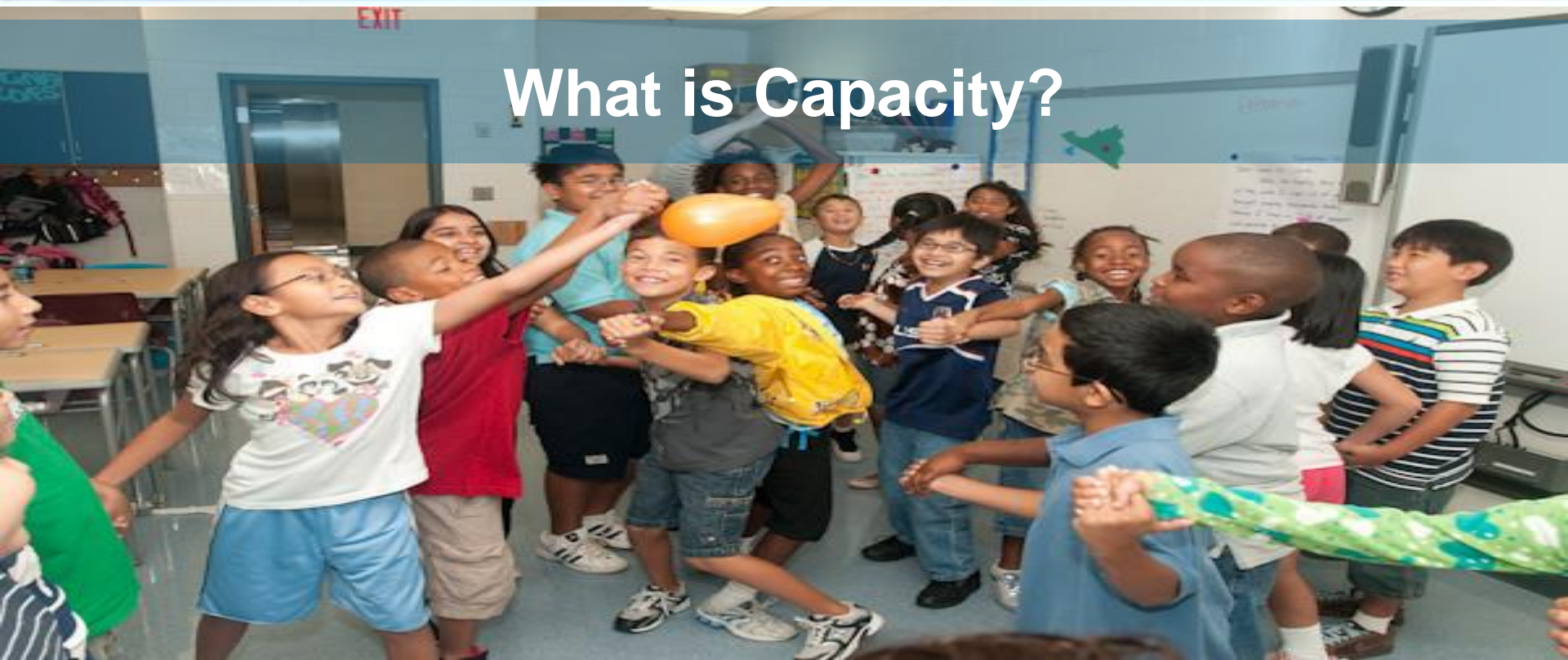


School Capacity and Utilization

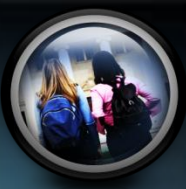
What is Capacity?



“ Capacity is simply how many occupants the building can support when the restrictions of the program of studies is applied”



School Capacity and Utilization



We Measure Capacity in Two Ways



DESIGN CAPACITY

When we evaluate a school for capacity we initially count the spaces as they were originally designed.



PROGRAM CAPACITY

The program capacity indicates the current use of each space.





School Capacity and Utilization

FACILITY TERMINOLOGY



Mandatory learning spaces such as primary , elementary and self-contained special education classrooms; core (required) classes in middle and high school



Spaces which offer support to the students during the day such as: cafeteria, toilets, locker rooms and media center



Locally mandated enrichment spaces such as: gymnasium, music and art in elementary schools; these are considered electives in high and middle schools



Spaces which support the administrative staff such as: offices, workrooms, and storage



Fairfax County Public Schools School Capacity and Utilization



Elementary School Capacity Formula

Total number of primary classrooms x class size ratio

Total number of elementary classrooms x class size ratio

Total number of self-contained classrooms x class size ratio

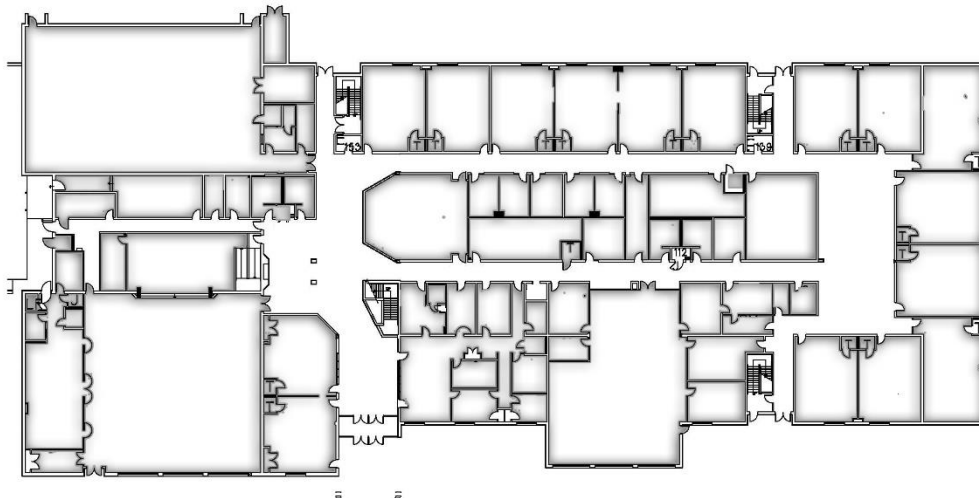


Fairfax County Public Schools School Capacity and Utilization

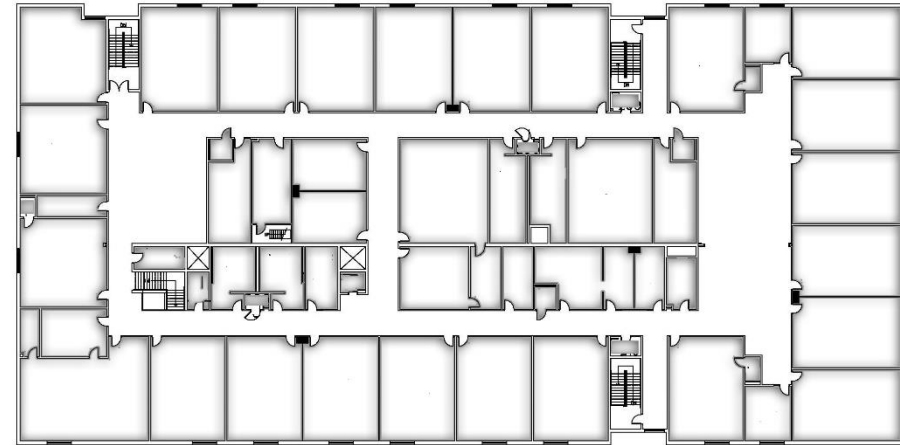


Figure illustrates layout before identifying room use

Standard Elementary School



FIRST FLOOR



SECOND FLOOR

Fairfax County Public Schools School Capacity and Utilization

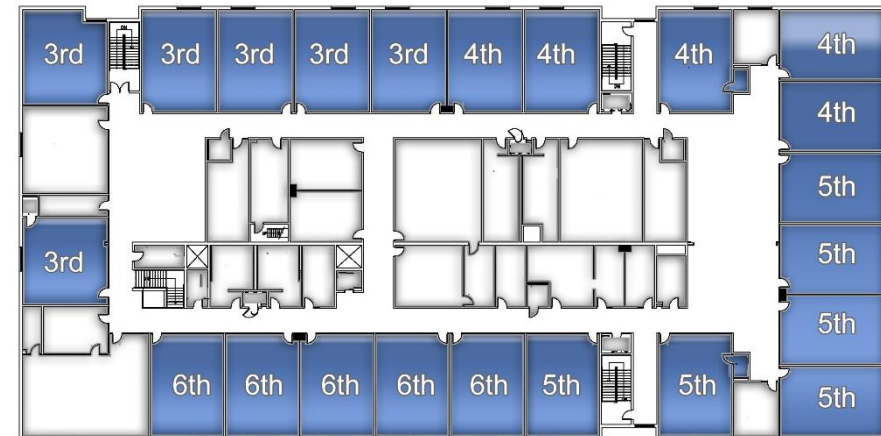


Figure illustrates layout after identifying primary (kindergarten, 1st, and 2nd grades) and elementary 3rd, 4th, 5th, and 6th grades) classrooms.


