



Building Capacity Methodology

Evaluation & Proposal

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INTRODUCTION

In response to the 2011 Long Range Planning Advisory Committee's Recommendation for the Capital Improvement Program (CIP), the School Board requested that the building capacity of all schools be evaluated and analyzed. The evaluation of the capacity methodology took place over the course of several months. It was a collaborative process that involved multiple departments, involving both the operational & instructional sides of the division. Over the course of several meetings an approach was developed in response to research of other divisions and an analysis of the current policy. Liaisons then visited all schools and walked each building with the respective principal. This was a feet-on-the-ground approach that provided a reality check against the proposed approach. Using input from these visits, the approach was analyzed and adjusted into its final form.

This report provides the details of the proposed methodology in the context of how Albemarle County currently calculates capacity, how it has calculated capacity in the past, and how other localities calculate capacity.

The proposed method makes three distinct changes: it creates a variable classroom multiplier, increases the number of specialty classrooms that are excluded from capacity calculations and counts rooms in a more rigorous manner as compared to the current method. The result is a figure that is more applicable to a school's specific population & program. The revisions reduce the overall division's capacity by 5%. Breaking this figure down further, the elementary school capacity is reduced by 9%, the middle school capacity decreases by 3% & the high school capacity increases by 1 %.

DEFINITIONS

CAPACITY is simply how many students the building can support when the restrictions of the program of study are applied.

DESIGN CAPACITY is the student capacity of a school based on the calculation of the learning spaces as they were originally designed. This is also referred to as architectural capacity.

PROGRAM CAPACITY is the capacity of a school based on the current use of each learning space.

CLASSROOM MULTIPLIER is the average of how many students should be in each classroom. The number is multiplied against the number of classrooms to determine capacity. This is also referred to a “student to classroom” or “class size” ratio.

UTILIZATION FACTOR is a percentage applied to the capacity figure at secondary schools to account for learning spaces that cannot be used 100% of the time (i.e. 7 out of 8 periods).

CURRENT METHODOLOGY

Albemarle County's current capacity methodology was adopted and approved in 2008. The capacity numbers were revised in response to the Resource Utilization Study. This study was commissioned by the school division and completed by the Commonwealth Education Policy Institute (CEPI) at Virginia Commonwealth University. The methodology is similar to the Virginia Department of Education's (VDOE) guidelines but with a lower classroom multiplier than the CEPI & the VDOE use. The VDOE guidelines are explained in a later section.

Per Policy FB-AP:

Elementary school capacity is based on the number of classrooms available for regular classroom instruction, excluding the gymnasium and three specialty classrooms for areas such as art, music, computers, etc. Self-contained Special Education classes are calculated into the capacity at an 8:1 student to classroom ratio. Preschool classrooms are calculated at 16 students per classroom while K-5 is calculated at 20 students per classroom. A 15% reduction in capacity was applied to two elementary schools where classrooms did not meet the state standards for size.

High School & Middle School capacity is based on the number of regular classrooms available to be used as teaching stations and is calculated at 20 students per classroom. Music, chorus, and band are calculated at 40 per classroom and the gymnasium counts as 2 teaching stations of 25 each. Self-contained Special Education classrooms are calculated into the capacity at an 8:1 student to classroom ratio. A 15% reduction in the calculated capacity is then applied to account for scheduling difficulties and class size variation.

Inadequacies of current methodology:

- The number of regular classrooms available to be used as teaching stations is not consistently counted across all schools. In some instances, classrooms are overlooked to meet functions not explicitly stated in the policy. This is done particularly in schools which are lacking smaller resource rooms or other flexible spaces not included in the regular classroom count.
- The classroom multiplier has no relation to budgeted staffing levels, average class size or other adopted figure. In other words, the multiplier does not directly relate to the reality of the average number of students programmed for each classroom. The division practice of applying differentiated staffing among schools has a direct impact on the programmed average class size, especially at elementary schools.
- The current capacity methodology does not account for the space needs of programs specific to an individual school's populations (i.e. ESOL).

HISTORY OF ACPS METHODOLOGIES

The methodology of calculating capacities of Albemarle County schools has been revised in the past. Below is a consolidated summary of key changes made in the last 15 years.

- 1997/98: Capacity was calculated with a multiplier of 22 students per regular classroom.
- 2000/01: Classroom multipliers were revised to reflect Differentiated Staffing (based on the number of students eligible for Free/Reduced Lunch), so the multiplier was not the same for all schools. The new calculations reduced the division's total capacity by 896 students.
- 2003/04: The high school capacity formula was revised to more accurately reflect the usable capacity. The formula was based on total number of classrooms for regular instruction with the gym counting as three stations. But a 15% reduction (previously only 10%) was applied to account for scheduling difficulties and class size variation. This change resulted in a reduction of high school capacity of 371 students.
- 2008/09: Capacity formula was changed as a result of the Resource Utilization Study. The formula is what is currently utilized by the County and is explained in a previous section. The key change was that the multiplier was revised to 20 for all schools. The revision increased the division's total capacity by 1279 seats or 8.76 %.
- Various Years: Schools capacities were adjusted to reflect changes in SPED programs, Pre-K programs, additions etc.

Refer to Appendix A for a table of the changes in capacity numbers by school.

Methodologies of Other Localities

There are numerous methods used to calculate school capacity. Localities have developed their own variation of a methodology that is adapted to how their district operates. It should be noted that the Virginia Department of Education does not have requirements for calculating capacity. Rather it has published, 'Guidelines for School Facilities in Virginia's Public Schools' which includes a section on calculating capacity. The state's guidelines are explained at the end of this section.

As a part of an issue paper on their school capacity, the Beaverton, Oregon School District created a comparison table of common methods. The table (included in full as Appendix B) provides a good starting point for comparing differing approaches to calculating capacity. Approaches range from calculating based on square footage/student, the numbers of students per classroom, the teaching ratio per classroom, the size of the core spaces, or even basing the capacity on available funding.

Here are some key points from capacity calculations and policies in other localities in Virginia:

Hanover County, Virginia (*Regulation 4-3.1 Definition of Overcrowding*)

- Capacity is computed by using the current pupil to teacher ratio in the school system multiplied by the number of classrooms.
- An "efficiency" percentage to account for specialized/low enrollment course offerings at the high school level.

