- ◆ Agriculture, Food, and Natural Resources
- ◆ Architecture and Construction

- ◆ Arts A/V Technology and Communication
- ◆ Business Management and Administration
- ◆ Finance
- ◆ Health Science
- ◆ Hospitality and Tourism
- ◆ Human Services
- ◆ Information Technology
- ◆ Law, Public Safety, Corrections, and Security
- ◆ Manufacturing
- ◆ Marketing
- ◆ Science, Technology, Engineering, and Mathematics
- ◆ Transportation, Distributions, and Logistics

GCS also provides an interscholastic sports program at the high school level. While each school may not offer all courses listed below, there are wide-ranging opportunities to participate in sports at the high school level. Currently, GCS offers the following athletic activities at the high school level.

Fall	Winter	Spring
Cheerleading	Cheerleading	Baseball
Football	Basketball (Men and Women)	Golf (Men)
Soccer (Men)	Swimming and Diving (Men and Women)	Lacrosse (Men and Women)
Tennis (Women)	Indoor Track (Men and Women)	Soccer (Women)
Volleyball (Women)	Wrestling	Softball (Women, fast pitch)
Cross Country (Men and Women)		Track and Field (Men and Women)
Golf (Women)		Tennis (Men)

The space requirements for all the programs described above, and others not included in this brief description, have significant facility implications. The availability of appropriate spaces such as play fields, performance spaces, storage and fixed structure and general classrooms ensure students with the opportunities to learn in the proper learning environment.

MGT’s work in GCS included not only understanding the educational programs in the district, but also defining the facility implications for those programs. To complete this work, MGT conducted a thorough analysis of programs and developed an educational suitability assessment tool based on the program/facility standards. This assessment tool allowed MGT to capture and report data from each school regarding how well each building is supporting the instructional program it houses.

4.0 EDUCATIONAL PROGRAM REVIEW

4.5 EDUCATIONAL SUITABILITY ASSESSMENT METHODOLOGY

MGT conducted a series of focused interviews and discussions with district staff in Spring 2018. These interviews included administrative and curricular staff representing each content area (e.g., science, performing arts, technology, media). For each area, MGT presented questions regarding both current and planned program changes.

Some content area programs require specialized spaces. For example, STEM program spaces need larger areas and plenty of storage for materials and student projects. Other content areas, like English and social studies, require only adequate general classrooms that provide an appropriate learning environment (heating, lighting, ventilation, etc.), are large enough to accommodate the students, and have adequate storage.

From these discussions and through extensive collaboration with GCS's facilities department, MGT developed the *Educational Suitability and Technology Readiness Reference Guide (Guide)* (see **Appendix A**) to define the Educational Suitability and Technology Readiness standards. These standards are based on the district's current educational specifications and design practices and future program design expectations. This document was co-created with GCS instructional leaders and used as the basis for the Educational Suitability assessments. The standards define four components for each type of instructional space:

- ♦ Learning Environment – Does the space provide an appropriate physical configuration, HVAC, lighting, acoustical treatment, etc. to support student learning?
- ♦ Size – Does the space meet the defined size standard for square footage?
- ♦ Location – Does the space exist in the right location?
- ♦ Storage/Fixed Equipment – Does the space have what teachers and students need to be successful, including safety equipment, permanent cabinetry, and technology?

MGT understands that schools need support spaces for students and staff; thus the *Guide* also defines standards for non-instructional areas like cafeteria, administration, and health suite and deals with safety issues like security vestibules, fencing, and bus/parent traffic patterns.

In addition to curricular areas, MGT discussed the district's current and planned technology structures in support of instruction. Instructional Technology staff from GCS reviewed standards and assisted in the development of the tool used to assess Technology Readiness. The Technology Readiness assessment evaluates how well the infrastructure in schools supports technology. It does not include an evaluation of the IT software or equipment. Instead, it assesses the infrastructure required to support current and future technology: electrical service to support charging of devices, wireless access, video streaming capacity, etc.

All staff from MGT who conducted assessments were trained to use this customized *Guide* as the standard to assess each school. MGT's Educational Suitability assessors are all seasoned educators with vast experience in public schools. They have served as teachers, administrators, and superintendents in school systems across the country.

MGT team's trained evaluators assessed each school based on the standards defined in the *Guide*. Each evaluator met with the school principal (or designee) to review the program(s) at each site and then walked the school to observe the spaces available to support the planned programs. Assessment data were entered into the BASYS® software as each evaluation was completed and the district has reviewed all data as a part of MGT's extensive quality control process. Site visits were scheduled by MGT in coordination with the district to

ensure that knowledgeable staff were available at each site.

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4.0 EDUCATIONAL PROGRAM REVIEW

The *Guide* was used to calibrate the MGT software, BASYS®. BASYS® is based on a 100-point scoring system that is calibrated to the percentage of the building and the costs to update or maintain the space. The results of assessing each building provided MGT with individual school Educational Suitability and Technology Readiness scores. These scores were primary drivers in determining the final recommendations for facility management in GCS.



5.0 CAPACITY AND UTILIZATION

This section examines and compares the capacity and utilization rates of Guilford County Schools (GCS) facilities over the ten-year planning period of the facility master plan.

The *functional capacity* of an educational facility is defined as the number of students the facility can accommodate. More specifically, a school's capacity is the number of students which can be accommodated

given the specific educational programs, class schedules, student-teacher ratios, and size of the rooms. The *utilization rate* of a facility is calculated by dividing the current or projected enrollment of the educational facility by the capacity. The utilization rate is used to determine if the facility has excess space or if it lacks sufficient space for the given enrollment.

5.1 FUNCTIONAL CAPACITY

The *functional capacity* used by MGT is calculated using the *Instructional Space Model*. This model counts the number of the various types of instructional rooms and multiplies that number by the maximum students-per room, or the *loading* factor, to identify the gross capacity for the school. The gross capacity is then multiplied by a scheduling factor, which considers the realities of how the space is used. Typically, not all classrooms are scheduled for every period at a middle school or high school. For example, high school students move from room to room and enroll in a variety of courses. As a result, some rooms will sit empty or will be less than fully occupied at any given time. Teacher preparation periods will also contribute to rooms not being used for instruction at a particular time. Therefore, MGT used a 70 percent scheduling factor at high schools and specialty schools to reduce the gross capacity of the building to reflect the unused rooms. Middle schools were assigned an 80 percent scheduling factor. An elementary school has a much more static and consistent daily use, so MGT used a 90 percent scheduling factor for elementary schools.

Exhibit 5-1 on the following page lists the loading factors and scheduling factors used to calculate the functional capacities. Changes in functional capacity by year reflect implementation of NC HB 90.