Standard Elementary School



FIRST FLOOR



SECOND FLOOR

 CORE - PRIMARY

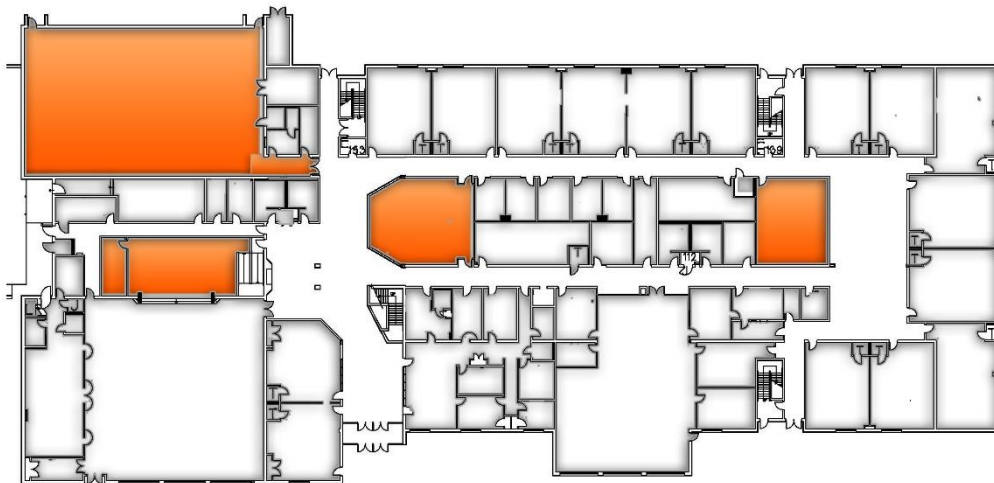
 CORE- ELEMENTARY

Fairfax County Public Schools School Capacity and Utilization

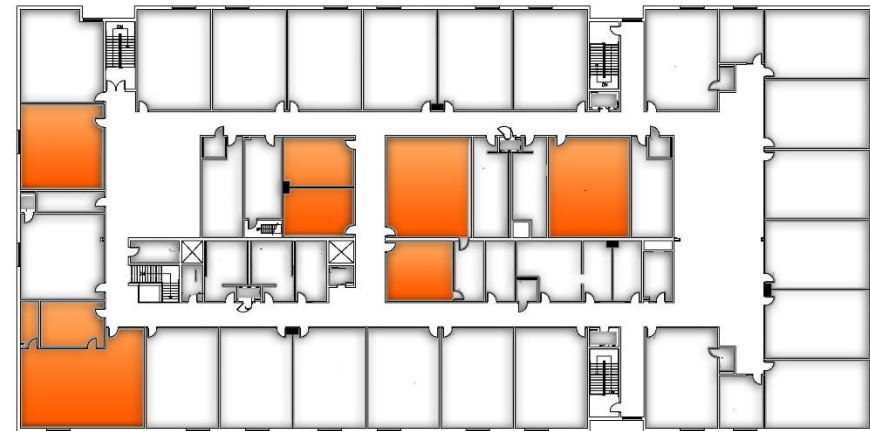


Figure illustrates layout after identifying supplemental uses
(Examples include, but are not limited to art, gym)

Standard Elementary School



FIRST FLOOR



SECOND FLOOR

 SUPPLEMENTAL

Fairfax County Public Schools School Capacity and Utilization

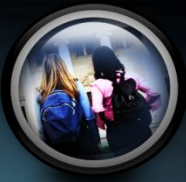
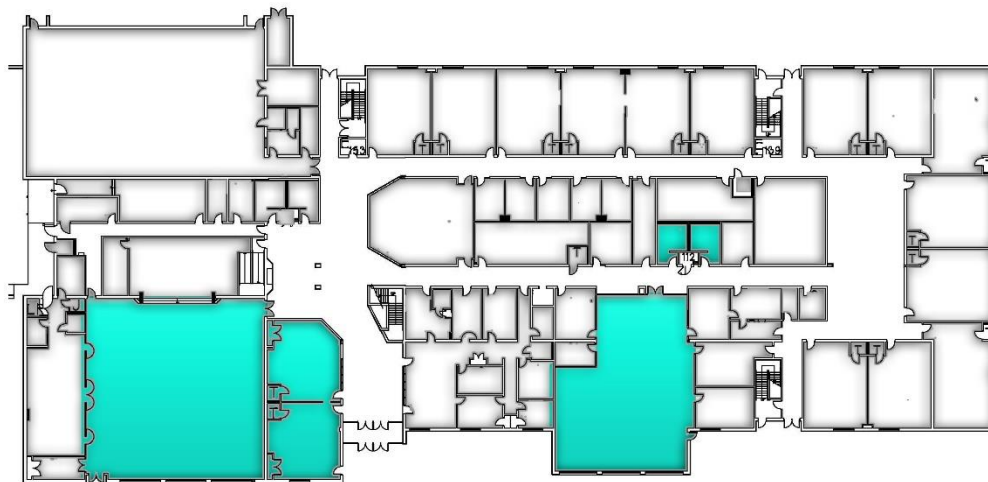
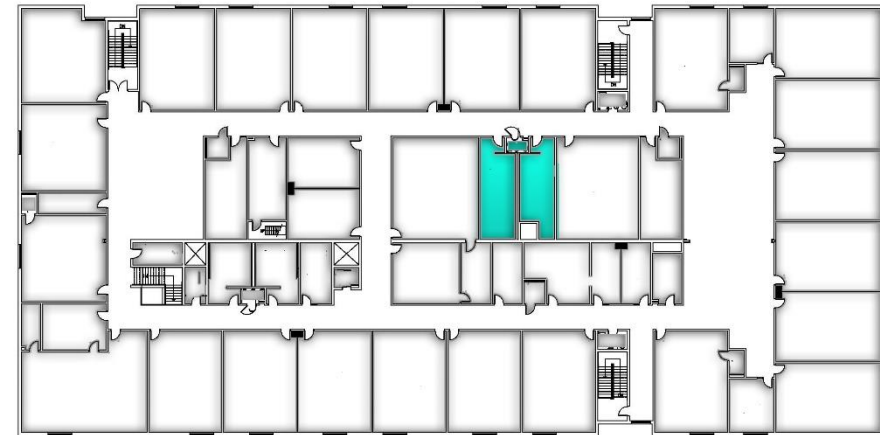


Figure illustrates layout after identifying support spaces
(Examples include, but are not limited to bathrooms, cafeteria, library,
and SACC)

