

3. SCHOOL-LEVEL FINDINGS

The professional judgment (PJ) panels—informed by the evidence base—sought to identify the quantity and types of resources required to provide an adequate education to all District of Columbia (DC) students at each school level. Their findings are an important foundation for conclusions on the cost of education adequacy in the District, which are presented in Chapter 5, as well as recommendations for restructuring and resetting the Uniform Per Student Funding Formula (UPSFF) base and weights for students with identified learning needs, which are presented in Chapter 6.

Importantly, the school-level PJ panelists worked together to achieve consensus on school-level resource requirements, including instructional staff, student support staff, and administrative staff, as well as other educational resources and technology hardware, for representative schools at each level. Throughout the panels' deliberations, District of Columbia Public Schools (DCPS) and public charter school educators and administrators agreed generally on the quantity, quality, and types of resources required for all students to succeed in representative schools, even though no panelists might allocate resources specifically as listed in this chapter.

The study team does not intend for these resource specifications to be a rigid prescription for how individual schools should be staffed and how school leaders should expend their budget. Instead, the resources identified by the PJ panels are the foundation for estimates of the costs of effectively serving students. In the best-case scenario, schools would receive adequate funding and school leaders could allocate resources for staff and other direct costs according to the school's needs and priorities. For example, the elementary school panel specified staffing levels and student-teacher ratios at each grade level for costing purposes, but panelists unanimously agreed that principals should have discretion in determining the most effective assignment of teachers and instructional aides to classrooms based on school conditions and student learning needs.

The resource specifications are estimates of the costs of effectively serving students, not prescriptions for how individual schools should be staffed and how school leaders should expend their budget. In the best scenario, schools would receive sufficient funding and school leaders would have discretion to allocate resources according to the school's needs and priorities.

Resource specifications for representative DCPS and public charter schools are organized as follows:

- Elementary School—Prekindergarten for three-year-olds (Pre-K3), Prekindergarten for four-year-olds (Pre-K4), Kindergarten, and Grades 1 through 5
- Middle School—Grades 6 through 8

- High School—Grades 9 through 12
- Alternative and Adult Education Schools

Each school-level section (elementary, middle, and high school) presents:

- Base-level resource requirements for regular students *without* identified learning needs that call for specialized supports and services; Additional resource requirements for students *with* identified learning needs who fall into several categories (English language learners, at risk of academic failure,¹ and special education Levels 1–4);² Additional school programs beyond the regular instructional program to boost academic performance during the school year and prevent summer learning loss (e.g., before- or after-school programs, summer school, and bridge programs for rising 9th graders); and
- Cumulative resource requirements at each level for representative schools of different sizes.

The alternative and adult education schools section presents:

- Summary profiles of alternative and adult education programs in the District of Columbia;
- A summary of alternative and adult education needs; and
- Resource requirements for alternative and adult education programs.

These school-level PJ panel resource specifications were subsequently reviewed by the identified learning needs panels, the system-level panels, and the Advisory Group. Results were also reviewed by focus groups and through individual interviews with other stakeholders. In some cases, these specifications were adjusted based on the recommendations of subsequent panels and stakeholders (e.g., additional staffing to serve students with identified learning needs or administrative costs specified at the local educational agency (LEA) level). Most resource specifications were finalized based on the Advisory Group review and were adopted as the study recommendations for costing out purposes.

Elementary Schools

DC elementary schools vary in size, with student enrollment ranging from 150 to 700. An initial study team review showed that DCPS and public charter elementary schools seem to cluster at two size levels, with larger schools of about 420 students and smaller schools of about 210 students for prekindergarten through grade 5. Accordingly, in developing profiles of

¹ A direct correlation between low-income status and risk of academic failure does not exist; however, poverty and poor school performance are closely associated. The PJ panels used eligibility for free and reduced-price school meals as the proxy for students at risk of academic failure. Later in the process, after the PJ panels completed their work, the study team—in consultation with advisors and the Office of the Deputy Mayor for Education—modified the proxy for students at risk of academic failure to include students who are in foster care, who are homeless, and/or who live in low-income families qualifying for federal aid through Temporary Assistance for Needy Families. These three factors were selected as a reasonable and relevant proxy for targeting educational risk until the Office of the State Superintendent of Education implements its early warning system to identify students at risk of academic failure.

²Special education students are categorized into four levels of need, according to number of hours per week they require specialized services using 1-4 levels.

representative schools for costing out purposes, the elementary PJ panel used these two school sizes and determined student characteristics based on demographic data for school year 2012–2013. Table 3.1 profiles the representative elementary schools.

The PJ panel developed resource specifications for larger elementary schools with 420 students and smaller schools with 210 students.

Table 3.1: School and Student Characteristics—Elementary School

Sample School	Elementary School 1: (420 Students—K–Grade 5)*	Elementary School 2: (210 Students—K–Grade 5)*
Total Enrollment	420	210
Enrollment Per Grade	70	35
Students Receiving Free and Reduced-Price School Meals—At Risk (70%)	294	147
English Language Learners (9%)	38	19
Gifted/Talented Students (5%)	21	11
Special Education (17%)		
Special Education Students—Level 1	26	13
Special Education Students—Level 2	23	12
Special Education Students—Level 3	8	4
Special Education Students—Level 4	15	7
Pre-K3 and Pre-K4 Classrooms**	6	3

Note: *All figures are for kindergarten through grade 5; additional staff and resources for prekindergarten students were analyzed separately.

Source: District of Columbia Office of the State Superintendent of Education, “FY 13 LEA and School Level Enrollment Audit Reports,” <http://osse.dc.gov/publication/fy13-Lea-and-school-level-enrollment-audit-reports>.

Instructional Personnel

In determining resource requirements for students without identified learning needs, the elementary PJ panel identified small class sizes in kindergarten and grades 1 through 3 as key to successful academic performance for general education students without identified needs requiring additional specialized support and services. The panelists felt that class ratios of 15:1 in these lower grades would provide high-quality learning environments to ensure students are performing at grade level by grade 3. For grades 4 and 5, panelists felt that higher class sizes of 25:1 were appropriate, depending on the level of other instructional staff in the school. However, panelists agreed that principals should have flexibility to determine appropriate class sizes in their school.

Panelists endorsed current DC school policy that provides full-day kindergarten for all students, and they specified staff and other resources to support these programs in all elementary schools. They also specified full-day early childhood education programs for three- and four-year olds in

pre-K3 and pre-K4 classes, with class sizes of no more than 15 and a teacher and an instructional aide in each classroom. This complies with the DC Official Code governing prekindergarten education, which requires an adult-to-child ratio of 8:1 for children age three and 10:1 for children ages four and older.³ Schoolwide, panelists also identified the need for a full-time roving substitute teacher for larger schools and a half-time roving substitute teacher for smaller schools.

Student Support Personnel

The PJ panel recognized that student support services are important, even among students without any identified learning needs. During the school day, children need to have medications administered and, inevitably, there are incidents of illness, injury, trauma, and family stress that require the services of school nurses and mental health professionals, counselors, social workers, and family liaisons. Panelists noted that family liaisons are especially important for prekindergarten students and their families who are new to the education system and often need help with responding to administrative requirements and ensuring their children's individual learning needs are properly identified and addressed.

The panel highlighted the important role that family liaisons play in helping parents of prekindergarten students who are new to the education system.

In addition, the D.C. Department of Transportation (DDOT) provides crossing guards at elementary schools during morning arrival and afternoon dismissal hours, based on neighborhood conditions, including traffic around the school. Similarly, schools have private unarmed security guards who provide day-to-day protection and monitor access to school buildings. DCPS has 253 security guards for schools at all levels. These guards are hired under a \$17.2 million contract secured by the Metropolitan Police Department (MPD) that is paid for through an interagency transfer using UPSFF funds from the DCPS budget. Public charter schools hire security officers independently.

Administrative Personnel

To meet the leadership and administrative needs of elementary schools, the PJ panel felt that a full-time principal, a half-time assistant principal, a half-time office manager, and two full-time clerical staff are required for larger schools (one for smaller schools). This level of staffing is needed to ensure high performance and sound management, especially if school leaders take on more direct responsibility for budgeting and resource allocation.

Staffing for Students with Identified Learning Needs

The elementary identified learning needs PJ panel and the Levels 1–4 special education PJ panel noted that the resources specified for general education students without any identified learning needs provide a well-resourced base for all students in elementary schools. The panels also identified additional resources to serve students with identified learning needs that require specialized staff, programs, and other supports. Additional resources for English language learners (ELLs) primarily include additional teachers. Students who are at risk of academic

³ DC Official Code § 38-272.01.

failure⁴ require other resources, including intervention teachers and instructional aides, counselors, social workers, and family liaisons.

