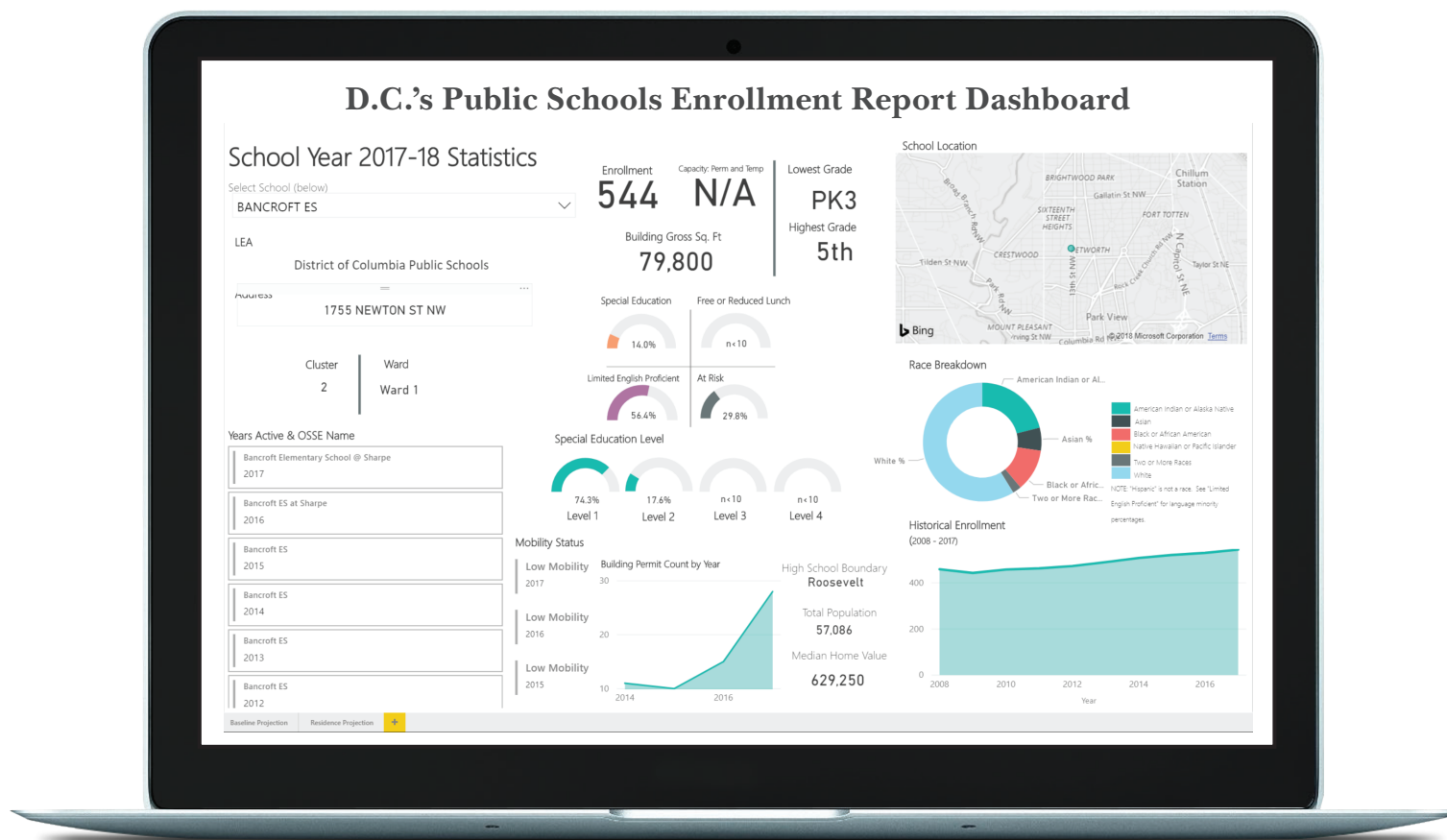


# A Study of Enrollment Projections for D.C.'s Public Schools: Assuring Accuracy and Transparency

Conducted by Cooperative Strategies, 21st Century School Fund, and Urban Institute for the Office of the District of Columbia Auditor

September 28, 2018



September 28, 2018

The Hon. Phil Mendelson, Chairman  
The Hon. Mary Cheh, D.C. Councilmember  
The Hon. David Grosso, D.C. Councilmember  
Council of the District of Columbia  
1350 Pennsylvania Avenue, N.W.  
Washington, D.C. 20004

Dear Chairman Mendelson and Councilmembers Cheh and Grosso:

I am pleased to share **A Study of Enrollment Projections for D.C.'s Public Schools: Assuring Accuracy and Transparency**. The study was requested and funded by the Council of the District of Columbia, at the initiation of D.C. Councilmember Mary Cheh. She asked ODCA to conduct "a study on student enrollment that assesses the District's current methodology against best practices for student enrollment projections and estimates current and projected enrollment numbers for the District's public schools based on the District's demographic trends."

To conduct the study requested by the Council the D.C. Auditor contracted in December 2017 with a trio of consultants led by Cooperative Strategies (CS), a national firm based in Ohio and California with extensive national experience projecting public school enrollment. CS was supported by the Urban Institute and the 21st Century School Fund, local firms with both local and national research and policy experience. The comprehensive report was released at a briefing for members of the D.C. Council followed by a Wilson Building press conference.

Projecting future enrollment is an essential responsibility of school districts that municipalities and districts rely on for planning, budgeting, and evaluation. The District uses next year projections for annual education appropriations for DCPS and charter schools, and long-term enrollment projections by city and for individual schools for educational facility capital planning. The Public Charter School Board references future enrollments when making authorizing decisions for enrollment ceilings and awarding new charters.

The study team focused its work on developing a process to assure accuracy, transparency, and efficiency in the regular development and use of next year and multi-year enrollment projections. The team did a comprehensive review of public school enrollment in the District of Columbia, including enrollment projections over the last several years, both 5- and 10-year projections, a methodology for use by policymakers, and recommendations on a process for completing projections to assure accuracy, transparency and efficiency in their development.

**Key findings are:**

- D.C. public school enrollment is projected to grow between 12,000 and 15,000 students in the next 10 years.
- Projection methods are least accurate for schools with high mobility rates.
- Projection process can be made more accurate, transparent and efficient.

Applying best practice projection calculations on the birth and enrollment data available, the study team found that public school enrollment is expected to continue to rise in the coming decade, particularly in the high school grades. Reviewing levels of student movement in schools, out of schools, and staying in a school from one year to the next, the study team found that schools with highly mobile student populations tended to have the most inaccurate next-year enrollment projections. Finally, from comparing next year projections at different units of analysis—district

wide, sector, school, and school by grade—the study team worked to understand the current levels of accuracy of projections and propose the optimal method for accurate, transparent, and efficient development of projections.

The report is presented as a 95-page text, plus several appendices. In addition, information used in the report has been uploaded to an interactive online dashboard, available at [www.dcauditor.org](http://www.dcauditor.org). The dashboard includes school-level, baseline projections, and residence projection data, including at-risk percentage, historical enrollment, and mobility status. It is our hope that this wealth of information is of value to the public and other researchers going forward.

The report's recommendations are built into an Enrollment Projections Development Process, a 15-step outline for the Office of the Deputy Mayor for Education, the Office of the State Superintendent of Education and Local Education Authorities, including opportunities for information exchange among local school stakeholders. The research team recommended that the District government—the Mayor and D.C. Council—adopt the projection methodology and 15-step process to assure accuracy and transparency going forward.

As is usual with the reports that ODCA produces in-house, we have included in the final report comments from the Bowser Administration. We were pleased that the Deputy Mayor for Education found the majority of our report to be informative. On those issues that were deemed to need more clarification or revision, we have made adjustments to the report in response. ODCA greatly appreciates the ongoing collaboration with our colleagues at the office of the Deputy Mayor for Education, OSSE, and DCPS on this complex and important topic.

It is our hope that the recommendations presented in this report, many of which are in practice to some extent, are intended to make the overall process more accurate, timely, efficient, and transparent.

Sincerely yours,



Kathleen Patterson  
District of Columbia Auditor

# Contents:

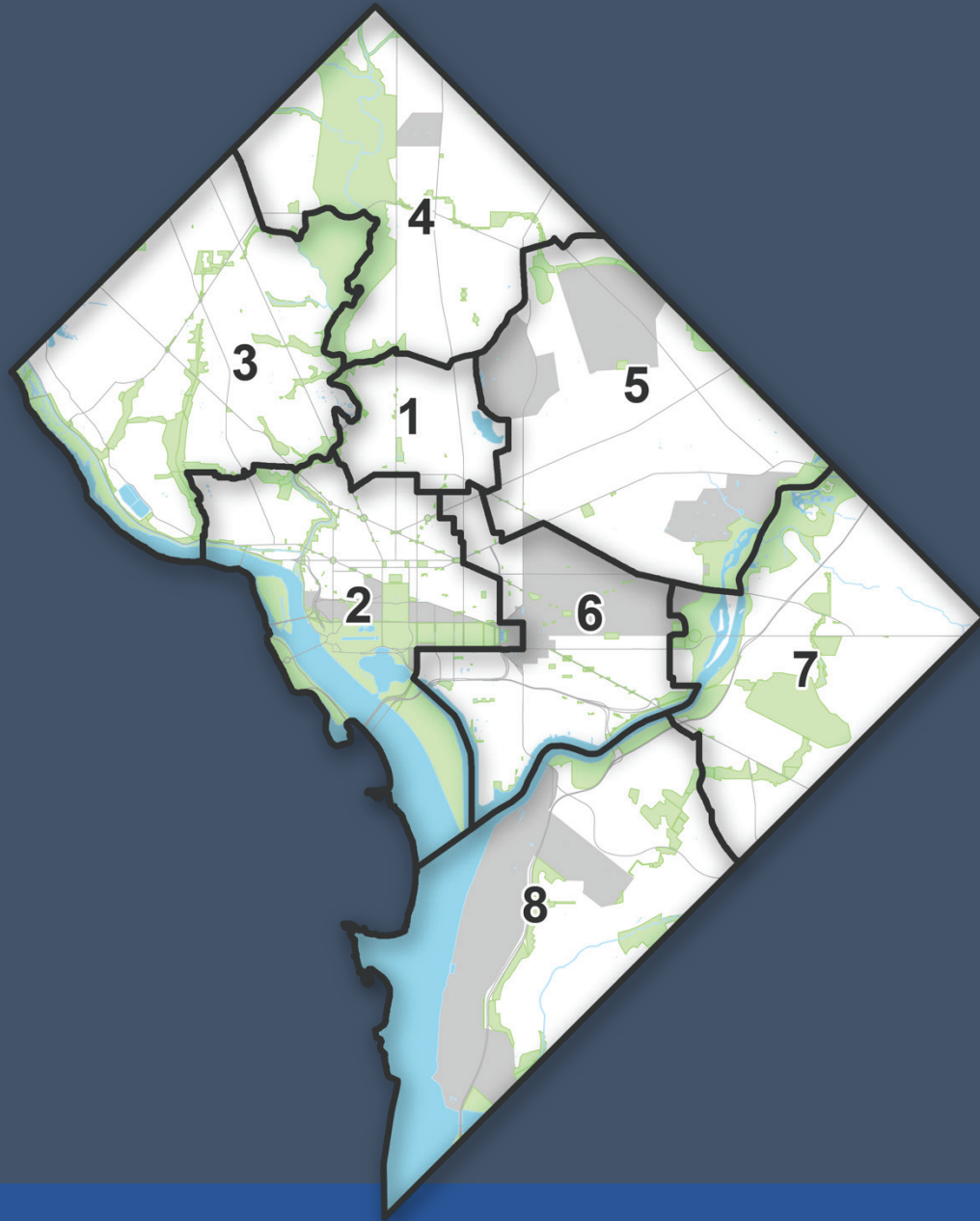
---

|                                                                      |           |
|----------------------------------------------------------------------|-----------|
| <b>Introduction &amp; Purpose .....</b>                              | <b>1</b>  |
| <b>Acronyms .....</b>                                                | <b>2</b>  |
| <b>Definitions .....</b>                                             | <b>3</b>  |
| <b>Overview of Process, Findings &amp; Recommendations.....</b>      | <b>4</b>  |
| Process / Background .....                                           | 5         |
| Overview of Findings .....                                           | 6         |
| Overview of Recommendations .....                                    | 7         |
| Historical Enrollment .....                                          | 10        |
| Summary of Enrollment Projections .....                              | 11        |
| Interactive Dashboard .....                                          | 12        |
| <b>Section 1: Dynamic City and Schools .....</b>                     | <b>14</b> |
| Washington D.C. - Demographic Overview .....                         | 14        |
| Demand and Supply Factors Affecting Enrollment Projections .....     | 17        |
| Neighborhood Factors .....                                           | 20        |
| School Supply Side Factors .....                                     | 23        |
| <b>Section 2: Best Practices for Enrollment Projections .....</b>    | <b>27</b> |
| Best Practices for Enrollment Projections .....                      | 27        |
| <b>Section 3: Processes &amp; Methods in Comparable Cities .....</b> | <b>30</b> |
| Inputs and methods .....                                             | 32        |
| Process and Adjustments .....                                        | 32        |
| Uses of Enrollment Projections .....                                 | 32        |
| School District Interview Summary .....                              | 32        |
| State Interview Summary .....                                        | 35        |
| <b>Section 4: Projection Processes &amp; Methods in D.C. ....</b>    | <b>37</b> |
| Enrollment Projection Methodology .....                              | 37        |
| Next-year Projections .....                                          | 37        |
| Multi-year Projections .....                                         | 37        |
| Overall Population Forecasts .....                                   | 37        |
| Uses of Enrollment Projections .....                                 | 37        |
| Setting the District’s Operating Budget for Public Education .....   | 38        |
| Budgeting for weighted subgroups .....                               | 39        |
| Charter Facility Allowances .....                                    | 39        |
| Educational Facility Master and Capital Planning .....               | 39        |
| Estimating the Number of Lottery Seats .....                         | 40        |
| DCPS Enrollment Projection Methodology .....                         | 41        |



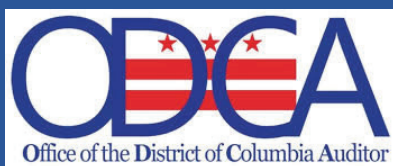
|                                                                              |           |
|------------------------------------------------------------------------------|-----------|
| Data used in DCPS Preliminary Baseline Projections .....                     | 41        |
| Cohort Method .....                                                          | 41        |
| Entry Grades Enrollment Projections .....                                    | 41        |
| Early Childhood Enrollment Projections .....                                 | 41        |
| Subgroup Projections .....                                                   | 42        |
| Adjustments to Cohort Estimates .....                                        | 43        |
| DCPS Central Office Review .....                                             | 43        |
| DCPS Principal Petitions .....                                               | 43        |
| Mid-Year Enrollment Adjustment .....                                         | 43        |
| DCPS DME Review .....                                                        | 44        |
| Projecting Public Charter School Enrollment .....                            | 44        |
| Data used in PCS Projections .....                                           | 44        |
| LEA Process .....                                                            | 44        |
| PCSB Collection via the HUB .....                                            | 44        |
| PCS DME Review .....                                                         | 45        |
| Certification of Enrollment Projections .....                                | 45        |
| Council Review .....                                                         | 45        |
| Key Findings .....                                                           | 46        |
| <b>Section 5: Testing and Developing Methods for D.C.....</b>                | <b>48</b> |
| Accuracy of Current Projections .....                                        | 48        |
| One-Year Comparison of Audited to Projected Enrollment .....                 | 48        |
| MAPE Results Overview .....                                                  | 49        |
| Findings for Charter Schools .....                                           | 55        |
| Blind Study of Enrollment Projections.....                                   | 57        |
| Student Mobility in D.C. Public and Public Charter Schools .....             | 60        |
| Mobility Index for Individual Schools .....                                  | 61        |
| What Matters Most: Factors Affecting Projection Accuracy .....               | 63        |
| Methods of this Analysis .....                                               | 64        |
| Findings .....                                                               | 65        |
| How these findings might be used .....                                       | 69        |
| <b>Section 6: Proposed Process and Methodology for Developing Enrollment</b> |           |
| <b>Projections by School: .....</b>                                          | <b>70</b> |
| Recommended adjustment #1 .....                                              | 73        |
| Recommended adjustment #2 .....                                              | 74        |
| Use of Enrollment Projections: .....                                         | 77        |

|                                                           |            |
|-----------------------------------------------------------|------------|
| <b>Section 7: Historical / Projected Enrollment .....</b> | <b>78</b>  |
| Historical Enrollment.....                                | 78         |
| Summary of Enrollment Projections .....                   | 81         |
| Baseline Enrollment Projections by School .....           | 81         |
| Feeder Patterns .....                                     | 81         |
| Birth Data .....                                          | 81         |
| Enrollment Projection Methodology .....                   | 81         |
| Survival Ratios .....                                     | 82         |
| Enrollment Projections .....                              | 84         |
| System-wide Enrollment Projections .....                  | 87         |
| Enrollment Projections Based on Residence .....           | 88         |
| Historical Enrollment .....                               | 88         |
| Birth Data .....                                          | 89         |
| Survival Ratios .....                                     | 89         |
| Enrollment Projections .....                              | 89         |
| Interactive Dashboard .....                               | 90         |
| <b>Conclusion .....</b>                                   | <b>93</b>  |
| <b>Acknowledgements .....</b>                             | <b>94</b>  |
| <b>Agency Comments .....</b>                              | <b>97</b>  |
| <b>Appendices .....</b>                                   | <b>101</b> |
| Appendix A .....                                          | 102        |
| Appendix B .....                                          | 110        |
| Appendix C .....                                          | 120        |



# Study of Enrollment in D.C. Public Schools

Including Current Methodology and Future Projections



Kathleen Patterson, District of Columbia Auditor  
[www.dcauditor.org](http://www.dcauditor.org)

Conducted by Cooperative Strategies, 21<sup>st</sup> Century School Fund, and Urban Institute for the Office of the District of Columbia Auditor

## Introduction & Purpose

In January 2018, Cooperative Strategies, in partnership with the 21st Century School Fund and the Urban Institute, was contracted by the Office of the D.C. Auditor (ODCA) to provide a Study of Enrollment in D.C. Public Schools Including Current Methodology and Future Projections, as requested by D.C. Councilmember Mary Cheh (Ward 3). The following tasks were included in this study:

- Review and assess the processes by which DCPS, the Office of the State Superintendent of Education (OSSE), and the Deputy Mayor for Education (DME) have predicted the enrollment in D.C. Public Schools with a focus on school years 2015-16, 2016-17, and 2017-18.
- Research and determine best practices in enrollment projections and assess the extent to which the District has utilized best practices in the last three school years, including how the District of Columbia enrollment projections have been utilized in making budget and facilities decisions.
- Conduct a demographic analysis of the District's population including reasons for and areas of growth and change in recent years, with a focus on school-age populations, including the historic trends in public, public charter, and private school enrollment in the District.
- Provide a 5-year and a 10-year enrollment projection by grade level, pre-school through 12th grade and include a projected breakdown based on best-available data for DCPS, D.C. Public Charter Schools, and D.C. independent schools.
- Propose a replicable methodology for the District government to use going forward to project enrollment with the assumption that such projections will continue to be utilized in budgeting and facilities planning.
- Produce a draft and final written report to be released publicly by ODCA.