Standard Elementary School



FIRST FLOOR



SECOND FLOOR

 SUPPORT SPACE

Fairfax County Public Schools School Capacity and Utilization

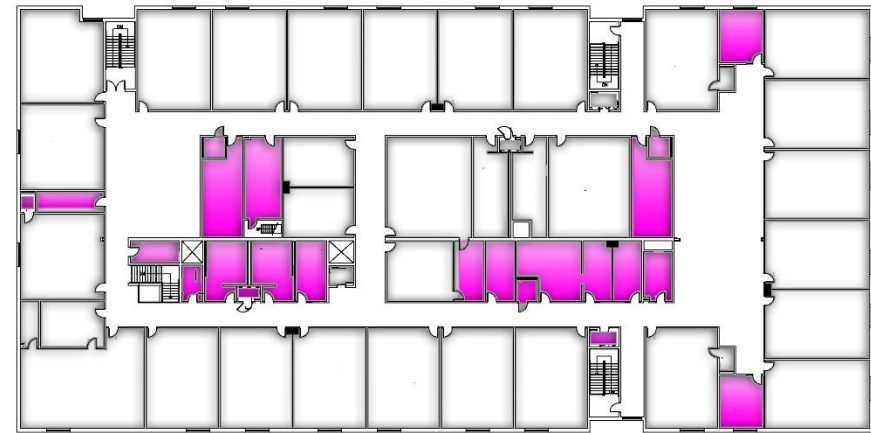


Figure illustrates layout after identifying administrative spaces
(Examples include, but are not limited to main office, instructional offices,
teacher lounges, and work rooms)

Standard Elementary School

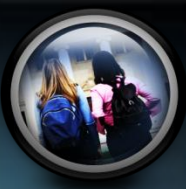


FIRST FLOOR



SECOND FLOOR

 ADMINISTRATIVE



School Capacity and Utilization

Elementary School Capacity Calculation

Using the typical school as an example; here is how capacity would be calculated

$$14 \text{ primary classrooms} \quad \times \quad 25 \text{ class size ratio} = 350$$

$$\underline{22 \text{ elementary classrooms} \quad \times \quad 28 \text{ class size ratio} = 616}$$

$$\textbf{Total School Capacity} = \textbf{966}$$



Fairfax County Public Schools School Capacity and Utilization

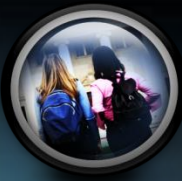


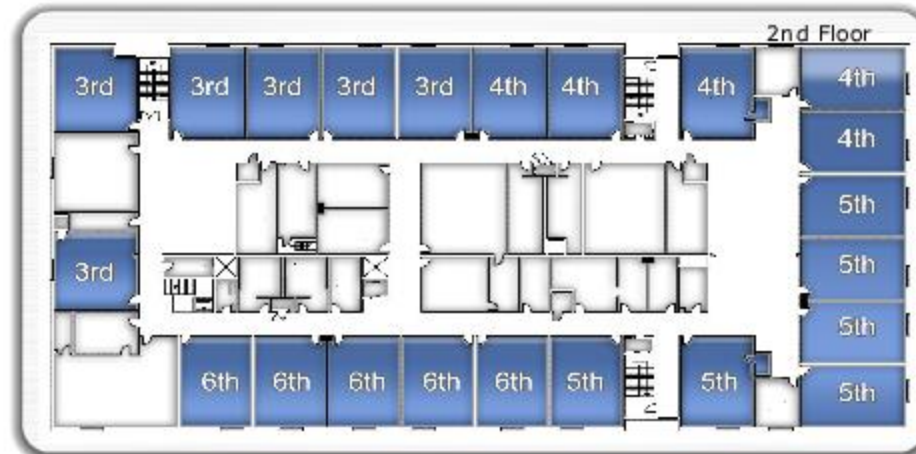
Figure illustrates layout where all spaces are used as designed. The Design Capacity matches the Program Capacity.

Standard Elementary

Learning Space	Design Capacity	Program Capacity
Kindergarten	100	100
1st Grade	125	125
2nd Grade	125	125
3rd Grade	168	168
4th Grade	140	140
5th Grade	168	168
6th Grade	140	140
Capacity Change	0	0
Capacity	966	966

 CORE - PRIMARY

Program Capacity Impact



 CORE- ELEMENTARY





Program Capacity Impacts

The previous slides demonstrated the capacity of a school absent special programs or other uses. The following slide will display the impact of program uses to classrooms in a school. Although an elementary school is being used as the model – the impact is similar across all school types.



Fairfax County Public Schools School Capacity and Utilization

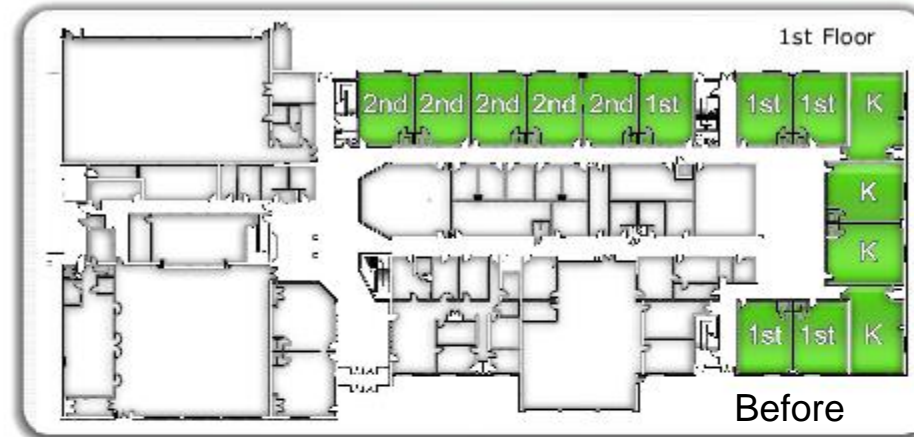


Figure illustrates layout where two full-size classrooms have been identified for use as special education program support in red. This lowers program capacity.

Program Capacity Impact

School with Special Education

Learning Space	Design Capacity	Program Capacity
Kindergarten	100	100
1st Grade	125	125
2nd Grade	125	75
3rd Grade	168	168
4th Grade	140	140
5th Grade	168	168
6th Grade	140	140
Capacity Change	0	-50
Capacity	966	916



 CORE - PRIMARY

 SPECIAL EDUCATION SUPPORT



School Capacity and Utilization



Title 1 and K-3 Cap Capacity Impacts

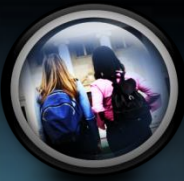
The previous slides demonstrated the impact of special education on capacity. The following slide will display the impact when the school is Title 1 or has a K-3 Cap. Title 1 or K-3 Cap schools limit the number of students per teacher. The floorplan will be the same, but the number of students per room, reflected by the program capacity ratio, will be limited.

Title I is a federal program. Schools are identified for Title I funds based on the percentage of students eligible for free and reduced-price meals.

K-3 Primary Class Size Reduction Program is a Virginia Department of Education initiative to maximize class size and pupil-teacher ratio. This varies per school.



Fairfax County Public Schools School Capacity and Utilization



The Title 1 and K-3 class size caps lower the class size ratio. For this example a cap of 22 students per class is used. This lowers the total program capacity.

Program Capacity Impact

TITLE 1 SCHOOL

Learning Space	Design Capacity	Program Capacity
Kindergarten	100	84
1st Grade	125	105
2nd Grade	125	105
3rd Grade	168	126
4th Grade	140	140
5th Grade	168	168
6th Grade	140	140
Capacity Change	0	-98
Capacity	966	868

 CORE - PRIMARY

 CORE- ELEMENTARY





Middle School Capacity

Middle school capacity is calculated in a much different manner than elementary or high schools. The primary reason is that the rooms are allotted based upon a Team Teaching method – taking into account the FCPS instructional methodology.





School Capacity and Utilization

Middle School Capacity Calculation Formula

Step # 1 – Determine Teams

- Math classroom
- Science classroom
- English classroom
- Social Studies classroom

= 1 Team

Step # 2 – Calculate Capacity

of teams

x

typical team size
(135)

= School capacity





School Capacity and Utilization

Why are the Electives not counted in Middle School Capacity?

