Appendix A: Technical Data Methodology

School-Age Population

The analysis in Chapter Three on public school participation by race/ethnicity uses the U.S. Census Bureau 2006 Population Estimates, as well as student-level enrollment data obtained from DCPS, the Board of Education, and the Public Charter School Board for SY 2006-07. The school-age population estimate for children ages 5-18 includes some 18-year-old college students, which appears to particularly inflate the number of white students age 18. To calculate a more accurate public school participation rate, the number of white children in that age range is conservatively estimated to be the same as at the other ages. The Census Bureau and revised estimated numbers (used in the report) are specified in Table A-1 below.

Table A-1: Estimating Non-Hispanic White School-Age Population

	Population Estimates	Report Estimate (Conservative)
Non-Hispanic Whites, Age 17	782	782
Non-Hispanic Whites, Age 18	3,055	782
Non-Hispanic Whites, School-Age (5-18)	13,571	11,298
Share of School-Age Population, Non-Hispanic Whites	15.3%	13.1%
Share of School-Age Population in Public Schools	25.9%	31.2%

Student Enrollment Data

The analysis in Chapter Five's General Enrollment section relies on student-level enrollment data obtained from DCPS, the Board of Education, and the Public Charter School Board for SY 2005-06 and SY 2006-07. (The DCPS and BOE student level data are from the STARS system, and Public Charter School Board data were files from each individual school.) These data reflect the enrollment patterns at the time of the District's official October count (pre-audit). The data identify every student attending a DCPS or public charter school, his or her basic characteristics (i.e., race/ethnicity, age, grade level, free and reduced lunch, LEP/NEP), home address, and school attended. In SY 2006-07, there were 74,030 students attending either a DCPS or public charter school. We did not use the OSSE audited school enrollment data for our analysis because audited school data do not include students' residential addresses.

The analysis in the General Enrollment section of the report is based on a subset of the pre-audit file called the "basic file." In our analysis we excluded those students over age 22, wards of the state, private tuition recipients, and students in custody. The total number of students in the subset in SY 2006-07 was 69,827 students.

We geocoded the students in the pre-audited file by assigning the longitude and latitude of the parcel center of the student's address (Maryland State Plane Coordinate System, North American Datum 1983 Meters). We successfully geocoded 67,910 students living in the District, meaning 97 percent of the addresses in the student enrollment file could be matched to a parcel in the District. The geocoding allows us to analyze the student data by the students' residential geography, such as by ward and neighborhood cluster. In addition, the geocoding allows us to identify key characteristics of the students' residential housing (e.g., sales price) as well as their 2000 Census tract characteristics (e.g., neighborhood poverty). (Some of the students in the total student file had residential addresses outside of the District, which were not included in our ward or neighborhood cluster analysis).

For all the analysis that involves distance (i.e., distance from students' residence to student's school), we took a slightly smaller subset of students. As before, we excluded those students over age 22, wards of the state,

private tuition recipients, and students in custody. In addition, we excluded all those students with an assigned school of DCPS headquarters (or 825 N. Capitol), and all special population students, such as alternative, adult education, and special education students. (Distance calculations for the special populations are calculated separately in the Special Population section of Chapter Five.) The subset of students included in the distance analysis by ward of the General Enrollment section was 67,376 for SY 2006-07, and the subset of students for the distance analysis by neighborhood cluster of the General Enrollment section was 67,197. (The number of students assigned to a ward and neighborhood cluster differ because there is some land in the District that is not designated a neighborhood cluster.)

See Table A-2 for a full listing on the number of students in each of the analyses of the General Enrollment section of Chapter Five.