On January 24, 2018 the ODCA held a meeting to kick off the study and introduce the Cooperative Strategies Team to key members of various District of Columbia agencies that would be instrumental in providing data and input needed for the study.

## Acronyms

Below is a list of acronyms used throughout this report.

|                                                                   |                                                       |
|-------------------------------------------------------------------|-------------------------------------------------------|
| ADA: Average Daily Attendance                                     | OCFO: Office of the Chief Financial Officer           |
| CIP: Capital Improvements Plan                                    | OCTO: Office of the Chief Technology Officer          |
| CPS: Columbus Public Schools (Ohio)                               | ODCA: Office of the D.C. Auditor                      |
| D.C.: District of Columbia                                        | ODME: Office of the Deputy Mayor for Education        |
| DCMR: District of Columbia Municipal Regulations                  | OFCC: Ohio Facilities Construction Commission         |
| DCPS: District of Columbia Public Schools                         | OP: District of Columbia Office of Planning           |
| DGS: Department of General Services                               | OSSE: Office of the State Superintendent of Education |
| DME: Deputy Mayor for Education                                   | OUSD: Oakland Unified School District                 |
| DOF: California Department of Finance                             | PCSB: Public Charter School Board                     |
| DPS: Denver Public Schools                                        | PCS: Public Charter Schools                           |
| ELL: English Language Learner                                     | PDE: Pennsylvania Department of Education             |
| ES: Elementary School                                             | P/E: Projection to enrollment ratio                   |
| Esri: Environmental Systems Research Institute                    | PK: Pre-Kindergarten                                  |
| GIS: Geographic Information Systems                               | PK3: 3-year-old pre-kindergarten students             |
| HS: High School                                                   | PK4: 4-year-old pre-kindergarten students             |
| K-5: Grades kindergarten, first, second, third, fourth, and fifth | SEA: State Education Agency                           |
| LEA: Local Education Authority                                    | SEO: State Education Office                           |
| LSAT: Local School Advisory Team                                  | SDP: School District of Philadelphia                  |
| MAPE: Mean Absolute Percent Error                                 | SPED: Special Education                               |
| MFP: Master Facilities Plan                                       | SRA: School Reform Act                                |
| MS: Middle School                                                 | SY: School Year                                       |
| NCES: National Center for Education Statistics                    | UG: Ungraded                                          |
|                                                                   | UPSFF: Uniform Per Student Funding Formula            |

## Definitions

Below is a glossary of terms frequently used throughout this report:

**Capacity** – The total number of students a school can serve

**Enrollment Roll-up (“Roll-up”)** – the sum of enrollment by school by grade up to LEA or system-wide level

**Feeder Patterns** – the progression of school assignment for students based on geography (student residence) or program enrollment

**Mobility** - how many students entered and left the school from year to year

**Projection Ratios** – the ratios determined based on survival ratios that are applied to current enrollment to develop enrollment projections

**Student Mobility** - a function of gross mobility, which can be thought of as the extent to which the individuals within student population change from year to year, even if overall enrollment remains steady. It is also defined as a property of a school in the transition between adjacent grades, not of the grades themselves.

**Survival Ratios** – the percentage of students that move from grade to grade, year to year; birth to kindergarten 5 years later; birth to PK3 3 years later; birth to PK4 4 years later

## Overview of Process, Findings & Recommendations

The changing population and demographics in the District of Columbia combined with complex public education student assignment and choice policies create an environment in which it is difficult to predict the future enrollment of children, youth and adults in the District of Columbia. At the same time, projecting future enrollment is an essential responsibility of school districts and municipalities. At the municipal level, public school enrollment affects land use, community use of school buildings and grounds, housing and neighborhood development, and transportation and municipal budgets. At the school level, it affects staffing, program opportunities, and the quality of neighborhood schools and the type and quality of the District of Columbia Public Schools (DCPS) and charter school choices for families.

Projecting future enrollment is a necessary and essential process that school districts rely on for many different reasons. Projections are most often used for planning, particularly for master facilities planning, building new schools or consolidating schools, and for boundary adjustments as populations shift over time. However, enrollment projections in the District of Columbia are also used for annual budgeting, and so have a sector, local education agency (LEA) and school level effect on city, LEA and school budgets. The changes in the District of Columbia and in the public education sector create an environment in which predicting the future enrollment of children, youth and adults is complex.

This study explored the complexities of projecting enrollment for the District of Columbia and proposes processes and methods for next year and five and ten-year projections. To build a recommendation for enrollment projection processes and methodology that are practical and of good value for the unique character of the District of Columbia public education system, it was necessary to navigate the data and history of DCPS and charter schools and try to understand how DCPS and charter school supply and parental demand affect student movement.

We examined current enrollment projection processes and methodologies used in the District of Columbia. We explored other school district and state level practices across the country and analyzed what has worked and what has not worked for the District of Columbia when projecting enrollment in the past. Finally, we propose retaining many aspects of current processes and methods, but also modifying them to better align with local uses and with national best practice standards.

Navigating historical enrollment data proves difficult in the District of Columbia. There are many offices within the District of Columbia that maintain and track enrollment and the governance of the city-wide agencies with these responsibilities has changed over time. For most of the history of public education in the District of Columbia, the state and local functions were one in the same (as they are in Hawaii), and the State Education Agency (SEA) was under the DCPS school superintendent and school board. These entities collected, tracked, reported and projected enrollment. For a short period, the state responsibilities moved into a “State Education Office” SEO, under the Mayor. However, with Mayoral control enacted in 2007, the state public education functions were assigned to the Office of the State Superintendent of Education (OSSE), under the Mayor.

While District officials were unfailingly cooperative in sharing data throughout this project, the data often lacked consistency in school names and school identification numbers, and in what data is rolled up and provided in reporting. This can be a result of constant change and movement in a system that does not currently have a central repository to track all the historical influences on student populations maintained and used by various groups. That is, school names in each audited enrollment file are not consistent and significant time was spent identifying

standardized school names to analyze historical school enrollment data; student data with addresses at time of enrollment was not available for 10 years (only 5 years of data was available in a consistent manner); 2008-09 and 2009-10 audited enrollment needed to be aggregated from the student data provided.

Enrollment projections developed for Master Facilities Plans were developed by a variety of consultants over the past 20 years. A consistent model was not established, and it was difficult to determine what data was used to develop the enrollment projections.

This study examines several factors that have influenced enrollment and public-school participation rates over the years. These include:

- Changing housing and population trends, particularly in attracting young adults of child-bearing ages
- New construction and consolidation of schools, including boundary changes
- Program / Curriculum changes
- Increases in charter school enrollment and facilities
- City policies, for choice, student assignment, governance, and funding

### Process / Background

There are many different approaches to conducting enrollment projections, but almost all best practices are founded in the cohort survival method, which analyzes historical enrollment and the percentage of students who move from grade to grade, year to year, historically. Processes used in the District of Columbia have also been based in this method which has produced two [2] main types of projections. First, by school by grade (summed into sector and District projections, and second, by grade only (usually rolled up by sector and then by District). The Office of Planning also produces age level projections that assist in the projections process.

Projections are conducted for the next year and used as part of the city's annual budget cycle. In conversations with comparable districts that share characteristics similar to those in the District of Columbia such as demographic composition; existence of public, charter, and independent schools; and school choice options, we have found this to be a common practice for setting district budgets and preparing for resource allocation one year in the future. Multi-year projections are conducted typically as part of master facilities planning studies, again a common practice among other comparable districts. One-year projections that are used for budgeting assist in determining DCPS and public charter operating budgets and the charter school facilities allowance, while multi-year projections help determine capital improvement budgets and Public Charter School Board decisions on school openings. Data sets, projection sub-sets and review methodology are detailed in the [Enrollment Projection Methodology](#) section of the report.

A review of comparable districts across the country was conducted to seek out common methodologies, uses for projections, or results of projections. State level officials were also interviewed to determine how their processes for projecting enrollment were similar to or different from the District of Columbia. Overall, we determined that the complexities of data and the influences on enrollment are common in districts of this size, though the level of influence of each factor varies. Most of the districts' primary purposes for conducting enrollment projections are for budgeting purposes; this holds true for state-level projections. Some districts conduct a review process with principals and other local school administrators, but such reviews are determined by the funding formula that each district uses when setting budgets for each school or whether the district has a school-level budgeting process.



This study also conducted a comparison of enrollment projections to actual audited enrollments for the one-year projections. Comparisons for DCPS were completed for school years 2014-15 through 2017-18 and for PCS schools 2016-17 through 2017-18 (due to limited data availability). We compared projections versus audited enrollments in the aggregate, then by Ward, by year, by grade level, and by individual school. The comparison does not attempt to determine specifically why errors occur. Detailed results can be found in the Accuracy of Current Projections section of this report, but key findings include:

For DCPS Schools:

- The magnitude of projection errors varies by ward, by year, and by grade
- The direction of the projection errors (too high or too low) also varies by ward, by year, and by grade in ways that often do not correspond to the magnitude of the errors

For PCS Schools:

- PCS schools had about the same absolute projection errors across wards and showed reductions in projection error from the 2016-17 to the 2017-18 school years
- PCS schools produced projections that skewed high in the 2017-18 school year

Five and ten-year projections were analyzed and or compared simply by reviewing the process and methodology conducted in prior master facilities plans and actual (audited) enrollment was measured against each projection. Key findings at the district level are that most projections were fairly accurate one-year out, but error rates increased significantly for future years.

Supply and demand factors influence student movement and therefore impact enrollment projections, particularly at the school level. Government policies influence demand by regulating location, condition, capacity and access to publicly funded schools. In districts with limited school choice, enrollment projections are simplified because the district can control where students attend. Matching supply to enrollment demands at the school level in districts that have a history of opening and closing schools and where students are attracted to schools, not necessarily located where they live, makes it challenging to accurately project enrollment at the school level.

Demand-side factors, specifically in this study, are neighborhood characteristics that influence enrollment trends across the District. Characteristics include demographics, economic indicators, housing (and changes in housing), cultural changes over time, and college attainment. These are certainly not all the factors that affect demand but represent some that can be measured and can contribute to the enrollment projection process.

### Overview of Findings

An enrollment projection blind study was conducted using historical enrollment data from two time periods: 2008-09 through 2015-16, and 2008-09 through 2016-17. The intent of the study was to apply different projection ratios, utilizing only the mathematical approach of projecting (commonly referred to as the “science”), to compare the output from each set of enrollment projections to the actual audited enrollment by school for both DCPS and PCS. When applying no expert analysis into adjusting projection ratios (ratios determined based on survival ratios that are applied to current enrollment to develop enrollment projections, commonly referred to as the “art”), the results determined that for DCPS, accuracy for the largest number of schools was attained by using a 3-year simple average of survival ratios. For PCS, utilizing the weighted average of the 2 most recent years of survival ratios yielded the highest number of accuracies by school, but only slightly higher than using a 3-year simple average of survival ratios.

The “art” of enrollment projections is the ability to apply expert analysis to adjust projection ratios based on outside factors that are not easily measured. This study details the complex set of data that can influence school attendance, and that can be accounted for in most cohort survival methods. Because of these factors, accuracy in projecting enrollment is difficult to achieve as the sample size of projections becomes smaller, i.e. system-wide versus school level. Therefore, it becomes essential to determine when the “art” of projections is best applied. This is best captured in studying and statistically analyzing what matters most in predicting factors that introduce the most error in enrollment projections using the cohort survival method.

The objective when identifying the most influential factors of student enrollment, is to determine how this information can be used to modify enrollment projections toward greater accuracy. Key findings of what matters most include:

- For DCPS schools, the single most important characteristic that predicted projection error was the school’s student *mobility*, or how many students entered and left the school from year to year
- For PCS schools, a *recent sudden shift* in stated school capacity was associated with projection error – in other words, a cohort model cannot anticipate future effects of recent changes in school capacity

Student mobility is defined as a function of *gross* mobility, which can be thought of as the extent to which the individuals within student population change from year to year, even if overall enrollment remains steady. It is also defined as a property of a school in the transition between adjacent grades, not of the grades themselves. This form of student mobility would be expected to have some relationship to the amount of uncertainty in projections. If a school has been experiencing “churn” in the past, then future enrollments could be likely to depart from the trajectory of past enrollments, subject to changes in the rate that students are moving in, the rate that they are moving out, or both. In contrast, a school with smaller levels of student mobility can be expected to have future enrollments that are more stable and easily predicted by cohort survival models, even if the schools have had similar progression ratios in the past.

Sudden shifts in stated school capacity could include changes in facility capacity due to renovations, new construction, or location changes; and in the case of PCS schools, a change in the enrollment ceiling.

### Overview of Recommendations

Today the Office of the Deputy Mayor for Education has sufficient authority to oversee the schedule, policies, and procedures to be followed by OSSE and LEAs in this process. While some elements of the process are centralized, there are other elements that are appropriate for a specific agency or agencies based on their expertise and authority. The recommendations presented here—some of which are in place or in place to some extent—are intended to make the overall process more timely, efficient, transparent, and accurate. The graphic on the following pages outlines the recommended enrollment projections process.

# Enrollment Projections Development Process

## Steps 1 - 9



# Enrollment Projections Development Process

## Steps 10 - 15

### DCPS and PCSB share their preliminary adjusted projection

DCPS and PCSB share their preliminary adjusted projection (baseline plus adjustments and documented rationale) with the DCPS local schools and charter LEAs, who will be able to review the preliminary projections along with all data provided on the interactive web portal, including, but not limited to historic enrollment data, survival ratios, live birth counts, supply data (including but not limited to capacity, square footage, facility condition, enrollment ceiling/caps, school location, program offerings, grade configuration, planned school/program closings and openings, and boundary changes), demand factors (including but not limited to residential building permits, lottery data), and mobility index and baseline enrollment projection of their school and either propose documented adjustments to the preliminary adjusted enrollment projection of DCPS and PCSB or accept the preliminary adjusted enrollment projection from their LEA central office.

*Responsible agency:* OSSE

### ODME Rolls Up Final Approved Projections Compares them to Baseline and System-Wide Enrollment Projections

ODME rolls up the DCPS and PCSB projections from the final school and DCPS/PCSB approved projections (Step 11) and compares them to OSSE's baseline (Step 5) and OSSE's system-wide enrollment projections (Step 8).

*Responsible agency:* ODME

### ODME Certifies the Next Year Projection

ODME certifies the next year projection and provides comments on the five-year projection.

*Responsible agency:* ODME

10

11

12

13

14

15

### DCPS and PCSB submit their final next year and five-year projections to the ODME

Following the back and forth between DCPS and local schools and PCSB and LEAs, DCPS and PCSB submit their final next year and five-year projections to the ODME.

*Responsible agency:* DCPS and PCSB

### ODME Reconciles Enrollment Projections with System-Wide Enrollment Projections

ODME works with DCPS and PCSB to reconcile the projections by grade, with the system-wide enrollment projections (Step 8)—making sure they align with the system-wide enrollment projections by grade, and by subgroup, by grade developed in Step 8 as much as reasonably possible.

*Responsible agency:* ODME, DCPS, and PCSB

### Annual Enrollment Projection Review

Enrollment projections should be compared with the actual audited enrollment system-wide by grade ; and by school, by grade; as well as for special populations. This is important in continued improvement of the enrollment projection process. As discrepancies are found, it is good practice to try to determine the root of the error so that it may be considered in subsequent updates.

