Population Planning and Facilities Review

Conducted for:
Shenandoah County Public Schools, Virginia

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PREFACE

School divisions across the Commonwealth are routinely faced with difficult planning, budget and resource allocation decisions at the same time they are confronting ever increasing demands for expanded services and student population growth. Planning for student growth and well-conceived and sequenced capital facility plans is a process that must be based on comprehensive and accurate data that is routinely managed, frequently reviewed, and altered to reflect changing population variables and residential market conditions.

Periodic reviews of policy, organizational and school structuring, as well as operational systems assist organizations in responding effectively to the demands of capital and operational needs. In the long term, periodic reviews can make a difference in maximizing the application of public education dollars for achieving the programmatic and educational goals of the instructional program.

The Shenandoah County Schools "Population Planning and Facilities Review"

A representative of Shenandoah County Schools contacted the Commonwealth Educational Policy Institute at VCU in the early spring regarding the possibility of the Institute's interest in conducting a review of the school system's student population growth, planning processes, facility utilization, and possible strategies for accommodating the growth.

After numerous follow-up conversations and a letter from the superintendent of schools outlining the requirements of such a review, CEPI agreed to submit a Proposal to conduct a "Population Planning and Facilities Review" for Shenandoah County Schools. The specific purposes included the following:

1. A review of student membership growth and five to ten year membership projections,
2. A review of the planning processes and variables used by the school division in estimating residential housing and student growth,
3. A review of the division's use of current school facilities and capacities that reflect student membership and program accommodation needs,
4. A review of growth in the three present school "clusters" and the implications for the development of a fourth cluster, and,
5. Consideration of any alternatives that may reasonably assist in student and program accommodations necessitated by population growth.

After submission of the CEPI proposal, CEPI was subsequently invited to send a representative to discuss the proposal with the entire board during June 2006. As a result of the discussions, several small changes were made to the proposal to provide for additional time on site in the schools and the original time line was altered so the site visits could occur while the schools were in session. The proposal was subsequently accepted by the board.

The Conduct of the Review

The CEPI Review Team was composed of Dr. William C. Bosher, Jr., CEPI Executive Director and Distinguished Professor of Education and Public Policy in the Center for Public Policy, L. Douglas Wilder School of Government, VCU; Dr. R. Daniel Norman, Senior Fellow, CEPI; and Dr. Carl Chafin, Consulting Associate, CEPI and Associate, Eperitus, LLC, a private educational consulting firm headquartered in Richmond. Drs. Norman and Chafin composed the on-site visiting team. The following components and processes were included in the review process:

- Submission to the school system a list of documents and data necessary for the review (See Appendix "A" for document list),
- Review of documents and data by the team prior to the on-site visits to each school,
- Development and submission to all school principals a survey related to school utilization and capacity issues. Survey returned directly to CEPI in advance of site-visits (Copy of survey questions included in Appendix "B"),
- On-site visit by two team members to each school in each of the clusters as well as Triplett Tech and the on-site regional Governor's School,
- Interview of each principal to review student membership, program, master schedule, staffing and technology issues; and a room by room tour and documentation to floor plans to verify the use of each instructional classroom or other instructional space,
- Interviews with the Superintendent of Schools, Director of Secondary Education, Director of Elementary Education, Director of Transportation, Director of Economic Development for county, and the county Budget Director (responsible for county planning oversight),
- After return from site visit, follow-up request for up-dated 2006-07 data and continued communications for clarification of data points and issues from analysis of data by subsequent team work,
- Analysis and development of observations, findings and finally recommendations pertinent to the purposes of the review,
- Review of draft for fact or data errors only, by school system, and,
- Submission of final report to superintendent and school board.

PART I: POPULATION GROWTH AND PROJECTION PROCESSES

The K-12 public school population in Virginia is expected to grow by approximately 30,000 by the 2010-11 school term. Despite this number, there will be many divisions with large and significant growth changes as well as some divisions that will actually lose students. There are many variables that affect the size and timing of student population growth, but the primary ones are the size of the live birth cohorts, in and out migration patterns of the community which include significant changes in housing, and students enrolled in private schools or home-schooled.

CEPI has studied in detail the projections for growth made by Shenandoah Schools in its most recent 2005-2006 Growth Projection Study. This is a significant document for future facility planning. It outlines several projection approaches and mostly importantly begins to assess student membership against the present and future ability of present school facilities to accommodate the level of programs and class size expectations of the Shenandoah community.

The school system to date has seen relatively small and stable growth patterns that were easily projected by "percentage cohorts." However, CEPI concurs with the general expectations expressed by many in the school division and community that Shenandoah County is likely to see in the next decade and beyond an increase in the rate of student membership growth and concentrations of growth patterns rather than uniform growth across the county and its towns. This section will examine the issue of student population growth through several approaches traditionally used by school divisions to support population projections and capital facility planning.

2005-06 Shenandoah Growth Projection Study

Table 1 (page 5) is a summary of several key indicators from the local study. The "Column 2006" indicates student projections for the present school year. Subsequent columns indicate several key comparison years out to 2015. By 2011 the percentage method indicates a student population of 6591 or approximately 8.7% total growth over the five year span. Although the growth is moderate, it is clearly more in the northern cluster at 10.5%. By extension of this approach, the school system estimates 7042 students by the 2015-16 school year or a gain of 16.1%.

The second projection component of the study focused on the projected housing market and the implications for student membership growth. New, pending, and possible residential construction estimates were collected from the towns and the county. A tentative multiplier of .46 students per home was used for the estimates. Table 2 (page 6) is a summary of the estimates for new residential units that may possibly be built in the five year span. Columns for 2005, 2006, and 2010 indicate the number of units by the clusters and a total. The table also indicates student membership compared to the projection in real numbers and per cent for the first two years where membership data is available.

Tracking new housing proposals and conducting frequent yield studies of students per household are important elements of student projection systems. CEPI believes, however, that the pattern of these numbers does reflect the likely pattern of development, but that several changes have occurred that have altered the time frame for reaching these numbers. Data for this initial study was developed almost two years ago. Since that time, changes in the real estate market and sales have changed and continue to change. In general there is a slowing of both demand and sales. Proposed residential projects in many communities will change development schedules to match market demand. Informal decisions between CEPI team members, community officials, and others connected with real estate tended to confirm this view of a slowing market demand. Nevertheless, many residents and school people are extremely concerned with several scenarios that could produce quick and significant changes in student growth. In addition to the projected numbers, discussions with both school and county staff indicate that multipliers used in the projection may be turning somewhat lower.