Schools with a large at-risk student population also need additional security staff. The panels also specified the need for a dean for students with identified learning needs; this dean would serve as an administrative point person to ensure all documentation and reporting requirements are met and coordinate special learning supports and services with regular classroom instruction. For the representative elementary schools with the demographics previously described, more than 15 percent of the specified staff is dedicated to addressing the needs of at-risk students; just below 4 percent is dedicated to addressing the needs of ELL students.

For students with special education designations with individualized education plans (IEPs), panelists called for significant additional instructional staff—special education teachers, instructional aides, and a part-time adaptive physical education teacher—as well as student support staff—social workers and specialized therapists (e.g., behavioral therapy, occupational therapy, and speech therapy). They also called for additional administrative support from a special education coordinator. Approximately 21 percent of specified representative elementary school staffing is for Levels 1–4 special education students. In addition to these school-level resources, additional resources, such as dedicated aides, specialized therapists, and adaptive technology, are provided at the system level for special education students.

Developing resource specifications for Levels 1–4 special education students at all school levels proved difficult. In part, this reflects different professional perspectives on the levels and balance of additional instructional programming, student support, and therapeutic services these students need to be successful learners. Panelists found it challenging to model these resources, because the needs of special education students vary widely depending on their IEP. Moreover, the distribution of students in Levels 1–4 is not consistent from school to school or year to year. To ensure the necessary resources were identified, the study team assembled a PJ panel that reviewed resources for Levels 1–4 special education students at the elementary, middle, and high school levels. In addition, a focus group was convened to review the resources identified by this special education PJ panel. In some cases, this led to changes in the estimates of required staffing.

As shown in Table 3.2, additional staffing allocations vary depending on the category of need among elementary school students. However, approximately 40 percent of representative elementary school staff is dedicated to serving students with identified learning needs.

Staffing Summary

For an elementary school with 420 students, the school-level, identified learning needs, and Levels 1–4 special education PJ panels called for 67.4 staff members. For a school with 210 students, the panels called for 37.6 staff members (see Table 3.2) Notably, the PJ panels’

⁴ A strong association between low-income status and risk of academic failure exists. For this reason, poverty as determined by eligibility for free and reduced-price school meals is commonly used as a proxy for educational risk. However, the correlation is not one-to-one. Not all low-income students are at risk, and some affluent students are at risk and require additional support and resources. The PJ panels worked with the assumption that 70 percent of students at the average elementary school are at risk.

specifications were closely aligned with the documented levels of resources required for education adequacy found in education research studies. Although a significant number of small DCPS and public charter elementary schools are operating, the clear implication is that based on the PJ panels' specifications, it is more expensive to operate schools of this size because the ratio of instructional staff to students is lower than for larger elementary schools. As shown in Table 3.2, the instructional staff-to-student ratio and the total staff-to-student ratio for larger elementary schools are 8.8:1 and 6.2:1, respectively. The comparative ratios for small elementary schools are 8.3:1 and 5.6:1, respectively.

Table 3.2: Recommended Personnel Specifications—Elementary School

	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
Elementary School 1: 420 Students						
Classroom Teachers	24.3		2.0	0.2	5.5	32.0
Specials Teachers	4.0					4.0
Intervention Teachers		2.9				2.9
Adaptive Physical Education Teachers					0.5	0.5
Librarians/Media Specialists	1.0					1.0
Technology Specialists	0.5					0.5
Instructional Aides		3.0			3.0	6.0
Full-Time Substitutes	1.0					1.0
Additional Substitutes	10 days/teacher	10 days/teacher	10 days/teacher	10 days/teacher	10 days/teacher	
Subtotal: Instructional Staff	30.8	5.9	2.0	0.2	9.0	47.9
Student Support Staff			0.4			0.4
- Counselors	0.5	0.5				1.0
- Nurses	1.0					1.0
- Psychologists	0.5	0.5			0.6	1.6
- Social Workers/Behavior Therapists	0.5	1.0			0.6	2.1
- Family Liaisons		0.5				0.5
- Speech, Occupational, and Physical Therapists					2.8	2.8
Subtotal: Student Support Staff	2.5	2.5	0.4		4.0	9.4
Principals	1.0					1.0
Assistant Administrators	0.5					0.5
Deans		1.0				1.0
Special Education Coordinators					0.7	0.7

Table 3.2: Recommended Personnel Specifications—Elementary School, continued

	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
English Language Learners Coordinators			0.1			0.1
Office Managers	0.5					0.5
Clerical/Data Entry Personnel	2.0					2.0
Subtotal: Administrative Staff	6.0	1.0	0.1		1.2	8.3
Security Personnel	1.0	1.0				2.0
Subtotal: Other Staff	1.0	1.0				2.0
Total Staff	40.3	10.4	2.5		14.2	67.4
Students Per Instructional Staff						8.8:1
Students Per Total Staff						6.2:1
Elementary School 2: 210 Students						
	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
Classroom Teachers	12.2		1.0	0.1	2.7	16.0
Specials Teachers	3.0					3.0
Intervention Teachers		1.5				1.5
Adaptive Physical Education Teachers					0.3	0.3
Librarians/Media Specialists	0.5					0.5
Technology Specialists	0.5					0.5
Instructional Aides		1.5	0.1		1.4	3.0
Full-Time Substitutes	0.5					0.5
Additional Substitutes	10 days/teacher	10 days/teacher	10 days/teacher	10 days/teacher	10 days/teacher	
Subtotal: Instructional Staff	16.7	3	1.1	0.1	4.4	25.3
Student Support Staff			0.2			0.2
- Counselors	0.3	0.5				0.8
- Nurses	1					1
- Psychologists	0.3	0.3			0.3	0.9
- Social Workers/Behavior Therapists	0.3	0.5			0.3	1.1
- Family Liaisons		0.3				0.3
- Speech, Occupational, and Physical Therapists					1.4	1.4

Table 3.2: Recommended Personnel Specifications—Elementary School, continued

	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
Subtotal: Student Support Staff	1.9	1.6	0.2		2.0	5.7
Principals	1.0					1.0
Deans		1.0				1.0
English Language Learners Coordinators			0.1			0.1
Instructional Facilitators (Coaches)	1.0				0.2	1.2
Office Managers	0.5					0.5
Clerical/Data Entry Personnel	1.0					1.0
Subtotal: Administrative Staff	3.5	1.0	0.1		0.5	5.1
Security Personnel	1	0.5				1.5
Subtotal: Other Staff	1	0.5				1.5
Total Staff	23.1	6	1.4	0.1	6.9	37.6
Students Per Instructional Staff						8.3:1
Students Per Total Staff						5.6:1

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Other Educational Resources

The elementary school PJ panel, the elementary identified learning needs PJ panel, and the Levels 1–4 special education PJ panel also specified nonpersonnel resources that are required to provide quality instructional programs and services in the early grades. These other resources include professional development, student activity fees, textbooks, library resources, and supplies. The specifications shown in Table 3.3 were adopted as the study recommendation for costing purposes.

Table 3.3: Recommended Nonpersonnel Resources—Elementary School

	Elementary School 1: 420 Students	Elementary School 2: 210 Students
Additional Resources		
Professional Development	15 days/teacher	15 days/teacher
	\$100/student	\$100/student
Supplies and Materials	\$165/student	\$165/student
Textbooks		
Equipment		
Assessment		
Technology Licensing	\$30/student	\$30/student
Student Activities	\$200/student	\$200/student

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Technology Hardware

Acknowledging that technology plays an increasingly prominent role in classroom learning from the earliest grades, the elementary PJ panel highlighted technology hardware upgrades as a high priority for elementary schools. The Partnership for Assessment of Readiness for College and Careers (PARCC) will replace the DC Comprehensive Assessment System (DC CAS) in 2015, which will require that students use computers rather than paper and pencil for testing. Accordingly, as shown in Table 3.4, panelists called for a computer for every professional staff member. In addition, for each classroom, they called for one computer for every four students, a printer, an LCD projector, and a document camera. Panelists also specified the need for a well-equipped media center and a fixed computer lab in every DC elementary school. These specifications were adopted by the study team as the recommended resource levels for costing purposes.

Table 3.4: Recommended Technology Hardware—Elementary School

	Elementary School 1: 420 students	Elementary School 2: 210 students
Administrative Computers		
Computers	1 per staff	1 per staff
Printers	1 per staff	1 per staff
Copiers	3	2
Servers	2	1
Faculty Laptops	1 per staff	1 per staff
Classroom		
Computers	1 per 4 students	1 per 4 students
Printers	1 per classroom	1 per classroom
LCD Projectors	1 per classroom	1 per classroom
Document Cameras	1 per classroom	1 per classroom
Computer Lab(s)—Fixed		
Computers	25	25
Printer/Scanners	1	1
SMART Boards	1	1
Computer Lab(s)—Mobile		
Laptops	52	26
Media Center		
Computers	5	5
Digital Video Cameras	5	3
Digital Cameras	5	3
Printers	2	2
Tablets	26	26
Switches and Routers	Sufficient to support identified technology	Sufficient to support identified technology

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations. Currently, no evidence base from education research exists on adequate technology for students.