*Responsible agency:* OSSE

## Historical Enrollment

Historical district-wide enrollment has increased by nearly 21,000 students over the past ten [10] years. Most notable is the elementary (K-5) enrollment with an increase of 11,000 students in that same time period. Most of this growth has been in PCS schools.

### Historical Enrollment - District-wide

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 7,067         | 8,211         | 9,581         | 10,778        | 11,428        | 11,855        | 12,040        | 12,309        | 12,529        | 12,718        |
| K - 5              | 29,329        | 29,513        | 30,669        | 31,277        | 32,969        | 34,812        | 36,785        | 38,397        | 39,825        | 40,425        |
| 6 - 8              | 13,456        | 13,361        | 13,137        | 13,096        | 13,388        | 13,426        | 13,512        | 13,516        | 14,024        | 14,595        |
| 9 - 12             | 17,584        | 17,591        | 17,589        | 16,683        | 17,517        | 16,187        | 16,590        | 16,716        | 17,113        | 18,274        |
| Other              | 3,212         | 3,516         | 3,958         | 4,859         | 4,880         | 6,652         | 6,448         | 6,372         | 6,462         | 5,476         |
| <b>K - 12</b>      | <b>60,369</b> | <b>60,465</b> | <b>61,395</b> | <b>61,056</b> | <b>63,874</b> | <b>64,425</b> | <b>66,887</b> | <b>68,629</b> | <b>70,962</b> | <b>73,294</b> |
| <b>Grand Total</b> | <b>70,648</b> | <b>72,192</b> | <b>74,934</b> | <b>76,693</b> | <b>80,182</b> | <b>82,932</b> | <b>85,375</b> | <b>87,310</b> | <b>89,953</b> | <b>91,488</b> |

Source: OSSE Audited Enrollment

### Historical Enrollment - PCS

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 2,820         | 3,604         | 4,346         | 5,382         | 5,858         | 6,290         | 6,425         | 6,477         | 6,700         | 6,921         |
| K - 5              | 8,865         | 9,677         | 10,638        | 11,184        | 12,496        | 13,499        | 14,698        | 15,154        | 16,175        | 16,873        |
| 6 - 8              | 6,248         | 6,179         | 6,087         | 6,188         | 6,577         | 6,438         | 6,466         | 6,861         | 7,246         | 7,758         |
| 9 - 12             | 5,249         | 5,860         | 6,013         | 5,757         | 6,604         | 5,985         | 6,002         | 5,945         | 6,602         | 7,051         |
| Other              | 2,069         | 2,313         | 2,282         | 3,051         | 3,139         | 4,353         | 4,264         | 4,468         | 4,768         | 4,790         |
| <b>K - 12</b>      | <b>20,362</b> | <b>21,716</b> | <b>22,738</b> | <b>23,129</b> | <b>25,677</b> | <b>25,922</b> | <b>27,166</b> | <b>27,960</b> | <b>30,023</b> | <b>31,682</b> |
| <b>Grand Total</b> | <b>25,251</b> | <b>27,633</b> | <b>29,366</b> | <b>31,562</b> | <b>34,674</b> | <b>36,565</b> | <b>37,855</b> | <b>38,905</b> | <b>41,491</b> | <b>43,393</b> |

Source: OSSE Audited Enrollment

### Historical Enrollment - DCPS

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 4,247         | 4,607         | 5,235         | 5,396         | 5,570         | 5,565         | 5,615         | 5,832         | 5,829         | 5,797         |
| K - 5              | 20,464        | 19,836        | 20,031        | 20,093        | 20,473        | 21,313        | 22,087        | 23,243        | 23,650        | 23,552        |
| 6 - 8              | 7,208         | 7,182         | 7,050         | 6,908         | 6,811         | 6,988         | 7,046         | 6,655         | 6,778         | 6,837         |
| 9 - 12             | 12,335        | 11,731        | 11,576        | 10,926        | 10,913        | 10,202        | 10,588        | 10,771        | 10,511        | 11,223        |
| Other              | 1,143         | 1,203         | 1,676         | 1,808         | 1,741         | 2,299         | 2,184         | 1,904         | 1,694         | 686           |
| <b>K - 12</b>      | <b>40,007</b> | <b>38,749</b> | <b>38,657</b> | <b>37,927</b> | <b>38,197</b> | <b>38,503</b> | <b>39,721</b> | <b>40,669</b> | <b>40,939</b> | <b>41,612</b> |
| <b>Grand Total</b> | <b>45,397</b> | <b>44,559</b> | <b>45,568</b> | <b>45,131</b> | <b>45,508</b> | <b>46,367</b> | <b>47,520</b> | <b>48,405</b> | <b>48,462</b> | <b>48,095</b> |

Source: OSSE Audited Enrollment



## Summary of Enrollment Projections

The following enrollment projections were developed as part of this study for the District of Columbia:

- Baseline enrollment projections by school
- System-wide enrollment projections
- Enrollment projections based on residence

It should be noted that the overall historical enrollment between the baseline by school and elementary boundary (residence) projections differ (due to being different data sets) and therefore the enrollment projections presented also differ. In addition, aggregating the data differently will yield different results. Details of these processes can be found in [Section 7: Historical / Projected Enrollment](#).

### Baseline Enrollment Projections by School

Baseline enrollment projections by school were developed for the DCPS and PCS schools in the District of Columbia using the official audited enrollment by school, and by grade from 2008-09 through 2017-18 provided by OSSE (<https://osse.dc.gov/enrollment>). The enrollment projections were developed using the cohort survival methodology. A 3-year simple average of survival ratios was used to project DCPS school enrollment and a 2-year weighted average of survival ratios was used to project PCS school enrollment. Live birth counts were used to project kindergarten enrollment; PK, Adult, UG, and SPED UG were kept flat at the current 2017-18 enrollment.

Projected Enrollment - System-wide (Baseline)

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23       | 2023-24       | 2024-25       | 2025-26       | 2026-27       | 2027-28       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        |
| K - 5              | 40,361        | 40,493        | 40,775        | 41,159        | 41,304        | 41,530        | 41,743        | 41,811        | 41,881        | 41,735        |
| 6 - 8              | 15,448        | 15,885        | 16,067        | 15,934        | 15,978        | 16,007        | 16,037        | 16,129        | 16,251        | 16,585        |
| 9 - 12             | 17,935        | 18,147        | 18,456        | 19,288        | 19,765        | 19,869        | 19,886        | 19,902        | 20,017        | 20,128        |
| Other              | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         |
| <b>K - 12</b>      | <b>73,744</b> | <b>74,525</b> | <b>75,298</b> | <b>76,381</b> | <b>77,047</b> | <b>77,406</b> | <b>77,666</b> | <b>77,842</b> | <b>78,149</b> | <b>78,448</b> |
| <b>Grand Total</b> | <b>92,160</b> | <b>92,941</b> | <b>93,714</b> | <b>94,797</b> | <b>95,463</b> | <b>95,822</b> | <b>96,082</b> | <b>96,258</b> | <b>96,565</b> | <b>96,864</b> |

Source: Cooperative Strategies

### System-wide Enrollment Projections

Based on the system-wide enrollment projections, using the total student population, it is anticipated that enrollment will continue to increase over the next ten years by approximately 12,099 students, a majority of that growth anticipated in the first five [5] years. The system-wide enrollment projections were developed using the cohort survival methodology. A 3-year simple average of survival ratios was used. Live birth counts were used to project PK and kindergarten enrollment; Adult, UG, and SPED UG were kept flat at the current 2017-18 enrollment. These are the projections that the post-baseline enrollment projection by school roll-up should be reconciled to.

Projected Enrollment - 3 Year Simple Average - System-wide

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23        | 2023-24        | 2024-25        | 2025-26        | 2026-27        | 2027-28        |
|--------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PK                 | 12,942        | 13,154        | 13,245        | 13,087        | 13,087         | 13,087         | 13,087         | 13,087         | 13,087         | 13,087         |
| K - 5              | 40,671        | 41,039        | 41,386        | 41,938        | 42,193         | 42,437         | 42,696         | 42,784         | 42,833         | 42,691         |
| 6 - 8              | 15,794        | 16,713        | 17,449        | 17,584        | 17,758         | 17,880         | 17,967         | 18,112         | 18,289         | 18,671         |
| 9 - 12             | 18,333        | 18,714        | 19,120        | 20,458        | 21,633         | 22,513         | 23,163         | 23,422         | 23,580         | 23,662         |
| Other              | 5,476         | 5,476         | 5,476         | 5,476         | 5,476          | 5,476          | 5,476          | 5,476          | 5,476          | 5,476          |
| <b>K - 12</b>      | <b>74,798</b> | <b>76,466</b> | <b>77,955</b> | <b>79,980</b> | <b>81,584</b>  | <b>82,830</b>  | <b>83,826</b>  | <b>84,318</b>  | <b>84,702</b>  | <b>85,024</b>  |
| <b>Grand Total</b> | <b>93,216</b> | <b>95,096</b> | <b>96,676</b> | <b>98,543</b> | <b>100,147</b> | <b>101,393</b> | <b>102,389</b> | <b>102,881</b> | <b>103,265</b> | <b>103,587</b> |

Source: Cooperative Strategies

## Enrollment Projections Based on Residence

Enrollment projections were developed based on the residence of where students (DCPS and PCS) live within DCPS elementary boundaries. Enrollment projections based on boundary of residence are useful for planning school facilities (master facility planning) and/or attendance boundaries. Student data by address points for school years 2013-14 through 2017-18, provided by OSSE, were geocoded and aggregated to the DCPS elementary boundaries. The enrollment projections were developed using the cohort survival methodology. A 3-year simple average of survival ratios was used. Live birth counts were used to project kindergarten enrollment; PK and Adult were kept flat at the current 2017-18 enrollment.

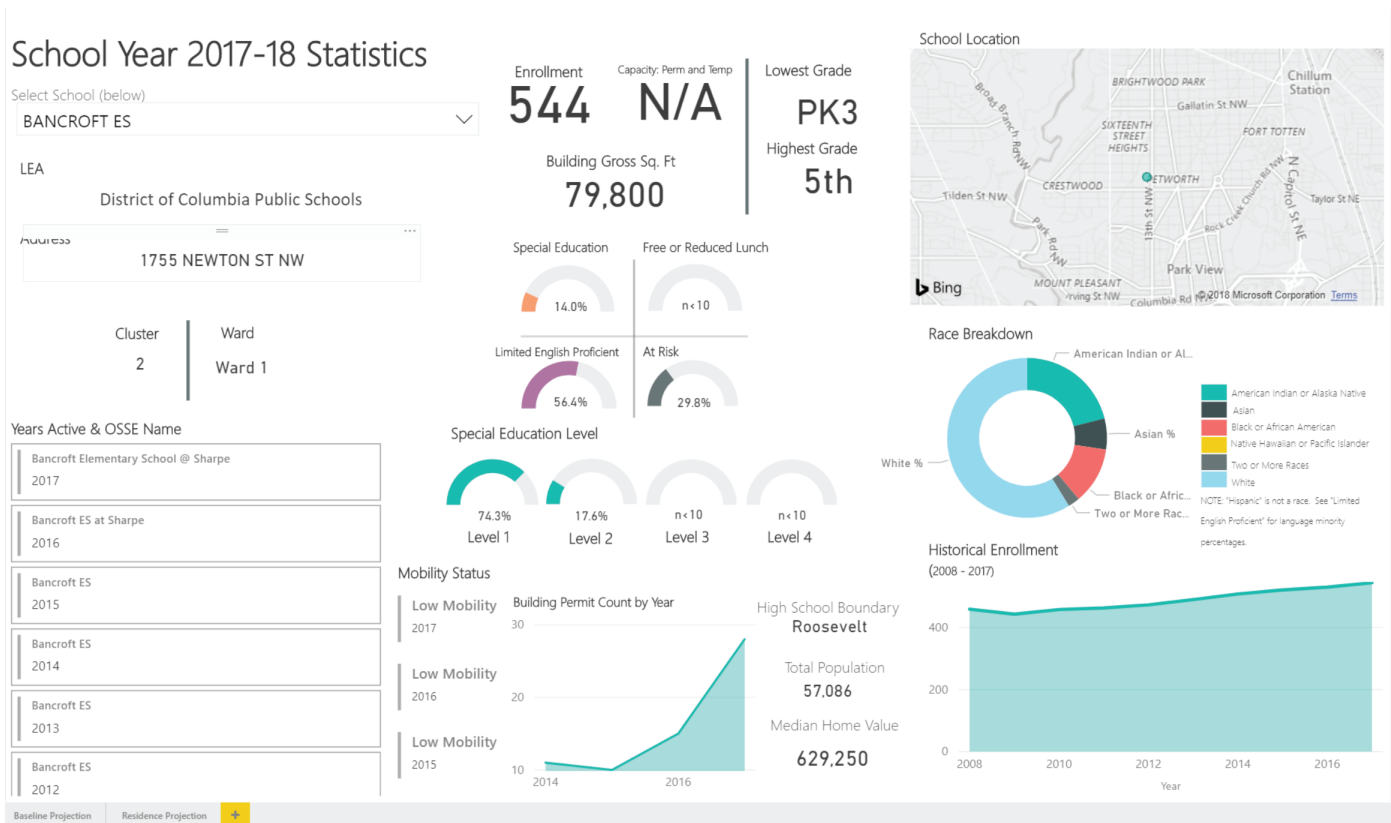
### Projected Enrollment - System-wide (based on Residence)

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22        | 2022-23        | 2023-24        | 2024-25        | 2025-26        | 2026-27        | 2027-28        |
|--------------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PK                 | 12,727        | 12,727        | 12,727        | 12,727         | 12,727         | 12,727         | 12,727         | 12,727         | 12,727         | 12,727         |
| K - 5              | 41,179        | 41,809        | 42,440        | 43,287         | 43,720         | 44,133         | 44,447         | 44,594         | 44,664         | 44,457         |
| 6 - 8              | 16,117        | 17,165        | 18,001        | 18,264         | 18,600         | 18,898         | 19,213         | 19,494         | 19,860         | 20,378         |
| 9 - 12             | 19,119        | 19,699        | 20,342        | 22,139         | 23,534         | 24,612         | 25,439         | 25,979         | 26,333         | 26,766         |
| Other              | 4,951         | 4,951         | 4,951         | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          |
| <b>K - 12</b>      | <b>76,415</b> | <b>78,673</b> | <b>80,783</b> | <b>83,690</b>  | <b>85,854</b>  | <b>87,643</b>  | <b>89,099</b>  | <b>90,067</b>  | <b>90,857</b>  | <b>91,601</b>  |
| <b>Grand Total</b> | <b>94,093</b> | <b>96,351</b> | <b>98,461</b> | <b>101,368</b> | <b>103,532</b> | <b>105,321</b> | <b>106,777</b> | <b>107,745</b> | <b>108,535</b> | <b>109,279</b> |

Source: Cooperative Strategies

## Interactive Dashboard

All information used in this process has been placed in an interactive dashboard, which is available at [dcauditor.org](http://dcauditor.org). Due to FERPA privacy requirements, any subgroup information that is representative of less than 10 students or encompasses all students may have been suppressed.



School level data available on the dashboard includes:

#### Background Data Sheet

- LEA
- Address
- School location map (includes program locations over the past 10 years)
- Cluster
- Ward
- Years open
- Total enrollment (2017-18)
- Historical enrollment (2008-2017)
- Capacity (permanent and temporary)
- Building square footage
- Racial makeup
- Special education percentage\*
  - Levels 1-4\*
- Free or reduced lunch percentage\*
- Limited English proficiency (LEP) percentage\*
- At risk percentage\*
- Mobility status
  - 2015-2017
- High school boundary
  - Building permit counts by year
  - Total population (2017)
  - Median home value (2017)

#### Baseline Projection Sheet

- Feeder pattern information
- Birth data (2009-2017)
- Historical enrollment (2008-2017)
- Survival ratios
- Baseline projected enrollment (2018-19 – 2027-28)

#### Residence Projection Sheet

- Historical and projected enrollment (2013 -14 – 2027-28)
- Births by boundary (2003-2016)
- Survival ratios

\*Denotes data that is subject to suppression due to FERPA requirements.



## Section 1: Dynamic City and Schools

It is important to understand the extent of demographic and policy change that has shaped the landscape of the city and public education over the last two decades in the District of Columbia. The interplay of the personal priorities and preferences of parents and guardians and the public education policy environment created and sustained by the District Government occur in the context of a changing city. Private interests of parents and public concerns of families and government cause broader demographic shifts and are affected by them.

### Washington D.C. - Demographic Overview

From its founding in 1790, the District of Columbia's population grew – often rapidly – to its historic high of 802,000 in the 1950 Census (Figure X). This growth was followed by a half century of population decline from 1950 to 2000, and then a resumption of population growth after 2000.

The period of population decline began with the movement of many white residents to the suburbs in the 1950s and 1960s, a pattern that occurred in numerous older, eastern US cities. By 1970, D.C.'s black residents started to leave as well. While some blacks may have been following the middle-class suburbanization trend, the continuing decline in living conditions created by public and private underinvestment in D.C.'s black communities forced many to seek opportunities outside the city. This trend continued through the next several decades, with predominantly black neighborhoods east of the Anacostia river losing over 66,000 residents between 1980 and 2000. By the 2000 census, D.C.'s population reached a modern low of 572,000 persons.