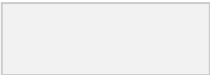


EXHIBIT 5-1

MGT FUNCTIONAL CAPACITY LOADING FACTORS

INSTRUCTIONAL SPACE MODEL GUIDELINES FOR CAPACITY CALCULATIONS

ROOM TYPE (CURRENT USE)	LOADING FACTOR (STUDENTS/ROOM)			
	2017-18	2019	2020	2021-27
Pre-Kindergarten	18	18	18	18
General classroom grades K	23	22	21	21
General classroom grades 1	23	22	21	19
General classroom grades 2	23	22	21	20
General classroom grades 3	23	22	21	20
General classroom grades 4	30	30	30	30
General classroom grades 5	30	30	30	30
General classroom grades 6-8	30	30	30	30
General classroom grades 9-12	30	30	30	30
Science (6-8)	30	30	30	30
Science (9-12)	30	30	30	30
Science Chemistry (9-12)	25	25	25	25
CTE 1400 SF (6-8)	20	20	20	20
CTE 2400 SF (6-8)	20	20	20	20
CTE Business/Office Education (9-12)	30	30	30	30
CTE 2500 SF (9-12)	20	20	20	20
CTE 3500 SF (9-12)	20	20	20	20
CTE less than 1400 sf (6-12)	20	20	20	20
Dance/Drama (6-8)	30	30	30	30
Music/Chorus (6-8)	30	30	30	30
Orchestra (6-8)	30	30	30	30
Band (6-8)	50	50	50	50
Art (6-8)	30	30	30	30
P.E. (6-8)	30	30	30	30
Health (6-8)	30	30	30	30
Dance/Drama (9-12)	30	30	30	30
Music/Chorus (9-12)	40	40	40	40
Orchestra (9-12)	40	40	40	40
Band (9-12)	60	60	60	60

Art (9-12)	30	30	30	30
P.E. (9-12)	30	30	30	30
JROTC (9-12)	30	30	30	30
Health (9-12)	30	30	30	30

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EXHIBIT 5-1 (CONTINUED)

MGT FUNCTIONAL CAPACITY LOADING FACTORS

INSTRUCTIONAL SPACE MODEL GUIDELINES FOR CAPACITY CALCULATIONS				
ROOM TYPE (CURRENT USE)	LOADING FACTOR (STUDENTS/ROOM)			
	2017-18	2019	2020	2021-27
Computer Lab	0	0	0	0
K-12 EC/AC	12	12	12	12
K-5 Resource (pull-out)	0	0	0	0
6-12 Resource (pull-out)	0	0	0	0
Portable	0	0	0	0
Vacant ES 1-5 General Classrooms	30	30	30	30
SCHEDULING FACTOR				
Elementary Schools	90%			
Middle Schools	80%			
High Schools	70%			

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Exhibit 5-2 shows how the model is used to calculate the capacity of a high school.

EXHIBIT 5-2
 GUILFORD COUNTY SCHOOLS
 EXAMPLE OF CAPACITY CALCULATION

ROOM TYPE	NUMBER OF	STUDENTS/	=CAPACITY
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	CLASSROOMS X	CLASSROOM	
General classroom grades 9-12	41	30	1,230
Science (9-12)	11	30	330
Science Chemistry (9-12)		25	-
CTE Business/Office Education (9-12)	3	30	90
CTE 2500 SF (9-12)		20	-
CTE 3500 SF (9-12)		20	-
CTE less than 1400 sf (6-12)	14	20	280
Dance/Drama (9-12)	2	30	60
Music/Chorus (9-12)	1	40	40
Orchestra (9-12)		40	-
Band (9-12)	2	60	120
Art (9-12)	3	30	90
P.E. (9-12)	6	30	180
JROTC (9-12)		30	-
Health (9-12)		30	-
Computer Lab	4	-	-
K-12 EC/AC	3	12	36
6-12 Resource (pull-out)	5	-	-
Portable		-	-
Gross Capacity (w/o scheduling factor) =			2,456
x High School scheduling factor of			70%
Example High School Capacity =			1,719

5.0 CAPACITY AND UTILIZATION

Exhibit 5-3 lists the capacities for GCS as calculated using the Instructional Space Model. As the exhibit shows, the district has current capacity for 80,893 students, with an average per school capacity of 686. The elementary schools have an average-per-school capacity of 518. The middle schools have an average-per-school capacity of 892, and the high schools have an average-per-school capacity of 1,487 students. Specialty school capacities average 270 students.

EXHIBIT 5-3
GUILFORD COUNTY SCHOOLS
MGT FUNCTIONAL CAPACITIES

SITE NAME	PK-12 CAPACITY 2018	PK-12 CAPACITY 2019	PK-12 CAPACITY 2020	PK-12 CAPACITY 2021-27
Alamance Elem.	746	725	705	683
Alderman Elem.	474	463	451	440
Allen Jay Elem.	383	373	362	351
Archer Elem.	452	439	427	415
Bessemer Elem.	574	560	545	533
Bluford Elem.	407	398	389	380
Brightwood Elem.	690	673	656	640
Brooks Global Studies	431	419	408	397
Claxton Elem.	522	504	486	468
Colfax Elem.	647	630	613	594
Cone Elem.	468	455	443	430
Erwin Montessori	377	365	354	344
Fairview Elem.	484	472	459	447
Falkener Elem.	609	592	575	557
Florence Elem.	769	749	729	708
Foust Elem.	394	383	373	363
Frazier Elem.	334	328	321	315
General Greene Elem.	541	526	510	495
Gibsonville Elem.	547	533	518	504
Gillespie Park Elem.	321	313	305	296
Guilford Elem.	680	662	645	627
Hampton Elem.	427	416	405	395
Hunter Elem.	631	614	597	581
Irving Park Elem.	589	572	556	541
Jamestown Elem.	469	457	446	433
Jefferson Elem.	680	664	648	634
Jesse Wharton Elem.	580	565	551	537

Jones Elem.	662	644	626	608
Joyner Elem.	353	344	335	325
Kirkman Park Elem.	414	401	389	377
Lindley Elem.	447	436	424	412
Madison Elem.	274	266	259	252
McLeansville Elem.	369	360	351	343

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5.0 CAPACITY AND UTILIZATION GUILFORD COUNTY SCHOOLS
MGT FUNCTIONAL
CAPACITIES

EXHIBIT 5-3 (CONTINUED)

SITE NAME	PK-12 CAPACITY 2018	PK-12 CAPACITY 2019	PK-12 CAPACITY 2020	PK-12 CAPACITY 2021-27
McNair Elem.	597	583	570	557
Millis Road Elem.	385	376	367	359
Monticello-Brown Summit Elem.	572	560	548	536
Montlieu Elem.	717	700	683	667
Morehead Elem.	290	277	265	252
Murphey Elem.	375	367	359	351
Nathanael Greene Elem.	274	266	259	252
Northern Elem.	630	612	594	576
Northwood Elem.	518	508	497	486
Oak Hill Elem.	437	427	416	409
Oak Ridge Elem.	754	736	718	700
Oak View Elem.	688	673	659	644
Parkview Elem.	427	416	405	394
Pearce Elem.	736	716	697	678
Peck Elem.	328	320	313	306
Peeler Elem.	336	326	316	304
Pilot Elem.	734	718	702	685

Pleasant Garden Elem.	533	520	508	495
Rankin Elem.	632	610	589	567
Reedy Fork Elem.	705	686	667	648
Sedalia Elem.	495	482	470	458
Sedgefield Elem.	479	466	454	441
Shadybrook Elem.	468	455	443	430
Simkins Elem.	606	590	575	561
Southern Elem.	315	306	297	288
Southwest Elem.	832	810	788	765
Sternberger Elem.	443	432	421	410
Stokesdale Elem.	495	482	470	457
Summerfield Elem.	651	632	613	594
Sumner Elem.	616	599	583	568
Triangle Lake Montessori	624	610	597	583
Union Hill Elem.	580	565	551	536
Vandalia Elem.	327	319	311	304
Washington Elem.	475	464	454	445
Wiley Elem.	389	378	367	356
Elementary Total	35,204	34,294	33,383	32,486

5.0 CAPACITY AND UTILIZATION GUILFORD COUNTY SCHOOLS
MGT FUNCTIONAL
CAPACITIES

EXHIBIT 5-3 (CONTINUED)

SITE NAME	PK-12 CAPACITY 2018	PK-12 CAPACITY 2019	PK-12 CAPACITY 2020	PK-12 CAPACITY 2021-27
Allen Middle	741	741	741	741
Allen Jay Middle - Prep Academy	464	464	464	464
Brown Summit Middle	336	336	336	336
Eastern Middle	1,123	1,123	1,123	1,123