Additional Programs

The elementary PJ panel and the elementary identified learning needs PJ panel also highlighted the need for other specialized school-based programs that entail additional costs. Full-day prekindergarten for all three- and four-year-olds was deemed necessary to ensure young children are cognitively, socially, and emotionally ready for full-day school beginning in kindergarten. The panels also identified the need for extended-day and extended-year programs for at-risk students to help boost academic performance. Extended-time programs are needed to provide specialized tutoring, homework help, and enrichment before and after school during the regular school year; summer and year-round programs help prevent summer learning loss. The additional resource specifications related to these programs are presented in Tables 3.5 and 3.6 and include personnel and other direct educational costs. The study team adopted these specifications developed by the PJ panels—and informed by the education research literature—for costing purposes.

Table 3.5: Recommended Additional Programs—Elementary School

	Elementary School 1: 420 Students		Elementary School 2: 210 Students	
Program Name	Before- or After-School Program	Summer School	Before- or After-School Program	Summer School
Number of Pupils Served	100% of at-risk students	100% of at-risk students	100% of at-risk students	100% of at-risk students
Types of Students Served	At risk	At risk	At risk	At risk
Program Specifics	2.5 hours	6 weeks, full day	2.5 hours	6 weeks, full day
Personnel*				
Teachers	25:1	15:1 K–3 20:1 otherwise	25:1	15:1 K–3 20:1 otherwise
Social Workers		1.0		1.0
Instructional Aides	25:1	2.0	25:1	2.0
Coordination Personnel	0.5		0.5	
Security Personnel		1.0	1.0	1.0
Other Costs^A				
Instructional Supplies, Materials, and Equipment	\$165/student		\$165/student	
Interventions		\$500/student		\$500/student

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Table 3.6: Recommended Additional Programs—Preschool

	Elementary School 1: 420 Students	Elementary School 2: 210 Students
Program Name	Preschool	Preschool
Number of Pupils Served	6 Pre-K3/Pre-K4 Classrooms	3 Pre-K3/Pre-K4 Classrooms
Types of Students Served	15 to 1 General Education	15 to 1 General Education
Personnel		
Classroom Teachers	6.0	3.0
Specials Teachers	1.2	
Instructional Facilitators	0.5	0.5
Instructional Aides	6.0	3.0
Other Costs		
Professional Development	15 days/teacher \$100/student	15 days/teacher \$100/student
Instructional Supplies and Materials	\$165/student	\$165/student
Equipment		
Technology		
Assessment		
Student Activities	\$200/student	\$200/student

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Middle Schools

DC middle schools vary in size, with student populations ranging from approximately 250 to 1,175. The study team’s initial review showed that DCPS and public charter middle schools seem to cluster at two levels, with larger schools of about 600 students and smaller schools of about 300 students for grades 6 through 8. Although some combined elementary/middle schools and middle/high schools are operating in the city, for costing purposes, the study team focused on middle schools serving only grades 6 through 8. Accordingly, in developing representative school profiles for costing out purposes, the PJ panel used these two school sizes and determined student characteristics based on demographic data for school year 2012–2013. Table 3.7 profiles the representative middle schools.

Table 3.7: School and Student Characteristics—Middle School

Sample School	Middle School 1: (600 Students— Grades 6–8)	Middle School 2: (300 Students— Grades 6–8)
Total Enrollment	600	300
Enrollment Per Grade	200	100
Students Receiving Free and Reduced-Price School Meals—At Risk (60%)	360	180
English Language Learners (9%)	54	27
Gifted/Talented Students (5%)	30	15
Special Education Students (17%)		
Special Education Students—Level 1	37	19
Special Education Students—Level 2	33	12
Special Education Students—Level 3	12	6
Special Education Students—Level 4	21	11

Source: District of Columbia Office of the State Superintendent of Education, “FY13 LEA and School Level Enrollment Audit Reports,” <http://osse.dc.gov/publication/fy13-Lea-and-school-level-enrollment-audit-reports>.

The PJ panel developed resource specifications for larger middle schools with 600 students and for smaller middle schools with 300 students.

Instructional Personnel

The middle school PJ panel emphasized the different characteristics and circumstances that affect students’ academic performance at this age and the need to address them in a well-coordinated way. Accordingly, the panel specified class sizes of 25:1 to enable all students in grades 6 through 8 to meet DC performance standards. Further, panelists recommended that staffing be at a level to support schools operating on a block system with four academic blocks per day. Teachers are assumed to teach in three of the four blocks, reserving the fourth for planning and preparation time. Schoolwide, panelists identified the need for additional instructional aides. They also specified the need for two full-time roving substitute teachers for larger middle schools and one full-time roving substitute teacher for smaller schools.

Student Support Personnel

The middle school PJ panel determined several student support services as essential for all students, not just those with identified learning needs. These include school nurses who can address students' routine health needs (e.g., diabetic testing and medication administration) and inevitable illnesses and/or injuries requiring immediate first aid or other treatment. Similarly, mental health professionals, counselors, social workers, and family liaisons are needed in cases of trauma or family stress that require student support and assistance for their families. Counselors also are needed to help students with course selection and assignment in order to ensure students satisfy course requirements and start courses in required subjects early enough to provide for high school continuation.

Although panelists were specific about the need for a school nurse in every school, they acknowledged that different combinations of other student support personnel (e.g., psychologists, social workers, counselors, and family liaisons) may be needed in different school settings and agreed that principals should have discretion to make those staffing decisions based on the conditions in their school and their students' learning needs. In public charter schools, principals have broad discretion to make these staffing decisions. DCPS principals do not have discretion in hiring these types of student support personnel. Nurses are assigned to all middle schools, as are other student support personnel, based on staff allocation decisions made at the system level to ensure student health and safety.

Additionally, as highlighted in the elementary school discussion, DDOT provides crossing guards at DCPS and public charter middle schools during morning arrival and afternoon dismissal hours, based on neighborhood conditions, including street traffic around the school. Similarly, MPD provides school resource officers (SROs), as needed, to prevent juvenile delinquency. The MPD assigns SROs to geographic clusters of DCPS and public charter middle and high schools, based on neighborhood and school conditions, and they may serve more than one school. In addition, schools have private unarmed security guards who provide day-to-day protection and monitor access to school buildings. DCPS has 253 security guards for schools at all levels. Some middle schools and high schools have up to 11 assigned security guards. These guards are hired under a \$17.2 million contract that is paid for through an interagency transfer from DCPS to MPD. Public charter schools hire security officers independently.

Administrative Personnel

To meet the leadership and administrative needs of larger middle schools, the school-level PJ panel felt that one full-time principal, one assistant principal, one office manager, and a half-time business manager are needed. Panelists also specified a full-time registrar to address new DC attendance monitoring and follow-up requirements and a full-time clerical staff member in larger schools. In smaller schools, the panelists specified half-time positions for the assistant principal, office manager, business manager, and registrar. These levels of administrative staffing were identified by the PJ panel to ensure high performance and sound management, especially in schools that take on more direct responsibility for budgeting and resource allocation.

Staffing for Students with Identified Learning Needs

The middle/high school identified learning needs PJ panel and the Levels 1–4 special education PJ panel felt that the resources specified for general education students without any identified learning needs provide a well-resourced base for middle schools. The panels also identified

additional resources needed to serve students with identified learning needs that require specialized staff, programs, and equipment. Additional resources for English language learners primarily included additional teachers.

For ELL and at-risk students, panelists called for additional student support staff. For students who transfer in and out of schools during the school year, panelists felt that social workers, counselors, and family liaisons are needed to serve as education advocates to ensure proper class placement and academic continuity and ensure students' individual learning needs are properly identified and addressed. Panelists indicated that these staff can be counselors, social workers, and/or family liaisons, depending on students' specific needs and the staffing preferences in individual schools. They also specified additional security staff in schools with a large at-risk student population. Approximately 18 percent of the specified middle school staff is dedicated to addressing the needs of at-risk students and 4 percent to addressing the needs of ELL students.

For students with special education designations and IEPs, panelists recommended more intensive support and services by specially trained school staff, including additional special education teachers and instructional aides, an adaptive physical education teacher, and additional student support staff. They also called for specialized therapists, transition specialists, a special education coordinator, and a facilitator/coach to support teachers and ensure effective coordination between specialized programs and regular classroom instruction. Approximately 20 percent of the specified middle school staff is dedicated to addressing the needs of Levels 1–4 special education students.

As shown in Table 3.8, these additional staffing needs vary depending on the category of need among middle school students. However, more than 40 percent of the specified middle school staff is dedicated to serving students with identified learning needs.