Prince William County, Virginia (*Regulation 873-1 Facilities Development*)

- Uses a fraction of regular teaching stations to determine space for special use programs. (1/8 at ES level, 1/10 at MS level & 1/40 at HS level)
- Uses a classroom ratio of 1:25 for elementary, 1:20 for middle schools, & 1:22 for high school (no utilization factor is applied, ratio already reduced to reflect this)

Spotsylvania County Public Schools

- Uses an 'Adjusted High School Capacity' based on building occupancy rather than enrollment (i.e. if a student is out of the building for part of the day he/she is not counted as 100%).

Fairfax County, Virginia

- Clearly defines difference between design capacity vs. program capacity
- Classroom count is based on program uses & therefore excludes classrooms used for pull-out programs (i.e. gifted) or other non regular-classroom uses.
- Primary Classrooms: 25 Students, Elementary Classrooms: 28 Students, High Schools: 28 students
- Multiplier is adjusted for Title 1 school populations
- Utilization factor is applied to high school capacities, but it varies between class types. For example a core class required all 4 years has a 85% utilization factor, a PE required for 2 years has a 75% utilization factor, and certain electives have only a 22.5% utilization factor

Virginia Department of Education (VDOE)

The Virginia Department of Education (VDOE) does not have requirements for calculating capacity. The VDOE's 'Guidelines for School Facilities in Virginia's Public Schools' provides capacity worksheets for each level. The worksheets include a Standards of Quality (SOQ) Maximum Capacity as well as a Division Operating Capacity. The latter allows the division to input how many students per teaching station.

At the *elementary school* level the state worksheet excludes art classrooms, music classrooms, resource classrooms, gym-multipurpose rooms, & science/computer rooms. The remaining spaces are calculated at the multipliers listed below. Albemarle currently calculates capacity with this same methodology but with smaller multipliers.

<u>Permanent Spaces</u>	<i>Per Teaching Station</i>
Self-Contained Exceptional Children Classrooms	8
Pre-Kindergarten Classrooms	18
Kindergarten Classrooms	24
First-Third Grade Classrooms	24
Fourth-Fifth Grade Classrooms	25

At the *middle school* level the state worksheet excludes art classrooms, chorus/band/music classrooms, resource classrooms, PE/gym/health/multipurpose rooms, exploratory career classrooms/ labs & computer rooms. The remaining spaces are calculated at the multipliers listed below.

<u>Permanent Spaces</u>	<i>Per Teaching Station</i>
Self-Contained Exceptional Children Classrooms	8
Language Arts	24
Homeroom Classrooms (Social Studies, Math or Science)	25

At the *high school* level the state worksheet does not exclude any classroom space. The permanent classroom spaces are calculated at the multipliers listed below. The total is then multiplied by a 90% utilization factor. Albemarle County currently uses a similar methodology for middle & high schools. However, the county uses different multipliers as well as a utilization factor of only 85%.

<u>Permanent Spaces</u>	<i>Per Teaching Station</i>
Academic Classrooms (Foreign Language, Social Studies, Math, Science)	25
English Classrooms	24
Arts Education Classrooms (Visual Arts, Drama)	24
Business/Office Education Classrooms (Typing/Keyboard, Computer App., Business, etc.)	25
Music Classrooms (Band, Chorus, Music)	30
Health Classrooms	30
Main Gym (Counts as 2 Teaching Stations)	30
Auxiliary Gym (Counts as 1 Teaching Station)	25
Service/Marketing Classrooms/Labs: (Consumer/Health Occup., Teen Living, Marketing)	20
Vocational Education Lab:	20
Self-Contained Exceptional Student Classroom	8

Proposed Methodology

Elementary Schools:

Key Changes

- Consistently count ALL classrooms that can hold 25 students regardless of current use. This removes the ambiguity and inconsistency in which rooms are counted in current method.
- Exclude specialty classrooms: art, music & computer lab (same as current formula) and possibly a classroom for gifted resource, ESOL, Title 1 and/or SPED resource. Exclusions vary between schools and are based on the school's specific program(s) & population. This more accurately reflects a 'program capacity' that accurately captures how a school building is used.
- Calculate remaining classrooms at a multiplier derived from budgeted staffing levels. The multiplier takes differentiated staffing into account. This results in different multipliers for different schools (similar to the method used from 2000-2008).

Proposed Policy Revision:

Elementary school capacity is based on the number of classrooms available for regular classroom instruction, excluding the gymnasium and up to seven specialty classrooms for areas such as art, music, computers, gifted resource, ESOL, Title 1, and a SPED resource. The number of exclusions is based on the school's specific programs and population. A regular classroom is defined as any room which can hold at least 25 students regardless of current use.

The regular size classrooms not excluded are multiplied by the following figures:

- Self-contained Special Education classes are calculated at 8 students per classroom.
- Preschool classrooms are calculated at 16 students per classroom.
- K-5 classrooms are calculated at a multiplier derived from budgeted staffing levels and based on the formula outlined below. Once calculated, the multipliers are adjusted to related groupings.

Enrollment*

(Enrollment*/Class Size**) + (Differential Staff FTE/2)

* Enrollment Projection Used for Teacher Allocation in the Budget Book

**Class size is the weighted average of K-3 & 4-5 ratios at which staffing is determined in the Budget Book. That average is 21.05 students per class in 2011-12.

Middle & High Schools

Key Changes

- Consistently count ALL classrooms that can hold 25 students regardless of current use. This removes the ambiguity and inconsistency in which rooms are counted in current method.
- Exclude specialty classrooms: computer lab(s), gifted resource, SPED resource, ESOL and/or teacher planning. This more accurately reflects a 'program capacity' that accurately captures how a school building is used.
- Calculate remaining classrooms at a multiplier derived from budgeted staffing levels. This results in different multipliers for different schools (similar to method used from 2000-2008).
- The utilization factor is increased from 85% to 87.5%. This represents that each room is used 7 out of 8 periods per day.

Proposed Policy Revision:

Middle & high school capacity is based on the number of classrooms available for regular classroom instruction, including the gymnasium and excluding specialty classrooms for areas such as computer lab(s), gifted resource, SPED resource, ESOL or teacher planning. The number of exclusions is based on the school's specific programs & population.