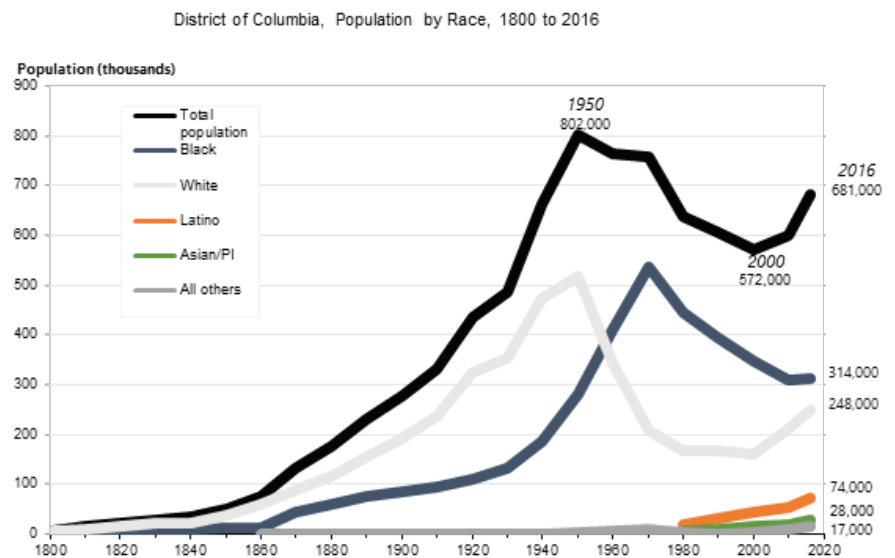
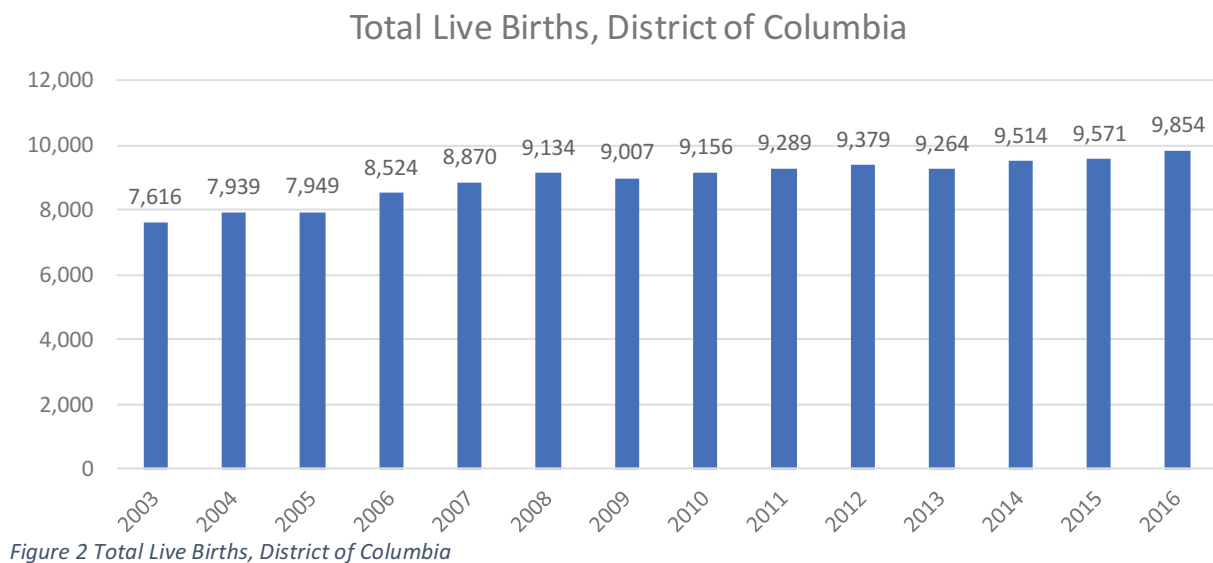


Figure 1 District of Columbia Population by Race

The District's population decline ended around 2000 and the city entered a new period of growth driven, to a large extent, by the arrival of persons in the millennial generation in increasing numbers (Tatian and Lei 2013), part of a national trend of younger adults being drawn to cities. The Great Recession of 2007 – 2009, which hit many other parts of the country harder than the Washington area, led many young people to seek out job opportunities in D.C. In addition, immigrants from Central and South America, Asia, Africa, and the Caribbean contributed to the city's population growth. While D.C. has not historically been a center for immigration to the U.S., since the 1980s the Washington region has emerged as one of the country's largest new gateway destinations for immigrant communities (Singer 2004). While most of the increase in foreign-born persons in the region has been in the suburbs, D.C.'s immigrant population has grown steadily as well. While immigrants represented only 4 percent of the city in 1970, today they make up 14 percent of D.C.'s population. Many immigrants arrived during the 1990s, a period of increasing migration to the U.S. that was enabled by raised immigration caps<sup>1</sup> but also a

result of other factors, such as unrest and civil wars in Central America and economic malaise and political instability affecting some African countries (Macharia 2011).

During the initial ten years of D.C.'s new growth, however, the city's black population continued to fall. While the steep population losses of the 1970s, 1980s, and 1990s stopped or even reversed in many majority black neighborhoods in northeast and southeast, increasing demand for housing by new residents led to rising rents and home prices in northwest city neighborhoods, such as Columba Heights, Shaw, and U Street, that had been centers of the black community (Tatian and Lei 2013, Tatian and Lei 2014). Rising costs forced many long-time residents to search for lower cost housing in other parts of the city, elsewhere in the Washington area, or even outside the region entirely (Tatian, Hendey, and Bogle 2017). And although, according to the latest U.S. Census estimates, the city's black population is starting to rise again, the growth is attributable to an increase in foreign-born blacks. Immigrants from sub-Saharan Africa have been a growing share of migrants to the U.S. since 2010 and the Washington region has emerged as one of the top destinations for African immigrants, particularly those from Ethiopia (Connor 2018, Macharia 2011).



Additionally, natural population growth, that is, total births to mothers in the City, has increased over the past 14 years (figure 2). Between 2000 and 2003, total births remained steady at between 7,500 to 7,700. Births increased to 7,939 in 2004 and then jumped to 8,524 in 2006. A consistent increase in births has continued since then, reaching 9,156 total births in 2010 and a recent high of 9,854 in 2016, 25 percent higher than the number of children born in 2000. The increase in births was not uniform across the entire city, however. Births increased in all City wards except for Ward 3, where they have been at roughly the same level (between 800 and 900 births per year) since 2003. The largest increases in births were in wards 4, 5, and 6. These three wards accounted for two-thirds of the total increase in births in the city since 2000.

As a result of these trends, the City has reached a recent peak population of 681,000, according to 2016 U.S. Census estimates. Despite the overall population growth, the change in school-age children has followed different trajectories (figure 3). The period from 2000 to 2010 saw declines in children ages 5 to 9 and 10 to 14 years, falling by 9,200 and 5,000 persons, respectively, while the number of children under 5 years and 15 to 17 years remained relatively constant. It was during this period of child population decline, from 2000 to 2010, that DCPS was closing

schools, due to overall child population decline and charter development that was capturing a growing share of the declining school-age population.

Between 2010 and 2016, the numbers of children ages 0 to 9 grew by over 19,000, with the largest increase being children under 5 years, who increased by almost 11,000. Nevertheless, the number of children 15 to 17 years fell by 1,400 over this same period and the population of children 10 to 14 years increased by only 1,800. Among all four groups, only children under 5 years currently have a larger population than they did in 2000.

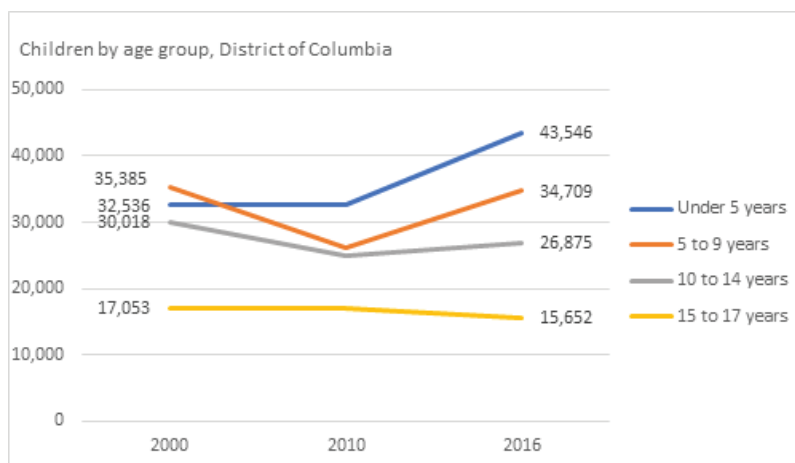


Figure 3 Children by Age Group, District of Columbia

Although, as noted above, births to D.C. mothers were also rising between 2004 and 2016, the increase in children under 5 is much too large to be explained by the growth in children born in the City alone. Only 2,891 more births occurred between 2012 and 2016, when compared with 2006 to 2010, not enough to account for the 11,000 net increase in under 5 year olds between the two periods. Changes in people migrating in and out of the City, both domestically and internationally, are therefore a major part of the explanation for the growth in younger children in D.C. since 2010.

The City's demographic changes have had a significant impact on public school enrollment. Enrollment in DCPS schools had been declining steadily between 1970 and 1990, falling from approximately 146,000 to 80,700 students, paralleling the drop in the District's overall population (figure 4)<sup>2</sup>. Between 1990 and 1995, DCPS public school enrollment leveled off and then started a small downward dip coinciding with the introduction of the first charter schools in the District in the 1996-97 school year. Total public school enrollment in DCPS and PCS schools fluctuated over the next few years and then dropped to a low of 72,192 in 2009-10. Since then, total public school enrollment has grown steadily, increasing to 91,488 students in the 2017-18 school year.

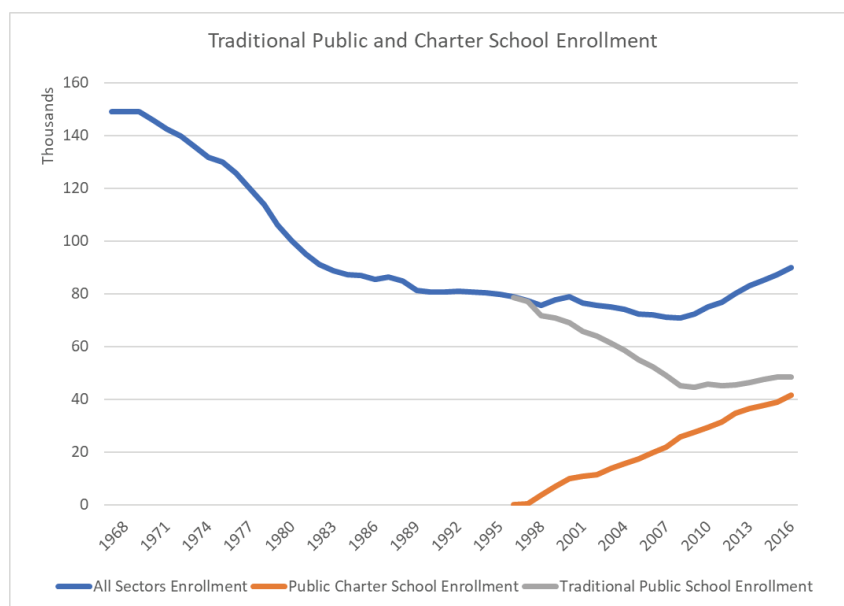


Figure 4 Traditional Public and Charter School Enrollment

Most of the renewed public school growth was in the charter schools, which increased enrollment from 25,251 to 34,674 students between 2008-09 and 2012-13. During this same period, enrollment in DCPS schools was relatively flat, hovering between 45,397 and 45,508 students. Starting in 2013-14, however, enrollment in DCPS

schools began to rise as well, increasing to 48,095 students by 2017-18. PCS enrollment has almost reached parity with traditional public schools, with 43,393 students enrolled in charters in 2017-18.

The data presented in this section illustrates the complex relationship between demographic changes and school enrollment. Although public school enrollment tends to track with the overall population, changes in specific age groups do not correlate directly with trends in aggregate population or births. Therefore, additional demand and supply factors need to be examined to improve the reliability of school enrollment forecasts.

## Demand and Supply Factors Affecting Enrollment Projections

In the study, it was theorized that there are factors of parental demand and school supply that could assist the District in projecting enrollment. At the same time, some neighborhood factors and government policy decisions were identified that may affect the relationship of parental demand with school supply and therefore may impact the accuracy of school-level enrollment projections.

Historical student enrollment trends are a primary factor for projecting enrollment for the next year; this natural progression is built in the cohort survival model. However, it was theorized that nonlinear changes in parental demand and in school supply associated with public sector decision making may cause school enrollment to deviate from the past and predictably result in enrollment projection errors at the school level.

Demand-side factors include parental preferences that are hypothesized to affect the enrollment choices (long- and short-term) for the school age population within each DCPS high school attendance zone. The key indicators of parental demand were schools that ranked as a first choice in the lottery and schools with utilization over 100 percent. Supply factors considered include the number, size, and character of schools available in the City to District of Columbia children, youth and adults and the public inputs likely to affect the actual quality of the school. The neighborhood factors thought to be related to parental demand and school supply were the education level of the population, median home sale prices, the total population within a DCPS high school catchment area and the number of new construction permits.

The relationship between supply and demand is highly influenced by government action and public policy including everything from student assignment policy and how it operates to where schools are opened, closed, and expanded, and for whom. The key laws controlling the relationship of parental demand to school supply include the School Reform Act (SRA) enacted by Congress which established two authorizing entities--the DCPS Board of Education and the Public Charter School Board (PCSB) (now only the PCSB). Another historical action affecting public education has been the capital investing of public school facilities, and the funding of the charter Facilities Allowance, with the School Modernization Financing Act of 2006 and policy associated with the property management of current and former public school facilities. Finally, the Public Education Reform Amendment Act (2007), put DCPS and the state public education functions under the control of the Mayor and created an Office of the Deputy Mayor for Education to advance the Mayor's education plans and priorities.

| Parental Demand                                                                                                                                                                                                                                                                                                                                                                                                                                               | Neighborhood Factors                                                                                                            | School Supply                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Desire to control your child's peer groups <ul style="list-style-type: none"> <li>• selective admissions</li> <li>• selective participation</li> <li>• selective location</li> <li>• student achievement</li> <li>• student diversity</li> </ul> Perception of school quality <ul style="list-style-type: none"> <li>• teachers/principal</li> <li>• educational programs</li> <li>• school climate</li> <li>• student supports</li> </ul> Building condition | Education level of population<br>Median home sale price<br>Total population in catchment area<br># Permits for new construction | <ul style="list-style-type: none"> <li>• School siting</li> <li>• PCSB authorizations</li> <li>• PCSB management of enrollment ceilings</li> <li>• DCPS school openings, closings, expansion</li> <li>• PCS school openings, closings, expansion</li> <li>• Private school supply</li> </ul> Educational inputs <ul style="list-style-type: none"> <li>• Program types</li> <li>• Staffing</li> <li>• Budget</li> <li>• Facilities</li> </ul> |
| Policy Mediators                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Charter Schools Act of 1996<br>D.C. School Reform Act (1996)<br>School Modernization Financing Act of 2006<br>Public Education Reform Amendment Act (PERAA) 2007<br>Public School Disposition (2004 amendment to SRA)<br>D.C. Student assignment policy                                                                                                                                                                                                       |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Parental Demand Factors

The My School D.C. lottery data captures applicant preferences for schools. The number of students who list a certain school as their first choice in the school choice application reflects the parental and student preference for selective school environments for their children. The total number of students that list a certain school as their first choice is aggregated from My School Lottery student-level data and is illustrated in the table below. The designation of “selective admission” is based on whether the school has a selective application requirement to enroll in the school—only DCPS schools can have selective admissions. The measure of “selective location” is based on median home sale price, from the D.C. Office of Tax and Revenue, where schools are located in high school feeder areas of Wilson, Roosevelt and Eastern, with average home sales greater than \$620,000. The measure of achievement where 50% or more of the students scored at 4 or higher (proficient or advanced) on the math test of the PARCC standardized test in 2016-17. The measure of diversity is whether there are more than two races represented in double-digit percentages. Finally, whether the school offers a “high demand” educational program is measured by whether it has a thematic program in STEM (Science, Technology, Engineering, and Math); dual language; academically advanced, such as International Baccalaureate programs; or has a specialized pedagogy that defines its program, such as Montessori, or expeditionary learning, for examples.

| Parent Demand Factors                                         |                      |                      |                    |                                    |                             |                 |
|---------------------------------------------------------------|----------------------|----------------------|--------------------|------------------------------------|-----------------------------|-----------------|
| Top 25 choice schools 2017-18 Lottery                         | # 1st Choice Lottery | Selective Admissions | Selective Location | Achievement >50% +4 on PARCCM Math | At Least 2 Race Groups >10% | Special Program |
| Washington Latin PCS – Middle School                          | 741                  |                      | X                  | X                                  | X                           | X               |
| School Without Walls High School                              | 649                  | X                    |                    | X                                  | X                           | X               |
| Mundo Verde Bilingual PCS                                     | 482                  |                      |                    |                                    | X                           | X               |
| Creative Minds International PCS                              | 426                  |                      | X                  |                                    | X                           | X               |
| School-Within-School                                          | 423                  |                      | X                  | X                                  | X                           | X               |
| Duke Ellington School of the Arts                             | 421                  | X                    | X                  |                                    | X                           | X               |
| Washington Yu Ying PCS                                        | 415                  |                      |                    | X                                  | X                           | X               |
| KIPP DC – College Preparatory PCS                             | 403                  |                      |                    |                                    |                             | X               |
| Two Rivers PCS at 4th Street                                  | 379                  |                      | X                  |                                    | X                           | X               |
| DC Bilingual PCS                                              | 336                  |                      |                    |                                    | X                           | X               |
| Brent Elementary School                                       | 318                  |                      | X                  | X                                  | X                           |                 |
| Oyster-Adams Bilingual School (Oyster)                        | 301                  |                      | X                  | X                                  | X                           | X               |
| BASIS DC PCS                                                  | 296                  |                      |                    | X                                  | X                           | X               |
| Benjamin Banneker High School                                 | 284                  | X                    |                    | X                                  | X                           | X               |
| School Without Walls @ Francis-Stevens                        | 272                  |                      |                    |                                    | X                           |                 |
| Lafayette Elementary School                                   | 264                  |                      | X                  | X                                  | X                           |                 |
| Elsie Whitlow Stokes Community Freedom PCS (Language Program) | 249                  |                      |                    |                                    | X                           | X               |
| Wilson High School                                            | 245                  |                      | X                  |                                    | X                           |                 |
| DC Prep PCS – Benning Elementary                              | 244                  |                      |                    | X                                  |                             |                 |
| KIPP DC – Promise Academy PCS                                 | 232                  |                      |                    | X                                  |                             |                 |
| McKinley Technology High School                               | 232                  | X                    |                    |                                    |                             | X               |
| Capitol Hill Montessori School @ Logan                        | 229                  |                      | X                  | X                                  | X                           | X               |
| Ross Elementary School                                        | 227                  |                      |                    | X                                  | X                           |                 |
| KIPP DC – Heights Academy PCS                                 | 226                  |                      |                    | X                                  |                             |                 |
| Janney Elementary School                                      | 225                  |                      | X                  | X                                  | X                           |                 |

The number of students who enter the My School D.C. application and lottery is increasing each year, and so are the schools that were listed as a first choice, although the most popular schools tend to be consistent across years. In the 2016-2017 lottery, 222 schools were listed as a student's first choice at least once. The number for the 2015-2016 lottery is 214, for 2014-2015 it is 200. (see Appendix A)

The cohort survival ratios, the percentage of students who move from grade to grade, year to year, inherently account for parental efforts to select their children's peers—including parental preferences for peer groups based on academic achievement, income, or racial or ethnic diversity. The schools with these attributes are in greater demand than schools that do not exhibit these selective qualities.