For example, a typical student's day is comprised of the following:

1. English (core)
2. Math (core)
3. Science (core)
4. Social Studies (core)
5. PE (core)
6. Elective #1
7. Elective #2

Since a middle school is taught in teams, the number of students are limited by the total teams within the core. The number of electives have no bearing upon the capacity calculation.



Fairfax County Public Schools School Capacity and Utilization

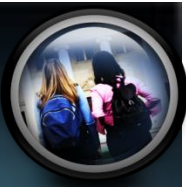
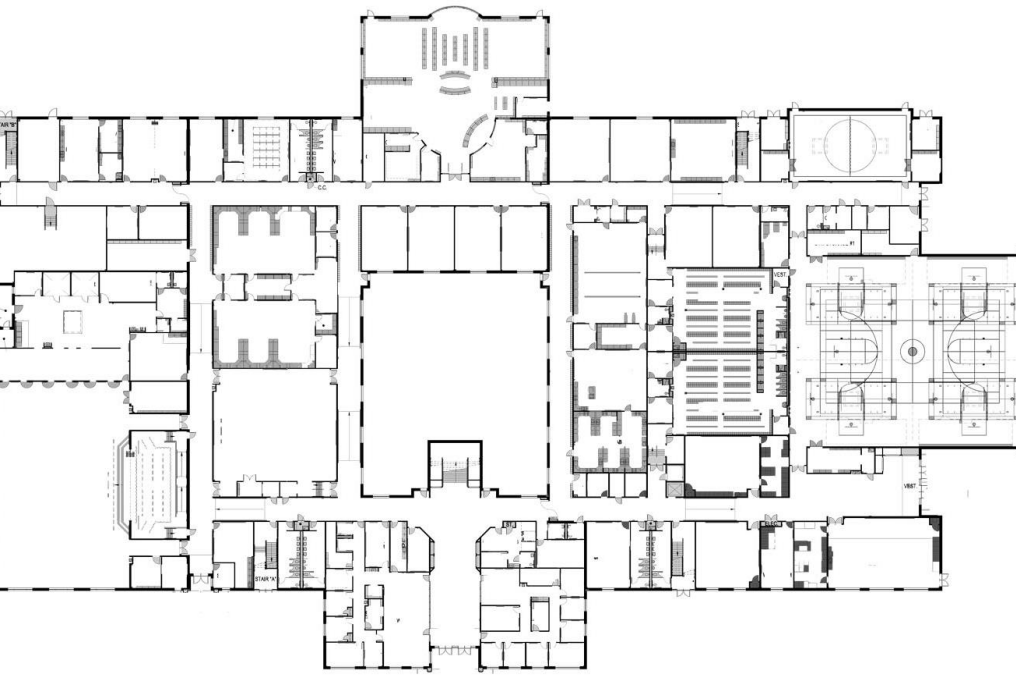
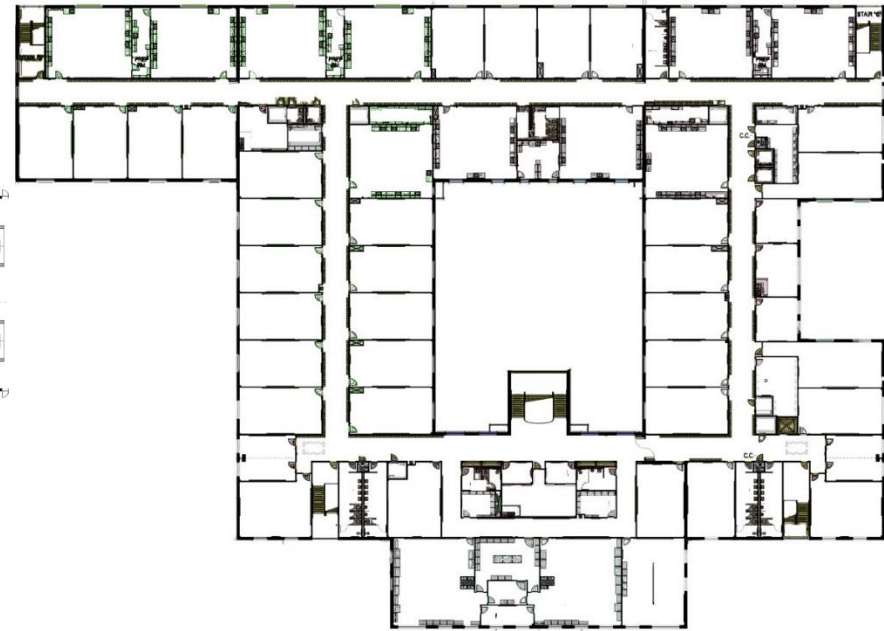


Figure illustrated layout before identifying room use

Standard Middle School



FIRST FLOOR



SECOND FLOOR

Middle School Capacity

Fairfax County Public Schools School Capacity and Utilization

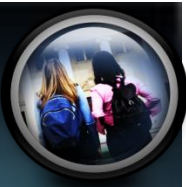
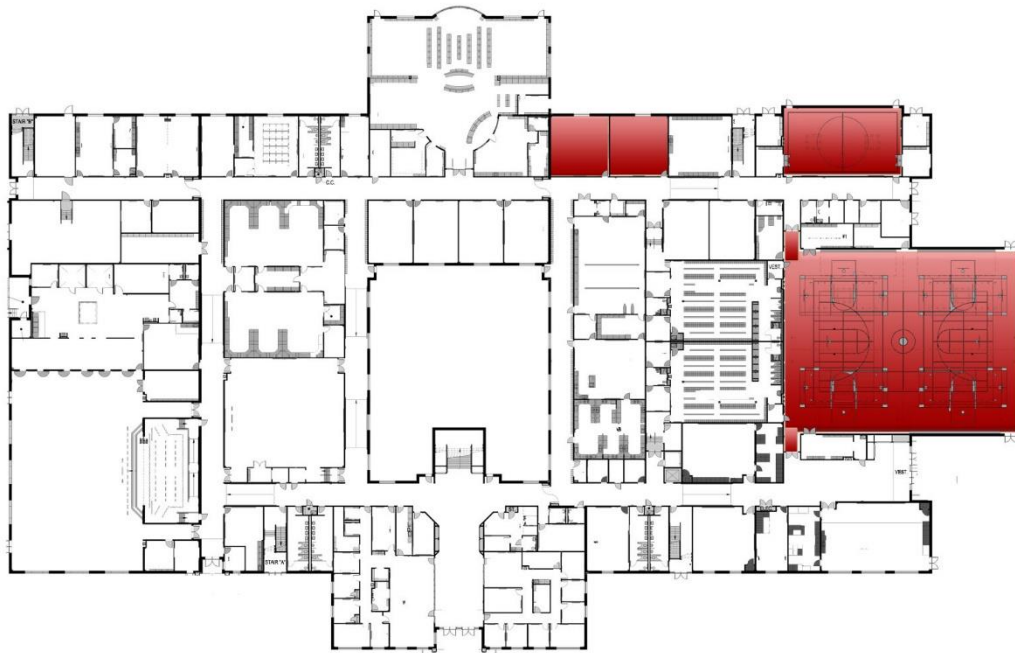
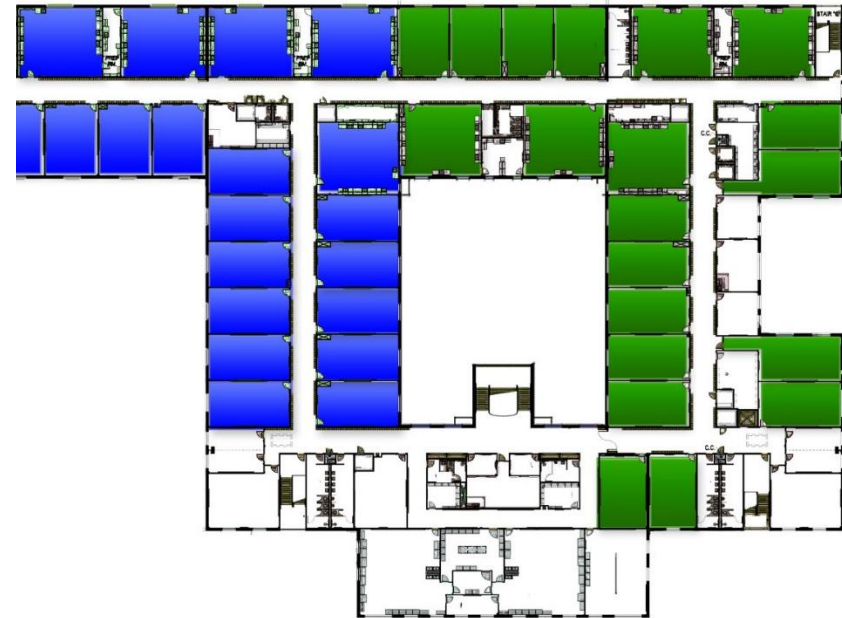