Staffing Summary

For a middle school with 600 students, the PJ panel called for 88.6 staff members. For a middle school with 300 students, the panel called for 50.2 staff members. In some cases, the PJ panel specifications varied from the evidence base. In particular, panelists called for more student support personnel than is reflected in the research literature, mostly because so many DC students are low income. To a large extent, this also reflects differences in student and teacher schedules; some schools have several class periods per day while others have an individual teacher in each classroom. Accordingly, the study recommendation reflects the number of teachers in a school of each size that would be required to satisfy the specified 25:1 ratio on a block schedule.

As with elementary schools, the clear implication is that regardless of whether it may be desirable from an educational perspective, it is more expensive to operate small middle schools because the instructional staff-to-student ratio and the total staff-to-student ratio are lower than for larger schools. As shown in Table 3.8, the instructional staff-to-student ratio and the total staff-to-student ratio for larger middle schools are 9.7:1 and 6.8:1, respectively. The comparative ratios for small middle schools are 8.9:1 and 6.0:1, respectively.

Table 3.8: Recommended Personnel Specifications—Middle School

	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
Middle School 1: 600 Students						
Teachers	32.0	7.5	2.8		7.9	50.2
Intervention Teachers		3.6		0.3		3.9
Adaptive Physical Education Teachers					0.5	0.5
Librarians/Media Specialists	1.0					1.0
Technology Specialists	1.0					1.0
Instructional Aides			0.5		2.6	3.1
Full-Time Substitutes	2.0					2.0
Additional Substitutes	5 days/teacher	5 days/teacher	5 days/teacher	5 days/teacher	5 days/teacher	
Subtotal: Instructional Staff	36.0	11.1	3.3	0.3	11.0	61.7
Student Support Staff		3.6	0.4			4.0
- Counselors	2.4					2.4
- Nurses	1.0					1.0
- Psychologists					0.8	0.8
- Social Workers/Behavior Therapists	0.5				0.8	1.3
- Speech, Occupational, and Physical Therapists					2.3	2.3
Subtotal: Student Support Staff	3.9	3.6	0.4		3.9	11.8
Principals	1.0					1.0
Assistant Administrators	1.0					1.0
Special Education Coordinators					1.0	1.0
English Language Learner Coordinators			0.1			0.1
Instructional Facilitators (Coaches)	2.0				0.7	2.7
Office Managers	1.0					1.0
Business Managers	0.5					0.5
Registrar/Attendance Personnel	1.0					1.0
Clerical/Data Entry Personnel	1.0					1.0
Subtotal: Administrative Staff	7.5		0.1		1.7	9.3
Security Personnel	3.0	1.0				3.0
Subtotal: Other Staff	3.0	1.0	0.1		1.7	5.8
Total Staff	50.4	15.7	3.9	0.3	18.3	88.6
Students Per Instructional Staff						9.7:1
Students Per Total Staff						6.8:1

Table 3.8: Recommended Personnel Specifications—Middle School, continued

	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
Middle School 1: 600 Students						
Teachers	16.0	3.7	1.4		3.7	24.8
Intervention Teachers		1.8		0.2		2.0
Adaptive Physical Education Teachers					0.3	0.3
Librarians/Media Specialists	1.0					1.0
Technology Specialists	0.5					0.5
Instructional Aides			0.3		1.4	1.7
Full-Time Substitutes	1.0					1.0
Additional Substitutes	5 days/teacher	5 days/teacher	5 days/teacher	5 days/teacher	5 days/teacher	
Subtotal: Instructional Staff	18.5	5.5	1.7	0.2	5.4	31.3
Student Support Staff		1.8	0.2			2.0
- Counselors	1.2					1.2
- Nurses	1.0					1.0
- Psychologists					0.4	0.4
- Social Workers/Behavior Therapists	0.3				0.4	0.7
- Speech, Occupational, and Physical Therapists					1.1	1.1
Subtotal: Student Support Staff	2.5	1.8	0.2		1.9	6.4
Principals	1.0					1.0
Assistant Administrators	0.5					0.5
Special Education Coordinators					0.6	0.6
English Language Learners Coordinators			0.1			0.1
Instructional Facilitators (Coaches)	2.0				0.3	2.3
Office Managers	0.5					0.5
Business Managers	0.5					0.5
Registrar/Attendance Personnel	0.5					0.5
Clerical/Data Entry Personnel	1.0					1.0
Subtotal: Administrative Staff	6.0		0.1		0.9	7.0
Security Personnel	2.0	1.0				3.0
Subtotal: Other Staff	2.0	1.0				3.0
Total Staff	29.0	8.3	2.0	0.2	8.2	47.7
Students Per Instructional Staff						9.6:1
Students Per Total Staff						6.3:1

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Other Educational Resources

In addition to personnel resources that are needed to provide instructional programs, student support services, and management/administrative support, the middle school PJ panel, the middle/high school identified learning needs PJ panel, and the Levels 1–4 special education PJ panel specified other resources that are required to provide quality instructional programs and services. These included nonpersonnel resources such as professional development, student activity fees, textbooks, library resources, and supplies. These specifications were adopted as the study recommendation for costing purposes and are displayed in Table 3.9.

Table 3.9: Recommended Nonpersonnel Resources—Middle School

	Middle School 1: 600 Students	Middle School 2: 300 Students
Additional Resources		
Professional Development	15 days/teacher	15 days/teacher
	\$100/student	\$100/student
Supplies and Materials	\$225/student	\$225/student
Textbooks	\$60/student	\$60/student
Equipment	\$50/student	\$50/student
Technology Licensing	\$30/student	\$30/student
Student Activities	\$300/student	\$300/student

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Technology Hardware

Because developing strong computer skills is such a high priority for all students, the PJ panelists highlighted technology hardware specifications for middle schools to enhance classroom learning. As noted in the discussion of elementary school technology priorities, PARCC will replace the DC CAS in 2015, which will require that students use computers rather than paper and pencil for testing. Accordingly, as shown in Table 3.10, for every middle school, panelists called for a computer for every professional staff member and a classroom setup that includes five printers, one LCD projector, one SMART Board, and one document camera. They also specified the need for a well-equipped media center for every middle school. Moreover, they specified a fixed computer lab with 25 computers, 2 printers, 1 SMART Board, and 8 mobile labs with 200 computers for a large middle school (1 for every 3 students) as well as a fixed computer lab with 25 computers, 2 printers, 1 SMART Board, and 4 mobile labs with 100 computers for a small middle school (1 for every 3 students).

Table 3.10: Recommended Technology Hardware—Middle School

	Middle School 1: 600 Students	Middle School 2: 300 Students
Administrative Computers		
Computers	1 per staff	1 per staff
Printers	1 per administrator	1 per administrator
Copiers	3	2
Servers	2	2
Faculty Laptops	1 per staff	1 per staff
Classroom		
Computers	5 per classroom	5 per classroom
SMART Boards	1 per classroom	1 per classroom
Document Cameras	1 per classroom	1 per classroom
Computer Lab(s)—Fixed	1 fixed lab	1 fixed lab
	Middle School 1: 600 Students	Middle School 2: 300 Students
Printer/Scanners	1	1
SMART Boards	1	1
Computer Lab(s)—Mobile	8 mobile labs	4 mobile labs
Laptops	25 per mobile lab	25 per mobile lab
Printers/Scanners	1 per mobile lab	1 per mobile lab
Media Center		
Computers	3	3
Flip Cameras	21	21
Copiers	1	1
Switches and Routers	Sufficient to support identified technology	Sufficient to support identified technology

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations. Currently, no evidence base from education research exists on adequate technology for students.

Additional Programs

The middle school PJ panel and the middle/high-school identified learning needs PJ panel specified the need for other specialized school-based programs that entail additional costs to support and help boost academic performance for at-risk students. These include extended-day programs and extended-year programs that offer specialized tutoring, homework help, and enrichment during the school year and help prevent learning loss over the summer. The additional costs related to these programs are presented in Table 3.11. They include personnel and other direct costs.

Table 3.11: Recommended Additional Programs—Middle School

	Middle School 1: 600 Students		Middle School 2: 300 Students	
Program Name	Before- or After-School Program	Summer School	Before- or After-School Program	Summer School
Number of Pupils Served	100% of at-risk students	100% of at-risk students	100% of at-risk students	100% of at-risk students
Types of Students Served	At risk	At risk	At risk	At risk
Grade Level	6–8	6–8	6–8	6–8
Program Specifics	2 hours	6 to 8 weeks, full day	2 hours	6 to 8 weeks, full day
Personnel				
Teachers	30:1	30:1	30:1	30:1
Social Workers		1.0		1.0
Instructional Aides				
Coordination Personnel	0.5		0.5	
Security Personnel		1.0		1.0
Other Costs				
Interventions		\$500/student		\$500/student

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations.