These demand-side factors are not meant to capture all the factors that affect demand for schools but are intended to represent factors that are measured and available to those adjusting baseline enrollment projections. Other important factors such as changes in parent preferences, changes in knowledge about the lottery, and the availability of options outside of DCPS and PCS could also affect demand.

## Neighborhood Factors

There are many ways to define neighborhood characteristics. This focus identified factors that were most likely to affect parents' decisions on housing and school and could be calculated annually. These characteristics cover topics including neighborhood demographics, economic indicators and neighborhood housing changes and capture the dynamic population, demographic, economic, and cultural changes in D.C. neighborhoods that could influence demand. Specifically, total population and college attainment rate were used as measures of neighborhood demographics and culture changes. Median home sale price and building permit counts were calculated to capture the economic and housing activity trend.

Median home sale price and building permit, available by street address, were aggregated to the High School Attendance zone. There are 9 high school attendance zones in the District of Columbia. Figure 5 shows the relationship between DCPS high school attendance zones and the City's 8 wards.

The total population data is from the American Community Survey (ACS) data, available by Census tract, and was weighted (where census tracts crossed high school attendance zone boundaries, weights were used to apportion the five-year tract-level ACS data into attendance zones based on the share of a tract's population in each zone) to get the appropriate high school attendance zone count of population and college attainment rate.

These factors were attached to each school in the high school attendance zone, including PCS schools. Although eligibility for enrollment in a PCS school is not defined by school attendance zones, neighborhood characteristics are hypothesized to still affect PCS student populations.

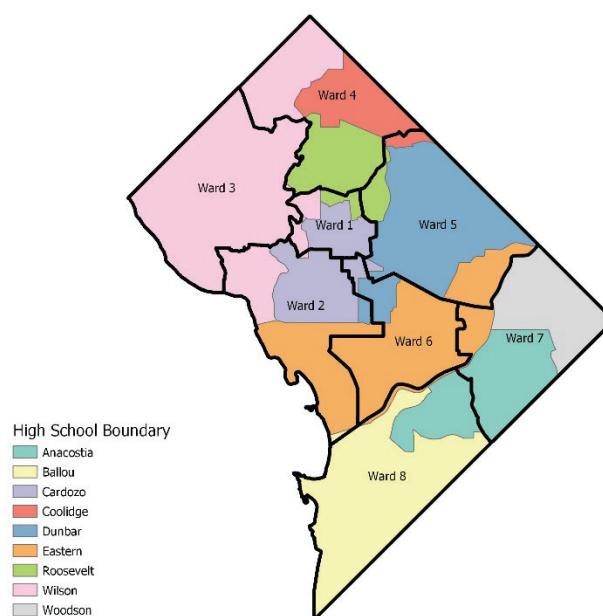


Figure 5 High School Boundaries and Wards



#### Total Population Within High School Attendance Boundaries

The table below illustrates the total population living within each of the defined current DCPS high school attendance boundaries, with boundaries defined at the census tract level. Please note, there are seven additional application high schools that do not have defined attendance boundaries, including Benjamin Banneker; Columbia Heights Education Campus; Duke Ellington School of the Arts; McKinley Technology; Phelps Architecture, Construction, and Engineering; Ron Brown College Prep; and School Without Walls.

| <b>High School Boundary</b> | <b>2014<br/>Total Population</b> | <b>2015<br/>Total Population</b> | <b>2016<br/>Total Population</b> |
|-----------------------------|----------------------------------|----------------------------------|----------------------------------|
| Anacostia                   | 53,150                           | 55,411                           | 57,457                           |
| Ballou                      | 52,066                           | 53,942                           | 54,931                           |
| Cardozo                     | 113,943                          | 116,638                          | 116,553                          |
| Coolidge                    | 33,569                           | 34,300                           | 34,140                           |
| Dunbar                      | 77,165                           | 79,598                           | 83,077                           |
| Eastern                     | 78,071                           | 79,448                           | 81,735                           |
| Roosevelt                   | 57,236                           | 56,655                           | 57,086                           |
| Wilson                      | 129,703                          | 131,192                          | 132,150                          |
| Woodson                     | 38,834                           | 40,300                           | 41,881                           |

*Figure 6 Total Population by High School Boundary Source: Urban Institute tabulation of American Community Survey 5 Year Estimates*

#### College Attainment Rate

The table below illustrates the college attainment rate (calculated by dividing the total population with college degree divided by total population) in each high school attendance zone.

| <b>High School Boundary</b> | <b>2014</b> | <b>2015</b> | <b>2016</b> |
|-----------------------------|-------------|-------------|-------------|
| Anacostia                   | 0.10        | 0.10        | 0.11        |
| Ballou                      | 0.08        | 0.08        | 0.08        |
| Cardozo                     | 0.53        | 0.54        | 0.55        |
| Coolidge                    | 0.28        | 0.29        | 0.30        |
| Dunbar                      | 0.28        | 0.31        | 0.33        |
| Eastern                     | 0.49        | 0.51        | 0.53        |
| Roosevelt                   | 0.28        | 0.30        | 0.32        |
| Wilson                      | 0.60        | 0.60        | 0.60        |
| Woodson                     | 0.09        | 0.10        | 0.10        |

*Figure 7 College Attainment Rate by High School Boundary Source: Urban Institute tabulation of American Community Survey 5 Year Estimates*

### Median Home Sale Price (\$)

The table below illustrates the median home sale price in each high school attendance zone.

| High School Boundary | 2014    | 2015    | 2016    | 2017    |
|----------------------|---------|---------|---------|---------|
| Anacostia            | 284,000 | 290,000 | 330,000 | 307,275 |
| Ballou               | 259,000 | 275,000 | 297,000 | 305,000 |
| Cardozo              | 505,250 | 506,850 | 530,000 | 549,900 |
| Coolidge             | 470,000 | 480,000 | 500,000 | 510,000 |
| Dunbar               | 480,000 | 513,555 | 537,500 | 533,500 |
| Eastern              | 550,000 | 569,900 | 594,750 | 620,000 |
| Roosevelt            | 575,000 | 610,000 | 620,000 | 629,250 |
| Wilson               | 840,500 | 857,000 | 900,000 | 905,000 |
| Woodson              | 252,950 | 275,000 | 301,000 | 289,950 |

*Figure 8 Median Home Sale Price by High School Boundary Source: Urban Institute tabulation of home sales price from D.C. Open Data*

### Building Permit Counts

The table below illustrates the building permit counts (the total number of new construction permits) issued in each high school attendance zone. Due to data limitations, the new construction permits include both residential and commercial construction; however, changes in total new construction permits can still be a good proxy for new economic activities.

| High School Boundary | 2014 | 2015 | 2016 | 2017 |
|----------------------|------|------|------|------|
| Anacostia            | 40   | 73   | 18   | 58   |
| Ballou               | 13   | 20   | 73   | 78   |
| Cardozo              | 36   | 38   | 33   | 45   |
| Coolidge             | 55   | 8    | 7    | 12   |
| Dunbar               | 159  | 164  | 92   | 178  |
| Eastern              | 32   | 42   | 73   | 55   |
| Roosevelt            | 11   | 10   | 15   | 28   |
| Wilson               | 45   | 53   | 44   | 47   |
| Woodson              | 39   | 82   | 90   | 33   |

*Figure 9 Building Permit Counts by High School Boundary Source: Urban Institute tabulation of building permit records from D.C. Open Data*

## School Supply Side Factors

School supply-side factors can have a significant impact on enrollment trends and enrollment projections. Key factors that measure school supply are the number of schools, capacity, condition, and perceived quality of schools. School supply is particularly influenced by government policy and practice. Where the school district strictly assigns students to schools based on their home address and, when necessary, provides transportation to get them to their assigned schools, LEAs can control their enrollment. The predictability of this type of system is best illustrated in the City by differing participation rates across DCPS neighborhood schools. In the Wilson High School feeder pattern, 79% of students attending a public elementary school attend their in-boundary neighborhood school. In contrast, elementary schools in the Dunbar High School feeder pattern average only 18% participation.

Ideally, school districts should carefully manage supply to ensure their building capacity is not too great or too small to educate the student population of their districts. School districts regularly project enrollments based on births and historical enrollment trends and align their school supply to those changes. In the District of Columbia, there has been considerable variability in supply. The Table below shows the number of public schools in the District of Columbia, by sector from 2008 to 2017.

*Summary of School Supply Change 2008 to 2017, DCPS and Charter Schools*

|                                   | 2008       | 2009       | 2010       | 2011       | 2012       | 2013       | 2014       | 2015       | 2016       | 2017       | change   |
|-----------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----------|
| DCPS # schools                    | 134        | 129        | 126        | 123        | 121        | 110        | 110        | 112        | 114        | 114        | -20      |
| Charter # schools                 | 93         | 96         | 91         | 98         | 104        | 108        | 112        | 115        | 118        | 120        | 27       |
| <b>TOTAL DCPS and PCS Schools</b> | <b>227</b> | <b>225</b> | <b>217</b> | <b>221</b> | <b>225</b> | <b>218</b> | <b>222</b> | <b>227</b> | <b>232</b> | <b>234</b> | <b>7</b> |
| DCPS schools closed               | 0          | -2         | -1         | -1         | -2         | -11        | -2         | 0          | 0          | 0          | -19      |
| Charter school or grades closed   | -1         | -4         | -5         | -5         | -2         | -5         | -7         | -8         | -1         | 0          | -38      |
| DCPS schools opened               | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 2          | 2          | 0          | 4        |
| Charter school opened             | 7          | 2          | 1          | 5          | 5          | 8          | 3          | 5          | 5          | 1          | 42       |

*Figure 10 Data Source: Master Longitudinal Data Set; and PCSB report on school closings <https://www.dcpsb.org/report/charter-school-growth-closures>; "Better Schools for All Students: DCPS' Consolidation and Reorganization Plan" January 2013*

The total number of schools, which appears relatively stable, masks the level of variability in supply, as it relates to which schools are opened or closed and which of the over 60 local education agencies is opening or closing schools.

The table above summarizes key supply changes in the District of Columbia's public schools since 2008. There have been 80 public schools closed—42 DCPS schools closed and 38 charter schools closed, including charter schools where grades were dropped. However, DCPS only opened 4 schools since 2008 and the charter schools opened 27 schools since 2008.

Public schools are not the only schools serving elementary and secondary age children and youth in the District of Columbia. D.C. has a robust private school sector, with an estimated 65 independent and religious private schools reported by the Association of Greater Independent Schools, the Archdiocese of Washington, AIMS - Association of Independent Maryland and DC Schools, and the D.C. Opportunity Scholarship Program. (A list of these schools is included in Appendix A.) The enrollment of the private schools, as provided by OSSE is 15,171 students, including District and non-District residents<sup>3</sup>. There was not a definitive list of D.C. located private schools or District student resident enrollments available from OSSE. While Ward 3 has no public charter schools, 22 of the private schools in 2017 were located in Ward 3.

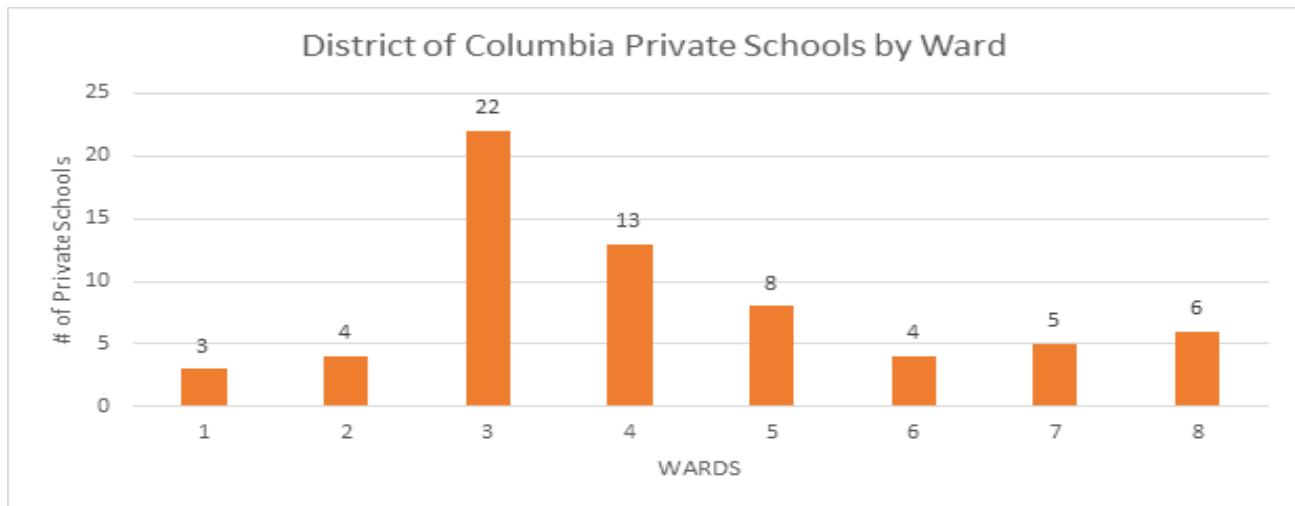


Figure 11 Privates Schools by Ward, District of Columbia

In addition to supply factors affecting the number and type of school provider, there are also school capacity and PCSB enrollment ceiling factors at play in District of Columbia projections. Kindergarten through 12<sup>th</sup> grade enrollment was at its lowest in 2008-09 but has been rising since. After a reduction of capacity in DCPS, which fluctuated with use of swing space and closings, it has increased 13 percent. Since data became available in 2013, charter school capacity has increased 30 percent.

Through its chartering authority, the PCSB may authorize up to twenty LEAs per year as well as determine the number of students each charter LEA may enroll. While the Public Charter School Board can determine enrollment ceilings for individual charter LEAs, the District has no control over the overall enrollment ceiling of the charter sector. In 2014-15 and 2015-16, there was relatively close alignment of building capacity and enrollment ceilings. However, as illustrated in the table and graph below, in 2016-17, there is a divergence of building capacity and enrollment ceilings. The enrollment ceiling the PCSB has approved for charter schools in 2017-18 is 53,440 students, approximately 10,000 seats over the actual enrollment of the charter schools and 12% higher than the current enrollment capacity of the charter school facilities.