The regular size classrooms not excluded are multiplied by the following figures:

- Self-contained Special Education classes are calculated at an 8 students per classroom.
- Career & Technical Education (CTE) classes are calculated at a 20 students per classroom.
- The gym is calculated at 50 students.
- Academic classrooms are calculated at a multiplier derived from budgeted staffing levels and based on the formula outlined below. Once calculated, the multipliers are adjusted to related groupings.

Enrollment*

$$\frac{\text{Enrollment}^*}{\text{Class Size}^{**} + X} + (\text{Differential Staff FTE}/2)$$

* Enrollment Projection Used for Teacher Allocation in the Budget Book

**Class size is the ratio at which staffing is determined in the Budget Book.

X=1 at Burley, Jouett, & Walton to accommodate for an extra staff member.

A 12.5% reduction in the calculated capacity is then applied to account for complexity of scheduling and class size variation. This represents that each room is used 7 out of 8 periods per day.

Proposed Classroom Multipliers

SCHOOL		2012/13 Enrollment*# Used for Teacher Allocation	Differentiated FTE	Calculated Multiplier	Adjusted Classroom Multiplier
ELEMENTARY	GREER	416	9.89	16.84	17.25
	YANCEY	150	3.42	16.98	
	WOODBROOK	301	5.13	17.85	18.25
	RED HILL	155	2.78	17.71	
	SCOTTSVILLE	191	3.17	17.92	
	AGNOR-HURT	551	9.11	17.93	
	CALE	589	8.05	18.40	19.25
	STONY POINT	273	2.76	19.03	
	STONE ROBINSON	398	3.47	19.28	
	CROZET	287	2.35	19.38	
	BAKER-BUTLER	575	3.44	19.80	20.25
	BROWNSVILLE	644	3.73	19.84	
	BROADUS WOOD	270	1.55	19.85	
	HOLLYMEAD	432	1.77	20.18	
	MERIWETHER LEWIS	462	1.36	20.42	
	MURRAY	261	0.71	20.46	
MIDDLE	JOUETT	563	4.93	20.43	20.50
	WALTON	425	3.18	20.46	
	BURLEY	533	4.30	20.53	
	JOUETT	563	4.93	20.43	
	HENLEY	780	2.18	22.63	22.50
	SUTHERLAND	600	1.89	22.54	
HIGH	ALBEMARLE	1662	7.65	22.92	23.00
	MONTICELLO	1005	6.22	22.51	
	WESTERN ALBEMARLE	1017	2.88	23.40	

Multiplier Formulas:

ELEM.
$$\frac{\text{Enrollment}^*}{(\text{Enrollment}^*/21.05^{**}) + (\text{Differential Staff FTE}/2)}$$

* Enrollment used for Teacher Allocation in the Budget

** Weighted Average of K-3 & 4-5 Class Size in Budget

*** Class Size Ratio in Budget Book

MIDDLE
$$\frac{\text{Enrollment}^*}{[(\text{Enrollment}^*/23.37^{***}) + X] + (\text{Differential Staff FTE}/2)}$$

X= 1 for Burley, Jouett, Walton to
accommodate for extra staff member

HIGH
$$\frac{\text{Enrollment}^*}{(\text{Enrollment}^*/24.2^{***}) + (\text{Differential Staff FTE}/2)}$$

Proposed Changes in Building Capacity by School

SCHOOL		CAPACITY			
		Current (Building Only)	Proposed (Building Only)	Difference	Proposed (+Trailers)
ELEMENTARY	AGNOR-HURT	552	470	85%	507
	BAKER-BUTLER	652	640	98%	640
	BROADUS WOOD	400	365	91%	365
	BROWNSVILLE	716	765	107%	765
	CALE	752	683	91%	683
	CROZET	380	347	91%	347
	GREER	626	567	91%	567
	HOLLYMEAD	496	494	100%	575
	MERIWETHER LEWIS	391	385	98%	446
	MURRAY	316	320	101%	340
	RED HILL	196	162	83%	235
	SCOTTSVILLE	196	180	92%	217
	STONE-ROBINSON	620	521	84%	521
	STONY POINT	288	228	79%	305
	WOODBROOK	456	316	69%	371
	YANCEY	176	137	78%	171
	<i>Subtotal</i>	<i>7213</i>	<i>6578</i>	<i>91%</i>	<i>7053</i>
MIDDLE	BURLEY	726	696	96%	732
	HENLEY	950	910	96%	970
	JOUETT	699	660	94%	696
	SUTHERLAND	709	716	101%	735
	WALTON	552	534	97%	570
	<i>Subtotal</i>	<i>3636</i>	<i>3516</i>	<i>97%</i>	<i>3702</i>
HIGH	ALBEMARLE	1774	1812	102%	1812
	MONTICELLO	1274	1264	99%	1264
	WESTERN ALBEMARLE	1084	1114	103%	1235
	<i>Subtotal</i>	<i>4132</i>	<i>4190</i>	<i>101%</i>	<i>4311</i>
TOTAL		14981	14284	95%	15066

Analysis of Proposed Methodology

Change in Numbers

With this proposed methodology the overall capacity of the division decreases by 697 seats which is about a 5% decrease. It should be noted, though, that the elementary schools actually decrease by 9%, the middle schools decrease by 3 % & the high school capacities actually increase by 1%. The decrease at the elementary school can largely be attributed to excluding additional specialty classrooms as well as adjusting the multiplier. Previously all schools were calculated at 20 students per classroom. In this proposed method, ten elementary schools are calculated at less than 20 and six elementary schools are more than 20. The increase at the high schools is largely attributed to an increase in the classroom multiplier. The new multiplier is a better reflection of the budgeted staffing levels. The utilization factor was increased from 85% to 87.5%, but the difference is negligible. The change was made more so to provide logic behind the percentage number (87.5% is equal to using the room 7 out of 8 periods).

Classroom Multiplier

In simplest terms, the proposed classroom multiplier is the number of students divided by the number of teachers. This determines how many children would normally been in a classroom. The formula doesn't just account for regular staffing, though. It takes it a step further and incorporates 50% of the differentiated staffing. School principals have discretion on how to deploy differentiated staffing. This additional staffing is calculated as a function of enrollment and the percentage of students that qualify for free and reduced lunch. The primary intent is to provide more instructional staff to overcome the disadvantages inherent to many of these students. If building space allows it, differential staffing adds teachers, resulting in smaller class s size. The formulas for calculating adjusted classroom multipliers assume that 50% of differentiated staffing are teachers with a separate classroom.