High Schools

DC high schools also vary in size, with the smallest school having only 100 students and the largest one 1,700 students. An initial review and analysis by the study team showed that DCPS and public charter high schools seem to cluster at two size levels, with larger schools of about 1,000 students and smaller schools of about 400 students for grades 9 through 12; some combined middle and high schools also are operating. Accordingly, in developing representative school profiles for costing out purposes, the high school PJ panel used these two school sizes and determined student characteristics based on demographic data for school year 2011–2012. Table 3.12 profiles the representative high schools.

The PJ panel developed resource specifications for larger high schools with 1,000 students and smaller schools with 400 students.

Table 3.12: School and Student Characteristics—High School

Sample School	High School 1: (1,000 Students— Grades 9–12)	High School 2: (400 Students— Grades 9–12)
Total Enrollment	1000	400
Enrollment Per Grade	250	100
Students Receiving Free and Reduced-Price School Meals—At Risk (60%)	600	240
English Language Learners (9%)	90	36
Gifted/Talented Students (5%)	50	20
Special Education Students (17%)		
Special Education Students—Level 1	62	25
Special Education Students—Level 2	55	22
Special Education Students—Level 3	20	8
Special Education Students—Level 4	35	14

Source: District of Columbia Office of the State Superintendent of Education, “FY13 LEA and School Level Enrollment Audit Reports,” <http://osse.dc.gov/publication/fy13-Lea-and-school-level-enrollment-audit-reports>.

Instructional Personnel

The high school PJ panel focused on resource requirements that would enable students to meet current and proposed high school academic standards, earn a high school diploma in four years, and prepare for postsecondary education and training. The emphasis is on helping 9th-grade students make successful transitions from middle school to high school; helping 9th- and 10th-grade students develop course plans that will enable them to meet all graduation requirements; and helping 11th- and 12th-grade students prepare for college or other postsecondary career training. For each age group, panelists emphasized the need to coordinate targeted responses to the characteristics and circumstances that affect students’ academic performance at this stage. Accordingly, the panel specified an average class size of 25:1 to enable all students to meet DC performance standards in grades 9 through 12, with subject-area teachers in eight core subjects.⁵ Panelists recommended that teacher staffing be at a level to enable schools to operate on a block system with four academic blocks per day. Teachers are assumed to teach in three of the four blocks, reserving the fourth for planning and preparation time. Panelists also specified two full-time roving substitute teachers for larger high schools and one full-time roving substitute teacher for smaller high schools.

For instructional and student support staff, the emphasis is on helping 9th- and 10th-grade students make successful transitions from middle school to high school and helping 11th- and 12th-grade students prepare for college or other postsecondary career training.

⁵ Core subjects are defined as art, English, health and physical education, mathematics (algebra I and II, geometry, and an upper-level math), music, science (biology, two lab sciences, and one other science), social studies (world history I and II, DC history, US government, and US history) and world languages.

Student Support Personnel

The PJ panelists identified student support services as essential to promoting health and safety in DC high schools. Similar to the elementary and middle school PJ panels, the high school PJ panel emphasized the need for health and mental health professionals, counselors, social workers, and family liaisons to address inevitable incidents of illness, injury, trauma, or family stress, even among students without identified learning needs. They highlighted the need for a nurse in every school to help address students' regular health needs (e.g., diabetic testing, medication administration, and treatment for athletic injuries).

As is the case for elementary schools and middle schools, DDOT provides crossing guards at DCPS and public charter high schools during morning arrival and afternoon dismissal hours, based on neighborhood conditions, including street traffic around the school. The MPD provides school resource officers, as needed, to prevent juvenile delinquency. As noted for middle schools, MPD assigns SROs to geographic clusters of DCPS and public charter schools based on neighborhood and school conditions, and they may serve more than one school. In addition, schools have private unarmed security guards who provide day-to-day protection and monitor access to school buildings. DCPS has 253 security guards for schools at all levels. Some middle schools and high schools have up to 11 assigned security guards. These guards are hired under a \$17.2 million contract that is paid for through an interagency transfer from DCPS to MPD. Public charter schools hire security officers independently.

Administrative Personnel

To meet the leadership and administrative needs of large high schools, the PJ panel felt that one full-time principal; two assistant principals; two deans of students; a full-time business manager, office manager, and registrar; and four full-time clerical/data entry staff are needed to meet the significantly greater tracking and administrative requirements for high school students. For smaller high schools, the panel specified the need for a full-time principal; a half-time assistant principal, business manager, office manager, and registrar; and two clerical/data entry staff. These levels of administrative staffing are intended to ensure high performance and sound management, especially in schools that take on more direct responsibility for budgeting and resource allocation.

Staffing for Students with Identified Learning Needs

The middle/high school identified learning needs PJ panel called attention to the importance of education advocates for at-risk students, many of whom move in and out of schools during the school year. These student support personnel can be social workers, counselors, or family liaisons with deep knowledge of DC education requirements and administrative systems and experience in helping students negotiate bureaucratic hurdles and requirements. This is especially necessary for transient students and students who are returning to school after dropping out or spending time in a juvenile detention facility. Student support personnel must be knowledgeable and caring advocates who can ensure proper class placement, academic continuity, and credit transfers as well as help students deal with the school bureaucracy.

Panelists also noted that these vulnerable students need assistance to ensure their individual learning needs are identified and properly addressed. Additionally, they need assistance to ensure

they do not fall between the cracks or become ineligible for graduation because they have not taken all the required courses or fail to meet other administrative requirements. Moreover, the pathway to postsecondary education and training is far less certain for at-risk students without intensive support to ensure that they have the required number of course credits, that their transcripts are complete, that they have met college testing requirements, and that they have completed and submitted college and other applications on time.

The middle/high school identified learning needs PJ panel and the Levels 1–4 special education PJ panel felt that the resources specified for general education students without any identified learning needs provide a well-resourced base for DC high schools. The panels also identified additional resources to serve students with identified learning needs that require specialized staff, programs, and equipment. Additional resources for English language learners primarily included additional teachers.

For students identified as at risk and for students who are repeating core courses, the panels specified additional classroom teachers for remedial classes. They also included student support staff (e.g., counselors, psychologists, social workers, and family liaisons), based on student needs and staffing preferences within individual schools. In addition, they specified additional security staff in schools with a large at-risk student population. Approximately 18 percent of specified high school staff is dedicated to addressing the needs of at-risk students; more than 4 percent is dedicated to addressing the needs of ELL students.

For students with special education designations and IEPs, the panelists recommended more intensive support and services by specially trained school staff, including additional special education teachers and instructional aides, an adaptive physical education teacher, and additional student support staff. They also called for specialized therapists, transition specialists, a special education coordinator, and a facilitator/coach to support teachers and ensure effective coordination between specialized programs and regular classroom instruction. More than 17 percent of the specified high school staff is dedicated to addressing the needs of Levels 1–4 special education students.

Although the high school identified learning needs PJ panel also considered the needs of gifted and talented students, they did not provide detailed resource specifications for new programs and learning opportunities. However, the regular high school PJ panel specified that students should have access to Advanced Placement classes and International Baccalaureate programs through their neighborhood schools or through magnet schools that draw students from across the city.

Students should have access to Advanced Placement classes and International Baccalaureate programs through their neighborhood schools or through magnet schools that draw students from across the city.

Additional staffing resources vary depending on the category of need among high school students. Based on the PJ panels' specifications, approximately 39 percent of all high school staff is dedicated to serving students with identified learning needs.

Staffing Summary

For high schools with 1,000 students, the panel called for 148.3 full-time equivalent (FTE) staff members. For high schools with 400 students, the panel called for 67 FTE staff members. The PJ panel specifications varied from the evidence base. In particular, the PJ panels called for more student support personnel than is reflected in the research literature, mostly because so many DC students are at risk. To a large extent, this variation also reflects differences in student and teacher schedules; some schools have several class periods per day while some have an individual teacher in each classroom. Accordingly, the study recommendation reflects the number of teachers in a school of each size that would be required to satisfy the specified 25:1 ratio on a block schedule (see Table 3.13).

As with elementary schools and middle schools, the clear implication is that it is more expensive to operate small high schools because the instructional staff-to-student ratio and the total staff-to-student ratio are lower than for larger schools. As shown in Table 3.13, the instructional staff-to-student ratio and the total staff-to-student ratio for larger high schools are 10.1:1 and 6.7:1, respectively. The comparative ratios for small high schools are 9.8:1 and 6.0:1, respectively.