Enrollment, Capacity, and Charter Ceilings 2008-2017

|                         | 2008          | 2009          | 2010          | 2011          | 2012          | 2013          | 2014           | 2015           | 2016           | 2017           |
|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|
| DCPS enrollment         | 45,397        | 44,559        | 45,568        | 45,131        | 45,508        | 46,367        | 47,520         | 48,405         | 48,462         | 48,095         |
| Charter enrollment      | 25,251        | 27,633        | 29,366        | 31,562        | 34,674        | 36,565        | 37,855         | 38,905         | 41,491         | 43,393         |
| <b>Total enrollment</b> | <b>72,656</b> | <b>74,201</b> | <b>76,944</b> | <b>78,704</b> | <b>82,194</b> | <b>84,945</b> | <b>87,389</b>  | <b>89,325</b>  | <b>91,969</b>  | <b>93,505</b>  |
| DCPS schools capacity   | 59,608        | 58,898        | 63,848        | 60,870        | 60,272        | 56,373        | 58,207         | 59,702         | 61,349         | 63,676         |
| PCS schools capacity    | N/A           | N/A           | N/A           | N/A           | N/A           | 36,779        | 44,034         | 44,440         | 47,103         | 47,558         |
| <b>TOTAL Capacity</b>   |               |               |               |               |               | <b>93,362</b> | <b>102,457</b> | <b>104,368</b> | <b>108,690</b> | <b>111,469</b> |
| Charter ceilings        | N/A           | N/A           | N/A           | N/A           | N/A           | N/A           | 43,125         | 45,555         | 50,812         | 53,440         |

Data Source: Deputy Mayor for Education, School supply data; PCSB Schedule I, DGS list of Modernized Schools.

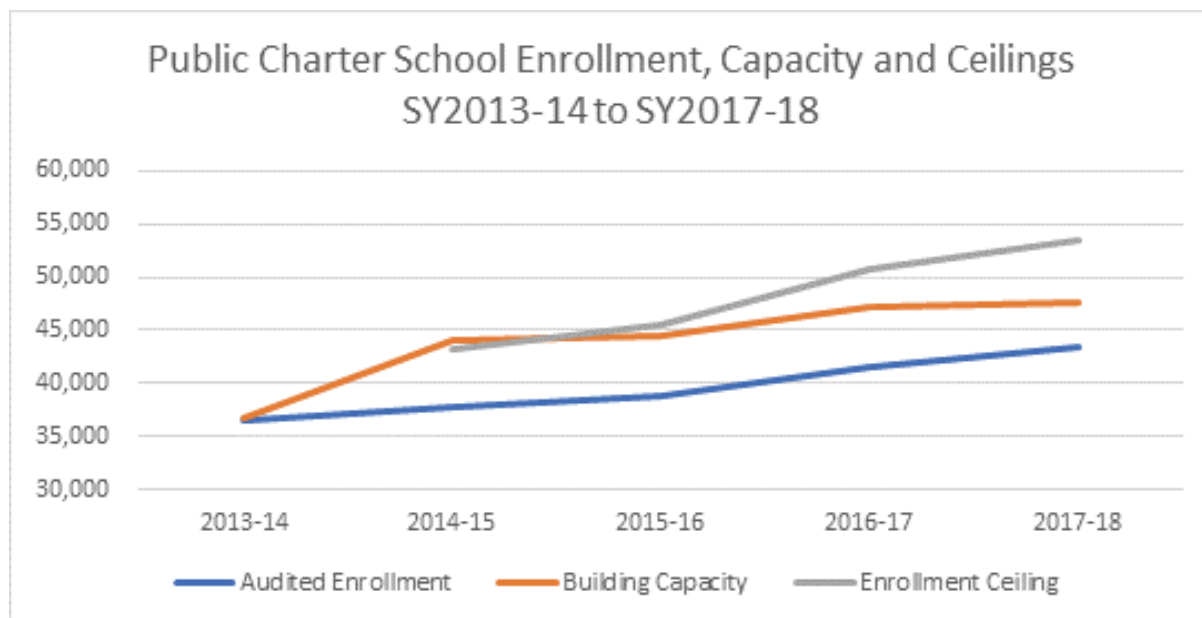


Figure 12 Data Source: Deputy Mayor for Education, School supply data; PCSB Schedule I, DGS list of Modernized Schools.

DCPS has fully modernized 53 of its 114 schools, with another 17 DCPS schools currently in planning, design or construction for modernization in the current 6-year capital improvement budget. Information by school on charter facilities conditions is not publicly documented and reported and therefore not available. Nonetheless, since the first charter school opened in 1996 and through FY19, DC's charter schools have borrowed or refinanced nearly \$800 million in D.C. revenue bonds and received more than \$1 billion in facilities allowance.

#### Number of Modernized Facilities

|                              | 2008    | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    | 2015    | 2016    | 2017    |
|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| # Modernized DCPS schools    | 16      | 23      | 25      | 29      | 32      | 35      | 35      | 43      | 48      | 53      |
| Condition of charter schools | No info | No info | No info | No info | No info | No info | No info | No info | No info | No info |

The hypothesis is that changes in the factors affecting parental demand and school supply may cause enrollment to deviate from historical trends and could impact the accuracy of enrollment projections at the school level. Most of these factors are well reflected in the cohort survival method of projecting enrollment. The cohort survival and capture rates pick up parents' perception of quality and any objective measures of quality related to the richness or rigor of academic programs; the professionalism and consistency of administration and teaching staff; the quality of student supports for diverse types of students; and the condition and adequacy of the school's facilities.

Opening schools and closing schools is integral to the theory of action for the education reform promised by charters and closing schools has been an administrative operating priority of DCPS to try to target resources to instruction.

---

<sup>1</sup> <http://www.pewhispanic.org/2015/09/28/selected-u-s-immigration-legislation-and-executive-actions-1790-2014/>

<sup>2</sup> Enrollment counts discussed here are audited enrollment numbers each year

<sup>3</sup> OSSE FY17 Performance Oversight Hearing Question 4 Response -- Enrollment in Private and Parochial Schools in SY17-18 to date <https://osse.dc.gov/page/fy17-performance-oversight-questions>

## References

Connor, Philip. 2018. *At Least a Million Sub-Saharan Africans Moved to Europe Since 2010*. Washington, DC: Pew Research Center. March 22. <http://www.pewglobal.org/2018/03/22/at-least-a-million-sub-saharan-africans-moved-to-europe-since-2010>.

Macharia, Kinuthia. 2011. *African Immigrants in the Washington DC Metropolitan Area: Immigration Waves and Community Building*. Washington, DC: American University. <http://africamigration.com/issue/jan2011/MACHARIA-AFRICAN-IMMIGRANT-COMMUNITIES.pdf>.

Singer, Audrey. 2004. *The Rise of New Immigrant Gateways*. Washington, DC: Brookings Institution. February. [https://www.brookings.edu/wp-content/uploads/2016/06/20040301\\_gateways.pdf](https://www.brookings.edu/wp-content/uploads/2016/06/20040301_gateways.pdf).

Tatian, Peter, Leah Hendey, and Mary Bogle. 2017. *Voices of the Community: DC, Maryland, Virginia*. Washington, DC: Greater Washington Community Foundation. [https://www.thecommunityfoundation.org/s/GWCF\\_VoicesDMV\\_Report\\_FINAL.pdf](https://www.thecommunityfoundation.org/s/GWCF_VoicesDMV_Report_FINAL.pdf).

Tatian, Peter A. and Serena Lei. 2013. *Our Changing City: Chapter 1: Demographics*. Washington, DC: Urban Institute. <http://apps.urban.org/features/OurChangingCity/demographics/index.html>.

Tatian, Peter A. and Serena Lei. 2014. *Our Changing City: Chapter 3: Housing*. Washington, DC: Urban Institute. <http://apps.urban.org/features/OurChangingCity/housing/index.html>.

## Section 2: Best Practices for Enrollment Projections

### Best Practices for Enrollment Projections

When projecting future enrollments, it is vital to track the number of live births, the amount of new housing activity, and the change in household composition. In addition, any of the following factors could cause a significant change in projected student enrollment:

- Boundary adjustments
- New school openings
- Changes / additions in program offerings
- Preschool programs
- Change in grade configuration
- Interest rates / unemployment shifts
- Intra- and inter-district transfer
- Magnet / charter / private school opening or closure
- Zoning changes
- Unplanned new housing activity
- Planned, but not built, housing
- School voucher programs
- School closures

Obviously, certain factors can be gauged and planned for far better than others. For instance, it may be relatively straightforward to gather housing data from local builders regarding the total number of lots in a planned subdivision and calculate the potential student yield. However, planning for changes in the unemployment rate, and how these may either boost or reduce public school enrollment, proves more difficult. In any case, it is essential to gather a wide variety of information in preparation for producing enrollment projections.

When looking ahead at a school district's enrollment over the next two, five, or ten years, it is helpful to approach the process from a global perspective. For example: How many new homes have been constructed each year? How many births have occurred each year in relation to the resident population? Is housing experiencing a turnover—if so, what is the composition of families moving in/out? Are more or fewer students attending private school or being home-schooled? What has the unemployment rate trend been over the past ten years? What new educational policies are in place that could affect student enrollment figures?

The cohort survival methodology is often used to answer these questions and is standard throughout the educational planning industry. The housing method is also a common methodology used to project enrollment in areas of high growth due to new housing development.

Traditionally, enrollment projections are developed at a district-wide or school level. Enrollment projections can also be developed based on where students live, if student data is available, including their address at the time of enrollment, by school year, historically. Enrollment projections based on where students attend, or the more traditional school-level enrollment projections, are useful for budgeting purposes and/or teacher and/or program placement. Enrollment projections based on where students live is useful for school districts that are planning school facilities or attendance boundaries.



## Cohort Survival Method

The cohort survival methodology (sometimes referred to as the grade progression ratio method) is a widely used enrollment projection model that is used by many school districts and state and federal agencies to project K-12 enrollment.

A cohort is a group of persons [in this case, students]. The cohort survival enrollment projection methodology uses historic live birth data and historic student enrollment to “age” a known population or cohort throughout the school grades. For instance, a cohort begins when a group of kindergarteners enrolls in grade K and moves to first grade the following year, second grade the next year, and so on.

A “survival ratio” is developed to track how this group of students increased or decreased in number as they moved through the grade levels. By developing survival ratios for each grade transition [i.e. 2nd to 3rd grade] over a ten-year period, patterns emerge. A projection ratio for each grade transition is developed based on the analysis of the survival ratios. The projections are used as a multiplier in determining future enrollment.

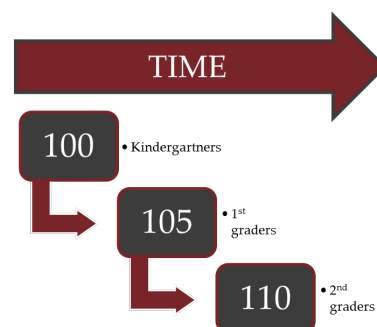


Figure 13 Cohort Survival Method

For example, if student enrollment has consistently increased from the 8th to the 9th grade over the past ten years, the survival ratio would be greater than 100% and could be multiplied by the current 8th grade to develop a projection for next year’s 9th grade. This methodology can be carried through to develop ten years of projection figures. Because there is not a grade cohort to follow for students coming into kindergarten, resident live birth counts are used to develop a birth-to-kindergarten survival ratio. Babies born five years previous to the kindergarten class are compared in number, and a ratio can be developed to project future kindergarten enrollments.

The cohort survival method is useful in areas where population is stable [relatively flat, growing steadily, or declining steadily], and where there have been no significant fluctuations in enrollment, births, and housing patterns from year to year. The cohort survival methodology inherently considers the net effects of factors such as migration, housing (new housing and housing turnover), dropouts, transfers to and from charter schools, open enrollment, and deaths. This methodology does not assume changes in policies, program offerings, or future changes in housing and migration patterns.

## Housing Method

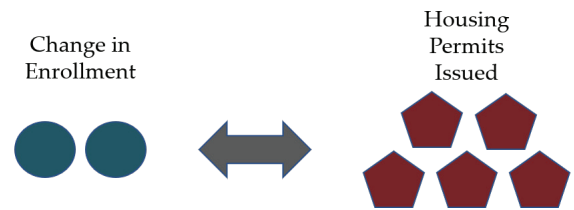
Enrollment projections can be determined by analyzing the housing data for the areas that make up a school district. Yield factors can be established by comparing the historic change in enrollment from year to year divided by the total number of building or occupancy permits issued. For example, if student enrollment has increased by approximately 100 students each year and approximately 200 building permits have been issued each year for the past ten years then the yield factor would be approximately 0.5 students per building permit.

Once yield factors are established, the number of new students per year can be estimated by multiplying the yield factor by the number of projected new housing units. This method is effective when the rate of student enrollment far exceeds the live birth rate.

If housing demolitions are occurring in a district, these must also be considered. For instance, if housing demolitions have increased rapidly over recent years while new housing starts have remained relatively constant over many years, the conclusion may be that some of the new housing starts will simply be replacements for the families displaced by the demolitions. Of course, housing value and household composition would need to be further analyzed to confirm that this is indeed the case. It is possible that enrollment may remain flat or even decline although there is new housing occurring in the area.

This methodology can be applied at the level of geography that building permit and student data is available. For example, if building permits are available at a district-wide level, this method can be applied to develop a district-wide projection. Enrollment projections by school or boundary could be developed if building permits and student data are available at those levels.

The housing method is useful in areas where population is growing primarily due to new housing in areas previously undeveloped [rural or industrial land]. The housing method does not inherently consider the net effects of factors such as migration, housing turnover, dropouts, transfers to and from charter schools, open enrollment, and deaths that the cohort survival method does. Like the cohort survival method, this methodology also does not assume changes in policies, program offerings, or future changes in housing and migration patterns.



*Figure 14 Housing and Enrollment Projections*

### Section 3: Processes & Methods in Comparable Cities

The District of Columbia is not alone in navigating the challenges of projecting enrollment. There are significant challenges in accurate and reliable projections because of demographic and housing change. But there are new education policies advanced in a school reform model that promotes school openings and closings, and school choice as central to school improvement that affects enrollment patterns. While all districts are subject to change based on child population demographics, many of the education policies that promote open enrollment create enrollment projection uncertainties distinct from school districts with more traditional residence-based student assignment policies.

In the Study, we sought to learn how other districts with robust choice policies were projecting their enrollments to learn whether there were any processes or methods that might be appropriately applied in the District of Columbia. Since the District of Columbia is both the State and the District, we also interviewed the state agencies where we had surveyed and interviewed school district planners.

Four school districts listed in the table below, all with substantial charter enrollments and student assignment policies where school choice is strongly supported, were surveyed and interviewed. Each district was asked to complete an online survey prior to a phone interview where additional questions regarding enrollment projection process and purpose were discussed to better understand how they are developed and used. The survey and interview questions can be found in Appendix B of this report.

*2016-2017 Public School District and Charter Enrollment by School District*

|                                     | <b>District Public-School Enrollment SY16-17</b> | <b>Charter School Enrollment SY16-17</b> | <b>Total Public-School Enrollment SY16-17</b> | <b>% of Total Enrollment Attending Charter SY16-17</b> |
|-------------------------------------|--------------------------------------------------|------------------------------------------|-----------------------------------------------|--------------------------------------------------------|
| District of Columbia                | 48,510                                           | 41,491                                   | 90,001                                        | 46.1%                                                  |
| Columbus City Schools               | 50,405                                           | 18,080                                   | 68,485                                        | 26.4%                                                  |
| Denver Public Schools*              | 72,700                                           | 18,463                                   | 92,331                                        | 20.0%                                                  |
| Oakland Unified Schools             | 36,668                                           | 12,932                                   | 49,600                                        | 26.1%                                                  |
| The School District of Philadelphia | 134,129                                          | 64,848                                   | 198,977                                       | 32.6%                                                  |

\*Estimate within City limits

Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data(CCD), Private School Universe Survey (2015-16 SY), Urban Institute District Profile Report

The Office of the D.C. Auditor (ODCA) sent letters to representatives at each of these school districts requesting their participation in a virtual or in-person meeting to provide insights into how enrollment projections are developed in their respective districts as well as how common challenges are taken into account in the development of enrollment projections. In addition, similar requests were sent to the state agency corresponding to the school districts that agreed to participate.

The chart below provides a brief overview of the response to the primary questions asked, followed by a summary of each interview synthesized into four general parts of how each city creates its enrollment projections:

- Inputs and methods
- Process and adjustments
- Uses of enrollment projections

| <b>Education Agency</b>             | <b>Conduct Enrollment Projection</b> | <b>Primary Purpose of Enrollment Projections</b> | <b>In-House or Consultant</b> | <b>Years of Enrollment Projected</b> | <b>Projection Level of Detail</b>                         | <b>Conduct a Projection Review Process</b> | <b>Public Release or internal Use</b> | <b>Projections Regulated by State Guidelines</b> |
|-------------------------------------|--------------------------------------|--------------------------------------------------|-------------------------------|--------------------------------------|-----------------------------------------------------------|--------------------------------------------|---------------------------------------|--------------------------------------------------|
| Columbus Public Schools             | No                                   | N/A                                              | N/A                           | N/A                                  | N/A                                                       | N/A                                        | N/A                                   | N/A                                              |
| Denver Public Schools               | Yes                                  | Budgeting                                        | In-House                      | 1-year<br>5-year                     | By District<br>By School By Grade                         | Yes                                        | Public                                | No                                               |
| Oakland Unified School District     | Yes                                  | Budgeting                                        | Both                          | 1-year                               | By District<br>By School By Grade                         | Yes                                        | Internal                              | No                                               |
| The School District of Philadelphia | Yes                                  | Budgeting                                        | In-House                      | 1-year                               | By District<br>By School By Grade<br>By Geographic region | Yes                                        | Internal                              | No                                               |

## Inputs and methods

Officials in Denver, Oakland and Philadelphia all use a cohort survival method to track historical enrollment trends forward into the future. Columbus was an outlier, in not doing projections. Officials in the other three comparable districts use similar school- and demographic-based inputs to formulate their enrollment projections. Denver and Philadelphia use official October enrollment counts, like the District of Columbia, while Oakland uses student counts from the 20th day of school. The three comparable districts also use surrounding area demographic information in making their enrollment projections, such as building permits, and measures of economic growth. They also look school choice patterns to inform potential demand in a given area.