Table #1

Shenandoah County Schools
Shenandoah Projection Summary by Percentage Cohorts

Year

	2006	2010	2011	2011 % of 2006 Projection	2015
Northern Campus	2032	2200	2245	(213)** 10.5%	2460
Central Campus	2415	2565	2603	(188)** 7.8%	2763
Southern Campus	1617	1717	1743	(126)** 7.8%	1849
Total	6064/6122*	6482	6591	(527)** 8.7%	(978)**16.1% 7042

* Actual Day 5 Membership of 6,122 over projection of 6,064.

** Actual student number.

NOTE: Membership figures for 2006 used in this review were based on "Day 5" counts. In an update for the Sept. 30 count, the membership had dropped by seven students to 6,115.

On the "Day 5" count for 2006 to 2005, the system grew 88 students; on the Sept. 30 count for 2006 to 2005 the system grew by 48 students. By either count, the numbers do not support the worst fears about the probability of a very high rate increase in housing growth to date. Care needs to be taken not to compare end of year ADMs with next year Sept. 30 counts. This has the effect of artificially inflating accurate year-to-year growth comparisons since school membership normally tends to drop from early Sept. 30 counts to March ADM counts for the same year.

Table # 2

Shenandoah County Schools
Shenandoah Membership Projections by New Housing Estimates

	Total Residential Units - 5 Years	Student Membership Projection 2005	2006	2007	2008	2009	2010
Northern Campus	2197	2050	2252	—	—	—	3058
Central Campus	1376	2445	2571	—	—	—	3075
Southern Campus	358	1664	1696	—	—	—	1828
Total	3931	6159	6519	—	—	—	7961

Actual Membership as % of Housing Student Membership Projection							
9/30 Membership		6034	6122				
Number off Projection		-125	-397				
% off Projection		-2%	-6.5%				

* If estimated 9/30 membership by "percentage" calculation were compared to membership by "housing" calculation, the difference could be as much as 22% off by 2010-2011.

Weldon Cooper Center at University of Virginia

A second significant source of verification for student membership projection is The Weldon Cooper Center at the University of Virginia. This center has projected fall student membership, as well as yearly ADM, for the state and all local school divisions for many years. Their projections of growth and decline historically have been very accurate. These projections are based on birth cohorts, in-out migration, and impact of private and home-based education.

Table 3 (page 7) indicates the Weldon Cooper September 30 projections from 2004 through the 2010-11 school term. By 2010-11 the September 30 membership is projected at 6800 students. This is actually more than 200 students higher than the "percentage" projections in the earlier school division report but more than 1000 students less than the "worst case" projection using the "housing" projection approach.

It is important to remember that the Weldon Cooper projections are limited in their ability to account for unforeseen major housing changes within a school division that may result in loss of housing—major employment reductions, natural disasters, or plant closings are examples. The reverse is also true – major new industries or job market development in a school division or other major housing developments may prove the projections low in the latter years. This last variable is the core question for Shenandoah County as it views the traditional student projection systems.

Table # 3

Shenandoah County Schools
Weldon Cooper Center, UVA 5 year Projections for Sept. 30

	Sept. 30 Memberships	% Change		Yearly ADM	
2004-2005	5864*				
2005-2006	6056*	3.3%		**Actual	5912
2006-2007	6263	3.4%		Projected	6064
2007-2008	6391		12.3%		6124
2008-2009	6533				6238
2009-2010	6665				6308
2010 -2011	6800				—

* Actual Sept. 30 Membership

** Actual March 31 Membership: It should be noted that actual ADM is usually less than Sept. 30 counts unless there is significant increase in net migration during that school year. In this one-year example for 2005-06, the actual membership rose from 2004-05 3.3%; the decline of membership from Sept. to March was 144 students or 2.4%.

Ten-Year New Housing Inspection History

Another source to determine the actual trend in new housing over time is new residential zonings and residential building permits. One difficulty with these measures is that the timing may over-lap multiple years. In the case of zoning, new zoning may result in new construction almost immediately or remain inactive for many years. A somewhat more precise indication of new residential construction is the inspectors permits related to new footings. This indicates new construction is underway.

Table 4 (page 8) gives a ten and one-half year history of these inspections by each of the school clusters. Cumulative numbers are also given for each of the five-year increments that indicate change over time. It is clear in this historical trend data that the northern cluster, between the two five-year increments, has grown approximately 156%. The central cluster has grown approximately 38% and the southern cluster by 62%. However, looking only at recent percentages can be misleading. For example, over the entire 10-year history, the northern and centered clusters growth rates have altered and the total numbers of new residential units are much closer than the percentages would appear to indicate. Ultimately, the most important question will not be the actual growth rates in a specific period of time but the effect of accumulated growth over time in relationship to the ability of different school facilities to accommodate that growth. The final consideration of housing includes the variables on the confidence level of new housing projections mentioned earlier and that will be addressed again later.

Table #4

Shenandoah County Schools
New Residential "Inspections" 1996 – July, 2006 by Clusters/Totals

	Northern	Central	Southern	5 Year Totals	Per Year/Rate
1996	68	55	34		157
1997	52	86	66		—
1998	59	96	85		—
1999	77	149	71		—
2000	118	106	51		275
Subtotal	**374**	**492**	**307**	**1173**	—
2001	125	105	62		—
2002	163	116	84		—
2003	156	142	76		—
2004	304	129	109		—
2005	211	186	167		574
Subtotal	**959**	**678**	**498**	**2135**	
thru 7/06	116	108	91		
Grand Total	**1333**	**1170**	**805**		
Growth % (2001-2005 over 1996-2000)	156%	38%	62%	82%	

Birth Cohorts

Probably the most frequently used estimator of entering class sizes and growth of overall population over time are the live birth statistics maintained by the Center for Health Statistics, Virginia Department of Health. Table 5 (page 9) gives a ten-year history of the birth cohorts in Shenandoah County and the Commonwealth of Virginia. Column 2 compares the number of births each year against the base year of 1995. While the average number of births between 1995 and 2000 are very similar and stable, the number appears to move to a different level beginning in 2001. In fact, the number of births in 2001 was almost double the number of births cumulatively from 1995 through 2001.

Public schools rarely receive the number of students in Kindergarten that exactly parallel the birth years approximately four to five years earlier. These numbers are frequently reduced by private school enrollments, home schooling or religious exemption choices, or private day care. They may also increase by new housing or other in-migration. The percent change in school enrollment from K to 1st grade is the closest predictor of future class sizes for elementary grades, again absent an unusual and significant housing expansion not typical of cumulative housing history.