Table 3.13: Recommended Personnel Specifications—High School

	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
High School 1: 1,000 Students						
Teachers	53.3	12.4	4.7	0.5	13.2	84.1
Intervention Teachers		6.0				6.0
Adaptive Physical Education Teachers					1.0	1.0
Librarians/Media Specialists	1.0					1.0
Technology Specialists	1.0					1.0
Instructional Aides			0.6		4.4	5.0
Media Aides	1.0					1.0
Substitutes	10 days/teacher	10 days/teacher	10 days/teacher	10 days/teacher	10 days/teacher	
Subtotal: Instructional Staff	56.3	18.4	5.3	0.5	18.6	99.1
Student Support Staff		6.0	0.9			6.9
- Counselors	5.0					5.0
- Nurses	1.0					1.0
- Psychologists					1.4	1.4
- Social Worker/Behavior Therapists	2.0				1.4	3.4
- Speech, Occupational, and Physical Therapists	2.0				2.2	4.2
Subtotal: Student Support Staff	10.0	6.0	0.9		5.0	21.9
Principals	1.0					1.0
Assistant Administrators	2.0					2.0
Deans	2.0					2.0
Special Education Coordinators					1.0	1.0
English Language Learners Coordinators			0.2			0.2
Department Chairs	2.0					2.0
Instructional Facilitators					1.1	1.1
Office Managers	1.0					1.0
Business Managers	1.0					1.0
Data Managers	1.0					1.0
Registrar/Attendance Personnel	1.0					1.0
Clerical/Data Entry Personnel	4.0					4.0
In-School Suspension Personnel	2.0					2.0
Subtotal: Administrative Staff	17.0		0.2		2.1	19.3

Table 3.13: Recommended Personnel Specifications—High School, continued

	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
Information Technology Managers	1.0					1.0
Security Personnel	6.0	2.0				8.0
Subtotal: Other Staff	7.0	2.0				9.0
Total Staff	89.3	26.4	6.4	0.5	25.7	148.3
Students Per Instructional Staff						10.1:1
Students Per Total Staff						6.7:1
High School 2: 400 Students						
Teachers	21.3	5.0	2.0	0.2	5.3	33.8
Intervention Teachers		2.4				2.4
Adaptive Physical Education Teachers					0.5	0.5
Librarians/Media Specialists	1.0					1.0
Technology Specialists	1.0					1.0
Instructional Aides			0.2		1.8	2.0
Substitutes	10 days/teacher	10 days/teacher	10 days/teacher	10 days/teacher	10 days/teacher	
Subtotal: Instructional Staff	23.3	7.4	2.2	0.2	7.6	40.7
Student Support Staff		2.4	0.4			2.8
- Counselors	2.0					2.0
- Nurses	1.0					1.0
- Psychologists					0.6	0.6
- Social Workers/Behavior Therapists	0.3				0.6	0.9
- Speech, Occupational, and Physical Therapists					0.9	0.9
- Transition Specialists					2.0	2.0
Subtotal: Student Support Staff	3.3	2.4	0.4		4.1	10.2
Principals	1.0					1.0
Assistant Administrators	1.0					1.0
Deans	1.0					1.0
Special Education Coordinators					0.5	0.5

Table 3.13: Recommended Personnel Specifications—High School, continued

	Base Personnel	At-Risk Personnel	English Language Learners Personnel	Gifted/Talented Personnel	Special Education Personnel	Total Personnel
English Language Learners Coordinators			0.1			0.1
Department Chairs	2.0					2.0
Instructional Facilitators					0.4	0.4
Office Managers	0.5					0.5
Business Managers	0.5					0.5
Data Managers	0.5					0.5
Registrar/Attendance Personnel	0.5					0.5
Clerical/Data Entry Personnel	2.0					2.0
In-School Suspension Personnel	1.0					1.0
Subtotal: Administrative Staff	10.0		0.1		0.9	11.0
Information Technology Managers	1.0					1.0
Security Personnel	3.0	1.0				4.0
Subtotal: Other Staff	4.0	1.0				5.0
Total Staff	41.8	9.8	2.6	0.2	12.6	67.0
Students Per Instructional Staff						9.8:1
Students Per Total Staff						6.0:1

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Other Educational Resources

In addition to personnel resources that are needed to provide instructional programs, student support services, and management/administrative support, the high school PJ panel, the middle/high school identified learning needs PJ panel, and the Levels 1–4 special education PJ panel specified other resources that are required to provide quality instructional programs and services. These nonpersonnel resources include professional development, student activity fees, textbooks, library resources, and supplies. The specifications adopted as the study recommendation for costing purposes are displayed in Table 3.14.

Table 3.14: Recommended Nonpersonnel Resources—High School

	High School 1: 1,000 Students	High School 2: 400 Students
Additional Resources		
Professional Development	13 days/per teacher \$100/student	13 days/per teacher \$100/student
Supplies and Materials	\$225/student	\$225/student
Textbooks	\$125/student	\$125/student
Equipment	\$50/student	\$50/student
Technology Licensing	\$30/student	\$30/student
Student Activities	\$500/student	\$500/student

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Technology Hardware

The high school PJ panel highlighted technology hardware as a high priority for DC high schools. Broadening access and updating technology available to students and staff are critical to a sound high school learning environment. This observation acknowledges that students need to develop strong computer skills to be successful in the 21st century and that technology plays an increasingly prominent role in classroom learning. As shown in Table 3.15, panelists called for a computer for every professional staff member and one laptop computer for every high school student to ensure opportunities for digital learning and adequate preparation for PARCC testing. Additionally, panelists specified one classroom computer, a printer, an LCD projector, a SMART Board, and a document camera for each classroom. They also identified the need for a well-equipped media center in every high school with computers and digital cameras for use by an entire class at any given time. Panelists also specified that every large and small high school should have a well-equipped fixed computer lab with 44 computers, 2 printer/scanners, and 2 SMART Boards. Recognizing the security issues associated with providing each student with a computer, panelists called for secure facilities in school buildings to safeguard laptops at night and on weekends and enable students to check them out on a daily basis during school hours.

Table 3.15: Recommended Technology Hardware—High School

	High School 1 1,000 Students	High School 2 400 Students
Administrative Computers		
Computers	1 per staff member	1 per staff member
Printers (ink)	1 per staff member	1 per staff member
Copiers	5	3
Servers	2	1
Faculty Laptops	1 per staff member	1 per staff member
Classroom		
Computers	1 per classroom	1 per classroom
Printers	1 per classroom	1 per classroom
LCD Projectors	1 per classroom	1 per classroom
SMART Boards	1 per classroom	1 per classroom
Document Cameras	1 per classroom	1 per classroom
Computer Lab(s)—Fixed		
Computers	44	44
Printers/Scanners	1 per lab	1 per lab
SMART Boards	1 per lab	1 per lab
Computer Lab(s)—Mobile		
Laptops	1 per student	1 per student
Media Center		
Computers	27	27
Digital Video Cameras	5	5
Digital Cameras	22	22
Printers (laser)	2	2
Switches and Routers	Sufficient to support identified technology	Sufficient to support identified technology

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations. Currently, no evidence base from education research exists on adequate technology for students.

Additional Programs

The high school PJ panel, the middle/high school identified learning needs PJ panel, and the Levels 1–4 special education PJ panel specified the need for other specialized school-based programs that entail additional costs. Extended-day programs and extended-year programs offer specialized tutoring, homework help, and enrichment during the school year and help prevent learning loss over the summer. They also include summer bridge programs to ease the transition from middle school to high school for entering 9th graders and transfer students. The additional costs related to these programs are presented in Tables 3.16 and 3.17. They include personnel and other direct costs.

Table 3.16: Recommended Additional Programs—High School 1 (1,000 Students)

High School 1: 1,000 Students					
Program Name	Before- or After-School Program	Summer School	After-School Tutoring/ Homework Club/Advanced Placement Preparation	Summer Bridge	Summer Enrichment
Number of Pupils Served	100% of at-risk students	100% of at-risk students			75
Types of Students Served	At risk	At risk	All	Entering 9th graders/transfers	All
Grade Levels	9–12	9–12	9–12	Entering 9th graders	9–12
Program Specifics	2 hours	6 to 8 weeks, full day	2 hours 3 days per week	2 weeks	4 weeks, 3 hours 4 days per week
Personnel					
Teachers	30:1	30:1	16 (1 per core, per grade)	10	20:1
Program Name	Before- or After-School Program	Summer School	After-School Tutoring/ Homework Club/Advanced Placement Preparation	Summer Bridge	Summer Enrichment
Coordinators	1.0				
Security Personnel		2.0			
Other Costs					
Instructional Supplies, Materials, and Equipment				\$100/student	

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations.

Table 3.17: Recommended Additional Programs—High School 2 (400 Students)

High School 2: 400 Students					
Program Name	Before- or After-School Program	Summer School	After-school Tutoring/ Homework Club/Advanced Placement Preparation	Summer Bridge	Summer Enrichment
Number of Pupils Served	100% of at-risk students	100% of at-risk students			30
Types of Students Served	At risk	At risk	All	Entering 9th graders/transfers	All
Grade Levels	9–12	9–12	9–12	Entering 9th graders	9–12
Program Specifics	2 hours	6 to 8 weeks, full day	2 hours 3 days per week	2 weeks	4 weeks, 3 hours 4 days per week
Personnel					
Teachers	30:1	30:1	8 (1 per core, per 2 grades)	5	20:1
Social Workers		1.0			
Coordinators	0.5				
Security Personnel		1.0			
Other Costs					
Instructional Supplies, Materials, and Equipment				\$100/student	

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations.