## Process and Adjustments

The three comparable districts, like DCPS, have a process for school-level adjustments and feedback on initial projections. Denver allows principals to challenge their initial projection and ask for a higher number, but if they fail to reach their new target, they must pay back the district for the difference. School leaders in Oakland can request changes to their preliminary projections with supporting documentation. Principals have the opportunity to provide feedback in Philadelphia as well.

## Uses of Enrollment Projections

Much like the District of Columbia, the comparable cities (except Columbus) use next-year enrollment projections for budgeting purposes and multi-year projections for capital planning.

## School District Interview Summary

### Columbus Public Schools

Columbus Public Schools (CPS) operates under a policy of zero-based budgeting, and therefore does not conduct enrollment projections. Budget managers develop budgets for their respective areas. For example, school principals and department chiefs are budget managers and therefore develop the budget for their school or department. Once the budget is determined, the enrollment is dictated by the budget allocation. There are measures in place to ensure schools are not overcrowded and enrollment is limited. Budget managers consider key indicators such as historical enrollment and building capacity when developing school budget allocations.

Although CPS does not conduct enrollment projections internally, they do receive a by District, by School projection from the Ohio Facilities Construction Commission (OFCC). These projections are conducted when CPS undergoes a capital improvement program that is co-funded by the State of Ohio. These projections are for ten [10] years, and facility improvements (new construction, modernizations, etc.) are determined by the highest year of projected enrollment if expected to increase or the fifth year of projected enrollment if expected to decrease.

## Denver Public Schools

The Denver Public Schools (DPS) enrollment projection processes and approach provide a best practice model which the District of Columbia can adapt. Denver's projection model is based primarily on the cohort-survival method, using the official October headcounts, which are finalized in November. Enrollment projections are produced by school, by grade for one year. These projections are then summed to determine a District-wide enrollment projection. This allows for consideration to be given to trends specific to individual schools such as school choice trends and physical facility capacities.

First, a base enrollment projection is developed looking at survival ratios and live birth counts by census block provided by the State Department of Health. District-wide kindergarten is projected by analyzing the birth data by boundary level and the ratio of births to kindergarten 5 years later. Sixth grade, and ninth grade enrollment projections are calculated by analyzing the ratio of total fifth and eighth graders in the boundary that are in sixth and ninth grade the following year. All other grades, by school are developed by analyzing the survival ratios at the school level to determine a projection ratio that is applied to current enrollment.

A preliminary enrollment projection is then determined by incorporating input from the choice managers who have knowledge of school choice trends, program placements, housing development, economic growth and decline, facility planning efforts, boundary changes, policy changes, and physical facility capacities. There is an abundance of data collected historically to support the adjustments made by the choice managers in the development of the preliminary enrollment projections. The preliminary enrollment projections are distributed to each school for feedback. Schools challenge the preliminary projections and a final enrollment projection is established. DPS implements a system of accountability where schools or administration are paid if the enrollment projections are off. For example, if the school challenged the preliminary enrollment projection for a higher projection and the actual enrollment for the projection year was lower than the projection, the school owes the administration the dollars for the difference in students. Conversely, if the administration issues an enrollment projection for a school that was lower than the actual enrollment, the administration pays the school the difference.

Enrollment projections for the DPS are developed by internal staff and are made publicly available upon request when they are finalized by DPS Planning in late January for the following school year. The primary purpose of the enrollment projections is for student-based budgeting purposes.

In addition to one-year enrollment projections, DPS develops a five-year forecast. Typically, the five-year forecast is produced in-house by internal staff. In 2017, however, the District outsourced this effort to local consultants for the first time to obtain an independent perspective. The District anticipates that these forecasts will be outsourced every three years with DPS staff developing them internally in between. The five-year forecasts are used to keep up with trends in growth and decline in areas of the District, determine program needs and placement, and facility needs. The forecasts are developed by Census block group, by grade group (i.e., K-5, 6-8, and 9-12), and then rolled up by sub-region and region. District-wide long-term enrollment forecasts are made publicly available in their annual Strategic Regional Analysis, which is published in early December each year on [www.planning.dpsk12.org](http://www.planning.dpsk12.org).

## Oakland Unified School District

The Oakland Unified School District (OUSD) enrollment projection model is based primarily on the cohort survival method, using the 20-day student head counts. Enrollment projections are produced by school, by grade for one

year. These projections are then summed to determine a District-wide enrollment projection. This allows for consideration to be given to trends specific to individual schools such as school choice trends and physical facility capacities.

First, a base enrollment projection is developed looking at survival ratios and live birth counts. District-wide kindergarten, sixth grade, and ninth grade enrollment projections are calculated using the cohort survival methodology, and then a percentage of the total market share for a specific school is determined. The percentage of the total market share is multiplied by the District-wide projected enrollment to develop a kindergarten, sixth grade, or ninth grade projection by school. For example, if the district-wide sixth grade is projected to be 100, and a school historically has had 25% of the total sixth grade enrollment, the sixth-grade projection for that particular school would be 25. All other grades, by school are developed by analyzing the survival ratios at the school level to determine a projection ratio that is applied to current enrollment.

A preliminary enrollment projection is then determined by incorporating school choice trends, program placements, housing development, economic growth and decline, and physical facility capacities. The preliminary enrollment projections are distributed to each school for feedback. Schools can request changes to the preliminary projections if supporting documentation/data is provided. The supporting documentation/data is reviewed, and a final enrollment projection is established.

Enrollment projections for the OUSD are developed by internal staff and are not made public. The primary purpose of the enrollment projections is for budgeting purposes.

### The School District of Philadelphia

The School District of Philadelphia (SDP) enrollment projection model is based primarily on the cohort survival method, completed by District staff in February of each school year using the official October enrollment. One-year enrollment projections are completed primarily for budgeting purposes. The District periodically conducts longer forecasted projections that are primarily used for capital planning purposes. SDP applies a weighted average to the cohort survival due to the dynamics of the city population, available options for school choice and the frequent opening and closing of schools across the District. The District also implements multiple strategies to project enrollment for different types of schools.

Neighborhood schools use live births by zip code or census tract (usually use census tract), for school year (September to August) as provided by the city. Students are geocoded using geographic information systems (GIS) by census block and grouped together into neighborhood grids (i.e. planning units) that can be rolled up into a District-wide summary. Kindergarten is not required in the State of Pennsylvania so, birth to first grade and kindergarten to first grade survival ratios are analyzed.

There has been significant growth of charter schools in Philadelphia. There are two [2] types of charter schools in the District: the traditional charter schools that do not have catchment areas and serve both neighborhood and city-wide students; the renaissance charter schools that have a defined catchment and feeder patterns identified. Projections are not completed for traditional charter schools as those schools fill based on their contract/charter agreements; however, modifications to public school projections are made based on from where each traditional charter school may attract students. Renaissance schools are required to take students from their neighborhood catchment and will only fill seats from outside the neighborhood if they have not fulfilled their charter allotment.

Projections for these schools are completed much like the public schools and are performed at the same time in February.

SDP also offers substantial city-wide (lottery) and special-admit (application, audition, etc.) schools. The data from the student selection process is critical when projecting enrollment for these schools. How many students apply and how many students are accepted determines an attrition rate. The average attrition rate is used to identify projections of how many students will typically show up for a starting grade. This is complicated by the fact that students will apply for the non-starting grade of a school. Therefore, modifications to survival ratios must be calculated by both applications and historical trends of grade-to-grade enrollments. Once again, like charters, it must be determined where in the city these students are coming from to determine modifications of the neighborhood school projections.

The review process for projections is multi-layered and documented to ensure that those who participated in the review process have knowledge regarding the conclusions of the projections. After projections are completed in February, an internal review by several departments, including assistant superintendents assigned to each network, provides feedback based on knowledge of program movement, student movement, and policy changes to determine where students should be added to or subtracted from a certain area. The projections are then reviewed by the principal of each school to apply a local knowledge element to the projections. Once these two steps are completed, a leveling process by school is completed to match a district-wide projection.

Enrollment projections for the SDP are developed by internal staff. There are 3 individuals, including a manager, who collectively develop enrollment projections as well as perform GIS and planning duties utilizing mainly GIS and database skills.

## State Interview Summary

As part of this study, the state agency in which the districts are located were interviewed regarding projection processes at the state level. Representatives from California, Colorado, Ohio and Pennsylvania were interviewed. The following are brief summaries of the findings of these interviews.

### California

Enrollment projections are completed by the Demographic Research Unit of the California Department of Finance (DOF). Student enrollment projections are completed at the county level by grade using a cohort survival methodology. The State projects enrollment based on Average Daily Attendance (ADA) utilizing historic ADA enrollment by grade. ADA is a measurement of enrollment. While it is slightly lower than the State's actual enrollment, it provides the steadiest measure of enrollment. Live birth data by county, as provided by the State Department of Health, is used to project kindergarten enrollment. Projections are completed for next budget year, then typically forecasted to the next 4 to 5 years; however, recently there have been legislative requests to complete projections for up to 10 years.

Projections are completed using a grade progression (cohort survival) methodology, but typically only apply the last year's ratio unless a trend indicates a modification to the survival ratio. County-level projections are available online for Districts to view, but there is little feedback received by the DOF for modifications. Enrollment projections are useful for planning but are not required to be used for any other purpose.



## Colorado

Enrollment projections for the State of Colorado are conducted by the Colorado General Assembly legislative counsel staff. Projections are completed at the district level to project funding for the next school year providing estimates for student counts, free-lunch estimates, and property tax collections. Enrollment projections use the official October headcounts as the basis of data and apply a cohort survival methodology for projections. Because enrollment projections are used for school district funding, a process of “trueing up” is used to determine final budgets for State-level funding to school districts. Typically, the end of year enrollment is matched to the projections and funding is leveled for each district to “true up” the budget to the enrollment. Although this “true-up” occurs, there is little communication from the district to the State while developing projections before they are finalized. This process is currently being reviewed and modified to create a more accurate year-to-year projection.

Charter schools are also projected by the State, typically three to five years out to determine community needs and charter renewal applications. Data used to develop enrollment projections include community outreach, letters of intent, type of school model that is being projected, historical enrollment, and live birth data.

## Ohio

Ohio does not complete enrollment projections at the State level for budgeting purposes. Enrollment projections are developed by the Ohio Facilities Construction Commission (OFCC) consultants for school districts entering facilities projects through the State’s K-12 school renovation and building initiative. Ten-year enrollment projections are provided to districts at the district-wide level, by grade, by year. If school districts would like enrollment projections completed by school, OFCC will conduct a by school projection for the district upon request. The OFCC uses the cohort survival method to project enrollment for all school districts to which they provide enrollment projections.

Data used to project enrollment includes:

- Live birth counts by place of residence of the mother, either by zip code or municipality
- Ten years of historical enrollment by grade, by year
- Ten years of open enrollment into and out of the district by grade, by year
- Ten years of charter enrollment by grade, by year
- Building permits
- Esri (Environmental Systems Research Institute) population estimates and projections

## Pennsylvania

Ten-year enrollment projections for the State of Pennsylvania are developed by the Pennsylvania Department of Education (PDE) Office of Data Quality for budgeting purposes. PDE applies a cohort survival methodology utilizing 5 years of historical October 1<sup>st</sup> enrollment data, housing data (derived from the Tax Equalization Division), and live birth data. Modifications to survival ratios are made based on recent data trends or anomalies that would not typically exist. Projections are completed by grade, by district and are only conducted at the State level for charters and comprehensive career and technical centers. There is generally no review from local districts.

## Section 4: Projection Processes & Methods in D.C.

### Enrollment Projection Methodology

The District of Columbia produces two main types of enrollment projections: next-year and multi-year. Next-year enrollment projections are compiled by school, grade, and subgroup for DCPS and public charter schools. Multi-year projections, which are typically part of a Master Facilities Plan (MFP), are usually by grade and sometimes by sector, but not done at the school level. The District of Columbia Office of Planning (OP) produces age level population forecasts, which are useful in developing multi-year enrollment projections.

#### Next-year Projections

According to interviews with District officials, each of the District's 67 local education agencies (LEAs) projects its next-year enrollment as part of the city's annual budget cycle. LEAs submit their enrollment projections to the DME, which certifies their totals, and sends final projections to the Executive Office of the Mayor (EOM), which works with the Office of the Chief Financial Officer (OCFO), to present a proposed budget to the Council in March for the upcoming fiscal year beginning October 1<sup>st</sup>. Next-year projected enrollments submitted to the DME include enrollment projections by school, grade and subgroup for DCPS and public charter schools.

#### Multi-year Projections

Long-range enrollment projections typically have been part of a Master Facilities Plan (MFP). These have been produced at irregular intervals since the mid-1990's<sup>1</sup>. Past plans have used a variety of methods, geographies and periods of study to project future enrollment, making their findings difficult to evaluate against reality. While past projections also focused exclusively on projecting DCPS enrollment, the forthcoming 2018 MFP will include charter school enrollment projections as well.

#### Overall Population Forecasts

The District Office of Planning (OP) State Data Center forecasts population and, starting in 2012, estimates population by age in the city's 46 neighborhood clusters. OP forecasts do not link population estimates to school-level enrollment, instead highlighting neighborhoods that are likely to see an increased number of residents by age-level bands in the future<sup>2</sup>.

#### Uses of Enrollment Projections

Enrollment projections are used for planning and budgeting at the City, Local Education Agency (LEA) and school-levels. The District uses next-year projections to determine its DCPS and public charter school operating budgets, and the charter school facilities allowance. Multi-year projections and overall population projections have informed DCPS educational facilities master planning and capital budgeting, and the Public Charter School Board's planning for school openings.

## Setting the District's Operating Budget for Public Education

The District funds its DCPS schools based on the next-year projected October 5<sup>th</sup> enrollment. Public charter schools are funded in quarterly installments based on their projected October 5<sup>th</sup> enrollment (Q1), unverified October 5<sup>th</sup> enrollment (Q2 & Q3) and audited October 5<sup>th</sup> enrollment (Q4)<sup>3</sup>. The accuracy of DCPS's next year projections are important because currently there is not a process in place to adjust funding based on actual enrollment. The case of Kelly Miller Middle School in Ward 7 illustrates how school openings and closings can impact school-level budgets. In 2013 DCPS closed and consolidated Ron Brown Middle School into Kelly Miller, displacing about 200 students. Officials expected enrollment in Kelly Miller to grow by about 80 students that fall, but enrollment went up by 160 students, meaning the projection was about 80 students too low. Conversely, when three nearby charter schools expanded to include 6<sup>th</sup> grade in the fall of 2015, DCPS officials underestimated how much their expansion would affect Kelly Miller's enrollment. The school was projected to enroll 565 students in October 2015, but only enrolled 450 students. Without a process to adjust funding based on actual enrollment, schools can be over- or under-funded for their specific needs.

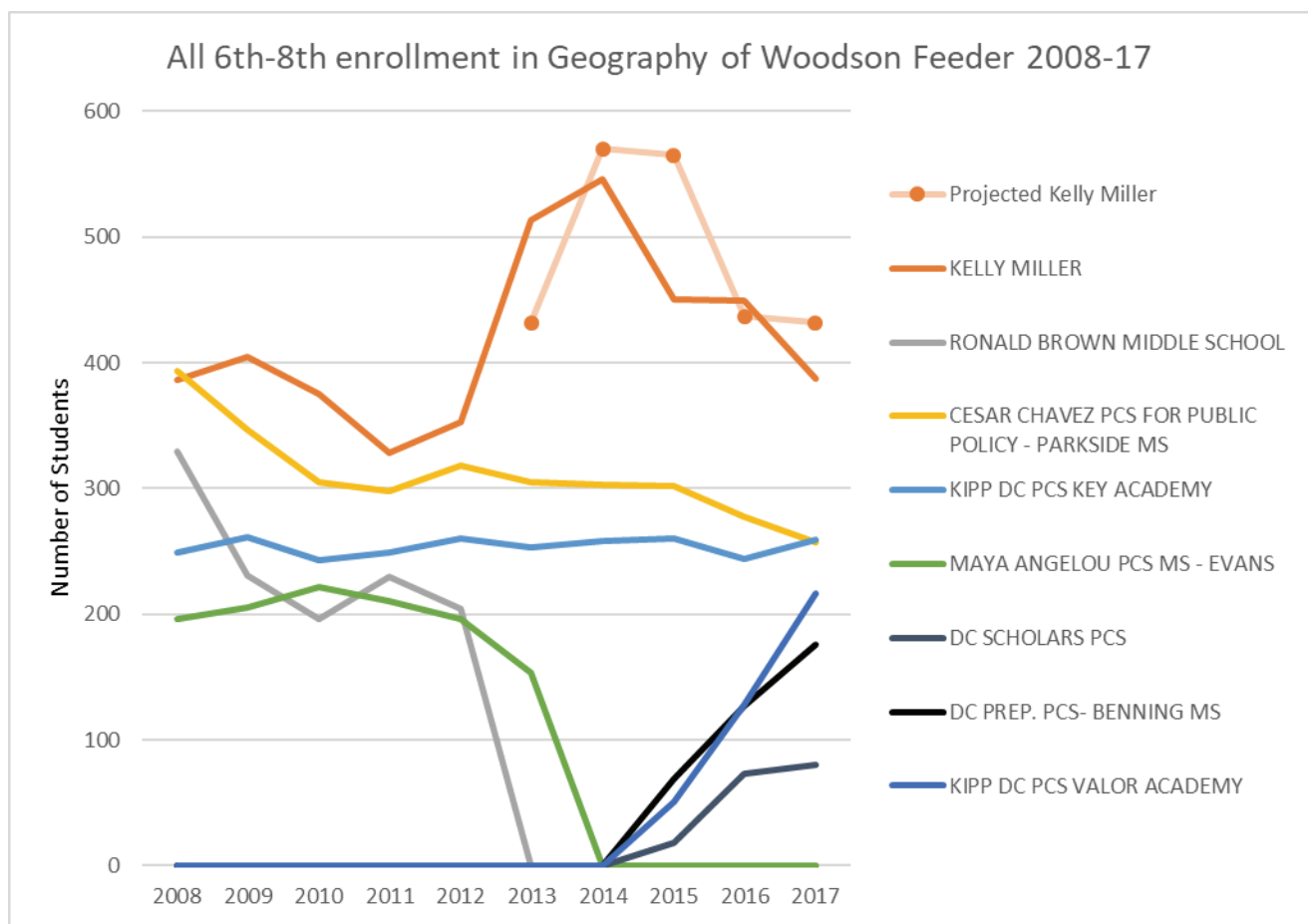


Figure 15 All 6<sup>th</sup> – 8<sup>th</sup> enrollment in Woodson Feeder Geography 2008 - 17

Even smaller fluctuations in enrollment bring significant budget implications. Each year the next year enrollment projections are used by DCPS schools to budget for their teachers and other staff, within the parameters of DCPS's staffing requirements.