Table #5

Shenandoah County Schools
Shenandoah County/State Live Births
1995 – 2004

	Shenandoah Residence/Births	% Rate Births per 1,000 Population	Actual Changes Compared to 1995	State Births	% Rate Births per 1,000 Population
				91,871	14.0%
1995	378	11.3%		—	—
1996	390	11.6%	12	—	—
1997	385	11.3%	7	—	—
1998	384	11.2%	6	—	—
1999	375	10.8%	-3	—	—
2000	399	11.4%	21	—	—
2001	459	13.1%	81	98,531	13.9%
2002	412	11.3%	34	99,235	13.6%
2003	455	12.2%	77	100,561	13.6%
2004	462	12.1%	84*	103,830	13.9%

State

* If the number of Live Births in 1995 were representative of entering class size for an entire elementary six-year span, elementary membership would be around 2,268. If the births for 2004 were an estimate over 6 years, the elementary membership would be around 2,772. Although these numbers are estimates only, they do indicate the general effect of the growing number of births over time – a difference of approximately 500 students.

Grade to Grade Cohort Survival Analysis

An extension of the live birth rate data for estimating change in entering class sizes is an analysis of the live births year to entrance year into kindergarten. Table 6 (page 10) indicates as an example that the 385 children born in 1997 in Shenandoah County entered kindergarten in 2002 as a class numbering 413—a growth ratio of approximately 1.07 over the five year period. A similar comparison may be made for students (413) who were in kindergarten in 1997. By 2002 when they were in 5th grade they numbered 440 or growth ratio of approximately 1.07. A final comparison may be made for student cohorts entering high school. The class of 9th graders entering high school in 1999 numbered 446; by 12th grade they numbered 380 or a declining ratio of .85.

It needs to be noted that growth ratios of birth to k and k to 5th grade would naturally include the impact of new residential housing; the same would be true also during the decline in numbers from 9th to 12th grade. It is noteworthy that the entering class in 2006 has the smallest growth ratio of any class during the last five years.

Table #6

Shenandoah County Public Schools
Cohort Growth Trends

Cohort Growth Trends Birth - K

Birth Year	# Births	K-Year	# Students			Ratio
1997	385	2002	413			1.07
1998	384	2003	421			1.10
1999	375	2004	416			1.10
2000	399	2005	437			1.10
2001	459	2006	468	(Day 5)		1.02
					AVG	1.08

Cohort Growth Trends K - 5

K-Year	# Students	5th Grade Year	# Students			Ratio
1997	413	2002	440			1.07
1998	392	2003	424			1.08
1999	438	2004	503			1.15
2000	391	2005	458			1.17
2001	412	2006	475	(Day 5)		1.15
					AVG	1.12

Cohort Growth Trends 9th - 12th

9th Grade Year	# Students	12th Grade Year	# Students			Ratio
1999	446	2002	380			0.85
2000	492	2003	389			0.79
2001	465	2004	401			0.86
2002	505	2005	389			0.77
2003	518	2006	414	(Day 5)		0.80
					AVG	0.81

Summary of Population Growth Outlook

CEPI has examined several sources of available school membership projections and has examined those projections against various methods traditionally used by school divisions in creating membership projections. Based upon these, CEPI offers the following observations and conclusions:

- Shenandoah's "percentage" projection for September 30 membership in 2010-11 at 6482 is slightly under the Weldon Cooper Center projection of 6800 students.

- Shenandoah's "percentage" projection for September 30 membership in 2015 is 7042; there are no other 10-year projections.

- When examining the potential additional impact of a residential housing market that may be atypical to recent history, the only projection is for 7961 students by September 30, 2010. Recent changes in the housing market, reservations about the multiplier of .46, as well as a growing uncertainty as to the actual numbers of new housing and its type has led CEPI to doubt the likelihood of the new housing yield by the date indicated.

- Growth in new housing is nevertheless real and important for facility planning as indicated by the growth in new residential inspections of approximately 85% over the last five years compared to the previous five-year period.

- An increase in the rate of growth is further supported by an examination of the increase in the live births in Shenandoah, also comparing the most recent five-year period to the previous five year period and by comparing the movement of the yearly cohorts though the grades. Generally, over the last ten years the live birth rates have increased from the mid-to-high three hundreds to the mid four hundreds with the exception of a low birth year in 2002 which enters kindergarten primarily in 2006 and 2007.

- In most school divisions actual student membership is a factor of both growth and decline simultaneously. New housing often generates high student yields, but older housing is frequently declining in student yield as parents remain in the homes and communities as their children pass the school age window. Eventually these homes may pass again to young families and the cycle repeats itself. This cycle often repeats but is of great importance in balancing high yields with declining yields for a total projection. Data to analyze the sub-community groups was unavailable.

In conclusion, CEPI believes that:

- The September 30, 2010 ADM is likely to be in the 6800 to 7000 range on the assumption that the new housing projections will move forward at least at a moderate rate.

- The September 30, 2015 ADM is a speculative moving target and subject to many variables outside the possible knowledge or control of the school system. This projection is usually helpful only as a tentative facility-planning document when the exact number is less important than the cumulative effect of student growth in relationship to present facility capacity and utilization. In that context, the present Shenandoah projection of 7042 with an added consideration for new housing growth may potentially result in a planning target of 7350 to 7650 students by 2015. See Table 7 (see below) for summary.

Table # 7
Shenandoah County Schools
Long Term Projections

	2010-2011	2015
Shenandoah Projection by % Method	6691	7042
Shenandoah Projection by New Housing	7961	----
CEPI Observation	6600- 7000	7350-7650

* CEPI is of the opinion that the Weldon Cooper Center five year Sept. 30 projection for student membership is likely to be very accurate. Should the present housing market make a substantial upturn from its present condition, it is possible that the membership could approach 7,000. We see no conditions in other data to support a projection beyond 7,000 at this time.

CEPI has also considered the likely projection for 2015. It is clear that a new rate of growth is likely over the next decade but probably not to the extent that some fear. Based upon our examination of the population prediction variables, we would estimate a Sept. 30 membership in 2015 around 7,350; possibly as high as 7,650 if the residential housing market growth rate increased beyond its present expectation.

Observation/Suggestions for the Further Development of the Local School Planning Processes

For many years, the Shenandoah County Public Schools has had a very predictable and stable rate of modest growth. A general method of using year-to-year growth and percent changes in class size has been sufficient to handle student projections and staff allocations as these changes occurred. The school system has taken periodic longer views of its facility needs and its student population growth. As a part of this most recent review, CEPI surveyed the 1996 study by the Virginia Department of Education and the most recent student growth study conducted by the school administration. Each was a significant assistance to the school division.

CEPI is of the opinion that as the school division moves to a new level of student growth and long-term facility planning, the division would benefit from an expanded and more frequently accessible data base for planning and decision-making in this area. We were extremely pleased to discover the collaboration that is already occurring between the school division and the county in building such a data base that will bring more certainty in the projection process and will assist the administration and the school board in their decision-making for good planning that results both in outstanding school facility environments for student learning as well as responding to the need for accountability in the use of public resources.