Ferndale Middle	962	962	962	962
Hairston Middle	962	962	962	962
Jackson Middle	722	722	722	722
Jamestown Middle	1,179	1,179	1,179	1,179
Johnson Street Elem. (K-8)	501	493	485	476
Kernodle Middle	1,106	1,106	1,106	1,106
Kiser Middle	1,034	1,034	1,034	1,034
Lincoln Academy (4-8)	1,032	1,032	1,032	1,032
Mendenhall Middle	880	880	880	880
Northeast Middle	904	904	904	904
Northern Middle	914	914	914	914
Northwest Middle	896	896	896	896
Penn Griffin Schl for the Arts	980	980	980	980
Southeast Middle	915	915	915	915
Southern Middle	986	986	986	986
Southwest Middle	1,099	1,099	1,099	1,099
Swann Middle	952	952	952	952
Welborn Middle	736	736	736	736
Western Guilford Middle School	1,083	1,083	1,083	1,083
Middle Total	20,505	20,497	20,489	20,480
Andrews High	1,146	1,146	1,146	1,146
Dudley High	1,744	1,744	1,744	1,744
Eastern High	1,308	1,308	1,308	1,308
Grimsley High	1,779	1,779	1,779	1,779
High Point Central High	1,614	1,614	1,614	1,614
Northeast High	947	947	947	947
Northern High	1,417	1,417	1,417	1,417
Northwest High	1,583	1,583	1,583	1,583
Page High	1,658	1,658	1,658	1,658
Ragsdale High	1,651	1,651	1,651	1,651
Smith High	1,608	1,608	1,608	1,608

Southeast High	1,553	1,553	1,553	1,553
Southern High	1,174	1,174	1,174	1,174
Southwest High	1,719	1,719	1,719	1,719
Western High	1,397	1,397	1,397	1,397
High School Total	22,299	22,299	22,299	22,299

EXHIBIT 5-3 (CONTINUED)

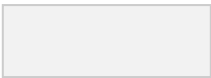
SITE NAME	PK-12 CAPACITY 2018	PK-12 CAPACITY 2019	PK-12 CAPACITY 2020	PK-12 CAPACITY 2021-27
Dean B. Pruette SCALE School	147	147	147	147
Gateway Ed. Center	269	269	269	269
Greensboro SCALE School	105	105	105	105
Guilford Newcomers School	305	304	302	301
Haynes Inman Education Center	202	202	202	202
Herbin-Metz Education Center	96	96	96	96
Joyner-Greene Education Center	167	167	167	167
Kearns Academy	232	232	232	232
Old McIver School	406	406	406	406
Smith Academy	340	340	340	340
Twilight High School	63	63	63	63
Weaver Ed. Center	553	553	553	553
Specialty Schools Total	2,884	2,883	2,881	2,880
District Total	80,893	79,972	79,052	78,146

Source: MGT of America Consulting, LLC, 2018.

Guilford County Schools uses several different models for capacity calculations. The GCS formula is different from the Functional capacity model in that they do not use a scheduling factor, and the capacity for chemistry labs and CTE spaces is adjusted by calculating the portion of the room square

footage that meets the design standard square footage for the space. GCS room counts are based on designed use whereas the instructional space model is based on current room usage.

- ◆ GCS Local Max Capacity at 30 for all general classrooms K-12 (Exceptions: EC AC, Pre-K, Chemistry, and CTE).
- ◆ GCS Statute Max Capacity K-3 at 23 per statute and at 30 for 4-12 general classrooms. (Exceptions: EC AC, Pre-K, Chemistry, and CTE). Applies only to the 2018-19 school year.
- ◆ **GCS Built Capacity (BC):** Capacity of the school excluding portables.
- ◆ **GCS Campus Capacity:** Capacity of the school including portables.
- ◆ **GCS Core Capacity:** Capacity is calculated by dividing the school’s dining room square footage by 14, resulting in the number of students per lunch period. Then multiplying the number of students per lunch by 3, resulting in the core capacity of the dining room and the school.
- ◆ **Square Footage Model:** Capacity calculated by dividing the school gross square footage by regional medians shown in the table below.



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5.0 CAPACITY AND UTILIZATION

School Type	SqFt/Student
ES	136
MS	149
HS	142

Source: School Planning & Management Magazine - Annual School Construction Report Region 4 Medians (KY, NC, SC, TN)

Appendix B Guilford County Schools Space Guidelines and Capacity depicts the GCS space guidelines and examples of the GCS capacity calculations. **Appendix C Capacity and Utilization Comparison** compares the utilization results of the capacity models by school and shows resulting 2027 utilization based on MGT enrollment projections.

5.2 UTILIZATION RATES

The effective management of school facilities requires a school’s capacity and enrollment to be aligned. When capacity exceeds enrollment (underutilization), operational costs are higher than necessary, and facilities may need to be repurposed, or the facilities removed from inventory. When enrollment exceeds capacity (overutilization), the school may be overcrowded and may require capital expenditures or redistricting (adjustment to attendance boundaries) to alleviate the crowding.

Exhibit 5-4 shows the corresponding utilization rates calculated using the *functional capacities* and the current and projected enrollment at each school. Excluded from the utilization and capacity analysis are the early/middle colleges located on college/university campuses. The utilization rates are color coded per the key below to provide the reader with an understanding of best practices for utilization.

EXHIBIT 5-4
GUILFORD COUNTY SCHOOLS
CURRENT AND PROJECTED UTILIZATION RATES

UTILIZATION	DESCRIPTION
> 110	Inadequate Space
95 - 110	Approaching Inadequate Space
80 - 94	Adequate Space
70 - 79	Approaching Inefficient Use of Space
< 70	Inefficient Use of Space

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5.0 CAPACITY AND UTILIZATION

EXHIBIT 5-4 (CONTINUED)
GUILFORD COUNTY SCHOOLS
CURRENT AND PROJECTED UTILIZATION RATES

SITE NAME	2017 PK-12 ENROLLMENT	2018 PK-12 PROJECTED ENROLLMENT	2027 PK-12 PROJECTED ENROLLMENT	MGT PK-12 CAPACITY 2018	MGT PK-12 CAPACITY 2021-27	N U
Alamance Elem.	544	557	628	746	683	
Alderman Elem.	451	446	434	474	440	
Allen Jay Elem.	472	487	434	383	351	
Archer Elem.	423	415	420	452	415	
Bessemer Elem.	453	434	481	574	533	
Bluford Elem.	276	274	255	407	380	
Brightwood Elem.	571	565	588	690	640	
Brooks Global Studies	393	386	369	431	397	
Claxton Elem.	600	614	624	522	468	
Colfax Elem.	632	643	655	647	594	
Cone Elem.	489	489	512	468	430	
Erwin Montessori	306	291	260	377	344	
Fairview Elem.	429	451	382	484	447	

Falkener Elem.	593	603	614	609	557	
Florence Elem.	717	725	694	769	708	
Foust Elem.	378	384	421	394	363	
Frazier Elem.	341	358	369	334	315	
General Greene Elem.	488	500	529	541	495	
Gibsonville Elem.	523	535	609	547	504	
Gillespie Park Elem.	251	252	268	321	296	
Guilford Elem.	554	553	603	680	627	
Hampton Elem.	334	336	330	427	395	
Hunter Elem.	579	511	543	631	581	
Irving Park Elem.	589	582	594	589	541	

