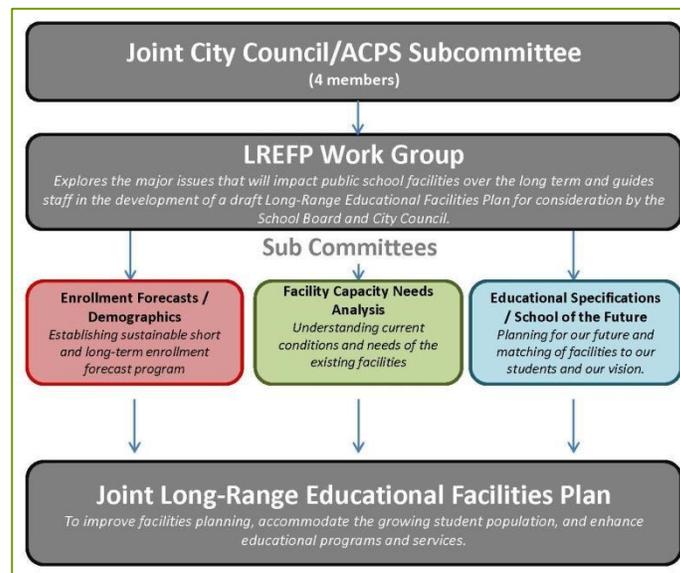


AGENDA
Facility Capacity Needs Analysis Subcommittee Meeting
of the Long-Range Educational Facilities Plan Work Group
City Hall, Chet & Sabra Avery Conference Room 2000
Friday, May 23, 2014, 8:00am

1. Welcome and Introductions *Staff and Committee Members*
2. Review Work Program *Staff*
3. Progress by Hughes Group Architects *Staff*
 - a) Building Interiors- Site visits completed: Charles Barrett, Cora Kelly, Douglas MacArthur, George Mason, George Washington, Francis Hammond, James Polk, John Adams, Lyles Crouch, Matthew Maury, T.C. Minnie Howard, Mt. Vernon, William Ramsay, Samuel Tucker, T.C. Williams King Street
 - b) Review Scope of Work for Exterior Site Inventory
4. Review Capacity Methodology *Staff and Committee Members*
5. Group Discussion/Next Steps



Why is this important?

Important both for the design of the facility and appropriate enrollment suited to each building.

Variables

- Building size
- Number/types of teaching stations
- Support facilities
- Staffing
- Specialty program offerings
- Class sizes
- Schedules

Program Capacity

Program capacity defines the capacity of a school based upon the specific educational programs that are provided at a particular school site. Several models for calculating:

#1- uses teaching stations and actual student/teacher ratio

#2- uses teaching stations and class-size caps

#3- uses teaching stations and design capacity

#4- uses teaching stations and actual square feet

Pros: Capacity is consistent with utilization

Cons: Programs are constantly changing so capacity is a moving target

Core Facilities

Core spaces typically include cafeteria, serving area, kitchen, gymnasium, multipurpose room, library/media center. Calculated based on a square foot allowance per student.

Utilization Factor

Education specification specialists recommend the use of a utilization factor in determining school capacity. The utilization factor is a percentage applied to the optimum capacity to account for the uneven distribution of students across grade levels and cohort groups. The recommended rate for elementary schools is 90-100%. The recommended rate for middle school is 70-85% and high school is 80-85%.

Level of Service

Goal for acceptable level of service provided by a facility based on the operational characteristics of the facility.

Hybrid/Combination

Uses a combination of factors including core capacity and building or program capacity.

Provides a more realistic capacity calculation than others. Can use a variety of methods to reflect existing conditions.

**Capacity numbers are not fixed.

Capacity Example:

24 Full Size Classrooms-

22 Home Rooms
1 Art
1 TAG
**music in resource room

Core Spaces-

1 media center 2,718 SF
1 gymnasium 4,742 SF
1 cafeteria 4,511 SF

Program Capacity Calculations

Program #1 Teaching Stations and Student/Teacher Ratio

24 General Teaching Stations x Student/Teacher Ratio 24 = 576
576 * .95 utilization = 548 students

Program #2 Teaching Stations and Class-Size Caps

*specialty classrooms (music and art) are not available to permanently house additional full-time students

Classroom	Type	ACPS Class Size Cap	Capacity
5	K	22	110
8	1st & 2nd	24	192
9	3rd-5th	26	234
1	Art	26	
1	TAG	26	
24			536
95% Utilization			510

Program #3 Basic Program Analysis

24 General Teaching Stations x Capacity 26 students = 624
624 * .95 utilization = 593 students

*assumes all rooms can accommodate 26 students

Program #4 Program Square Footage

* considers actual square footage of classrooms

* general education goal is 35 SF/student

	Actual SF	Students per Classroom	Total Students
1 room	~600	8	8
11 rooms	~650	19	209
4 rooms	~700	21	84
8 rooms	~850	26	208
24 rooms			509
95% Utilization			484
24 rooms	748 SF Avg.		513