CEPI has not been able as a part of this review to delve into the planning components of the local geographic information system or the student information system used in the county and school divisions; however, these are commonly used data management systems and should easily be able to accommodate the components recommended below. The result would be that the school system would not need periodic "big" studies but would have available annually up-dated and reliable student projection and analytical data as well as the information so necessary to long range facility planning. CEPI recommends the planning system include the following components and processes (some are likely occurring presently in some degree):

- Provision for the school division to routinely receive at least semi-annually from the county/ towns notification of new addresses, residential zoning, building permits, and footing inspections,

- Provisions for the school division to provide the county/towns impact information of major zoning applications with estimates of student yields,

- Provision for the development of a census tract overlay within each of the three school clusters that would permit the school division to identify numbers of students K-12 within those census-planning tracts. Generally, it is helpful if the

tracts isolate major new projects and other housing groupings. Often in rural areas these tracts may be most useful if they coincide with selected bus route patterns. Once addresses are placed in a tract, the software should be able to place students automatically in the appropriate tract upon registration or remove them upon withdrawal. The "geographic" groupings can provide useful information for student yield studies and are especially important for school attendance boundary changes when necessary. They also provide long-term data related to growth and decline of student membership in specific geographic locations,

- Provision for the software to be able to total entry and withdrawal codes as a means of monitoring in-out migration,

- Utilization of the Live Birth and cohort survival methodologies as an integral part of the "percentage" movement analysis, and,

- Continuation of the collaboration with the county in developing accurate and useful data bases as to facilitate annual population estimates.

PART II: SCHOOL CAPACITIES AND FACILITY UTILIZATION

As a part of this review, two CEPI team members spent three full days visiting each of the nine Shenandoah County schools in the three campuses as well as the Triplet Technical Center. Every classroom and other type of instructional space was reviewed and matched to floor plans provided by the school division.

Most importantly, schools' master schedules and staffing strategies were also reviewed to further our understanding not only of the facility's space but also of the education program offered within the facility. Subsequent to this "walk-through" visit, the team analyzed this information to determine a "standard operating capacity" for each facility.

Standard Operating Capacities

Perhaps one of the most difficult challenges for school divisions is assisting their communities to understand how the capacity of individual school buildings have been reduced significantly over the last several decades. Original school capacity estimates in the past were generally based on square footage and seating capacity of individual instructional spaces. Even in Shenandoah the team noted one facility with an original construction capacity of 1800 plus students; in reality the program and class size averages set for that program would make it difficult for that facility today to effectively handle much above 1100 students. Several variables have contributed to this change over time:

- Increased federal and state program requirements that result in lowered capacity for individual instruction spaces. These included Standards of Quality class size limits, federal program and funding requirements in programs such as early childhood education, Title I, and programs in exceptional education,

- Changes in local community expectations related to class size and support programs that increasingly focus on individualizing the education process as well as the many support programs and services in school facilities that did not exist in the not too distant past, and,

- Specialized services such as computer labs, recreational programs, and extensive athletic facilities normally only found in colleges or very large secondary schools.

CEPI has sought to provide a capacity figure for each school that reflects a realistic assessment of the ability of each school to offer the educational program presently in that facility. It is not an estimate of the number of "bodies" that may be seated but an estimate of the capability of the facility to offer its program. We call this the "Standard Operating Capacity." This capacity utilizes required Virginia SOQ class size average requirements where applicable. The figure also reflects federal class size limits for exceptional

education. In other areas, CEPI uses "most frequently found" standards for estimating capacity. Where there is a special reduction to these standards as determined by local policy or regulation, a final adjustment is made to the standard operating capacity; this final number is called in this review the "Adjusted Operating Capacity" and is the capacity used for all calculations in the tables.

In Shenandoah County, this deduction from standard operating capacity occurs only at the three elementary schools. Shenandoah participates in the Virginia Voluntary Class Reduction Program by which it agrees to lower class size averages K-3 and for which its receives some shared state funding.

School Level Capacities

Work sheets for individual schools are found in the Appendix "C". CEPI reconciled the total number of instructional spaces to the number originally identified by the school system in their earlier study even though the use of some of those spaces and how they are categorized has changed since the earlier study.

Elementary Schools

Included in this calculation are the full-sized standard classrooms housing self-contained K-5 students using SOQ required class size averages. Self-contained Exceptional Classrooms are added to this capacity using a recommended class maximum for these programs. CEPI recognizes other specialized instructional classrooms and spaces but does not add them as additional capacity. The reason is that when students leave their self-contained classrooms to participate in art, physical education, etc; their home classrooms remain empty. This would be "duplicate" seating because the seats in the students' self-contained rooms remain empty when the students are out.

Middle and High schools

Included in this calculation are all standard classrooms as well as exceptional education, labs, physical education, art, and other specialized instructional areas. When applicable, CEPI has used required SOQ class-size averages. Where class-sizes are not specifically regulated, CEPI used general standards as found around the Commonwealth. Because the scheduling strategies are different, unlike elementary schools, CEPI counts all instructional spaces in capacity. However, because of all types of courses and variability in students' course selection; it is not possible to equally utilize every space in every instructional time period. Because of this fact, secondary schools' "standard operating capacity" is generally reduced by fifteen percent to allow for this operational variable. It should be noted that in the middle school the scheduling of students tends to be a mixture of the elementary models and progresses to the high school model by later middle school years. Although this would seem to negate the need for the fifteen percent reduction, it is balanced by need for more specialized support services and exceptional education programs. Consequently, CEPI uses this percent reduction in all secondary schools.

Facility Capacity and Utilization

Table 8 (page 15) summarizes the capacity for each school and for the campus clusters. The percent utilization of the space against September 2006, membership is also

indicated. Clearly, elementary utilization is at a critical level at Sandy Hook Elementary and followed closely behind by Robinson Elementary. Although not critical in the next several years, it is likely that both the grade cohort movement and the concentration of new housing in the northern cluster will result in crowding at the Signal Knob Middle before a five-year capital plan could be fully implemented. Depending upon the long-range strategy chosen by the school system for accommodating new growth, other schools may or may not be impacted.

A second and important way to look at capacity and utilization is by "school levels" as is contained in Table 9 (page 17). This reinforces the high utilization of space at the elementary level. Although middle schools are generally in positive positions relative to utilization, Table 8 indicates that the available space is not equally distributed across all campuses.