Figure illustrates layout after identifying 7th and 8th grade English, Math, Science, Social Studies, gym and health rooms

Standard Middle School



FIRST FLOOR



SECOND FLOOR

 CORE – 7TH

 CORE – 8TH

 CORE – other

Middle School Capacity

Fairfax County Public Schools School Capacity and Utilization

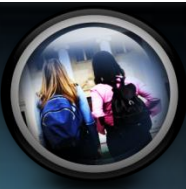
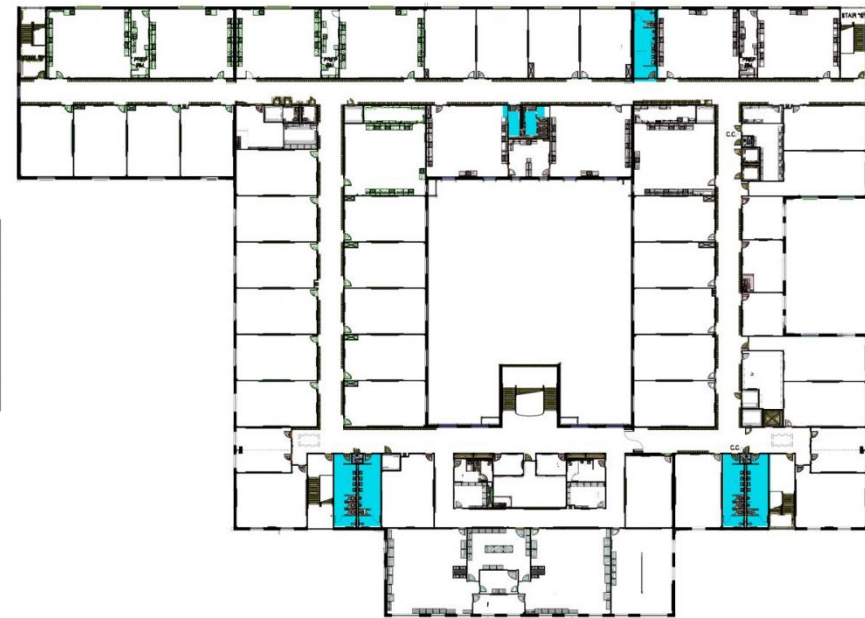


Figure illustrates layout after identifying support spaces
(Examples include, but are not limited to bathrooms, cafeteria, and library)

Standard Middle School



FIRST FLOOR



SECOND FLOOR

 SUPPORT

Fairfax County Public Schools School Capacity and Utilization

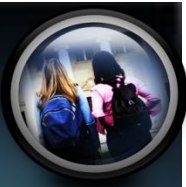


Figure illustrates layout after identifying supplemental uses
(Examples include, but are not limited to electives and technical education)

Standard Middle School



FIRST FLOOR



SECOND FLOOR

 SUPPLEMENTAL

Fairfax County Public Schools School Capacity and Utilization

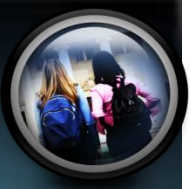
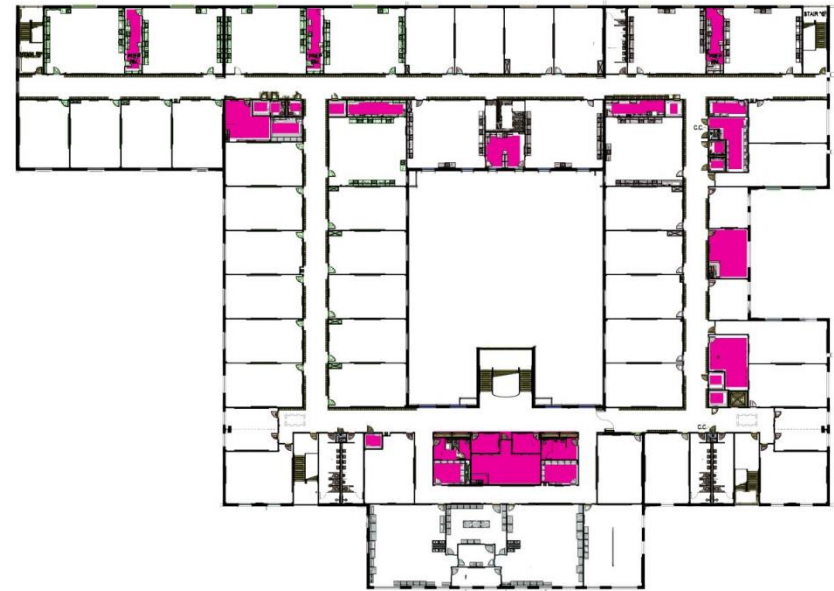


Figure illustrates layout after identifying administrative spaces
(Examples include, but are not limited to main office, instructional offices, teacher lounges, and work rooms)

Standard Middle School



FIRST FLOOR



SECOND FLOOR

 ADMINISTRATIVE



School Capacity and Utilization

Calculating the Capacity of our Standard Middle School

$$5 - 7^{\text{th}} \text{ Grade Teams} \times 135 \text{ per team (27 per class)} = 675$$

$$\underline{5 - 8^{\text{th}} \text{ Grade Teams} \times 135 \text{ per team (27 per class)} = 675}$$

Total School Capacity

1,350





School Capacity and Utilization

High School Capacity

Calculating the capacity of a high school is much different than an elementary or middle school. The most obvious reason is that elective or non-required learning spaces are counted in the capacity calculation.

The traditional method of calculating the capacity of a high school was to : multiply the # of teaching spaces by a standard class size ratio (28) then by a **Utilization Factor**.

When we attempted to utilize this method it became apparent that the capacity would be too great for the facility. Therefore, the major challenge became how to account for electives?



School Capacity and Utilization



Space Utilization Factor

A high school is the only type of school in which a utilization factor is applied. For instance, our typical high schools operate on a 7 block (period) day. The standard capacity model assumes that a learning space will be used 6 out of 7 blocks or 85% of the time.

Although we agree that this factor should be applied to class types which are variable based on the population, applying it to elective spaces in conjunction with the core spaces results in overcrowding.



Fairfax County Public Schools

School Capacity and Utilization



Determining Elective Space Impact

A typical high school student will take the following:

1. English (core)
2. Math (core)
3. Science (core)
4. Social Studies (core) – leaving 3 electives
5. PE – (9th & 10th grade mandatory)
6. Foreign Language (up to 3 years required for college)
7. **Leaving only one elective for more than 75% of the students**

Fairfax County Public Schools School Capacity and Utilization



Using the Appropriate Capacity Model

When we design a school the only variables are in the number of core, physical education and foreign language spaces for the target population. The quantity of elective spaces is the same regardless of the school size.