EXHIBIT 5-4 (CONTINUED)
 GUILFORD COUNTY SCHOOLS
 CURRENT AND PROJECTED UTILIZATION RATES

SITE NAME	2017 PK-12 ENROLLMENT	2018 PK-12 PROJECTED ENROLLMENT	2027 PK-12 PROJECTED ENROLLMENT	MGT PK-12 CAPACITY 2018	MGT PK-12 CAPACITY 2021-27	M U
Jamestown Elem.	441	449	433	469	433	
Jefferson Elem.	691	714	663	680	634	
Jesse Wharton Elem.	514	533	548	580	537	
Jones Elem.	720	722	717	662	608	
Joyner Elem.	298	319	324	353	325	
Kirkman Park Elem.	351	340	355	414	377	
Lindley Elem.	504	492	546	447	412	
Madison Elem.	227	240	237	274	252	
McLeansville Elem.	344	335	400	369	343	
McNair Elem.	524	523	561	597	557	
Millis Road Elem.	497	520	535	385	359	

Monticello-Brown Summit Elem.	400	402	403	572	536	
Montlieu Elem.	642	559	622	717	667	
Morehead Elem.	622	602	602	290	252	
Murphey Elem.	284	275	269	375	351	
Nathanael Greene Elem.	261	267	252	274	252	
Northern Elem.	632	650	680	630	576	
Northwood Elem.	567	545	584	518	486	
Oak Hill Elem.	476	477	525	437	409	
Oak Ridge Elem.	755	765	801	754	700	
Oak View Elem.	525	533	525	688	644	
Parkview Elem.	340	326	294	427	394	
Pearce Elem.	736	755	781	736	678	

EXHIBIT 5-4 (CONTINUED)
 GUILFORD COUNTY SCHOOLS
 CURRENT AND PROJECTED UTILIZATION RATES

SITE NAME	2017 PK-12 ENROLLMENT	2018 PK-12 PROJECTED ENROLLMENT	2027 PK-12 PROJECTED ENROLLMENT	MGT PK-12 CAPACITY 2018	MGT PK-12 CAPACITY 2021-27	M U
Peck Elem.	293	265	202	328	306	
Peeler Elem.	291	274	248	336	304	
Pilot Elem.	626	609	669	734	685	
Pleasant Garden Elem.	456	445	425	533	495	
Rankin Elem.	794	786	817	632	567	
Reedy Fork Elem.	442	459	494	705	648	
Sedalia Elem.	466	468	476	495	458	
Sedgefield Elem.	537	543	566	479	441	
Shadybrook Elem.	427	415	348	468	430	
Simkins Elem.	542	552	606	606	561	

Southern Elem.	312	316	347	315	288	
Southwest Elem.	900	925	1,037	832	765	
Sternberger Elem.	418	430	453	443	410	
Stokesdale Elem.	557	579	603	495	457	
Summerfield Elem.	643	665	624	651	594	
Sumner Elem.	604	603	664	616	568	
Triangle Lake Montessori	518	508	554	624	583	
Union Hill Elem.	576	520	559	580	536	
Vandalia Elem.	277	275	295	327	304	
Washington Elem.	377	353	380	475	445	
Wiley Elem.	334	326	347	389	356	
Elementary Total	33,127	33,053	33,984	35,204	32,486	

EXHIBIT 5-4 (CONTINUED)
 GUILFORD COUNTY SCHOOLS
 CURRENT AND PROJECTED UTILIZATION RATES

SITE NAME	2017 PK-12 ENROLLMENT	2018 PK-12 PROJECTED ENROLLMENT	2027 PK-12 PROJECTED ENROLLMENT	MGT PK-12 CAPACITY 2018	MGT PK-12 CAPACITY 2021-27	M U
Allen Middle	681	718	738	741	741	
Allen Jay Middle - Prep Academy	395	400	400	464	464	
Brown Summit Middle	243	246	246	336	336	
Eastern Middle	960	978	927	1,123	1,123	
Ferndale Middle	735	745	734	962	962	
Hairston Middle	654	639	702	962	962	
Jackson Middle	485	492	545	722	722	
Jamestown Middle	1,095	1,133	1,175	1,179	1,179	
Johnson Street Elem. (K-8)	481	461	509	501	476	
Kernodle Middle	779	797	734	1,106	1,106	

Kiser Middle	868	889	986	1,034	1,034	
Lincoln Academy (4-8)	665	675	681	1,032	1,032	
Mendenhall Middle	709	729	665	880	880	
Northeast Middle	706	692	625	904	904	
Northern Middle	860	895	918	914	914	
Northwest Middle	1,044	1,048	1,123	896	896	
Penn Griffin Schl for the Arts	600	631	647	980	980	
Southeast Middle	946	955	929	915	915	
Southern Middle	752	773	738	986	986	
Southwest Middle	1,196	1,214	1,251	1,099	1,099	
Swann Middle	610	624	627	952	952	
Welborn Middle	347	352	364	736	736	
Western Guilford Middle School	637	677	666	1,083	1,083	
Middle Total	16,448	16,762	16,932	20,505	20,480	

EXHIBIT 5-4 (CONTINUED)
 GUILFORD COUNTY SCHOOLS
 CURRENT AND PROJECTED UTILIZATION RATES

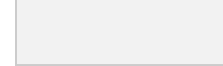
SITE NAME	2017 PK-12 ENROLLMENT	2018 PK-12 PROJECTED ENROLLMENT	2027 PK-12 PROJECTED ENROLLMENT	MGT PK-12 CAPACITY 2018	MGT PK-12 CAPACITY 2021-27	M U
Andrews High	780	759	814	1,146	1,146	
Dudley High	1,433	1,431	1,358	1,744	1,744	
Eastern High	1,274	1,317	1,232	1,308	1,308	
Grimsley High	1,732	1,747	1,699	1,779	1,779	
High Point Central High	1,461	1,441	1,472	1,614	1,614	
Northeast High	1,025	1,020	927	947	947	
Northern High	1,370	1,351	1,411	1,417	1,417	
Northwest High	2,103	2,110	2,258	1,583	1,583	

Page High	1,930	1,917	1,938	1,658	1,658
Ragsdale High	1,494	1,492	1,463	1,651	1,651
Smith High	1,282	1,273	1,334	1,608	1,608
Southeast High	1,353	1,332	1,350	1,553	1,553
Southern High	1,095	1,082	1,124	1,174	1,174
Southwest High	1,606	1,619	1,795	1,719	1,719
Western High	1,255	1,225	1,219	1,397	1,397
High School Total	21,193	21,117	21,397	22,299	22,299

EXHIBIT 5-4 (CONTINUED)
GUILFORD COUNTY SCHOOLS
CURRENT AND PROJECTED UTILIZATION RATES

SITE NAME	2017 PK-12 ENROLLMENT	2018 PK-12 PROJECTED ENROLLMENT	2027 PK-12 PROJECTED ENROLLMENT	MGT PK-12 CAPACITY 2018	MGT PK-12 CAPACITY 2021-27
Dean B. Pruette SCALE School	7	7	8	147	147
Gateway Ed. Center	146	143	136	269	269
Greensboro SCALE School	14	14	18	105	105
Guilford Newcomers School	266	239	331	305	301
Haynes Inman Education Center	129	126	129	202	202
Herbin-Metz Education Center	74	73	80	96	96
Joyner-Greene Education Center	87	81	103	167	167
Kearns Academy	129	123	142	232	232
Old McIver School	N/A	N/A	N/A	406	406
Smith Academy	210	209	226	340	340
Twilight High School	N/A	N/A	N/A	63	63
Weaver Ed. Center	307	311	323	553	553
Specialty Schools Total	1,369	1,327	1,495	2,884	2,880
District Total	72,137	72,259	73,808	80,893	78,146

Source: MGT of America Consulting, LLC, 2018.



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 5.0 CAPACITY AND UTILIZATION

Exhibit 5-5 shows the corresponding minimum, maximum, and average utilization rates calculated using the *functional capacities* and the current enrollment at each school level.