Table #8

Shenandoah County Schools
School Capacity/Facility Utilization

	Capacities		Utilization	
	Standard Operating Capactity	Adjusted Operating Capactiv	Membership Sept. '06	CEPI Utilization Percentage
Northern				
Sandy Hook Elementary School	1037	953	945	99.2%
Signal Knob Middle School	713	713	521	73.1%
Strasburg High School	810	810	634	78.3%
Campus Total	**2560**	**2476**	**2100**	**84.8%**
Central				
Robinson Elementary School	1294	1192	1114	93.5%
Muhlenberg Middle School	893	893	548	61.4%
Central High School	1,002	1002	763	76.1%
Campus Total	**3189**	**3087**	**2425**	**78.6%**
Southern				
Ashby-Lee Elementary School	859	796	652	81.9%
North Fork Middle School	685	685	406	59.3%
Stonewall Jackson High School	808	808	539	66.7%
Campus Total	**2352**	**2289**	**1597**	**69.8%**
County Total	**8101**	**7852**	**6122**	**78.0%**

Note: Triplet Technical Center capacity is not included in the total school division

capacity figures. Capacity of the center is noted on the individual school capacity worksheet in Appendix C.

Table # 9

Shenandoah County Schools
Capacities by School Levels/TOTAL

	Adjusted Operating Capacity	Membership	Utilization Percentage
Elementary	2941	2711	92.1%
Middle	2291	1475	64.4%
High	2620	1936	73.9%
Total	**7852***	**6122**	**78.0%**

* The Mid-point capacity for all schools of the two approaches used in the Shenandoah Study was 7895.

Note: The technical school also offers additional seating capacity for high schools because of students who leave home schools for half day programs at the tech center. Currently, approximately 324 Shenandoah students are enrolled at tech or Regional Governor's School, which is the equivalent of 162 full time students.

Summary of School Capacity and Utilization Outlook

Shenandoah County Schools is now facing the same problem typical of large area school systems when new growth tends to concentrate in one or more areas within the school division. At present the overall capacity and utilization of space is good. However, the disproportionate numbers of students in some campuses and the context of new population growth in selected areas will shortly impact several facilities. CEPI offers the following specific observations related to capacity and utilization in several schools and other general observations:

- Sandy Hook Elementary on the northern campus is at capacity and full utilization. This school will need interim and temporary strategies to handle the student population before the impact of a new and approved capital facilities plan can be fully realized. Temporary relief generally comes through the use of additional portable classrooms and/or the conversion of special instructional spaces to a K-5 classroom. This often means converting art rooms by putting the art on a cart and sending the teacher to the self-contained room. Others include giving up computer labs to classrooms, etc.

- Robinson Elementary on the central campus is slightly behind Sandy Hook in utilization but, nevertheless, is likely to need some interim strategy for student population relief before the impact of a capital facilities plan may be fully implemented.

- Signal Knob Middle is not in a capacity crisis; but if and when the growth anticipated for the northern campus occurs, this middle school will be the next most likely school to need some capacity alternatives.

- The efficiency and type of secondary school scheduling can have some impact on school utilization effectiveness. This is true of traditional schedule models as well as various block models and should be examined closely at schools facing overcrowding.

- One of the most difficult issues in school facility utilization is the local policy or practice related to teacher planning time. For example, in a high school with a 4 over 4 block schedule of ninety minutes, classrooms may remain vacant for as much as one-quarter to a third of the instructional day, if no provisions are made for teacher office and work areas outside the classroom. In some circumstances or disciplines such as lab sciences or specialized teaching environments, it may be imperative that teachers have access to their rooms. However, as a general rule, schools cannot usually afford to leave classrooms empty for substantial periods of time at a cost of a significant reduction in the efficiency of facility utilization.

Regrettably, teachers may need to use available classrooms to accommodate the needed number of course sections when rooms are not used during teacher planning periods.

- The long-term view of capacity needs for other schools is dependent on the school division's determination of its strategy for accommodating long-term development and growth.

PART III: OBSERVATIONS REGARDING 4TH CLUSTER STRATEGY

As a part of this review, CEPI has been asked to provide any informational feedback or other observations that may be helpful to Shenandoah Schools in determining their strategic approach for accommodating the next phase of long-term student population growth – specifically the development of a fourth cluster/campus. Although CEPI is not in a position to make any recommendations in this matter because some of the issues raised will require evaluation from qualified site planning engineers, we nevertheless hope some of our observations will be useful in the process to answer the core question regarding development of the 4th cluster/campus or other alternatives as the next step in the planning for school facilities.

The cluster/campus approach has been very logical and efficient. From our observations, we assume that it was driven historically by geography of the county and the growth of early schools around the population centers of the three larger towns. It is a system that has apparently worked well. A central question, however, is whether the variables or conditions which worked so efficiently for the past campuses exist at this time for the development of a fourth and whether there are other possible alternatives that may more efficiently and productively accommodate the educational program for students and minimize the financial demands upon the citizens of Shenandoah. First, we would consider variables necessary to the development of a fourth cluster:

Student Population: Critical Mass To fully implement a new cluster, a certain minimum number of students must be anticipated either from new growth or from the "drawing away" from other clusters. Although the northern and central elementary schools have immediate space needs, all other schools have moderate to significant capacity available. CEPI would not see these critical numbers resulting from growth for many years. An approach that attempts to phase in the cluster by building just the elementary school may be problematic because the school division will need to choose a location for one elementary school to serve the elementary needs in two clusters. This one site could be difficult both for transportation, student transport time, and site location. It may not be correct to assume that growth will necessarily be concentrated first only at the elementary level, especially if its source is new housing rather than changes in live birth cohorts. There is certain to be a need for a fourth cluster in the future; however, at this time, the "drawdown" from present school membership is likely to leave excess capacity at the secondary level for an extended period—likely well beyond a decade.

New Cluster Location: Serving the Communities The location of a new cluster/campus needs to have the ability to create over time the same community identification and support that has been a hallmark of the other campuses. The present campuses have had the advantage of developing as part of towns and all roads from the rural areas tended to lead in and out of the towns. The lack of a town context will be significant. These needs

should be evaluated. Sites for good community development may also be limited by the fact that a new cluster will need to be close to a four pattern entrance/exit to I-81 and there is only one that may realistically provide adjacency to the two clusters where space relief is likely to become critical. Long-term planning and growth and new attendance boundaries must necessarily include the question of whether the better "long-term" site choice would be on the west side of I-81. A site for a new cluster should:

- Be removed from close proximity to the former schools,
- Provide for reasonable redrawing of attendance boundaries without separating individual subdivisions or small community grouping that traditionally identify themselves as single "neighborhoods," and
- Permit not only effective distribution of students into the new facility but assure that schools, from which the students leave, will not be left with excess capacity over the long-term. We consider this point to be important for public accountability.