Specialty Classrooms

A key aspect of the proposed change is an increase in the number of classrooms that would be excluded. Art, music and a computer lab are excluded at the elementary level in the current policy. This is still appropriate and applicable. These are spaces that are used by the majority of the school population so the students are already accounted for in their regular classroom. A classroom for the gifted program, ESOL, SPED resource, and Title 1 were identified as common uses for full size classrooms as they are all pull-out programs. The exclusion for any of these 7 specialty classroom varies by school, though. For instance, schools that exclude an ESOL classroom have multiple FTE (full time employees) teaching ESOL and thus need the space. Schools that don't have a large ESOL population don't warrant the need to designate a large classroom for the program. Another example is a Title 1 classroom. Larger Title 1 schools exclude a classroom to accommodate the space needed for reading specialists and other related staff positions. This is not needed at all schools. This flexibility in identifying specialty classrooms allows the capacity figure to more accurately reflect the 'program capacity' of the school's population.

The specialty classrooms do not have as much weight at the high school & middle school levels since the overall classroom count is much higher. However, the exclusion of such spaces is still warranted and needs to

be identified. Computer, SPED Resource, Gifted, ESOL, & Teacher work areas are all potential exclusions in the proposed policy. Teacher work areas are included to acknowledge that if a classroom was used 7 out of 8 periods a day (as the utilization factor is based on) teachers will need work & planning areas outside of their classroom. Certain older buildings do not have such spaces and thus must be accommodated in regular classrooms (i.e. Albemarle High School as compared to Monticello High School).

Special Education (SPED)

Special Education (SPED) is mentioned in the policy in two separate instances. Below are explanations of the referenced SPED spaces:

SPED Resource Room: Students who need intensive help to keep up with grade-level work in a particular subject may be served in a Resource Room, where a special-education teacher works with a small group of students, using techniques that work more efficiently with a special-needs population. Resource Rooms have the benefit of providing help where needed while letting the student remain generally with the mainstream, but they lack the structure and routine of a self-contained classroom. It is excluded as a full-size classroom when other spaces in the building are not available for such use. In most instances, the classroom accommodates multiple specialists at one time.

SPED Self-Contained Class: Placement in a self-contained classroom means that a child with special needs will be removed from the general school population for all academic subjects to work in a small controlled setting with a special-education teacher. Students in a self-contained class may be working at all different academic levels, with different textbooks and different curricula. Self-contained classes offer structure, routine, and appropriate expectations, but some students may require a higher level of specialization.

Core Spaces

Neither the current policy nor the proposed one mention core spaces such as cafeterias & media centers. These spaces obviously have a role in how many students a building can accommodate. They are intentionally kept separate as the spaces can be modified independent of classroom space. It is common practice to analyze these spaces before building onto a school. If required, expansion or renovation of core spaces is included in the scope of work. On the flip side, if these spaces are the limiting factor of why a building cannot adequately manage its full capacity, a focused capital project may be requested (i.e. expanding a cafeteria) rather than building a full-blown addition when it may not be needed. The state publishes guidelines on how the capacity of these spaces can be calculated based on square footage of the space. Appendix C is a table of the capacity of cafeterias & media centers by school as compared to its new calculated capacity.

Trailers

The new policy does not include or mention trailers when calculating capacity. The building capacity number assumes that the trailers are not available. So for instance, even if music or art is being held in a trailer currently, a classroom in the building is excluded for that use. While trailers are not permanent structures, they do provide additional seats when in use, and the reality is that trailers are used. In response, two capacity numbers are displayed: one without trailers & one with trailers. The trailers are calculated at the same multiplier as the regular academic classroom at the respective school.

Capacity Conflicts

Changing capacities cannot be done in an economic vacuum. While the approach was objective & not influenced by economic factors, its impact on the budget needs to be acknowledged.

- A. Based on enrollment projects for the next 5 years, the following capacity conflicts have been created or exasperated:

of Students Over Capacity

<i>School</i>	<i>Current Method</i>	<i>Proposed Method</i>	<i>Proposed Method w/Trailers</i>	<i>Year</i>
Agnor-Hurt	36	118	81	2012/13 School Year
	96	178	141	5 Year Projection
Meriwether-Lewis	72	78	17	2012/13 School Year
	86	92	31	5 Year Projection
Red Hill	(24)	10	(63)	2012/13 School Year
	(9)	25	(48)	5 Year Projection
Scottsville	13	29	(8)	2012/13 School Year
	21	37	0	5 Year Projection
Stony Point	3	63	(14)	2012/13 School Year
	50	110	37	5 Year Projection
Woodbrook	(136)	4	(51)	2012/13 School Year
	(115)	25	(30)	5 Year Projection
Yancey	(30)	9	(25)	2012/13 School Year
	(9)	30	(4)	5 Year Projection

(Numbers in parentheses indicate extra seats or students under capacity)

- B. Based on enrollment projects for the next 5 years, the following capacity conflicts have been delayed or negated:

of Students Over Capacity

<i>School</i>	<i>Current Method</i>	<i>Proposed Method</i>	<i>Proposed Method w/Trailers</i>	<i>Year</i>
Albemarle HS	(23)	(61)	(61)	2012/13 School Year
	92	54	54	5 Year Projection
Western Albemarle HS	(23)	(53)	(174)	2012/13 School Year
	50	20	(101)	5 Year Projection

(Numbers in parentheses indicate extra seats or students under capacity)