EXHIBIT 5-5
 GUILFORD COUNTY SCHOOLS
 CURRENT RANGE AND AVERAGE UTILIZATION RATES

SITE TYPE	MGT 2017-18 CURRENT UTILIZATION		AVERAGE
	RANGE		
	LOW	HIGH	
Elementary Schools	63%	215%	94%
Middle Schools	47%	117%	80%
High Schools	68%	133%	95%
Specialty Schools	5%	87%	47%

Source: MGT of America Consulting, LLC, 2018.

Exhibit 5-6 shows the corresponding minimum, maximum, and average utilization rates calculated using the *functional capacities* and the 2027-28 projected enrollment at each school level.

EXHIBIT 5-6
 GUILFORD COUNTY SCHOOLS
 PROJECTED RANGE AND AVERAGE UTILIZATION RATES

SITE TYPE	MGT 2027-28 PROJECTED UTILIZATION		AVERAGE
	RANGE		

	LOW	HIGH	
Elementary Schools	66%	239%	105%
Middle Schools	49%	125%	83%
High Schools	71%	143%	96%
Specialty Schools	5%	110%	52%

Source: MGT of America Consulting, LLC, 2018.



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5.0 CAPACITY AND UTILIZATION

5.3 CAPACITY AND UTILIZATION CONCLUSIONS

The district should examine the specific situation for the schools that are projected to have “inefficient,” “approaching inadequate,” or “inadequate” utilization rates to determine if action is required and whether the approach will include capital improvements or redistricting. In **Section 7.0** of the Master Plan Report are options for addressing this need.

ELEMENTARY SCHOOLS

The 2018 functional capacity for the elementary schools varies from a low of 274 to a high of 832. The district’s elementary schools are utilized at an “adequate” rate on a district-wide basis of 94 percent. The projected district-wide utilization for 2027-28 will increase to 105 percent with 27 elementary schools projected to have “inadequate” space at the end of the ten-year period.

MIDDLE SCHOOLS

The 2018 functional capacity for the middle schools varies from a low of 336 to a high of 1,179. Presently the district’s middle schools are utilized with “adequate space,” with a current utilization rate of 80 percent. The average utilization is projected to increase but remain adequate, with a rate of 83 percent by 2027-28. Currently, seven middle schools scored as having an “inefficient use of space,” and one school is being overutilized. It is projected that seven middle schools will have “inefficient capacity” and two middle schools will have “inadequate space” in 2027.

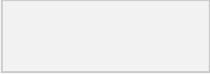
HIGH SCHOOLS

The 2018 functional capacity for the high schools varies from a low of 947 to a high of 1,779. The district’s high schools are currently “approaching inadequate” use of facilities, with a district-wide rate of 95 percent. This rate is projected to increase, but still approaching an inadequate use of space, at 96

percent utilization by 2027-28. Two high schools are projected to be overutilized by 2027-28.

SPECIALTY SCHOOLS

The 2018 functional capacity for the specialty schools ranges from a low of 63 to a high of 553. The district’s specialty schools are currently “using space inefficiently,” with a district-wide rate of 47 percent. This rate is projected to increase to 52 percent by 2027-28. Eight specialty schools are projected to be underutilized, with utilization rates lower than 70 percent, in 2027-28.



6.0 FACILITY ASSESSMENTS

This section presents the results of the facility assessments that were conducted by the MGT project team.

Building and site condition assessments were conducted at each school site. Data were collected using Parson’s eComet® assessment software. Educational suitability and technology readiness information were collected using MGT’s BASYS® facility assessment software. The assessments included:

- ♦ Building Condition which evaluates the physical condition of all building systems.
- ♦ Educational Suitability which evaluates the ability of the facility to support and enhance educational program delivery.
- ♦ Site Condition which evaluates the physical condition of all site systems.
- ♦ Technology Readiness which evaluates the level to which the building infrastructure supports information technology.

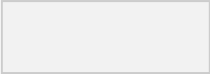
Each assessment results in a score based on a 100-point scale. Scores are interpreted as shown on the following chart.

NUMERICAL SCORE	INTERPRETATION
90 – 100	New or like new, Excellent
80 – 89	Good
70 – 79	Fair
60 – 69	Poor
Below 60	Unsatisfactory

The scoring is structured to measure the level of deficiencies as related to the total value of the building. Consequently, scores can be used to calculate the budgets required to remediate the deficiencies identified in the assessments. The BASYS® software produces a detailed report for each facility assessment which includes each deficiency identified.

The results of the assessments were reviewed with district staff to ensure accuracy and completeness.

A summary of the assessment results and budgets can be found in **Appendix D** Detailed School Reports. BASYS and eCOMET assessment reports are provided in **Appendix E**. **Appendix E** identifies specific deficiencies by school.



6.0 FACILITY ASSESSMENTS

6.1 BUILDING CONDITION ASSESSMENT

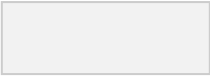
The eComet® building condition index estimates the amount of deferred maintenance in the building's systems and components. The key tasks were to determine the physical condition of the selected schools using industry standard techniques and then recommend repairs or improvements to remediate observed or predicted deficiencies of the facilities. Parsons conducted visual, non-destructive, non-invasive inspections and evaluations of the facilities which included permanent buildings and associated site improvements. Each separate building at a site is evaluated individually on each of the systems, and the overall building condition index of a facility is the cumulative cost of repair/replacement of the deferred maintenance items divided by the total cost or replacement of all the buildings at a site. The "index" is converted to a "score" representing that portion of the value of the building which is in good condition and in that format is compatible with the educational evaluation scoring. Here is how that is calculated.

Parsons' assessment process is based on national standards such as ASTM E2018-15 Standard Guide for Property Condition Assessments and best practices developed over 20 years of FCA services. Each building is a complex assembly of systems and components. Each of the systems is defined by UNIFORMAT II (ASTM E1557-97) for consistency, assigned an expected service life (life-cycle) using industry guidelines and our client's best practices, and then priced using parametric estimating methods and the RSMeans national construction cost databases correlated to recent local construction projects plus "soft costs" (non-bricks-and-mortar expenses). Each building and the campus grounds are modeled in the eCOMET® software using these systems and cost methods. After the district database is built in the computer, assessors physically walk and observe every part of every building and discuss operations with facilities staff. Systems that have reached their expected service life (or "expiration date") or have failed are called deficiencies, and their replacement costs are added to the deferred maintenance budgets. By this two-step process, assessors can verify, adjust, and correct the life-cycle status, remaining service life, and observe premature degradation or failure of all the parts.

The condition data is revised, profiles finalized, and metrics calculated to develop recommendations for

deferred maintenance budgets, timelines for repair or replacement, and future expectations for needed capital renewal. The most prominent metric is the simple but powerful ratio called **facility condition index** or **FCI** which is the total cost of replacing the deferred maintenance (deficiencies) divided by the total replacement cost of the facility; usually expressed as a percentage.

To be usable in combination with the educational scoring, the index percentages are converted to the 100-based scoring model. The FCI percentage can be simply changed to a whole number and called capital needs score (for example, a .20 or 20% FCI = 20 capital needs score). A capital needs score of 20 indicates that 20 percent of the value of the building can be reinvested in the building to attain a score of 100 and put the building in a “like new” condition. Taking the inverse creates the **condition score** of 80 (100-20 = 80) which fits the rating scale below and is compatible with the educational ratings. The condition score represents how much of the building has remaining service life versus the capital needs score or FCI that indicates how much of the building systems have expired and need replacement.