New Cluster Location: Site Issues In addition to the site issues related to communities, capacity, and programs mentioned above, there are a host of engineering and technical issues that require evaluation by qualified architectural and engineering consultants. Some of these will include the following consideration:

- Absent ability of new cluster site to be within a water and sewer service of a town, how would these be provided as independent well water and treatment systems and at what cost?
- Would the new cluster site work effectively for the school bus transportation patterns?
- Would the site pass A&E technical review for soil, topography and other engineering requirements?

CEPI would urge the school division to consider the first questions about long-term community and program needs before addressing technical issues of specific sites. Too often poor decisions about the long-term patterns of school attendance boundaries and program needs are put aside because it is easier to focus on the more concrete technical issues of a particular site. There will always be someone who is trying to sell a piece of property. The first question is not whether the site is "perfect for technical development, but whether the site is consistent with the division's own plan for school organizational levels, size of schools, placement of special programs, supports necessary capacity growth while also ensuring efficient utilization, and creates a new "core" school community. This moment in time would be excellent for the school division to review, update or adopt a comprehensive policy including a process and criteria for site selection.

Possible Alternative to a Fourth Cluster/Campus

CEPI has examined both the population and utilization data to ask if there are reasonable alternatives if the 4th cluster were not feasible at this time. The obvious alternative would be to find a way to accommodate growth within the present cluster/campus systems. CEPI believes this may be possible and be able to handle new growth for a period of time in excess of the next decade. The viability of this approach depends upon several policy decisions of the school board related to the optimum school capacities it would allow for middle and high schools. This approach would also respond to the extremely large size of the central and northern elementary schools.

This option would include the following:

1. Build two smaller (25-30 rooms) K-5 or possibly K-1 schools on the northern and central campuses or closely adjacent in the town vicinity (if necessary acreage is a problem) so that the schools are still served by same transportation plan but with another drop-off and pick-up point.

2. Provide for a small addition at the northern middle school near the latter years of a five-year plan to serve concentrated new housing in northern cluster.

3. There is un-used capacity in most of the other middle and high schools. As growth accumulates, small additions in the range of 8-12 standard classrooms would handle growth well beyond another decade. This would also have the effect of obtaining a proper capacity proportion from elementary to middle to high.

Although the southern cluster schools have no immediate capacity/utilization issues, this same approach would be able to extend their capacity capability when time and circumstance required.

This alternative also has its benefits and problems:

- This option would provide the time to grow the "critical" mass necessary for a 4th cluster; but the need for its development would be extended well in the future.

- It does not disrupt the historic patterns of attendance around the three campuses,

- It helps relieve the utilization issues at the central and northern elementary schools and puts in place a pattern of two smaller elementary schools serving one middle and high.

- It opens the opportunity to consider a specialized primary grades school as a part of these clusters and, subsequently, in the southern cluster when circumstances permit.

- It maintains the basic integrity of the present bus route collector system.

- Other than the two small elementary schools, this option builds primarily classroom spaces as needed rather than much of the expensive auxiliary spaces such as gyms, athletic facilities, food service areas, etc.

- This option is only feasible if the school division is willing to accept small additions to the capacities of the middle and high schools in the far future; but it would also have the advantage of effectively using some available capacity already at the schools.

- The effectiveness of using secondary school capacity is linked to the utilization of secondary classrooms when available during teacher planning periods.

- Availability of acreage for the new schools and possible additions at the secondary level is likely to be an issue especially at the central campus.

In summary, if the new elementary schools added a net of 400 new seats to capacity, this would roughly result in a need (five to ten years ahead) for 150 new seats in middle schools and 200 seats in high schools. A review of utilization rates of the secondary schools show some of this capacity already exists. CEPI believes that the expansion of the present cluster capacities by minimal numbers may have the capability to accommodate student and program needs for more than a decade. Dependent upon the economic development of the county and the growth influences from the regional area, CEPI believes that a fourth cluster ultimately will be required, but the present ability to effectively implement one is likely to be problematic.

PART IV: SUMMARY OBSERVATIONS/CONCLUSIONS

Student Membership Growth

Although there is evidence to support the belief the rate of student membership will increase over the next decade, it is not likely to grow at a rate as speculated by the growth in possible new housing units but will exceed the actual projection by the school division in the recent growth study using a grade-to-grade percentage growth model. CEPI believes that:

- The five-year projection of the Weldon Cooper Center is reasonably accurate or only slightly low should the new housing construction rate increase over presently expected levels.
- The ten-year projection based solely on possible new housing to be very high and not likely to be reached for years after the end of the next decade.
- The immediate problem of population growth is not in the current rate but because of an accumulation of student population concentrations at the elementary level in two of the three clusters – northern and central. With the exception of these two elementary schools and possibly one middle school several years out, there is generally seating capacity available in the division.
- The "worst case" scenarios for a major population migration and expansion are not likely at the foreseeable growth rate and are not readily verifiable by the data.
- The most import issue is not the exact population projections; but the necessity for a long-range strategic facility plan that anticipates growth, reflects accurately the development plans of the county, and permits the school division to accelerate or slow its actual construction proposals as may be determined by the actual rate of student growth.

Facilities' Capacities and Utilization

The capacity of individual school buildings has been calculated by CEPI using its own methodology. Countywide, the CEPI capacity did not vary 50 seats from the mid-point of the two approaches to calculating capacity suggested by the school division in its previous growth study. The problems of capacities are concentrated in the northern and central clusters and are thus a utilization issue also. CEPI believes that:

- The large size elementary schools are unable, in capacity, to proportionally use effectively the space available in the secondary schools,

- The growth of the northern cluster has significantly outpaced the growth of the central cluster during the last five years, which is a reversal of the previous five years. Nevertheless, the accumulated growth of each over the entire ten years has left each of the elementary schools in a crowded condition and one that will require some form of interim relief before either may benefit from new capacity that might result from a five-year facility construction plan.

- The northern cluster middle school is likely to be in a similar overcrowding situation plan several years in the future although its present utilization is not a critical issue.

- The southern cluster has capacity to serve student membership growth beyond the immediate five-year facility plan cycle.

- The most important variable that could potentially decrease the operating capacities of the secondary schools will be the school system's policy or guidelines related to the full utilization of classroom space when available during teacher planning periods. Should such utilization not be possible, the adjusted operating capacity of the secondary schools will require a downward adjustment.