Adult Education and Alternative Schools

Students at risk of academic failure because they are over-age, under-credited, and behind-grade frequently have more than one identified learning need. Many of these students have not succeeded in regular high schools. Some have dropped out and later returned to school. Others have spent time in juvenile detention facilities or mental health facilities and are transitioning back to public schools. DCPS and the public charter sector offer several alternative schools and alternative programs within regular high schools for these students. These options are intended to help even the most challenged students complete a high school education and earn a diploma or an equivalency certificate. The Office of the State Superintendent of Education (OSSE) officially identifies whether DCPS and public charter schools receive alternative school status and receive the appropriate alternative schools funding via the UPSFF. At the time of this study, the PJ panels used OSSE's working definition to describe alternative schools.⁶ At the time of

⁶ OSSE's proposed eligibility criteria for alternative education services at the time of the PJ panels, which differ from what is now in statute, are as follows: 1. Student is eligible for a public school education; AND 2. Student is not academically proficient AND fits one of the following descriptions: 3. Student is under court supervision as a child adjudicated as neglected or abused, or as a person in need of supervision; 4. Student has been incarcerated in an adult correctional facility; 5. Student is committed to the department of youth rehabilitation services as delinquent; 6. Student has received multiple short-term suspensions from a District public school or charter school, as defined by OSSE; 7. Student is on long-term suspension from a District public school or charter school; 8. Student has been

publication, OSSE was reconvening an LEA working group to review and finalize the alternative schools definition.

DCPS and the public charter sector also offer adult education programs that combine foundational literacy and skills courses and workforce development with comprehensive support services for those who are older than age 18 and have work and family responsibilities and are trying to complete their high school education. These programs are intended to help adult students obtain their high school diploma or equivalents; pass the citizenship exam and become US citizens; gain the English language skills necessary to function effectively in a predominantly English-speaking society and help their children with homework; pursue postsecondary education; and enter into careers and climb career ladders.

Based on discussions within the adult education and alternative schools PJ panel, the study team worked with panelists to build representative schools of 500 full-time equivalent students for adult education schools and 300 students for alternative schools. It did so with the understanding that many of these students do not attend full time and require flexible scheduling to pursue coursework.

An average demographic profile for adult education and alternative schools does not exist. Although all students served in these settings are at risk, the proportions of ELL and special education students vary significantly. Some schools (e.g., the Carlos Rosario Public Charter School) serve a predominantly Spanish-speaking student population, while others (e.g., the Maya Angelou Public Charter School) have almost no students for whom English is not a first language. Similarly, though the DCPS Incarcerated Youth Program has 50 percent of students with IEPs, the DCPS Roosevelt High School S.T.A.Y. [School To Aid Youth] program has only 1 percent of students with special education diagnoses and IEPs. Consequently, defining a single demographic profile for these programs and schools is difficult, but the students all have multiple learning needs and life circumstances that require special attention and support to make them successful students. Table 3.18 gives the student demographics for the representative adult education and alternative schools.

expelled from a District public school, District charter school, or another jurisdiction, after the expiration of any required expulsion period; 9. Student who is otherwise eligible seeks admission to a District public school or charter school after withdrawing for a period of one or more terms, during which the student received no public or private instruction; 10. Student is receiving treatment for drug abuse; 11. Student has a history of violence, as defined by OSSE; 12. Student is chronically truant from a District public school or charter school, as defined by OSSE; 13. Student is under-credited; 14. Student is pregnant or parenting; or 15. Student meets other criteria for at-risk status, as defined by OSSE.

Table 3.18: Student Demographics—Adult Education and Alternative Schools

	Enrollment	Percentage of Special Education Students	Percentage of English Language Learners	Percentage of Low-Income Students
Adult Education				
Charter Schools				
Carlos Rosario Public Charter School	2,900	0%	92%	90%
Latin American Youth Center—YouthBuild Public Charter School	110	1%	64%	100%
Education Strengthens Families (Briya) Public Charter School	352		88%	95%
Next Step—El Proximo Paso Public Charter School	158	10%	62%	95%
DCPS				
Ballou S.T.A.Y. [School To Aid Youth] High School	601	7%	0%	99%
Roosevelt S.T.A.Y. High School*	652	7%	0%**	99%
Spingarn S.T.A.Y. High School	244	9%	0%	34%
Average Percentage		5.8%	35%	87.4%
Alternative Education				
Charter School				
Latin American Youth Center—YouthBuild Public Charter School	110	1%	64%	100%
Maya Angelou Public Charter School	296	50%	1%	86%
DCPS				
CHOICE [Choosing Higher Options for Individually Centered Education] Academy	10	60%	0%	99%
Incarcerated Youth Program	49	51%	0%	N/A
Youth Services Center	89	33%	1%	N/A
Luke C. Moore Academy	366	6%	0%	99%
Average Percentage		33.5%	11%	96%

Note:*Roosevelt S.T.A.Y. reported 90 students, or 14 percent, “pending” for English language learner status. Pending means they have not been tested or the testing is out of date.

Source: District of Columbia Office of the State Superintendent of Education, “FY13 LEA and School Level Enrollment Audit Reports,” <http://osse.dc.gov/publication/fy13-Lea-and-school-level-enrollment-audit-reports>.

The adult education and alternative schools PJ panel focused on resource specifications that enable students to meet current and proposed high school academic standards; earn a high school diploma or equivalency certificate; and have the habits, attitudes, and language skills to pursue postsecondary education or get a job and advance on a career ladder. Panelists specified resource needs recognizing that all students in these programs and schools have multiple learning needs, and most, if not all, are over-age, under-credited, and behind-grade. Likewise, programs within these schools are tailored to address these students’ learning needs.

The PJ panel focused on resource requirements that enable students to meet current and proposed high school academic standards; earn a high school diploma

or equivalency certificate; and have the habits, attitudes, and language skills to pursue postsecondary education or get a job and advance on a career ladder.

Alternative Education

Alternative education students have learning needs that require comprehensive education models with extended-day and year-round learning opportunities. Many of these students are returning to school after dropping out and/or spending time in juvenile detention facilities, substance abuse treatment facilities, or mental health treatment facilities. These schools are aimed primarily at credit recovery or GED attainment, with a focus on boosting achievement in core subjects, so optimal learning environments include features oriented to help students address issues that affect their ability to be successful students, as shown in Table 3.19.

Table 3.19: Adult Education and Alternative School Needs

	Alternative Education	Adult Education
Small class size and group instruction	X	X
15:1 teacher-to-student ratio	X	X
Specialized curricula and proficiency assessment for students with varied and below-grade proficiency	X	X
Blended learning methods (classroom and online learning and testing)	X	X
Extended-day and year-long learning opportunities	X	X
Flexible scheduling and shorter school days	X	X
School staffing that incorporates vocational skills, job and career support, and life skills training (e.g., financial literacy)	X	X
Enrollment administrators to track needs of transient and non-English-fluent or -literate population	X	X
Comprehensive student support services	X	X
Intensive psychological and behavioral therapy	X	X

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations.

Adult Education

Because of their life circumstances, many adult education students may not be full-time students and may need specialized supports and services to pursue educational success. The staffing specifications are shown for FTE adult students; therefore, figures would need to be proportionately reduced depending on whether an adult student attends 50 percent time, 75 percent time, etc. The panelists emphasized that the most effective educational models offer these students highly resourced environments that address their multiple learning needs and family, living, and work circumstances. Student support services need to include transportation,

counseling, child care assistance, health and mental health care, and help in accessing other social services and supports (e.g., Medicaid, subsidized housing, immigration services, child support payments, and Temporary Assistance for Needy Families).

Professionals running adult education programs also emphasized that some of their students are English language learners and would benefit from ELL resources. However, federal funding used for ELL is restricted to students below age 22. Professionals on the PJ panels emphasized that these ELL resources should be extended to students older than age 22. Funding for ELL resources for older students is not included in Table 3.20. City leaders will have to decide whether to fund these services using local resources.

Instructional Staffing and Student Support Personnel

As shown in Table 3.20, both adult education and alternative schools require additional staff and highly trained professionals to help students succeed, including classroom teachers, learning specialists and interventionists, instructional facilitators, instructional aides, and student support staff. The PJ panel generally specified staffing levels that were higher than the evidence base.

Administrative Personnel

To meet the leadership and administrative needs of adult education and alternative schools, the PJ panel felt that one full-time principal/director, one assistant principal (two for adult education schools), one student dean, one registrar, one attendance monitor, one data analyst, and one clerical staff member (three for adult education centers) are needed to ensure the smooth and effective operations of these schools.