Total Full-Size Classroom SF 17,954

Core Space Capacity Calculations

552 students

Media Center

Existing- 2,718 SF

Standard- 4-6 SF per student

Result- 453-680 students

Gymnasium

Existing- 4,742 SF

Standard- 100 SF per student

2 teachers at one time

Result- Average class size of 23.7

Dining and Food Services

Existing- Dining and food services 4,511 SF

Dining area ~2,511 SF

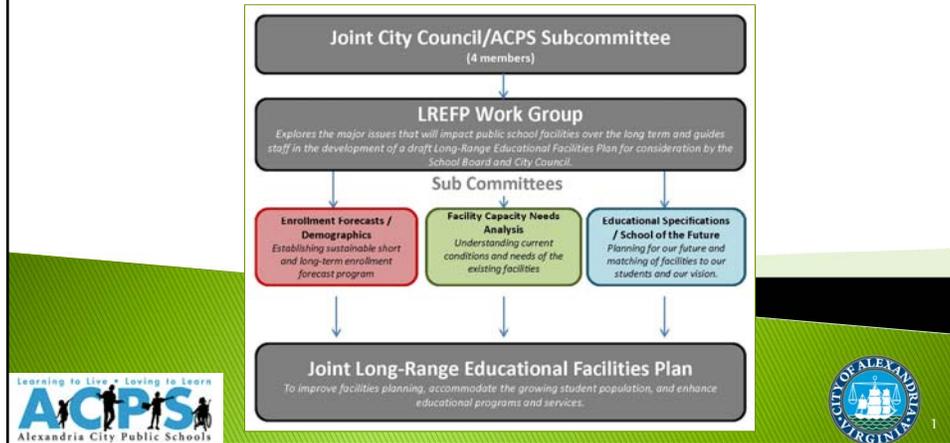
Standard- 15 SF per student

3 lunch periods

Result- 167 students per lunch
501 students with 3 lunch
periods

Facility Capacity Needs Analysis Subcommittee

ACPS & City of Alexandria
May 23, 2014



Agenda

- ▶ Review Work Program
- ▶ Progress by Hughes Group Architects
 - Review Scope of Work for Exterior Site Inventory
- ▶ Review Capacity Methodology
- ▶ Next Steps

- ▶ Today's goal is to establish a recommended capacity methodology



Review Work Program

- ▶ Work Program Goals
 - Assess existing conditions
 - Review capacity analysis methodology
 - Review how existing capacity is allocated to meet demand
 - Establish guidelines for adding capacity, supporting education
 - Identify potential school site types



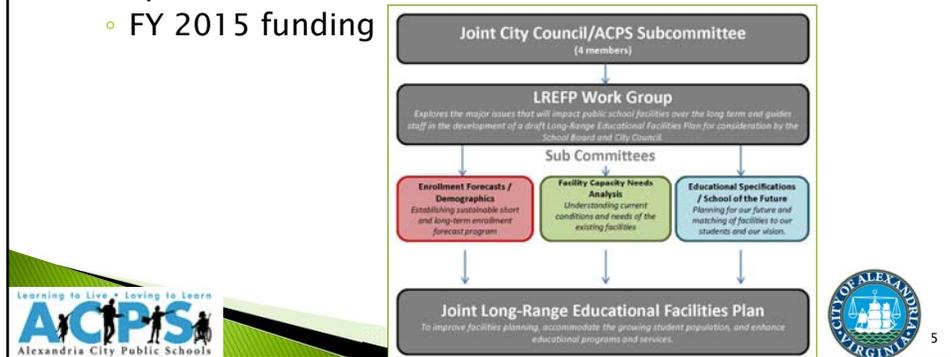
Review Work Program

- ▶ Work Program Approach
 - Develop a school facility and site inventory
 - Develop a capacity and utilization assessment for each school site
 - Identify space needs by type of use
 - Review findings of Enrollment Subcommittee and Educational Specifications Subcommittee
 - Reallocate existing capacity to meet current demand
 - Develop guidelines for adding capacity
 - Review potential future school sites



Review Work Program

- ▶ Next Steps
 - Assess existing conditions of school sites
 - Educational Adequacy Assessment
 - Compare existing conditions to educational specifications' benchmarks
 - FY 2015 funding



Review Work Program

- ▶ 1st meeting
 - Reviewed Work Program/ HGA Scope of Work
 - ACPS Elementary Standard Program/Room Allocations
 - Methodology for Elementary and Secondary Capacity Analysis
- ▶ 2nd meeting
 - Reviewed data collected on pilot school
 - Community uses of school facilities
- ▶ 3rd meeting
 - Review different types of capacity calculation methodologies