Next Steps: Fourth Cluster or Expansion of Capacity of Current Three Clusters

Before the above question may be answered with confidence, the school division needs to address several underlying variables which will influence the answer. These include the following:

1. Maintenance of size of capacities elementary schools and replication of that capacity size in future construction or implementing a long-term plan that provides for some reduction in elementary school capacity,

2. Feasibility of the long-term increase in size of secondary schools by several hundred students,

3. Ability to use classroom space relative to planning period release time as referenced earlier,

4. Feasibility of location of new elementary to serve two clusters,

5. Consideration of the "critical mass" required to start new cluster and effect upon "draw off" of secondary student populations on other schools, and,

6. Anticipated effects of cluster development on attendance lines and development of new community cluster.

Given the resolution of these policy and/or administrative considerations, CEPI believes that:

- The very long-term growth of the school system will require the development of a fourth cluster,
- The present capacity, utilization, and growth data does not automatically presume the necessity for the fourth cluster at this time,
- Depending upon the division's responses to the variables mentioned earlier, there likely exists an alternative to the development of a fourth cluster for at least another decade. This alteration may further assure the full utilization of the capital facility resources,
- The feasibility of this alternative is further dependent upon an immediate and careful analysis of the conditions referenced in Part III,
- The critical condition of the northern and central elementary schools further underlines the urgency of this process, and
- The development of a five-year plan is in urgent need but by necessity should not proceed until the decision on cluster expansion is determined because the answer to that question will likely result in very different capital facility requests.

Appendices

A: List of initial documents requested for review by CEPI.

Appendix B: Survey sample of information requested of principals prior to CEPI visit to school facilities.

Appendix C: Individual school capacity worksheets.

Appendix A

Commonwealth Educational Policy Institute

Shenandoah County Public Schools
"Population and Facility Utilization Study"
Preliminary Documents Request

1. A second set of the previously sent maps showing schools and student concentrations.

2. Map for each schools attendance boundary.

3. Detailed description of the school division's planning procedures (what, when and how projections done) and identification of all people who have a specific responsibility for working with the data (secretaries, technical support individuals) other than Dr. Smith.

4. Copy of last triennial school census.

5. General description of bus transportation routing variables or parameters that will help us understand how the bus system works given the school districts and the geographical context of the county.

6. Membership history for past ten years by school by grade level.

7. Student membership projections by school by grade level for next 5 years or as "far out" as is available.

8. Copies of all school board policies/regulations or administrative regulations/guidelines that govern class size, class limits, or averages by grade levels or by specific courses/programs.

9. Master schedules for all schools showing course enrollment by subject and period or block.

10. Floor plans for each school including approximate square footage for each type of classroom or other instructional space. (We do not need actual blue prints, just a schematic showing building layout to the classroom level of detail.)

11. Detailed description of student population database.
    - How collected
    - What information is contained in database

- To what level may variables be drawn for analysis; i.e. subdivisions, streets, etc?
- Are these variables in database for analysis: age, grade, sex, race, free/reduced lunch, overage, etc. (We will likely ask for certain data reports once we understand your system.)

12. Any and all "analyses" that Shenandoah has conducted in last five years for student projections.

13. List of contact people in each town and county planning office that supplies residential growth information to the schools. Greg, we need to discuss the relationship of school division to government planning offices and how they may have some involvement either through you or directly with us.

14. Copy of most recent school division Capital Improvement Plan.

15. List of most recent (last five years) capital improvements made at each school if any.

16. Number of residential building permits issued for last five years by each school attendance boundary and by zoning type. (single family zoning classifications and multi-family classifications. If the school boundaries are all contiguous with the cluster –then report by the clusters)

17. Copies of any school division student "yield studies" by zoning types.

18. Copies of any facility or class size recommendations that may have been a part of any school self-study (Southern Association?) or other school improvement plan.

19. Town and County "future" residential development plans to the greatest degree of specificity available.

20. County and towns Master Plans for development.

21. Copies of any school attendance boundary changes made in last five years.

22. Identification of any major county/towns infrastructure changes or additions being planned for the next five/ten years; i.e. roads, extension of public water or sewer, or significant economic development initiatives.

23. A detailed demographic description of the student population and how it may vary among the three clusters. Especially interested in variables which may affect program needs or student assignment issues.

Greg is probably Wayne Smith.

What is the relationship of the School Division to the county & government planning VDOT?

who did new school Admin / CEPS request to the board.

has there ever been School boundary changes based on School a Pleasant Valley?

Appendix B

Return To: Dan Norman
CEPI- VCU
P.O. Box 842020
Richmond, VA 23284-2020

CEPI FACILITY UTILIZATION SURVEY

Shenandoah County Schools, Virginia

School Name _____

Please complete the following survey and return to CEPI by September 7th. There is no need to write extensive descriptions of the utilization of your facility. We are asking only that you highlight in short descriptive phrases responses to questions which are relevant to your facility. You may add additional sheets if necessary.

1. Are there any specific issues related to your general multi-use academic classrooms? (i.e. size, sufficiency to house future growth, technology adaptations, or other)

2. Are there specific issues related to specialized instructional rooms or spaces: special education, music, arts, physical education, etc? (size, sufficiency to house future growth, technology adaptations, or other)

3. Are there school-wide issues related to the sufficiency, adaptability, or effectiveness of technology infusion in your instruction spaces?

4. Are there issues or priorities related to rehabilitation or renovation needs in your facility? Are any of these needs related to health or safety issues or ADA requirements?

5. How would you assess the ability of your present facility to accommodate your student capacity needs for the next five and ten years?

6. Are there any **other** priorities or issues related to effective space utilization or effective program accommodation in the present or near future?

Appendix C

Shenandoah County Schools
Northern Campus
CEPI School Capacity Worksheet

School Name: ***Sandy Hook ES***

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms K-3 4-5	28 13	24 25	672 325
Arts Education Classrooms (Visual Arts, Drama)	1		
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	2		
Music Classrooms (Band, Chorus, Music)	2		
Main Gym (Count as two teaching stations)	2		
Auxiliary Gym (Count as one teaching station)			
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)			
Vocational Education Labs (Do not count associated classrooms)			
Self-Contained Exceptional Classrooms	5	8	40
Other (Specify)			

Standard Operating Capacity **1037**
Students

Adjusted Operating Capacity Based Upon State-wide K-3rd Voluntary Class Size Reduction Program ***953***
Students
(@ 21:1 ratio for K-3rd grades)

here is the answer to Brandon's questions

Shenandoah County Schools
Northern Campus
CEPI School Capacity Worksheet

School Name: ***Signal Knob MS***

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms (English, Foreign Language, Social Studies, Math, Science)	22	25	550
Arts Education Classrooms (Visual Arts, Drama)	1	21	21
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	2	25	50
Music Classrooms (Band, Chorus, Music)	2	40	80
Main Gym (Count as two teaching stations)	2	25	50
Auxiliary Gym (Count as one teaching station)			
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)	1	20	20
Vocational Education Labs (Do not count associated classrooms)	1	20	20
Self-Contained Exceptional Classrooms	6	8	48
Other (Specify)			