Table A-2: Number of students included in General Enrollment analysis

	Total school file (pre-audit)	Basic file	Basic file geocoded to the District	Distance analysis by ward	Distance analysis by cluster
2006-07	74,030	69,827	67,910	67,376	67,197
2005-06	77,272	74,245	71,440	70,864	70,852

Student Exposure Index

In Chapter Five's General Enrollment section, we also measured exposure of the average public school student of a particular race/ethnicity to students of other races/ethnicities. This approach to measuring patterns of segregation is called an "exposure index." The statistic is a weighted average of DCPS and public charter schools' racial/ethnic composition, where each school is weighted by the share of its students that are of a particular race/ethnicity. This method is affected by group size, so the larger a particular racial group's share of the total student population, the more likely that exposure to that group will be high. For example, African American students comprise 83 percent of all DC public school students in SY 2006-07. Therefore, the exposure index of the "average" black, white, or Latino student to African American students is higher than his/her exposure to students in other racial/ethnic groups..

Other research using exposure indexes include Douglas S. Massey and Nancy A. Denton (1988), "The Dimensions of Racial Segregation." *Social Forces* 67(2): 281-315, and Noah Sawyer and Peter A. Tatian (2003). Segregation Patterns in the District of Columbia 1980 to 2000. DC Data Warehouse Discussion Brief No. 2, October.

Special Education

The analysis in Chapter Five's Special Education section relies on the same student-level enrollment data – obtained from DCPS, the Board of Education, and the Public Charter School Board for SY 2006-07 – that is used in the General Enrollment Section, described above. The student enrollment file was limited to all students receiving special education services (any student with an Individual Education Plan attending DCPS or public charter schools, as well as those at non-public schools where DCPS paid tuition), which totaled 10,857 students in SY 2006-07. From this group, a subset was created to capture only those special education students attending public schools – 8,892 students. Separate analysis was run on each group (main group and subset of public only). The distance analysis was conducted only for the public subset, as all students receiving tuition for private placements were coded with school address at DCPS Headquarters (825 N. Capitol Street) and not with their actual private school address.

In addition, we used student-level transportation data from the DCPS Division of Transportation (DOT). This data was captured from the DOT system in October 2006. It provided information on all 4,023 special

education students receiving transportation in DCPS school buses to either DCPS, public charter, or non-public residential schools in the District, Virginia, and Maryland.

Alternative and Adult Education Programs

Slightly more than 3,700 public school students (3,742), or 5 percent of all public school students, attended an *alternative* or *adult education* school in the 2006-07 school year. We used a broad definition of alternative education – that is, those schools and programs geared towards students at risk of education failure – similar to the National Center for Education Statistics's (NCES) definition. We also included schools and programs geared towards adult education or for those adult students who had previously dropped out of high school and not received a high school or GED equivalency.

The 15 DCPS and public charter alternative and adult education schools included in this analysis were Ballou STAY, Booker T. Washington PCS (day and evening), CHOICE Academy @ Taft, CHOICE Academy @ Douglas, Carlos Rosario PCS, ESF Bancroft, ESF Mary Center, LAYC, Luke C. Moore, Maya Angelou (Evans), Maya Angelou (Shaw), Next Step PCS, Roosevelt STAY, and Spingarn STAY.

The data in this section include students of all ages; however, this analysis does not include students who participated in in-school suspension programs at their local high schools, were wards of the state (foster children), private tuition recipients (voucher students), or students who were being detained in the DC Jail, DC Detention Facility, or other facilities for adjudicated youth. (The detained students were included in a separate analysis on Students detained in the DC Juvenile Justice System.)

Archdiocese

Students at Archdiocese of Washington primary schools were analyzed in an attempt to identify enrollment behavior of a significant portion of the private voucher population. There are 961 students in the analyzed data set – of 2,340 students at the 21 Kindergarten through 8th grade schools run by the Archdiocese of Washington – who received Opportunity Scholarships (vouchers) in 2006-07. The program awarded a total of 1,746 Opportunity Scholarships. Data limitations prevented a separate analysis of the Opportunity Scholarship students at the Archdiocese schools; however, we know that these students represent over 40 percent of the population being analyzed.

The student variables in the dataset obtained from the Archdiocese was somewhat more limited than the student-level enrollment files used to analyze the public school population. The most notable difference is the absence of data on students' family income (proxied using the free or reduced lunch variable in the public student databases). In addition, 18 percent of students in the Archdiocese data set did not have race identified. Distance analysis was conducted for the 2,314 students whose residential addresses could be geocoded.