6.0 FACILITY ASSESSMENTS

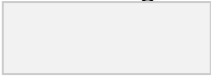
The Building Condition Scores are interpreted as follows:

90+	New or Like New: The building and/or a majority of its systems are in very good condition and only require preventive maintenance; only a few, if any, systems have reached their expected life-cycle age. The total replacement cost of any “expired” systems is less than 10% of the current replacement value of the facility.
80-89	Good: The building and/or a majority of its systems are in good condition and only require routine maintenance; the total replacement cost of systems that have reached or exceed their expected service life (life-cycle age) is between 10 and 20% of the current replacement cost of the facility.
70-79	Fair: The building and/or some of its systems are in fair condition based on age and operations; the total replacement cost of systems that have reached or exceed their expected service life (life-cycle age) is between 20 and 30% of the current replacement cost of the facility.
60-69	Poor: The building and/or a significant number of its systems are in poor condition and require major repair, renovation, or replacement; the total replacement cost of systems that have reached or exceed their expected service life (life-cycle age) is between 30 and 40% of the current replacement cost of the facility.
BELOW 60	Unsatisfactory: The building and/or a majority of its systems should be replaced due to risk of system failure, inefficient operation and increased maintenance requirements; the total replacement cost of systems that have reached or exceed their expected service life (life-cycle age) is greater than 40% of the current replacement cost of the facility.

The condition score and resulting calculations do not include the costs of any additions to increase the size or

capacity of a school, site improvements, improvements for educational suitability, or technology readiness improvement.

Exhibit 6-1 presents the range of the building condition scores by site type. As the exhibit shows, there is a range of condition scores, from 17 to 100 with the average condition scores in the “Fair” to “Unsatisfactory” range.



6.0 FACILITY ASSESSMENTS

EXHIBIT 6-1
GUILFORD COUNTY SCHOOLS
BUILDING CONDITION SCORE (FCA) RANGE AND AVERAGE

SITE TYPE	BUILDING CONDITION FCA SCORE RANGE		AVERAGE
	LOW	HIGH	
Elementary Schools	20	100	69
Middle Schools	23	100	71
High Schools	40	99	71
Specialty Educational Facilities	40	100	68
Administration	17	89	47

Source: Parsons, 2018.

Starting on page 71, **Exhibit 6-7** presents the summary data for each facility, including the building condition score. As the exhibit shows, building condition scores range from “New or Like New” to “Unsatisfactory” which indicates that the facilities vary significantly in the amount of deferred maintenance required.

6.2 EDUCATIONAL SUITABILITY ASSESSMENT

The educational suitability assessment evaluates how well the facility supports the educational program that it houses. Each site receives one suitability score which applies to all the buildings at the facility. The educational suitability/functionality of each facility was assessed with BASYS® using the following categories:

ENVIRONMENT	The overall environment of the facility with respect to creating a safe and positive working/learning environment.
CIRCULATION	Pedestrian/vehicular circulation and the appropriateness of site facilities and signage.
SUPPORT SPACE	The existence of facilities and spaces to support the educational/governmental program being offered. These include offices, general classrooms, special learning spaces (e.g., music rooms, libraries, science labs), and support spaces (e.g., administrative offices, counseling offices, reception areas, kitchens, health clinics).
SIZE	The adequacy of the size of the program spaces.
LOCATION	The appropriateness of adjacencies (e.g., physical education space separated from quiet spaces).
STORAGE & FIXED EQUIPMENT	The appropriateness of utilities, fixed equipment, storage, and room surfaces (e.g., flooring, ceiling materials, and wall coverings) as well as safety and program equipment (e.g., kiln, sinks, safety shower/eyewash equipment).

Suitability scores are interpreted as follows:

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6.0 FACILITY ASSESSMENTS

90+	Excellent: The facility is designed to provide for and support the educational/governmental program offered. It may have minor suitability/functionality issues but overall it meets the needs of the educational/governmental program.
80-89	Good: The facility is designed to provide for and support a majority of the educational/governmental program offered. It may have minor suitability/functionality issues but generally meets the needs of the educational/governmental program.
70-79	Fair: The facility has some problems meeting the needs of the educational/governmental program and will require remodeling/renovation.
60-69	Poor: The facility has numerous problems meeting the needs of the educational/governmental program and needs significant remodeling, additions, or replacement.

BELOW 60	Unsatisfactory: The facility is unsuitable in support of the educational/governmental program.
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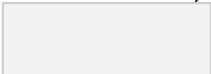
Exhibit 6-2 presents the range and average of suitability scores by site type. The suitability scores range from 34 to 94. The average scores fall within the “Fair” to “Poor” ranges.

EXHIBIT 6-2
GUILFORD COUNTY SCHOOLS
SUITABILITY SCORE RANGE AND AVERAGE

SITE TYPE	SUITABILITY SCORE RANGE		AVERAGE
	LOW	HIGH	
Elementary Schools	47	94	67
Middle Schools	55	88	71
High Schools	61	79	69
Specialty Schools	34	91	62

Source: MGT of America Consulting, LLC, 2018.

Exhibit 6-7, starting on page 71, presents the educational suitability score for each facility. As the scores indicate, some facilities have significant suitability deficiencies.



6.3 TECHNOLOGY READINESS

The BASYS® technology readiness score measures the capability of the existing infrastructure to support information technology and associated equipment. The technology infrastructure assessment was conducted by an assessor without any invasive or longitudinal speed or data usage measurements and should be viewed as a “snapshot in time.” The score can be interpreted as follows:

90+	Excellent: The facility has excellent infrastructure to support information technology.
80-89	Good: The facility has the infrastructure to support information technology.
70-79	Fair: The facility is lacking in some infrastructure to support information technology.
60-69	Poor: The facility is lacking significant infrastructure to support information technology.
BELOW 60	Unsatisfactory: The facility has little or no infrastructure to support information technology.

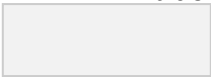
Exhibit 6-3 presents the range of technology scores and the average technology scores by site type. Technology readiness scores vary from 50 to 100, with the average scores in the “Good” range.

EXHIBIT 6-3
GUILFORD COUNTY SCHOOLS
TECHNOLOGY SCORE RANGE AND AVERAGE

SITE TYPE	TECHNOLOGY READINESS SCORE		AVERAGE
	RANGE		
	LOW	HIGH	
Elementary Schools	63	100	84
Middle Schools	56	100	88
High Schools	72	100	83
Specialty Schools	50	100	80

Source: MGT of America Consulting, LLC, 2018.

Exhibit 6-7, starting on page 71, presents the technology readiness score for each facility.



6.4 SITE CONDITION ASSESSMENT

The site condition assessment was conducted by walking each facility with a district or building maintenance staff member to observe both current conditions and learn about regularly occurring events – e.g., flooding during rain events that might not be visible during the site visit. The site score is a measure of the amount of capital needs or deferred maintenance at the site, which includes the driveways and walkways, the parking lots, the playfields, the utilities, fencing, etc. The site was scored using eCOMET®.

The site condition scores were calculated in the same manner as the building condition scores and interpreted as follows:

90+	New or Like New: The site and/or a majority of its systems are in very good condition and only require preventive maintenance; only a few, if any, systems have reached or exceed their expected service life (life-cycle age), the total replacement cost of these “expired” systems is less than 10% of the current replacement value of the site systems.
80-89	Good: The site and/or a majority of its systems are in good condition and only require routine maintenance; the total replacement cost of systems that have reached or exceed their expected service life (life-cycle age) is between 10 and 20% of the current replacement cost of the site systems.
70-79	Fair: The site and/or some of its systems are in fair condition based on age and operations; the total replacement cost of systems that have reached or exceed their expected service life (life-cycle age) is between 20 and 30% of the current replacement cost of the site systems.
60-69	Poor: The site and/or a significant number of its systems are in poor condition and require major repair, renovation, or replacement; the total replacement cost of systems that have reached or exceed their expected service life (life-cycle age) is between 30 and 40% of the current replacement cost of the site systems.
BELOW 60	Unsatisfactory: The site and/or a majority of its systems should be replaced due to risk of system failure, inefficient operation and increased maintenance requirements; the total replacement cost of systems that have reached or exceed their expected service life (life cycle age) is greater than 40% of the current replacement cost of the site systems.