Changes in Capacity by School Year

Appendix A

SCHOOLS		BUILDING CAPACITY														
		1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
ELEMENTARY	AGNOR-HURT	572	572	572	495	495	495	495	495	495	495	458	552	552	552	552
	BAKER-BUTLER	0	0	0	0	0	600	600	600	600	600	660	632	652	652	652
	BROADUS WOOD	418	418	418	375	375	375	375	375	375	375	380	380	400	400	400
	BROWNSVILLE	330	330	330	285	285	285	456	456	456	456	456	516	716	716	716
	CALE	528	528	528	432	432	432	432	432	432	432	648	752	752	752	752
	CROZET	396	396	396	342	323	323	342	342	342	342	342	380	380	380	380
	GREER	528	528	528	432	432	432	432	432	432	432	408	486	452	452	452
	HOLLYMEAD	594	594	594	554	554	554	500	500	500	500	488	496	496	496	496
	MERIWETHER	462	462	462	430	430	430	430	430	430	430	420	391	391	391	391
	MURRAY	308	308	308	264	264	264	264	264	264	264	268	316	316	316	316
	RED HILL	198	198	198	164	164	164	164	164	164	164	144	196	196	196	196
	SCOTTSVILLE	220	220	220	187	187	187	187	187	187	187	162	196	196	196	196
	STONE ROBINSON	616	616	616	532	532	532	532	532	532	532	532	628	620	620	620
	STONY POINT	308	308	308	276	276	276	276	276	276	276	266	288	288	288	288
	WOODBROOK	382	382	382	332	332	332	410	390	390	390	360	456	456	456	456
	YANCEY	176	176	176	134	134	134	134	134	134	134	128	176	176	176	176
	SUBTOTAL	6,036	6,036	6,036	5,234	5,215	5,815	6,029	6,009	6,009	6,009	6,120	6,841	7,039	7,039	7,039
	Change from Previous Year		0.00%	0.00%	-15.32%	-0.36%	10.32%	3.55%	-0.33%	0.00%	0.00%	1.81%	10.54%	2.81%	0.00%	0.00%
MIDDLE	BURLEY	434	434	434	415	415	646	646	646	646	646	625	726	726	726	726
	HENLEY	690	690	690	675	675	675	675	675	900	905	884	958	950	950	950
	JOUETT	514	514	514	503	503	503	669	669	669	669	633	700	699	699	699
	SUTHERLAND	712	712	712	712	712	712	660	660	660	660	645	710	709	709	709
	WALTON	566	566	566	535	535	535	514	514	514	514	499	543	542	542	542
	SUBTOTAL	2,916	2,916	2,916	2,840	2,840	3,071	3,237	3,164	3,389	3,394	3,286	3,637	3,626	3,626	3,626
	Change from Previous Year		0.00%	0.00%	-2.68%	0.00%	7.52%	5.13%	-2.31%	6.64%	0.15%	-3.29%	9.65%	-0.30%	0.00%	0.00%
HIGH	ALBEMARLE	1,791	1,791	1,791	1,791	1,791	1,791	1,635	1,635	1,635	1,635	1,602	1,538	1,765	1,774	1,774
	MONTICELLO	0	1,046	1,046	1,028	1,028	1,028	926	1,226	1,235	1,278	1,271	1,430	1,159	1,274	1,274
	WESTERN ALBEMARLE	1,148	1,148	1,148	1,148	1,148	1,148	1,035	1,035	1,035	1,035	1,042	1,154	1,057	1,084	1,084
	SUBTOTAL	2,939	3,985	3,985	3,967	3,967	3,967	3,596	3,896	3,905	3,948	3,915	4,122	3,981	4,132	4,132
	Change from Previous Year		26.25%	0.00%	-0.45%	0.00%	0.00%	-10.32%	7.70%	0.23%	1.09%	-0.84%	5.02%	-3.54%	3.65%	0.00%
TOTAL		11,891	12,937	12,937	12,041	12,022	12,853	12,862	13,069	13,303	13,351	13,321	14,600	14,646	14,797	14,797
Change from Previous Year			8.09%	0.00%	-7.44%	-0.16%	6.47%	0.07%	1.58%	1.76%	0.36%	-0.23%	8.76%	0.31%	1.02%	0.00%

1. **Bolded Figures** indicate a change from previous year. Change could be attributed to change in formula, change in program (i.e. SPED or Pre-K program), or other reason
2. **Bolded & Underlined Figures** indicates a renovation, addition or new school all together was built which affected capacity.

Comparison Tables of Common Methods to Calculate Capacity

Appendix B

Method	Description	Pros	Cons
Beaverton	(Total SF – Special Use CRs)/(SF per Student Factor), plus # students per portable	• Current method • Objective • Easy to calculate • Deducts space used for special programs • Partly accounts for core limitations	• Not well-accepted by Principals • Does not subtract unusable square footage (building layout efficiency issue) • Does not account for core facility limitations (library, cafeteria, gym) as portables are added. • Not curriculum-driven • Masks grade-level granularity space impacts
Number of Classrooms	Students Per Classroom Factor	• Objective • Could account for differences between elementary, MS, HS • Easy to calculate • Could account for (deduct) special program rooms	• Does not account for program/curriculum issues • Requires common definition of what a classroom is • Does not account for differences in classroom size between older and newer facilities • Does not consider core building limitations
Core Capacity	Determined by building code or educational specifications	• Objective • Illuminates core building limitations	• Adding portables would not increase capacity • Most people not familiar with code or spec requirements • More difficult to calculate • Restricts District flexibility to respond to overcrowding
Number of Teachers	Students per teacher ratio	• Objective • Easy to calculate	• Does not account for special programs • Difficult to maintain consistency • Changes frequently & far faster than building physical changes can be made undermining method's credibility • Difficult to keep capacity data current • Requires definition of 'teacher' (vs. aid, coach, etc.)
Support Facilities	# of restrooms, field & playground space, parking spaces, etc.	• Illuminates support facilities limitations	• No connection to curriculum • Restricts District flexibility to respond to overcrowding • Difficult to calculate
Funding	Determined by resources to fund school operation		• Unpredictable • Lots of available \$\$ could overcrowd schools • Confusing
Wyoming	# Teaching Stations x # Student Stations x Defined Utilization Percentage	• Objective	• No connection to curriculum/ programs • Doesn't account for special programs • Complicated • Does not consider core building limitations • Requires definition of 'teaching station' and 'student station'
Chicago Design Capacity	# Students/classroom, varies with classroom size	• Objective • Predictable • Easy to calculate • Differs by school level	• Does not consider core building limitations • Does not account for program/curriculum limitations • Requires common definition of what a classroom is • Does not account for difference in classroom size between older and newer facilities • Difficult to calculate