Therefore, when we apply a utilization factor to a high school's learning spaces the factors resemble the following:

Core*	class size (28) x 85% utilization factor (required all 4 years)
Foreign Lang	class size (28) x 85% utilization factor (3 years required for college)
Phys Ed	class size (28) x 75% utilization factor (required for 2 years)
Elective	class size (28) x 22.5% utilization factor (no requirement)

*Note: English class size is 24 in accordance with Virginia Standards of Quality (SOQ) but shown with core for simplification.

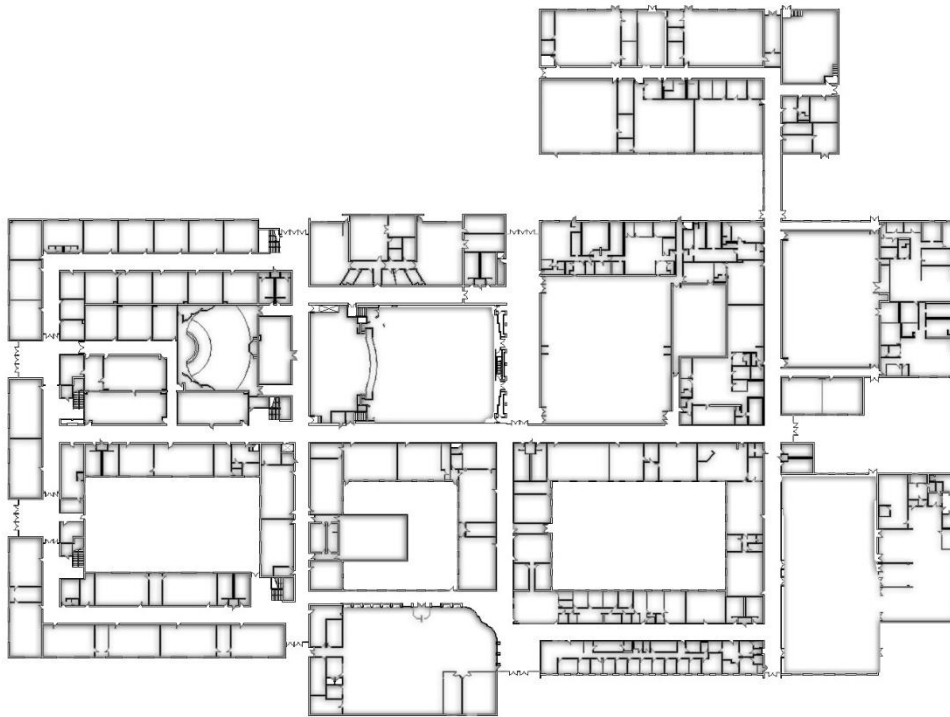


Fairfax County Public Schools School Capacity and Utilization

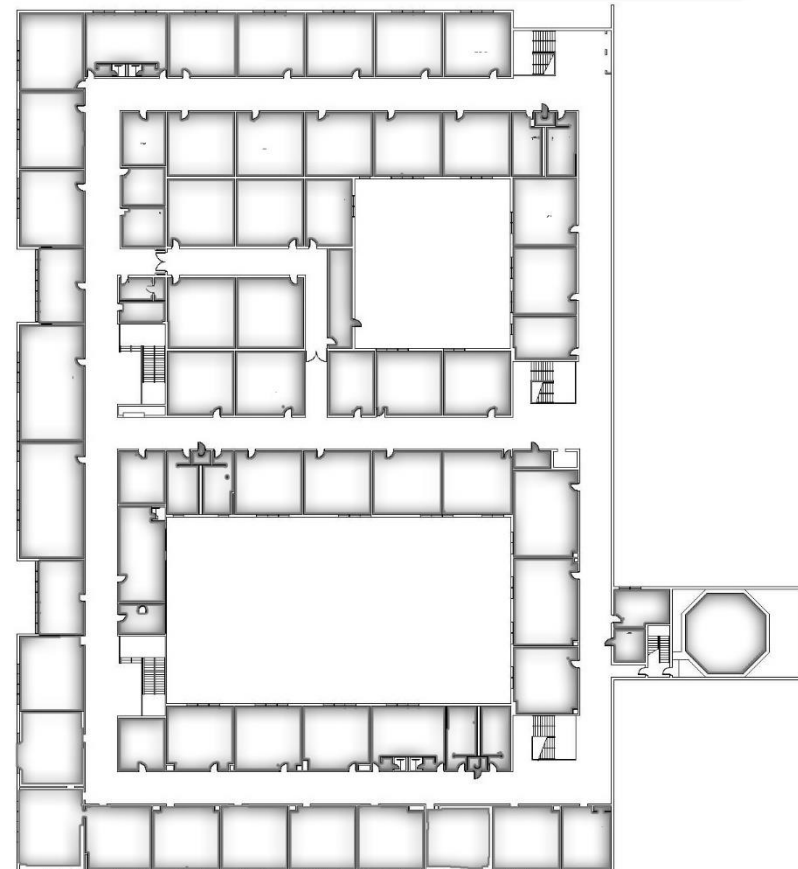


Figure illustrated layout before identifying room use

Standard High School



FIRST FLOOR



SECOND FLOOR

High School Capacity

Fairfax County Public Schools School Capacity and Utilization



Figure illustrates layout after identifying English, Math, Science, and Social Studies