Exhibit 6-4 presents the range of site assessment scores and the average site assessment scores for GCS. The site assessment scores ranged from 5 to 100. The average scores fall within the “Good” to “Unsatisfactory” range.

6.0 FACILITY ASSESSMENTS

EXHIBIT 6-4
 GUILFORD COUNTY SCHOOLS
 SITE CONDITION SCORE RANGE AND AVERAGE

SITE TYPE	SITE CONDITION SCORE RANGE		AVERAGE
	LOW	HIGH	
Elementary Schools	18	100	71
Middle Schools	8	100	75
High Schools	49	100	83
Specialty Schools	16	100	64
Admin	5	100	49

Source: Parsons, 2018.

Exhibit 6-7, starting on page 71, presents the site condition score for each facility.

6.0 FACILITY ASSESSMENTS

6.5 COMBINED SCORES

The building condition, educational suitability, technology readiness, and site condition scores are combined into one score for each facility to assist in the task of prioritizing projects. Since the condition score is a measure of the maintenance needs (e.g., leaky roofs, etc.) and the suitability score is a measure of how well the building design and configuration supports the educational program or building function, it is possible to have a high score for one assessment and a low score for another assessment. It is the combined score that attempts to give a comprehensive picture of the conditions that exist at each facility and how each facility compares relative to the other facilities in the district.

To create the Combined Score, the four scores are weighted, based on which deficiencies the district wants to emphasize and the relative impact on capital costs. Guilford County Schools determined the scores should be weighted as follows:

- ♦ Building Condition score - 50 percent
- ♦ Educational Suitability score - 45 percent

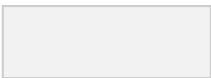
- ◆ Technology Readiness score - 0 percent
- ◆ Site Condition score - 5 percent

Exhibit 6-5 presents the range of the Combined Scores and the average scores by site type. The Combined Scores vary from 34 to 97, with the average scores in the “Fair” to “Poor” ranges.

EXHIBIT 6-5
GUILFORD COUNTY SCHOOLS
COMBINED SCORE RANGE AND AVERAGE

SITE TYPE	COMBINED SCORE (50/45/0/5)		AVERAGE
	RANGE		
	LOW	HIGH	
Elementary Schools	34	97	68
Middle Schools	42	95	71
High Schools	56	90	71
Specialty Schools	41	96	65

Source: MGT of America Consulting, LLC, 2018.



Guilford County Schools ◆ January 9, 2019

Exhibit 6-6 presents the key for color coding and interpretation of the scores. **Exhibit 6-7** presents the scores for each school by site type as well as each school's combined score, based on the weighting formula described above. Though Technology Readiness is not weighted within the Combined Score, it has been included in **Exhibit 6-7** below to provide a comprehensive snapshot for each school site.

EXHIBIT 6-6
GUILFORD COUNTY SCHOOLS
SCORE KEY

COMBINED SCORES	DESCRIPTION
-----------------	-------------

> 90%	Excellent/Like New
80 - 89	Good
70 - 79	Fair
60 - 69	Poor
< 60	Unsatisfactory

EXHIBIT 6-7
 GUILFORD COUNTY SCHOOLS
 ASSESSMENT SCORES – BY SITE TYPE

SITE NAME	GRADE CONFIGURATION	GSF	BUILDING FCA SCORE	SUITABILITY SCORE	TECHNOLOGY SCORE
Alamance Elem.	PK-5	93,113	96	77	95
Alderman Elem.	PK-5	55,692	65	57	93
Allen Jay Elem.	PK-5	43,043	57	50	78
Archer Elem.	PK-5	47,056	59	58	65
Bessemer Elem.	PK-5	68,893	39	59	79
Bluford Elem.	PK-5	59,451	98	79	95
Brightwood Elem.	PK-5	85,277	90	79	86
Brooks Global Studies	PK-5	48,148	43	50	68
Claxton Elem.	PK-5	51,949	37	47	87

EXHIBIT 6-7 (CONTINUED)
 GUILFORD COUNTY SCHOOLS ASSESSMENT SCORES – BY SITE TYPE

SITE NAME	GRADE CONFIGURATION	GSF	BUILDING FCA SCORE	SUITABILITY SCORE	TECHNOLOGY SCORE
Colfax Elem.	PK-5	102,480	89	78	73
Cone Elem.	PK-5	66,277	63	53	90

Erwin Montessori	PK-5	52,738	66	62	85
Fairview Elem.	PK-5	76,058	83	71	82
Falkener Elem.	PK-5	85,277	85	76	97
Florence Elem.	PK-5	78,712	74	73	76
Foust Elem.	PK-5	50,246	20	52	80
Frazier Elem.	PK-5	52,084	69	55	84
General Greene Elem.	PK-5	41,242	60	59	79
Gibsonville Elem.	PK-5	98,133	89	80	90
Gillespie Park Elem.	PK-5	75,744	87	81	90
Guilford Elem.	PK-5	89,639	98	82	82
Hampton Elem.	PK-5	48,448	54	54	72
Hunter Elem.	PK-5	88,635	100	93	100
Irving Park Elem.	PK-5	62,743	52	63	81
Jamestown Elem.	PK-5	68,702	65	66	75
Jefferson Elem.	PK-5	88,500	88	79	84
Jesse Wharton Elem.	PK-5	88,500	72	79	88
Jones Elem.	PK-5	73,555	82	55	80
Joyner Elem.	PK-5	44,320	42	50	71
Kirkman Park Elem.	PK-5	42,589	54	59	88
Lindley Elem.	PK-5	69,693	56	67	81
Madison Elem.	PK-5	44,794	63	59	69

EXHIBIT 6-7 (CONTINUED)
 GUILFORD COUNTY SCHOOLS ASSESSMENT SCORES – BY SITE TYPE

SITE NAME	GRADE CONFIGURATION	GSF	BUILDING FCA SCORE	SUITABILITY SCORE	TECHNOLOGY SCORE
McLeansville Elem.	PK-5	68,409	92	61	88
McNair Elem.	PK-5	92,039	100	94	100

Millis Road Elem.	PK-5	59,009	50	48	63
Monticello-Brown Summit Elem.	PK-5	88,500	94	79	81
Montlieu Elem.	PK-5	65,741	54	52	83
Morehead Elem.	PK-5	49,210	59	59	84
Murphey Elem.	PK-5	53,028	47	57	86
Nathanael Greene Elem.	PK-5	55,523	60	65	80
Northern Elem.	PK-5	79,633	99	88	81
Northwood Elem.	PK-5	68,588	46	60	100
Oak Hill Elem.	PK-5	60,820	64	67	100
Oak Ridge Elem.	PK-5	103,891	94	86	95
Oak View Elem.	PK-5	68,554	57	72	83
Parkview Elem.	PK-5	80,512	81	71	95
Pearce Elem.	PK-5	89,207	98	76	100
Peck Elem.	PK-5	62,220	56	50	73
Peeler Elem.	PK-5	49,376	55	64	77
Pilot Elem.	PK-5	88,500	68	79	83
Pleasant Garden Elem.	PK-5	115,288	75	72	68
Rankin Elem.	PK-5	91,968	90	56	86
Reedy Fork Elem.	PK-5	86,847	99	87	93
Sedalia Elem.	PK-5	65,451	74	74	93