Comparison Tables of Common Methods to Calculate Capacity

Appendix B

Phoenix, AZ	SF – Special Uses – 0.1 Corridor Factor/min adequate SF per student + design SF per student/2		• Very confusing, difficult to calculate • Unclear how to determine minimum adequate SF • Difficult to explain to laypersons • Different formula for HS and MS
Salem/ Keizer, OR	ES = (regular CRs grades 1-5 x staffing ratio) + (# KG session x staffing ratio) + (12 students/SpEd CR) MS and HS = (all regular classrooms x staffing ratio) + (12 students per special needs, band and choir room)	• Fairly predictable, assuming staffing ratios remain constant • Compensates for special program uses	• Requires common definition of 'regular classroom' • Different formula for elementary, middle & high • More complicated formula • Does not address portables
North Clackamas, OR	Practical capacity = # re CRs x avg # students per CR Maximum capacity adds 2-3 students more per classroom than in practical capacity formula	• Fairly predictable, assuming staffing ratios remain constant • Gives absolute upper limit	• Requires common definition of 'regular classroom', 'average number of students per classroom' • Does not address portables • Does not compensate for special program uses

Credit: Issue Paper #4: School Capacity Formula by the Beaverton School District

http://www.beaverton.k12.or.us/pdf/facil/facil_Issue%20Paper%204.pdf

Capacity of Core Spaces

Appendix C

NOTE: Cafeteria & Media Center Capacities calculated per VDOE Guidelines.

	SCHOOL	Proposed Capacity		Cafeteria Capacity Range ¹			Media Center Capacity ²	
		Building Only	Inc. Trailers	Cafeteria Size (sf)	Capacity at 8 sf/student	Capacity at 14 sf/ student	Sq Feet	Capacity
ELEMENTARY	AGNOR-HURT	470	507	2745	858	490	2160	705
	BAKER-BUTLER	640	640	2880	900	514	3129	1190
	BROADUS WOOD	365	365	2040	638	364	2400	825
	BROWNSVILLE	765	765	3802	1188	679	1875	563
	CALE	683	683	2798	874	500	2544	897
	CROZET	347	347	2677	837	478	1600	425
	GREER	567	567	3649	1140	652	2116	683
	HOLLYMEAD	494	575	3096	968	553	1624	437
	MERIWETHER	385	446	3135	980	560	2711	981
	MURRAY	320	340	2294	717	410	2720	985
	RED HILL	162	235	1890	591	338	952	101
	SCOTTSVILLE	180	217	2322	726	415	2207	729
	STONE ROBINSON	521	521	2857	893	510	1775	513
	STONY POINT	228	305	1617	505	289	1383	317
	WOODBROOK	316	371	2408	753	430	1890	570
	YANCEY	137	171	1628	509	291	1060	155
	SCHOOL	Proposed Capacity		Cafeteria Capacity Range ³			Media Center Capacity ⁴	
		Building Only	Inc. Trailers	Cafeteria Size (sf)	Capacity at 9 sf/student	Capacity at 14 sf/ student	Sq Feet	Capacity
MIDDLE	BURLEY	696	696	3380	1127	724	2922	641
	HENLEY	910	910	3976	1325	852	2966	655
	JOUETT	660	660	3976	1325	852	3335	778
	SUTHERLAND	716	716	3294	1098	706	3493	831
	WALTON	534	534	3920	1307	840	3576	859
	SCHOOL	Proposed Capacity		Cafeteria Capacity Range ⁵			Media Center Capacity ⁴	
		Building Only	Inc. Trailers	Cafeteria Size (sf)	Capacity at 9 sf/student	Capacity at 14 sf/ student	Sq Feet	Capacity
HIGH	ALBEMARLE	1812	1812	6520*	1778	1397	6093	1698
	MONTICELLO	1264	1264	5593	1525	1199	4845	1282
	WESTERN ALBEMARLE	1114	1235	6858	1870	1470	4356	1119

¹ The formula for determining the size of an Elementary School Cafeteria is a size range of 8 to 14 square feet per student, with 2.5 seatings per day. This Cafeteria capacity formula was provided by the Virginia Department of Education.

² The formula for determining the size of an Elementary School Media Center is: 750 square feet, plus 2 square feet times the total school enrollment. This Media Center capacity formula was provided by the Virginia Department of Education.

³ The formula for determining the size of a Middle School Cafeteria is a size range of 9 to 14 square feet per student, with 3 seatings per day. This Cafeteria capacity formula was provided by the Virginia Department of Education.

⁴ The formula for determining the size of a Middle or High School Media Center is: 1000 square feet, plus 3 square feet times the total school enrollment. This Media Center capacity formula was provided by the Virginia Department of Education.

⁵ The formula for determining the size of a High School Cafeteria is a size range of 11 to 14 square feet per student, with 3 seatings per day. This Cafeteria capacity formula was provided by the Virginia Department of Education.

* Albemarle Cafeteria square footage does not include outdoor covered area.

DETAIL OF NEW CAPACITY CALCULATION

	AGNOR-HURT			BAKER BUTLER			BROADUS WOOD			BROWNSVILLE		
	Qty	Multiplier	Total	Qty	Multiplier	Total	Qty	Multiplier	Total	Qty	Multiplier	Total
Pre-K	2	x 16	= 32	2	x 16	= 32	0	x 16	= 0	1	x 16	= 16
K-5	24	x 18.25	= 438	30	x 20.25	= 607.5	18	x 20.25	= 364.5	37	x 20.25	= 749.25
SPED (SCC)	0	x 8	= 0	0	x 8	= 0	0	x 8	= 0	0	x 8	= 0
Art	1	-		1	-		1	-		1	-	
Music	1	-		1	-		1	-		1	-	
Computer	0	-		1	-		1	-		0	-	
SPED Resource	1	-		1	-		1	-		1	-	
Gifted	1	-		1	-		1	-		1	-	
ESOL	1	-		0	-		0	-		0	-	
Title 1	0	-		0	-		0	-		0	-	
Total Full Size Classrooms	31			37			23			42		
BUILDING CAPACITY			470			640			365			765
Mobile Unit Capacity	2	18.25	36.5	0	20.25	0	0	20.25	0	0	20.25	0
Total Capacity			507			640			365			765
	Previous: 552/592			Previous: 652/652			Previous: 400/400			Previous: 716/716		