Standard Operating Capacity
Students
(Total Capacity 839 X .85) **713**

here is the answer to Brandon's question

Shenandoah County Schools
Northern Campus
CEPI School Capacity Worksheet

School Name: *Strasburg HS*

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms (English, Foreign Language, Social Studies, Math, Science)	26	25	650
Arts Education Classrooms (Visual Arts, Drama)	1	21	21
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	2	25	50
Music Classrooms (Band, Chorus, Music)	1	40	40
Main Gym (Count as two teaching stations)	2	25	50
Auxiliary Gym (Count as one teaching station)	1	25	25
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)	1	20	20
Vocational Education Labs (Do not count associated classrooms)	2	20	40
Self-Contained Exceptional Classrooms	7	8	56
Other (Specify)			

Standard Operating Capacity **810**
Students
(Total Capacity 952 X .85)

Shenandoah County Schools
Central Campus
CEPI School Capacity Worksheet

School Name: *W.W. Robinson ES*

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms K-3 4-5	34 14	24 25	816 350
Arts Education Classrooms (Visual Arts, Drama)	1		
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	2		
Music Classrooms (Band, Chorus, Music)	2		
Main Gym (Count as two teaching stations)	2		
Auxiliary Gym (Count as one teaching station)			
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)			
Vocational Education Labs (Do not count associated classrooms)			
Self-Contained Exceptional Classrooms	16	8	128
Other (Specify)			

Standard Operating Capacity **1294**
Students

Adjusted Operating Capacity Based Upon State-wide K-3rd Voluntary Class Size Reduction Program **1192**
Students
(@ 21:1 ratio for K-3rd grades)

Shenandoah County Schools
Central Campus
CEPI School Capacity Worksheet

School Name: ***Muhlenberg MS***

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms (English, Foreign Language, Social Studies, Math, Science)	27	25	675
Arts Education Classrooms (Visual Arts, Drama)	2	21	42
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	3	25	75
Music Classrooms (Band, Chorus, Music)	2	40	80
Main Gym (Count as two teaching stations)	2	25	50
Auxiliary Gym (Count as one teaching station)			
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)	1	20	20
Vocational Education Labs (Do not count associated classrooms)	1	20	20
Self-Contained Exceptional Classrooms	11	8	88
Other (Specify)			

Standard Operating Capacity **893**
Students
(1050 Total Capacity X .85)

Shenandoah County Schools
Central Campus
CEPI School Capacity Worksheet

School Name: ***Central HS***

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms (English, Foreign Language, Social Studies, Math, Science)	31	25	775
Arts Education Classrooms (Visual Arts, Drama)	1	21	21
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	3	25	75
Music Classrooms (Band, Chorus, Music)	2	40	80
Main Gym (Count as two teaching stations)	2	25	50
Auxiliary Gym (Count as one teaching station)	1	25	25
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)	2	20	40
Vocational Education Labs (Do not count associated classrooms)	2	20	40
Self-Contained Exceptional Classrooms	9	8	72
Other (Specify)			

Standard Operating Capacity **1,002**
Students
(1178 Total Capacity X .85)

Shenandoah County Schools
Southern Campus
CEPI School Capacity Worksheet

School Name: ***Ashby-Lee ES***

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms K-3 4-5	21 11	24 25	504 275
Arts Education Classrooms (Visual Arts, Drama)	1		
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	2		
Music Classrooms (Band, Chorus, Music)	2		
Main Gym (Count as two teaching stations)	2		
Auxiliary Gym (Count as one teaching station)			
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)			
Vocational Education Labs (Do not count associated classrooms)			
Self-Contained Exceptional Classrooms	10	8	80
Other (Specify)			

Standard Operating Capacity **859**
Students

Adjusted Operating Capacity Based Upon State-wide K-3rd Voluntary Class Size Reduction Program **796**
Students
(@ 21:1 ratio for K-3rd grades)

Shenandoah County Schools
Southern Campus
CEPI School Capacity Worksheet

School Name: *North Fork MS*

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms (English, Foreign Language, Social Studies, Math, Science)	21	25	525
Arts Education Classrooms (Visual Arts, Drama)	1	21	21
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	2	25	50
Music Classrooms (Band, Chorus, Music)	2	40	80
Main Gym (Count as two teaching stations)	2	25	50
Auxiliary Gym (Count as one teaching station)			
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)	1	20	20
Vocational Education Labs (Do not count associated classrooms)	1	20	20
Self-Contained Exceptional Classrooms	5	8	40
Other (Specify)			

Standard Operating Capacity Students **685**
(Total Capacity 806 X .85)

Shenandoah County Schools
Southern Campus
CEPI School Capacity Worksheet

School Name: ***Stonewall Jackson HS***

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms (English, Foreign Language, Social Studies, Math, Science)	25	25	625
Arts Education Classrooms (Visual Arts, Drama)	1	21	21
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	2	25	50
Music Classrooms (Band, Chorus, Music)	2	40	80
Main Gym (Count as two teaching stations)	2	25	50
Auxiliary Gym (Count as one teaching station)	1	25	25
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)	1	20	20
Vocational Education Labs (Do not count associated classrooms)	2	20	40
Self-Contained Exceptional Classrooms	5	8	40
Other (Specify)			

Standard Operating Capacity **808**
Students
(1050 Total Capacity X .85)

Shenandoah County Schools
Technical School
CEPI School Capacity Worksheet

School Name: ***Triplett Tech***

Permanent Instruction Spaces:	Number of Teaching Stations	Per Teaching Station	Capacity
Academic Classrooms (English, Foreign Language, Social Studies, Math, Science)	11	25	275
Arts Education Classrooms (Visual Arts, Drama)		21	
Business/Office Education Classrooms Typing/Keyboard, Computer App., Business, etc.)	1	25	25
Music Classrooms (Band, Chorus, Music)		40	
Main Gym (Count as two teaching stations)		25	
Auxiliary Gym (Count as one teaching station)		25	
Service/Marketing Classrooms/Labs (Consumer/Health Occupations, Teen Living, Marketing)		20	
Vocational Education Labs (Do not count associated classrooms)	8	20	160
Self-Contained Exceptional Classrooms		8	
Other (Specify)			

Standard Operating Capacity **391**
Students
(460 Total Capacity X .85)

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CEPI supports the development and implementation of research-based comprehensive educational public policy for the improvement of elementary and secondary education through research, policy analysis, service to school divisions and support services for local, state, and national educational policy-makers. Services to schools and school divisions include resource management reviews of policy, instruction, technology, organizational structures, operational systems and/or other specific projects as requested by the division.