Standard High School



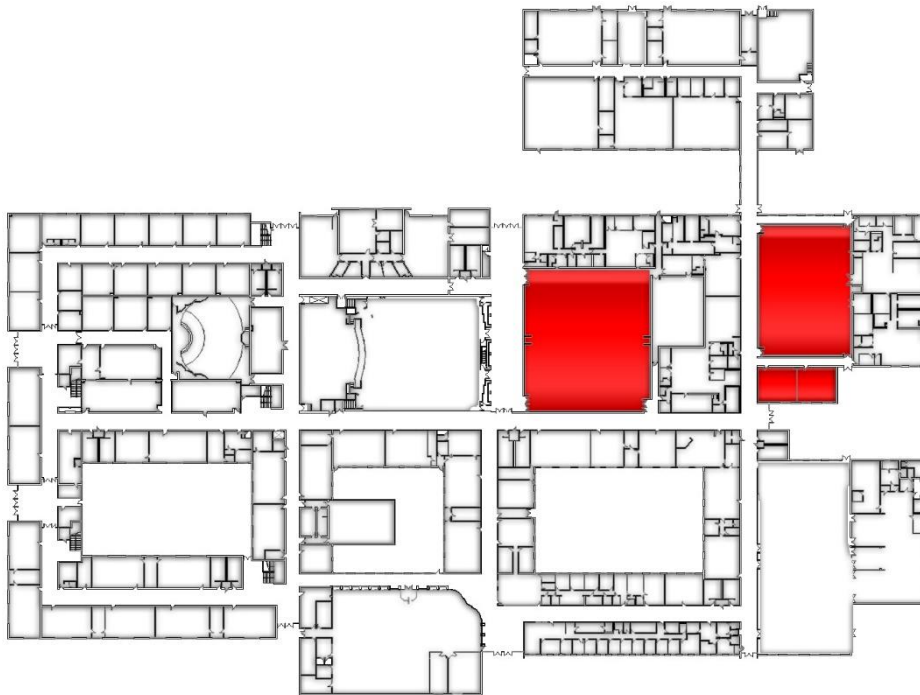
High School Capacity

Fairfax County Public Schools School Capacity and Utilization

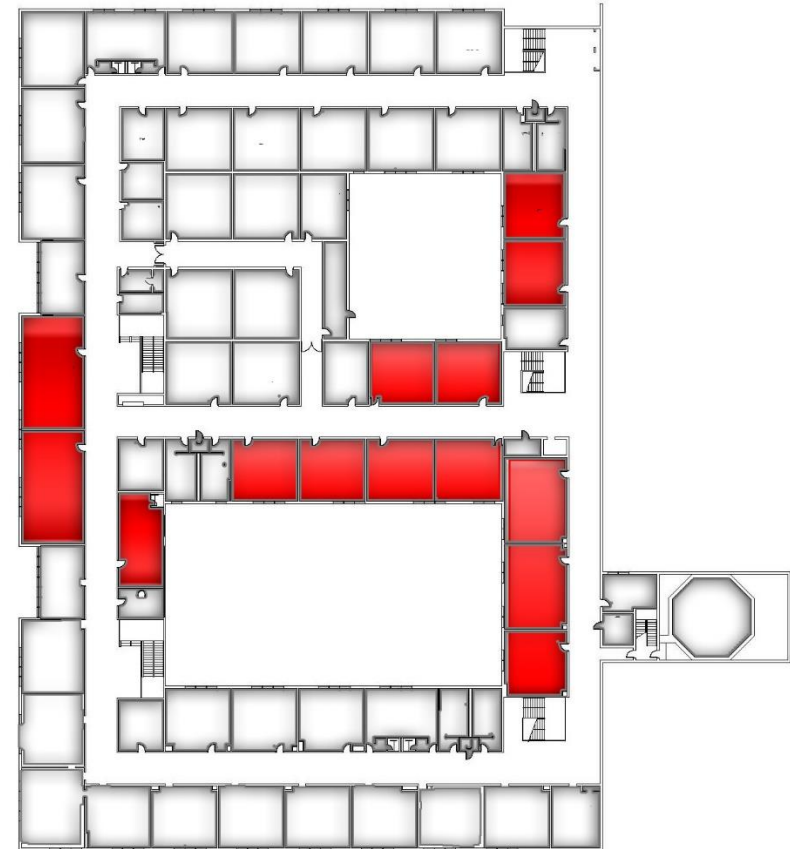


Figure illustrates layout after identifying major electives
(Examples include, foreign language, gym, and health)

Standard High School



FIRST FLOOR



SECOND FLOOR

 MAJOR ELECTIVES

High School Capacity



Fairfax County Public Schools School Capacity and Utilization

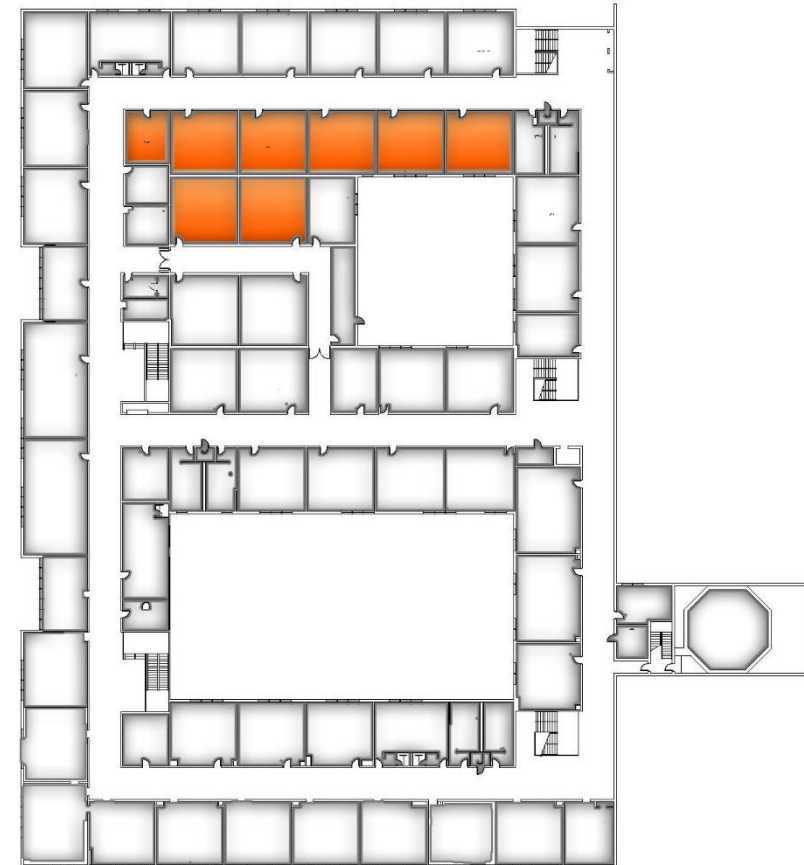


Figure illustrates layout after identifying elective uses
(Examples include, but are not limited to band, choir, dance,
theatre, and technical education)

Standard High School



FIRST FLOOR



SECOND FLOOR

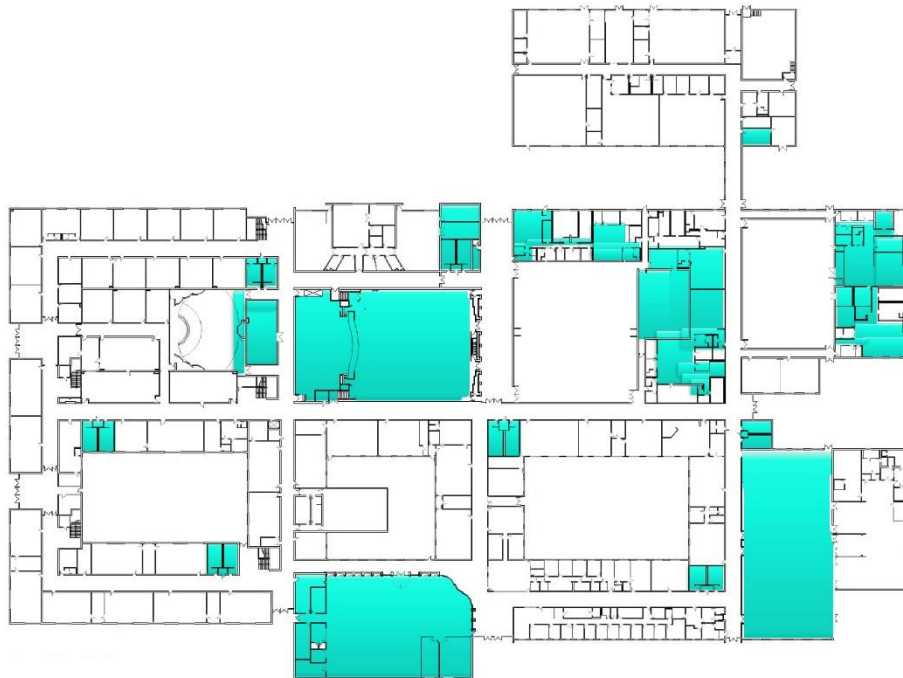
 ELECTIVES

High School Capacity

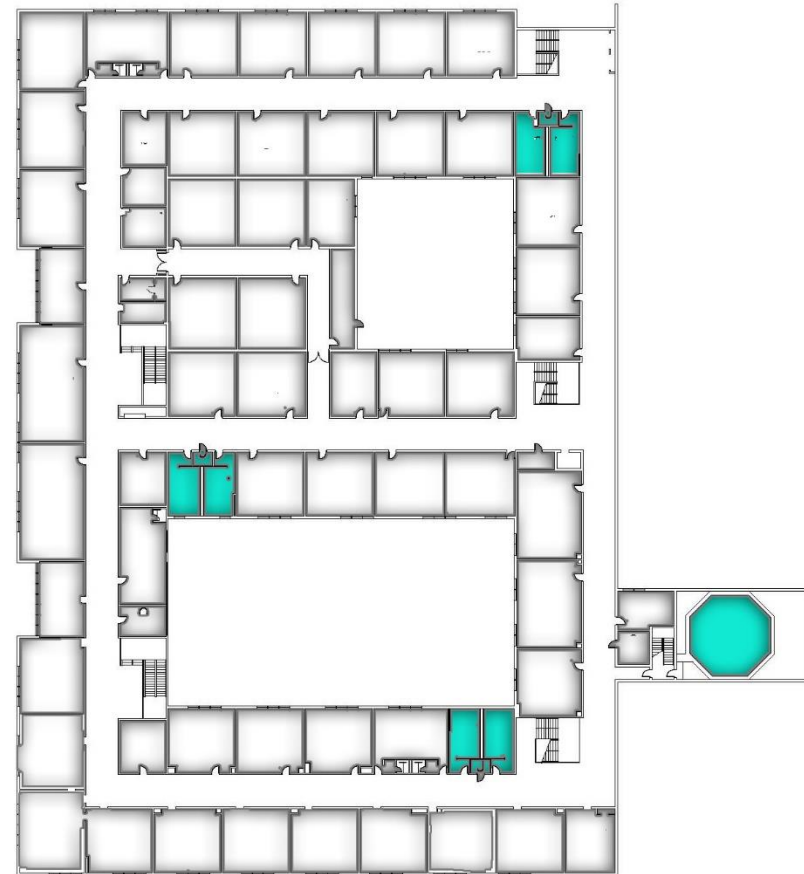
Fairfax County Public Schools School Capacity and Utilization