	CALE			CROZET			GREER*			HOLLYMEAD		
	Qty	Multiplier	Total	Qty	Multiplier	Total	Qty	Multiplier	Total	Qty	Multiplier	Total
Pre-K	2	x 16	= 32	0	x 16	= 0	2	x 16	= 32	0	x 16	= 0
K-5	33	x 19.25	= 635.25	18	x 19.25	= 346.5	31	x 17.25	= 534.75	24	x 20.25	= 486
SPED (SCC)	2	x 8	= 16	0	x 8	= 0	0	x 8	= 0	1	x 8	= 8
Art	1	-		1	-		1	-		1	-	
Music	1	-		1	-		1	-		1	-	
Computer	1	-		1	-		1	-		0	-	
SPED Resource	1	-		0	-		1	-		1	-	
Gifted	1	-		1	-		1	-		1	-	
ESOL	1	-		0	-		1	-		0	-	
Title 1	1	-		0	-		1	-		0	-	
Total Full Size Classrooms	44			22			40			29		
BUILDING CAPACITY			683			347			567			494
Mobile Unit Capacity	0	19.25	0	0	19.25	0	0	17.25	0	4	20.25	81
Total Capacity			683			347			567			575
	Previous: 752/752			Previous: 380/380			Previous: 626/626			Previous: 496/596		

Notes:

*Greer includes proposed
new addition

SPED(SCC):

Self-Contained Classroom

Previous Capacities:

Current Building Capacity/

Capacity Including Mobile Units

DETAIL OF NEW CAPACITY CALCULATION

	MERIWETHER LEWIS				MURRAY				RED HILL				SCOTTSVILLE			
	Qty	Multiplier	Total		Qty	Multiplier	Total		Qty	Multiplier	Total		Qty	Multiplier	Total	
Pre-K	0	x 16	=	0	1	x 16	=	16	1	x 16	=	16	1	x 16	=	16
K-5	19	x 20.25	=	384.75	15	x 20.25	=	303.75	8	x 18.25	=	146	9	x 18.25	=	164.25
SPED (SCC)	0	x 8	=	0	0	x 8	=	0	0	x 8	=	0	0	x 8	=	0
Art	1	-			1	-			1	-			1	-		
Music	1	-			1	-			1	-			1	-		
Computer	1	-			0	-			1	-			0	-		
SPED Resource	1	-			1	-			1	-			0	-		
Gifted	1	-			0	-			0	-			0	-		
ESOL	0	-			0	-			0	-			0	-		
Title 1	0	-			0	-			0	-			0	-		
Total Full Size Classrooms	24				19				13				12			
BUILDING CAPACITY				385				320				162				180
Mobile Unit Capacity	3	20.25		60.75	1	20.25		20.25	4	18.25		73	2	18.25		36.5
Total Capacity				446				340				235				217
	Previous: 391/451				Previous: 316/316				Previous: 196/276				Previous: 196/276			

	STONE ROBINSON				STONY POINT				WOODBROOK				YANCEY			
	Qty	Multiplier	Total		Qty	Multiplier	Total		Qty	Multiplier	Total		Qty	Multiplier	Total	
Pre-K	2	x 16	=	32	1	x 16	=	16	1	x 16	=	16	1	x 16	=	16
K-5	25	x 19.25	=	481.25	11	x 19.25	=	211.75	16	x 18.25	=	292	7	x 17.25	=	120.75
SPED (SCC)	1	x 8	=	8	0	x 8	=	0	1	x 8	=	8	0	x 8	=	0
Art	1	-			1	-			1	-			1	-		
Music	1	-			1	-			1	-			1	-		
Computer	1	-			1	-			1	-			0	-		
SPED Resource	1	-			1	-			1	-			1	-		
Gifted	1	-			1	-			1	-			0	-		
ESOL	0	-			0	-			1	-			0	-		
Title 1	0	-			1	-			1	-			0	-		
Total Full Size Classrooms	33				18				25				11			
BUILDING CAPACITY				521				228				316				137
Mobile Unit Capacity	0	19.25		0	4	19.25		77	3	18.25		54.75	2	17.25		34.5
Total Capacity				521				305				371				171
	Previous: 620/620				Previous: 288/368				Previous: 456/516				Previous: 176/216			

Notes:
 SPED(SCC):
 Self-Contained Classroom

Previous Capacities:
 Current Building Capacity/
 Capacity Including Mobile Units

DETAIL OF NEW CAPACITY CALCULATION

	BURLEY			HENLEY			JOUETT			SUTHERLAND			WALTON		
	Qty	Multiplier	Total	Qty	Multiplier	Total	Qty	Multiplier	Total	Qty	Multiplier	Total	Qty	Multiplier	Total
Academic	35	x 20.5 =	717.5	41	x 22.5 =	922.5	32	x 20.5 =	656	32	x 22.5 =	720	24	x 20.5 =	492
CTE	1	x 20 =	20	3	x 20 =	60	2	x 20 =	40	2	x 20 =	40	3	x 20 =	60
SPED (SCC)	1	x 8 =	8	1	x 8 =	8	1	x 8 =	8	1	x 8 =	8	1	x 8 =	8
Gym	1	x 50 =	50	1	x 50 =	50	1	x 50 =	50	1	x 50 =	50	1	x 50 =	50
Computer	1	-		2	-		3	-		1	-		0	-	
SPED Resource	2	-		3	-		2	-		2	-		1	-	
Gifted	1	-		1	-		1	-		1	-		1	-	
ESOL	1	-		0	-		3	-		0	-		0	-	
Teacher Work Area	2	-		3	-		2	-		1	-		2	-	
Total Full Size Classrooms	45		795.5	55		1040.5	47		754	41		818	33		610
Utilization Factor ²			0.875			0.875			0.875			0.875			0.875
BUILDING CAPACITY			696			910			660			716			534
Mobile Unit Capacity	0	20.5	0	0	22.5	0	0	20.5	0	0	22.5	0	0	20.5	0
Total Capacity			696			910			660			716			534
	Previous: 726			Previous: 950			Previous: 699			Previous: 709			Previous: 552/592		

	ALBEMARLE			MONTICELLO			WESTERN		
	Qty	Multiplier	Total	Qty	Multiplier	Total	Qty	Multiplier	Total
Academic	80	x 23 =	1840	54	x 23 =	1242	46	x 23 =	1058
CTE	7	x 20 =	140	6	x 20 =	120	7	x 20 =	140
SPED (SCC)	2	x 8 =	16	1	x 8 =	8	0	x 8 =	0
Gym	1	x 50 =	50	1	x 50 =	50	1	x 50 =	50
Auxiliary Gym	1	x 25 =	25	1	x 25 =	25	1	x 25 =	25
Computer	1	-		1	-		1	-	
SPED Resource	1	-		1	-		1	-	
Gifted	1	-		1	-		0	-	
ESOL	0	-		0	-		0	-	
Teacher Work Area	5	-		0	-		3	-	
Total Full Size Classrooms	99		2071	66		1445	60		1273
Utilization Factor ²			0.875			0.875			0.875
BUILDING CAPACITY			1812			1264			1114
Mobile Unit Capacity	0	23	0	0	23	0	6	20.13	120.75
Total Capacity			1812			1264			1235
	Previous: 1774/1774			Previous: 1274/1274			Previous: 1084/1204		