EXHIBIT 6-7 (CONTINUED)
 GUILFORD COUNTY SCHOOLS ASSESSMENT SCORES – BY SITE TYPE

SITE NAME	GRADE CONFIGURATION	GSF	BUILDING FCA SCORE	SUITABILITY SCORE	TECHNOLOGY SCORE	S
Sedgefield Elem.	PK-5	52,592	49	66	82	
Shadybrook Elem.	PK-5	62,210	41	61	87	
Simkins Elem.	PK-5	92,812	100	92	92	

Southern Elem.	PK-5	39,052	26	57	100	
Southwest Elem.	PK-5	98,523	92	66	83	
Sternberger Elem.	PK-5	50,690	36	51	71	
Stokesdale Elem.	PK-5	75,190	81	68	68	
Summerfield Elem.	PK-5	96,616	87	76	84	
Sumner Elem.	PK-5	84,776	27	63	98	
Triangle Lake Montessori	PK-5	85,277	93	78	93	
Union Hill Elem.	PK-5	92,931	99	84	84	
Vandalia Elem.	PK-5	34,820	46	49	88	
Washington Elem.	PK-5	49,723	72	53	74	
Wiley Elem.	PK-5	60,198	46	51	83	
Elementary Total/Average		4,759,455	69	67	84	
Allen Middle	6-8	129,319	52	67	93	
Allen Jay Middle - Prep Academy	5-8	90,064	98	81	100	
Brown Summit Middle	6-8	33,937	76	55	90	
Eastern Middle	6-8	137,550	76	79	93	
Ferndale Middle	6-8	149,372	69	71	93	
Hairston Middle	6-8	142,872	90	78	78	
Jackson Middle	6-8	112,459	45	61	83	
Jamestown Middle	6-8	162,154	100	88	91	

EXHIBIT 6-7 (CONTINUED)
 GUILFORD COUNTY SCHOOLS ASSESSMENT SCORES – BY SITE TYPE

SITE NAME	GRADE CONFIGURATION	GSF	BUILDING FCA SCORE	SUITABILITY SCORE	TECHNOLOGY SCORE	SIS
Johnson Street Elem. (K-8)	PK-8	72,120	62	57	90	
Kernodle Middle	6-8	141,332	92	79	81	
Kiser Middle	6-8	137,935	23	63	98	

Lincoln Academy (4-8)	4-8	95,409	67	66	88
Mendenhall Middle	6-8	122,250	52	70	56
Northeast Middle	6-8	131,184	66	63	78
Northern Middle	6-8	142,474	98	81	90
Northwest Middle	6-8	144,210	31	64	89
Penn Griffin Schl for the Arts	6-12	168,696	79	71	88
Southeast Middle	6-8	133,693	65	72	98
Southern Middle	6-8	143,877	99	79	88
Southwest Middle	6-8	138,143	86	73	84
Swann Middle	6-8	133,348	53	60	93
Welborn Middle	6-8	139,188	60	69	100
Western Guilford Middle School	6-8	157,889	100	80	95
Middle Total/Average		2,959,475	71	71	88
Andrews High	9-12	230,224	79	71	92
Dudley High	9-12	281,894	95	73	78
Eastern High	9-12	288,769	97	79	76
Grimsley High	9-12	343,151	46	65	72
High Point Central High	9-12	311,554	65	63	86

EXHIBIT 6-7 (CONTINUED)

GUILFORD COUNTY SCHOOLS ASSESSMENT SCORES – BY SITE TYPE

SITE NAME	GRADE CONFIGURATION	GSF	BUILDING FCA SCORE	SUITABILITY SCORE	TECHNOLOGY SCORE
Northeast High	9-12	185,359	56	61	83
Northern High	9-12	270,000	99	79	100
Northwest High	9-12	249,264	78	61	81
Page High	9-12	230,174	66	66	84
Ragsdale High	9-12	367,837	91	73	100

Smith High	9-12	276,492	57	62	81
Southeast High	9-12	264,328	77	69	74
Southern High	9-12	204,074	40	69	88
Southwest High	9-12	280,614	66	72	78
Western High	9-12	258,860	52	70	73
High School Total/Average		4,042,594	71	69	83
Dean B. Pruette SCALE School	6-12	27,475	89	66	100
Gateway Ed. Center	6 mo.- 22 years	98,782	54	80	88
Greensboro SCALE School	Admin	18,668	40	49	58
Guilford Newcomers School	3-11	29,654	47	34	60
Haynes Inman Education Center	3 years - 22 years	62,495	100	91	92
Herbin-Metz Education Center	K-8	51,385	100	82	98
Joyner-Greene Education Center	9th grade -22 years	57,266	100	87	78
Kearns Academy	9-12	45,000	60	55	100

EXHIBIT 6-7 (CONTINUED)
GUILFORD COUNTY SCHOOLS ASSESSMENT SCORES – BY SITE TYPE

SITE NAME	GRADE CONFIGURATION	GSF	BUILDING FCA SCORE	SUITABILITY SCORE	TECHNOLOGY SCORE
Old McIver School	9-12	81,630	55	47	50
Smith Academy	6-12	39,248	90	63	78
Twilight High School	9-12	8,309	40	45	66
Weaver Ed. Center	12th	110,970	40	42	90
Specialty Schools Total/Average		630,882	68	62	80
English Road Admin/Dean B Pruette SCALE School	Admin	3,182	89	N/A	N/A
Franklin Blvd- Main	Admin	43,893	26	N/A	N/A
Transportation- Main	Admin	31,282	28	N/A	N/A

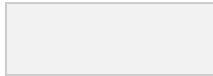
Jamieson Stadium	Admin	62,787	46	N/A	N/A
Laughlin Professional Center	Admin	34,495	36	N/A	N/A
Psychological Services-Idol Building	Admin	15,652	61	N/A	N/A
Lee Chapel -Learning Area Admin	Admin	16,931	17	N/A	N/A
Eugene Street Admin- Main	Admin	48,389	38	N/A	N/A
Market Street Administration Building	Admin	10,577	32	N/A	N/A

EXHIBIT 6-7 (CONTINUED)

GUILFORD COUNTY SCHOOLS ASSESSMENT SCORES – BY SITE TYPE

SITE NAME	GRADE CONFIGURATION	GSF	BUILDING FCA SCORE	SUITABILITY SCORE	TECHNOLOGY SCORE
Grimes Avenue Warehouse	Admin	30,980	40	N/A	N/A
Simeon Stadium	Admin	3,000	63	N/A	N/A
Prescott Street Tech Department	Admin	14,568	65	N/A	N/A
Washington Street Annex	Admin	42,188	39	N/A	N/A
Maintenance- Main	Admin	34,184	70	N/A	N/A
Merrit Drive Annex	Admin	4,375	48	N/A	N/A
Admin Total/Average		396,483	47	N/A	N/A
District Total/Average		12,788,889	67	67	84

Source: MGT of America Consulting, LLC, Parsons, 2018.



6.6 FINDINGS

The four facility assessments have identified deficiencies in all areas of GCS facilities. While there are some exceptions, it is a fair generalization to say that some GCS school buildings are not providing an adequate environment for teaching and learning. The individual schools scoring less than 70 as a Combined Score will need the most attention. For those schools, there were a variety of challenges at the building level. Some scored poorly in the building condition assessment, while others scored poorly in the suitability portion of the assessment. An individual building/school level analysis will be necessary across all four assessment areas to make a final determination of the capital investment required to provide a high-quality learning environment in all schools.

These facility assessments provide the data to prioritize projects based on the overall facility needs of the district. These data, combined with the utilization analysis, the educational goals and programs, and capital improvement budgets, will be used to develop master planning recommendations in **Section 7.0**.