Figure illustrates layout after identifying support spaces
(Examples include, but are not limited to auditorium,
bathrooms, cafeteria, and library)



FIRST FLOOR



SECOND FLOOR

 STUDENT SUPPORT

Standard High School

High School Capacity

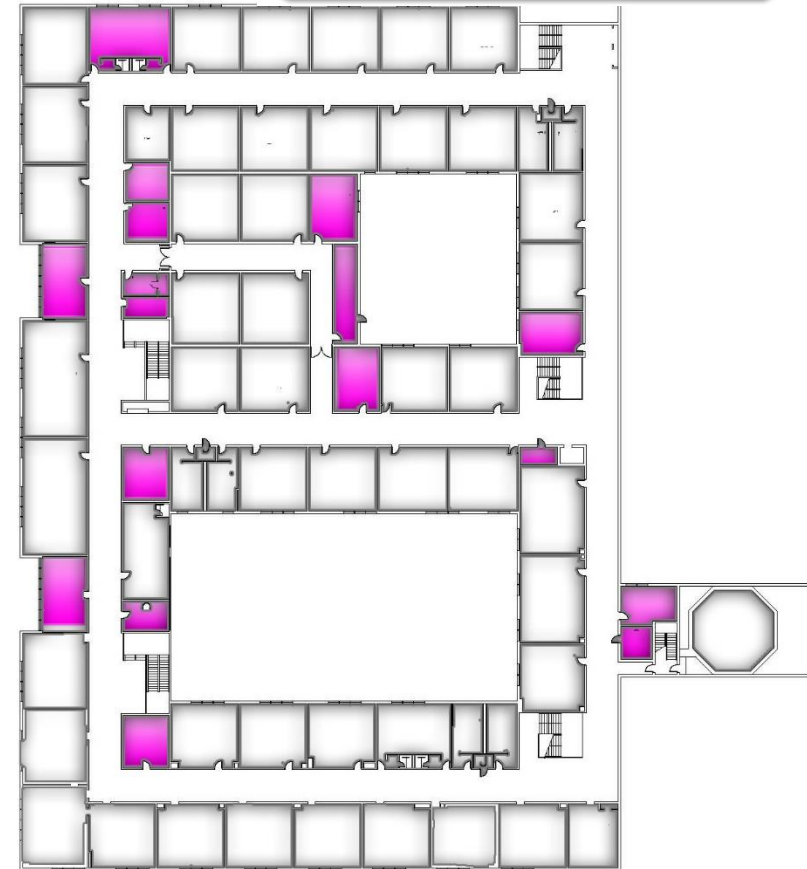
Fairfax County Public Schools School Capacity and Utilization



Figure illustrates layout after identifying administrative spaces
(Examples include, but are not limited to main office,
instructional offices, teacher lounges, and work rooms)



FIRST FLOOR



SECOND FLOOR



ADMINISTRATIVE

High School Capacity

Fairfax County Public Schools School Capacity and Utilization



The Standard High School Capacity Calculation

Learning Space	Quantity	x Class Size Ratio	x Utilization	= Total Capacity
English*	15	24	85%	306
Math	15	28	85%	357
Science	15	28	85%	357
Social Studies	15	28	85%	357
Foreign Language	15	28	85%	357
Phys Education	14	28	75%	294
Electives	26	28	22.5%	164
Total Capacity				2,192

*Note: English class size is 24 in accordance with Virginia Standards of Quality (SOQ).



School Capacity and Utilization



Capacity Factors



Class Size Ratio



Special Programs



Space Management



Magnet Programs



Fairfax County Public Schools School Capacity and Utilization



Capacity and Utilization Dashboard

Read Me Capacity Overview

Capacity Overview School Year (SY) 2020-21



School Level

ES

School Name

Aldrin

Aldrin ES

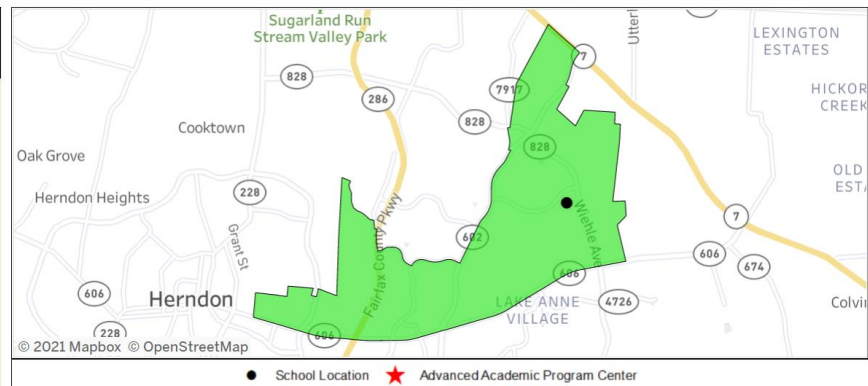
Region: 1
High School Pyramid: Herndon

Current
Membership:

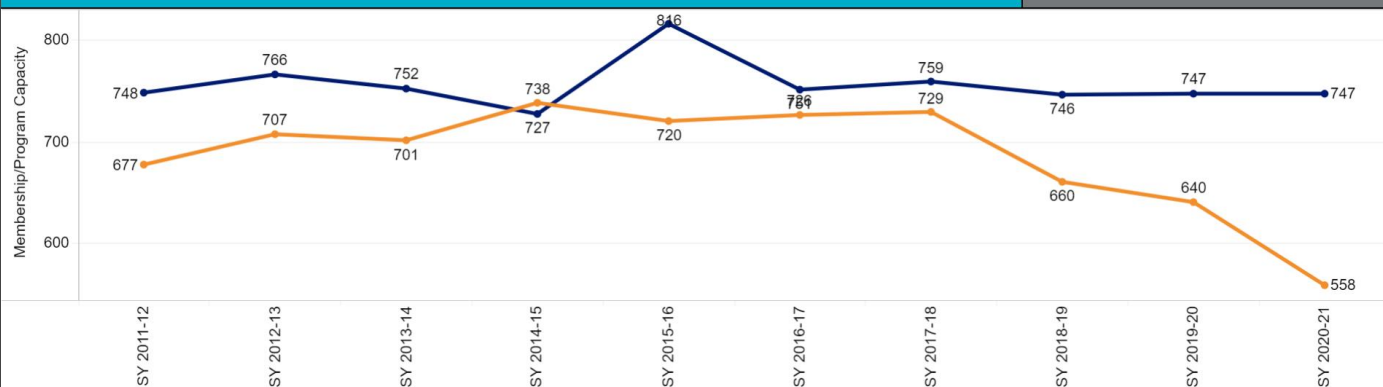
558

Facility Information

Acreage	13.69
Year Constructed	1994
Building Square Feet	97,436
Square Feet per Student	175
Temporary Classrooms	0
Modular Classrooms	0



Historical and Current Membership and Program Capacity



Historical Program Capacity Utilization

Year	Utilization Percentage
SY 2011-12	91%
SY 2012-13	92%
SY 2013-14	93%
SY 2014-15	102%
SY 2015-16	88%
SY 2016-17	97%
SY 2017-18	96%
SY 2018-19	88%
SY 2019-20	86%