Notes:

²Utilization Factor: assumes classroom being used 7 out of 8 periods (87.5%)

SPED(SCC): Self-Contained Classroom

Previous Capacities:
 Current Building Capacity/
 Capacity Including Mobile Units

Capacity vs. Enrollment

Appendix E

SCHOOL		Current Capacity	Capacity Conflicts with Projected Enrollments										Additional Seats in Trailers
		Proposed Capacity	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	
ELEMENTARY	AGNOR-HURT**	552	(36)	(62)	(75)	(87)	(96)	(90)	(92)	(94)	(97)	(100)	40
		470	(118)	(144)	(157)	(169)	(178)	(172)	(174)	(176)	(179)	(182)	37
	BAKER-BUTLER** 1	652	43	38	11	24	12	8	7	14	26	23	0
		640	31	26	(1)	12	0	(4)	(5)	2	14	11	0
	BROADUS WOOD	400	127	127	126	117	117	106	104	98	96	97	0
		365	92	92	91	82	82	71	69	63	61	62	0
	BROWNSVILLE*	716	52	30	(8)	(12)	(9)	(16)	(23)	(30)	(37)	(45)	0
		765	101	79	41	37	40	33	26	19	12	4	0
	CALE **	752	127	118	104	99	104	96	92	83	81	76	0
		683	58	49	35	30	35	27	23	14	12	7	0
	CROZET	380	92	88	88	77	79	65	65	71	74	82	0
		347	59	55	55	44	46	32	32	38	41	49	0
	GREER**	626	169	164	157	161	150	144	142	138	136	131	0
		567	110	105	98	102	91	85	83	79	77	72	0
	HOLLYMEAD ¹	496	58	33	26	29	18	7	6	9	6	(3)	80
		494	50	24	17	21	9	5	4	7	4	(5)	81
	MERIWETHER	391	(72)	(72)	(86)	(93)	(86)	(87)	(90)	(115)	(130)	(139)	60
		385	(78)	(78)	(92)	(99)	(92)	(93)	(96)	(121)	(136)	(145)	61
	MURRAY*	316	37	40	35	29	29	24	23	23	27	26	20
		320	41	44	39	33	33	28	27	27	31	30	20
	RED HILL*	196	24	29	14	15	9	10	11	12	16	16	80
		162	(10)	(5)	(20)	(19)	(25)	(24)	(23)	(22)	(18)	(18)	73
	SCOTTSVILLE*	196	(13)	(3)	(12)	(26)	(21)	(22)	(22)	(24)	(28)	(28)	40
		180	(29)	(19)	(28)	(42)	(37)	(38)	(38)	(40)	(44)	(44)	37
	STONE ROBINSON**	620	187	197	184	165	173	153	150	154	163	170	0
		521	88	98	85	66	74	54	51	55	64	71	0
	STONY POINT *	288	(3)	(16)	(26)	(49)	(50)	(59)	(60)	(63)	(63)	(63)	80
		228	(63)	(76)	(86)	(109)	(110)	(119)	(120)	(123)	(123)	(123)	77
	WOODBROOK*	456	136	133	130	127	115	114	113	107	106	101	60
		316	(4)	(7)	(10)	(13)	(25)	(26)	(27)	(33)	(34)	(39)	55
	YANCEY*	176	30	24	20	20	9	9	8	11	16	15	40
		137	(9)	(15)	(19)	(19)	(30)	(30)	(31)	(28)	(23)	(24)	34
	Subtotal	7213	958	868	688	596	553	462	434	394	392	359	500
		6580	319	228	48	-43	-87	-171	-199	-239	-241	-274	475

* - Includes 16 pre-k students

** -Includes 32 pre-k students

¹ Enrollment Projections take into account approved Redistricting Option A

Capacity vs. Enrollment

Appendix E

SCHOOL		Current Capacity	Capacity Conflicts with Projected Enrollments										Additional Seats in Trailers
		Proposed Capacity	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	
MIDDLE	BURLEY	726	179	172	166	180	136	124	132	185	203	194	0
		696	149	142	136	150	106	94	102	155	173	164	0
	HENLEY	950	152	116	115	84	44	27	10	13	(53)	(87)	0
		910	112	76	75	44	4	(13)	(30)	(27)	(93)	(127)	0
	JOUETT	699	122	120	142	109	121	129	152	135	125	99	0
		660	83	81	103	70	82	90	113	96	86	60	0
	SUTHERLAND	709	99	107	111	78	78	67	77	28	(32)	(70)	0
		716	106	114	118	85	85	74	84	35	(25)	(63)	0
	WALTON	552	149	145	150	173	192	185	178	186	170	165	0
		534	131	127	132	155	174	167	160	168	152	147	0
	Subtotal	3636	701	660	684	624	571	532	549	547	413	301	0
		3516	581	540	564	504	451	412	429	427	293	181	0
HIGH	ALBEMARLE	1774	23	(6)	(83)	(59)	(92)	(114)	(137)	(153)	(204)	(199)	0
		1812	61	32	(45)	(21)	(54)	(76)	(99)	(115)	(166)	(161)	0
	MONTICELLO	1274	199	169	170	109	87	109	114	122	171	167	0
		1264	189	159	160	99	77	99	104	112	161	157	0
	WESTERN ALBEMARLE	1084	23	36	4	(31)	(50)	(78)	(109)	(171)	(171)	(201)	120
		1114	53	66	34	(1)	(20)	(48)	(79)	(141)	(141)	(171)	121
	Subtotal	4132	245	199	91	19	-55	-83	-132	-202	-204	-233	120
		4190	303	257	149	77	3	-25	-74	-144	-146	-175	121
TOTAL		14981	1904	1727	1463	1239	1069	911	851	739	601	427	620
		14286	1203	1025	761	538	367	216	156	44	-94	-268	596