Status on School Facility Inventory– Building Interiors

- ▶ Building Interiors
 - Site Visits 100% Complete
 - Charles Barrett, Cora Kelly, Douglas MacArthur, George Mason, George Washington, Francis Hammond, James Polk, John Adams, Lyles Crouch, Matthew Maury, T.C. Minnie Howard, Mt. Vernon, William Ramsay, Samuel Tucker, T.C. Williams King Street
 - Sites not included in the scope
 - Jefferson–Houston
 - Patrick Henry



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Status on School Facility Inventory– Building Interiors

▶ Elementary* “Working Numbers”

Region	Average Age (Years)	# FSR	Average Media Center SF	Average Dining & Food Service SF	Average Gymnasium SF
Central	71	82	2,950	3,689	4,175
East	73	130	2,437	3,508	6,434
West	42	182	2,732	3,926	5,361
Total	61	394	2,684	3,709	5,428



*without Jefferson–Houston and Patrick Henry
 Central– C. Barrett, D. MacArthur, G. Mason
 East– C. Kelly, L. Crouch, M. Maury, Mt Vernon, Jefferson–Houston
 West– J.K. Polk, J. Adams, S. Tucker, W. Ramsay, P. Henry



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Status on School Facility Inventory– Building Interiors

▶ Secondary “Working Numbers”

	Average Age (Years)	# FSR	Average Media Center SF	Average Dining & Food Service SF	Average Gymnasium SF
Middle	69	TBD	4,518	6,648	12,425
High	34		5,138	11,131	15,943
Second. Total	51		4,828	8,890	14,184
Elem. Total	30	394	2,684	3,709	5,428



Status on School Facility Inventory– Exterior Site Inventory

- ▶ Scope of Work
- ▶ General site description, including:
 - Describe property ownership and boundaries
 - Usable acreage of open space and recreation features
 - General size and condition of playgrounds
 - Document any natural resources/areas present
 - General site accessibility/traffic issues
 - Adequacy of site utilities to accommodate new construction
- ▶ Products
 - Report for each school site
 - Electronic site plans



Capacity Discussion

» Recommended Methodology

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Capacity Types

- ▶ **Program**
- ▶ How many students can a school building accommodate based upon the specific educational program
- ▶ Four different models illustrated
 - #1- actual student/teacher ratio
 - #2- class-size caps
 - #3- design capacity
 - #4- actual square feet



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Capacity Types

- ▶ **Core**
 - ▶ Core spaces include cafeteria, gymnasium, multipurpose room, library/media center
 - ▶ Calculated based on square foot allowance per student
- ▶ **Utilization Factor**
 - ▶ Percentage applied to the optimum capacity to account for the uneven distribution of students across grade levels and cohort groups
- ▶ **Level of Service**
 - ▶ Goal for acceptable level of service provided by a facility based on the operational characteristics
 - ▶ Reaching a certain level can trigger a study or project

Recommended Methodology

- ▶ **Hybrid/Combination**
 - Uses a combination of factors to provide a more realistic capacity calculation
- ▶ **Programmatic and Core**
 - Whichever is greater
- ▶ **Goal**– easily communicated, reflects existing conditions and can be repeated annually

Capacity Example

- ▶ ACPS K-5 School
 - 24 Full Size Classrooms
 - 22 Home Rooms
 - FSR- Art
 - FSR- TAG
 - Resource Room- Music
 - 2,718 Media Center
 - 4,742 Gymnasium
 - 4,511 Cafeteria



Capacity Example Cont.

- ▶ #1-Using teaching station and student/teacher ratio
- ▶ #2-Using teach station and class-size cap
- ▶ #3-Basic program analysis
- ▶ #4-Program square footage
- ▶ 95% Utilization
- ▶ Range between high and low models: 109
- ▶ Calculations provided in handout

	Total Capacity	95% Utilization
Program #1	576	548
Program #2	536	510
Program #3	624	593
Program #4	509	484



Capacity Example Cont.

▶ Level of Service

	85% LOS	90% LOS	100% LOS	110% LOS	120% LOS
Program #1	466	494	548	603	658
Program #2	434	459	510	561	612
Program #3	505	534	593	653	712
Program #4	412	436	484	533	581



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Capacity Example Cont.

▶ Capacity Analysis Enrollment and Capacity

	SY 2011	SY 2012	SY 2013	SY 2014	SY 2015
Actual Enrollment	470	495	510	530	560
#1	86%	90%	93%	97%	102%
#2	92%	97%	100%	104%	110%
#3	79%	83%	86%	89%	94%
#4	97%	102%	105%	110%	116%

Program #1	24 FSR x S/T Ratio 24	548
Program #2	24 FSR x Caps	510
Program #3	24 FSR x 26	593
Program #4	24 FSR/35 SF	484



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Capacity Example Cont.

► Core Capacity

		Total Capacity
Gymnasium	100 SF/student 2 sections	552
Cafeteria	15 SF 1/3 student body	501
Media Center	4-6 SF per student	453-680

- These calculations are for illustration purposes only and are separate from calculations for life safety and fire code

Discussion/Next Steps