Staffing Summary

For alternative schools with 300 students, the panel called for 66.7 FTE staff members. For adult education centers with 500 students, the panel called for 80.1 FTE staff members. The clear implication is that schools that serve these high-need students and provide intensive comprehensive support are much more expensive to operate than are schools with mostly general education students. As shown in Table 3.20, the instructional staff-to-student ratio and the total staff-to-student ratio for alternative schools are 7.0:1 and 4.5:1, respectively. The comparative ratios for adult education schools are 11.7:1 and 6.2:1, respectively.

Table 3.20: Recommended Staffing Specifications—Adult Education and Alternative Schools

	Alternative Education Program: 300 Students	Adult Education Program: 500 Full-Time-Equivalent Adults
Teachers	26.7	22.2
Specialists/ Interventionists	4	2
Librarians/Media Specialists	1	1
Technology Specialists	1.0	1.0
Instructional Aides	10.0	16.7
Substitutes	10 days/ teacher	10 days/ teacher
Subtotal: Instructional Staff	42.7	42.9
Student Support Staff*	10.0	16.7
Job Placement/Readiness/Tracking Staff	2.0	2.0
Subtotal: Student Support Staff	12.0	18.7
Principals/Directors	1.0	1.0
Assistant Principals/Assistant Administrators	1.0	2.0
Deans	1.0	1.0
Data Analysts	1.0	1.0
Business Managers	1.0	1.0
Instructional Facilitators (Coaches)	2.0	2.5
Clerical Staff	1.0	3.0
Registrars/Data Entry Personnel	1.0	3.0
Attendance Personnel	1.0	1.0
Subtotal: Administrative Staff	10.0	15.5
Security Personnel	1.0	2.0
Information Technology Specialists	1.0	1.0
Subtotal: Other Staff	2.0	3.0
Total Staff	66.7	80.1
Students Per Instructional Staff	7.0:1	11.7:1
Students Per Total Staff	4.5:1	6.2:1

Note: * Student support staff includes nurses, counselors, psychologists, social workers, and family liaisons.

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

The costs of specified resources for alternative schools are about 94 percent higher than the base for large elementary schools. The comparable costs of specified resources for adult education centers are about 35 percent higher than the base costs for large elementary schools. Because students in these schools are, by definition, at risk of academic failure, the resources to support their success are built into the school-level resource specifications. Additionally, because many of these students are over-age and federal funding for students with identified learning needs is only available for students up to age 22, a larger share of the costs of educating them must be covered with DC funding.

Other Educational Resources

In addition to personnel resources that are needed to provide instructional programs, student support services, and management/administrative support, the adult education and alternative schools PJ panel specified other resources necessary to provide quality instructional programs and services. These nonpersonnel resources included professional development, student activity fees, textbooks, library resources, and supplies. These specifications were adopted as the study recommendation for costing purposes and are displayed in Table 3.21.

Table 3.21: Recommended Nonpersonnel Resources—Adult Education and Alternative Schools

Other Costs	Alternative Education Program: 300 Students	Adult Education Program: 500 Full-Time-Equivalent Adults
Professional Development	15 days/teacher \$100/student	15 days/teacher \$100/student
Supplies and Materials	\$225/student	\$200/student
Textbooks	\$125/student	
Equipment	\$50/student	
Technology Licensing	\$30/student	
Student Activities	\$300/student	
Other	\$400/student	\$400 for every 500 students

Sources: The recommendations are derived from both the professional judgment panel specifications resulting from panelists' deliberations and the evidence base found in Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, "Using Available Evidence to Estimate the Cost of Educational Adequacy," *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

Technology Hardware

An important element of educational programming for adult education and alternative schools students is virtual education. The PJ panel envisioned a hybrid program that would balance time in the classroom with work completed online. Panelists also recognized the importance of helping these students acquire proficient computer skills to overcome a possible digital skills gap compared with general education students. Accordingly, as shown in Table 3.22, panelists called for a computer for every professional staff member; one computer, an LCD projector, a SMART Board, and a digital camera for every classroom; and a well-equipped media center and fixed computer lab in every school.

Table 3.22: Recommended Technology Hardware—Adult Education and Alternative Schools

	Alternative Education Program	Adult Education Program
Administrative Computers		
Computers	1 per staff member	1 per staff member
Printers	3	1 per administrator
Copiers	3	4
Servers	3	3
Faculty Laptops	1 per staff member	1 per staff member
Classroom		
Computers		300
Printers		5
	Alternative Education Program	Adult Education Program
LCD Projectors	1 per classroom	1 per classroom
SMART Boards	1 per classroom	1 per classroom
Document Cameras	1 per classroom	1 per classroom
Computer Lab(s)—Fixed	2	
Computers	30	
SMART Boards	1	
Media Center		
Computers	5	
Digital Video Cameras	5	
Digital Cameras	30	25
Printers	1	2
Student Digital Devices	1 per student (\$500 device)	
Switches and Routers	Sufficient to support identified technology	Sufficient to support identified technology

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations. Currently, no evidence base from education research exists on adequate technology for students.

Costs of Education in Schools of Different Size

As noted throughout the presentation of findings from the PJ panels' specifications of education resource needs for schools at each level—as adjusted by the system-level PJ panels, focus groups, individual interviews, stakeholders, and the Advisory Group—it is more costly to educate DC students in small schools than in larger ones. Smaller schools are more staff intensive, and they cannot take advantage of some economies of scale that reduce the per-student costs of instructional programs, student support services, administrative support, and other educational resources for larger schools. As noted earlier in this chapter:

- At the elementary school level, the instructional staff-to-student ratio and the total staff-to-student ratio for larger schools with 420 students are 8.8:1 and 6.2:1, respectively. The comparative ratios for small schools with 210 students are 8.3:1 and 5.6:1, respectively.
- At the middle school level, the instructional staff-to-student ratio and the total staff-to-student ratio for larger schools with 600 students are 9.7:1 and 6.8:1, respectively. The comparative ratios for small schools with 300 students are 9.6:1 and 6.3:1, respectively.

- At the high school level, the instructional staff-to-student ratio and the total staff-to-student ratio for larger schools of 1,000 students are 10.1:1 and 6.7:1, respectively. The comparative ratios for small schools of 400 students are 9.8:1 and 6.0:1, respectively

As shown in Table 3.23, based on the PJ panel specifications, it is between 8 percent and 10 percent more costly to educate students in small schools than in larger ones.

Table 3.23: School-Level Base Costs for DCPS and Public Charter Schools of Different Sizes Projected/Budgeted for School Year 2013–2014

	Small Elementary School Base	Large Elementary School Base	Small Middle School Base	Large Middle School Base	Small High School Base	Large High School Base
School-Level Base Costs	\$10,402	\$9,405	\$9,539	\$8,450	\$10,382	\$9,110

Source: The recommendations are derived from the professional judgment panel specifications resulting from panelists' deliberations.

Summary

The school-level PJ panels—using the education research evidence base as a point of departure—developed detailed resource specifications for instructional programs, student support, administration, technology hardware, additional programs, and other educational resources at each school level. The identified learning needs panels and the Levels 1–4 special education panel supplemented the work of the school-level panels by adding staffing and other resources required to address the specific needs of English language learners, at-risk students, and special education students. Of particular note:

- DCPS and public charter school educators agreed on the school-level resources needed to provide all DC students with a pre-K3 through grade 12 education that will enable them to meet current academic performance standards and, when they are implemented, the Common Core State Standards.
- Each panel specified significant additional instructional resources for at-risk students, who were initially identified as being eligible for free and reduced-price school meals. Although currently no additional weight exists in the UPSFF, the panelists agreed these students require intensive supports and services because of learning needs that exceed those of general education students.

As noted earlier in this chapter, developing resource specifications for Levels 1–4 special education students proved difficult. In part, this reflects different professional perspectives on the levels and balance of additional instructional programming, student support, and therapeutic services these students need to be successful learners. In some cases, changes in estimates of required staffing were made.

- All of the school-level PJ panels highlighted the importance of significant investments in technology hardware, software, and wireless capacity. For students to be successful in a digital age, they need to develop strong computer skills. Technology plays an

increasingly greater role in the classroom, in the workplace, and in all domains of daily life. In this regard, the high school PJ panel noted that schools will need such capacity to have all students complete the new PARCC exams on computers. Additionally, the adult education and alternative schools PJ panel called for the development of hybrid learning programs that enable students to complete coursework and testing virtually as well as in the classroom.

- The elementary school and middle/high school identified learning needs panels highlighted the importance of offering appropriate educational opportunities to gifted and talented students at each level as well as to those with other learning needs. Although the panelists did not offer detailed resource specifications for this category of students, they urged greater attention and investment in developing appropriate programs and learning opportunities for exceptionally able students and ensuring that adequate resources are available to fully implement them.