### Budgeting for weighted subgroups

The School Reform Act (SRA) requires OSSE to review the Uniform Per Student Funding Formula (UPSFF) basic foundation level of public education funding and the weights that adjust this foundation every two years<sup>4</sup>. The recommendations, usually from an OSSE committee on UPSFF, make recommendations to the Mayor which may be used in setting the UPSFF for the District's Public Education Budget which is approved by the Council as part of the annual budget process. Pupil weights are added to the foundation for these categories: per grade-level and subgroup populations, as outlined in D.C. Code § 38-290<sup>5</sup>, and are listed below.<sup>6</sup>:

- Grade levels
- Special populations
  - Special Education
    - Students eligible for Level 1-4 special education services
    - Students covered under Blackman Jones compliance
    - Students that were eligible for Attorney's fees
  - English language learners
  - Residential
  - Extended year
  - At-risk students<sup>7</sup>

### Charter Facility Allowances

In addition to receiving per-student allocations, public charter schools receive local funding for capital-related costs for facilities, including construction, major buildings improvements, and leasing or purchasing property through a Facilities Allowance. However, charter schools are not obligated to use their facilities allowance on capital-related facilities costs. The facilities allowance is part of their July 15<sup>th</sup> (1<sup>st</sup> quarter) UPSFF payment<sup>8</sup>. Each LEA's facilities allowance is set as a dollar figure "multiplied by the number of students estimated to attend each Public Charter School"<sup>9</sup>. If there are discrepancies between an LEA's projected, audited October 5<sup>th</sup> enrollments, OSSE adjusts the LEA's April 15<sup>th</sup> (4<sup>th</sup> quarter) payment to reconcile differences in the facilities allowance as well as the UPSFF funding.<sup>10</sup>

### Educational Facility Master and Capital Planning

Multi-year enrollment projections should help the District align its public-school capacity with the needs of its population. Five- and ten-year projections completed as part of past MFPs are meant to inform DCPS's six-year capital improvements plan (CIP) process including estimated population growth or changes in student demand. Multi-year projections should also inform school boundaries for DCPS, but enrollment, capital planning, and boundary decisions have not been consistently aligned.

In the recent past in the absence of school boundary level data projections, decisions have been made without adequate information and in silos. Another example is Barnard ES. The Ward 4 school is extremely crowded, including portable classrooms with capacity for 176 students. Two nearby DCPS elementary schools, Clark ES and Rudolph ES became city-wide charters in SY 2010 and 2012, respectively. Sustaining one or both as DCPS elementary schools, based on the neighborhood population, could have relieved crowding at Barnard.

Without accurate five-year projections, District policymakers have supported a capital budget that has resulted in schools being constructed with inappropriate capacities. Another example is Deal MS, with 2017-18 enrollment of 1,475 students. The Ward 3 school was initially modernized in 2009 for an enrollment of 800 students - too small a capacity to serve the population of its 6 feeder schools. It had portable classrooms soon after modernization. A major addition in 2013 permitted the school to grow its permanent capacity to 1,370, still with portables for 200 students. MacFarland MS, currently undergoing modernization for 590 students, may similarly be over-crowded shortly after it reopens if only half of the 5<sup>th</sup> graders attending its 7 feeder schools chose to attend.

### Estimating the Number of Lottery Seats

In March, LEAs submit to My School D.C. the number of seats, by school and by grade that they will make available in the My School D.C. lottery.

| <b>Seats Offered in Spring 2017 My School D.C. Lottery by Grade and Sector</b> |              |                |               |
|--------------------------------------------------------------------------------|--------------|----------------|---------------|
| <b>Grade levels</b>                                                            | <b>DCPS</b>  | <b>Charter</b> | <b>Total</b>  |
| PK3                                                                            | 2,318        | 3,668          | 5,986         |
| PK4                                                                            | 1,086        | 1,011          | 2,097         |
| K                                                                              | 362          | 911            | 1,273         |
| 1 <sup>st</sup>                                                                | 226          | 491            | 717           |
| 2 <sup>nd</sup>                                                                | 218          | 525            | 743           |
| 3 <sup>rd</sup>                                                                | 201          | 398            | 599           |
| 4 <sup>th</sup>                                                                | 182          | 406            | 588           |
| 5 <sup>th</sup>                                                                | 133          | 664            | 797           |
| 6 <sup>th</sup>                                                                | 438          | 1,268          | 1,706         |
| 7 <sup>th</sup>                                                                | 216          | 488            | 704           |
| 8 <sup>th</sup>                                                                | 186          | 315            | 501           |
| 9 <sup>th</sup>                                                                | 1,525        | 1,605          | 3,130         |
| 10 <sup>th</sup>                                                               | 302          | 293            | 595           |
| 11 <sup>th</sup>                                                               | 140          | 118            | 258           |
| 12 <sup>th</sup>                                                               | 98           | 43             | 141           |
| <b>Total</b>                                                                   | <b>7,631</b> | <b>12,204</b>  | <b>19,835</b> |

The DCPS Planning Team leads the development of the lottery seat projections, which are driven by the enrollment projections. This year, lottery seats were finalized in mid-March, the deadline for LEAs to submit seats to My School D.C. This year the following factors were used when projecting lottery seats: average class size/cap, classroom/staff allocations, building capacity, and historical seat allocations and enrollment. Similar to enrollment projections, the DCPS Planning Office proposes seat projections to school leaders and gives them an opportunity to petition a change.

DCPS does not use estimates of school-level offer acceptance rates, defined as the percent of applications that ended up enrolling in the offer school, out of all applications that were offered<sup>11</sup>, to decide how many seats to make available in the lottery. A school is obligated to make a seat available if it puts it into the lottery. However,

because a match in the lottery resulted in enrollment only 57% of the time in 2017-18, it is not uncommon for charters to place more seats into the lottery than they can manage, knowing that they may be somewhat crowded if the offer acceptance rate is unusually high, but can expect some attrition during the year. Additionally, some schools accept large cohorts of students in their early grades, but close off admission to their upper grades, thereby reducing the error in their enrollment projections process. DCPS neighborhood schools, however, must accept in-boundary students at all grades, making their enrollment projections process much more complicated. While lottery seats are not a direct input in the development of DCPS enrollment projections; contextually, they are used when making programmatic adjustments.

## DCPS Enrollment Projection Methodology

The DCPS Office of Strategic School Planning and Enrollment projects October 5<sup>th</sup> audited enrollment for each DCPS school. DCPS projects enrollment using a cohort-survival method<sup>12</sup> with slightly different methods for entry grades and early childhood grades. Once school-level projections are ready, each school's principal and Local School Advisory Team (LSAT) can review and propose changes.

## Data used in DCPS Preliminary Baseline Projections

DCPS uses OSSE student-level data from DCPS schools to produce their school by grade cohort history and preliminary baseline projections. The data includes their demographic, age, address, school, grade level, at risk, special education, and English language learner status. When OP does age level projections, they do a presentation to DCPS to help them understand how they may impact their enrollments.

## Cohort Method

For each school's non-entry level grades (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup>) DCPS first averages the change of class sizes from one grade to the next over the past four years of October 5<sup>th</sup> enrollments<sup>13</sup>. This four-year average is called the "cohort survival ratio", meaning the average percentage of a school's grade-level cohort that stay enrolled for the next year's enrollment audit in October.

DCPS multiplies the number of students in the current cohort against the average cohort survival ratio to project next-year enrollment. If the resulting projection comes out as a fraction, the decision to round up or down is based on whether the most recent year's enrollment shows an upward or downward trend in cohort survival.

## Entry Grades Enrollment Projections

For each school's entry level grades (Kindergarten, 6<sup>th</sup> and 9<sup>th</sup>), DCPS projects next-year enrollment using a combination of cohort survival method for Kindergarten, average feeder pattern retention, average number of new in-boundary students, and average number of out-of-boundary enrollments using a 3-year average. Sixth grade is not treated as an entry level grade in education campuses serving PK3 through 8<sup>th</sup> grade.

## Early Childhood Enrollment Projections

DCPS generally projects to fill all available pre-kindergarten spaces. The number of PK3 seats made available is determined based on the availability of early childhood classrooms and the percent of PK3 seats accepted in the lottery over the past three years. Early childhood classrooms are required to be on the first floor and have

bathrooms adjacent or immediately in the classrooms<sup>14</sup>. Although District officials are proud of a near-universal pre-k program, there is no statutory requirement to serve *all* 3 and 4-year-olds or to provide PK3 and PK4 at a student's in-boundary elementary school and DCPS does not meet the current in-boundary student demand in some neighborhoods. As of March 30<sup>th</sup>, 2018, there were 772 PK3 applicants and 1,336 PK4 applicants that did not receive a match anywhere in the My School DC lottery including 419 PK3 applicants and 514 PK4 applicants waitlisted at their in-boundary DCPS school<sup>15</sup>.

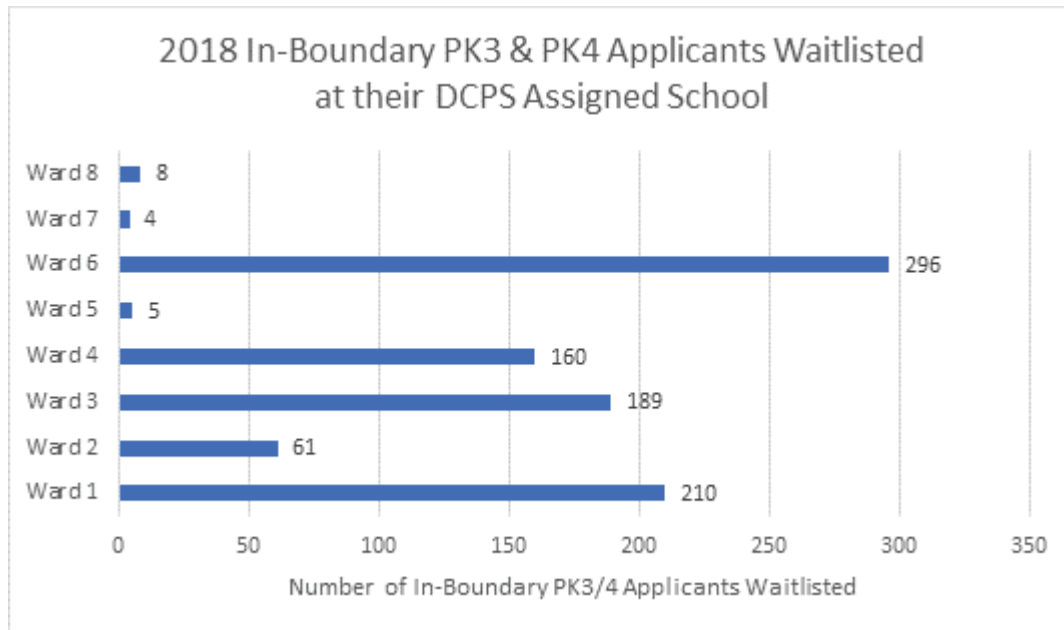


Figure 16 Data Source: My School DC Lottery as of 3/30/18

Through its Early Action program in SY2017/18, however, DCPS offered guaranteed PK access for families living in-boundary for nineteen elementary and education campuses in Wards 4, 5, 6, 7 and 8<sup>16</sup>.

DCPS estimates their PK4 seats by assuming they will retain all PK3 students (if it was offered) and expands the PK3 enrollment based on the historic capture of PK4 students and the number of classrooms available.

Each school's early childhood education (PK3 and PK4) projections are bound by D.C. Municipal Regulations for eligible facility space and maximum class sizes based on national standards for high-quality pre-k programs<sup>17</sup>:

- PK3 classes may not exceed 16 students
- PK4 classes may not exceed 20 students
- Mixed-age classes (PK3 and PK4) may not exceed 17 students

### Subgroup Projections

Enrollment of English Learner and Special Education subgroups are projected by DCPS at the same time as General-Education enrollment and shared with Principals and then finalized together with the by school, by grade General-Education projections. English Learner projections are created in conjunction with the DCPS Office of Strategic School Planning and the Language Acquisition Division. Special Education Levels are projected by the Division for Specialized Instruction.

## Adjustments to Cohort Estimates

Historical cohort models will only accurately project at the school by grade level when enrollment is stable. Due to changes in demand and supply, at the school and grade levels, DCPS uses a system of central office and then school level review, including grade configuration subtotals, to improve the accuracy of its projections.

### DCPS Central Office Review

After compiling grade-level and subgroup enrollment projections, the Office of Strategic School Planning and Enrollment reviews and adjusts projections based on several criteria outlined in the DCPS budget development guide, including:

- School specific programming changes
- Grade configuration changes
- New or expanded programming
- Temporary or permanent location changes
- Other place-based circumstances<sup>18</sup>

There are no written procedures for how DCPS central office staff make the adjustments to grade-level or subgroup enrollment projections. However, the DCPS Office of Strategic School Planning and Enrollment uses district-wide grade level totals to help evaluate the baseline projections of individual schools, which they adjust prior to posting in the web portal. Adjustments done before engaging the local schools may be related to facility capacity, such as adding enrollment if a new early childhood classroom is added or reducing enrollment if the school is being relocated into swing space which has lower capacity, or increasing enrollment following a school modernization that increased school size.

### DCPS Principal Petitions

Principals review and propose changes to their school's revised enrollment projections through an online portal. In a recent improvement, the Local School Advisory Team (LSAT) chairpersons<sup>19</sup> can also view the school projected enrollments. In this web-based portal, the principals see their projection, as well as the historical trends, informing each grade-level's specific counts. Principals may petition to adjust their projections and must submit a written justification for their proposed changes. The DCPS Office of Strategic School Planning and Enrollment review the principal petitions and justifications and provides the final school-level projection, along with a central office response to any principal petitions, are included in the online portal. In considering the principal petitions, DCPS uses their district-wide grade level totals to help evaluate whether specific petitions should be granted or not.

After this review process, the DCPS Office of Strategic School Planning and Enrollment presents its final projections to the DME for certification.

### Mid-Year Enrollment Adjustment

After the principal review process, the DCPS Office of Strategic School Planning and Enrollment presents its school-level projections to the DCPS Office of the Chief Business Officer (CBO). The enrollment projections for DCPS are developed based on the individual school, by grade, and by sub-groups. The District of Columbia's final UPSFF LEA



level projections typically includes a 2% increase because DCPS is the system of right in the District of Columbia. and, its enrollment typically goes up after the October 5<sup>th</sup> enrollment audit.<sup>20</sup>

### DCPS DME Review

The Office of the Deputy Mayor for Education reviews DCPS projections and has the authority to adjust DCPS projections. After certifying the projections, the DME submits the DCPS enrollment projections to the Office of the City Administrator's Office of Budget and Performance Management for use in the fiscal year education budget.

### Projecting Public Charter School Enrollment

D.C. Code requires that each public charter school Local Education Agency (LEA) submit preliminary projections for next-year enrollment to their chartering authority<sup>21</sup>. Each charter LEA develops separate projections for their next-year enrollment by school, by grade and sub-groups, which they submit to the D.C. Public Charter School Board (PCSB) by December of each year.

### Data used in PCS Projections

The data provided by PCSB to PCS LEAs is OSSE audited school enrollment data at the school by grade level, which includes school by grade special population data, as well. Although the PCSB does not provide the PCS LEAs an estimate of their projected enrollment based on an historical cohort model, it does provide them with:

- current school year's final enrollment projection for each school
- actual enrollments from the previous two school years
- the "cohort attrition rate" representing the change in the number of students enrolled in the grade during the last finished academic year, as compared to one grade earlier the year before
- the "within-year attrition rate" meaning the change in enrollment during the last finished academic year for the group between the audit and the period

### LEA Process

Public charter LEAs use a cohort-survival method to project their next-year enrollment, according to interviews with multiple charter LEA representatives. They adjust their projections based on program and grade changes, enrollment ceiling (schedule I) changes, building capacity, and wait-list size.

The PCSB reviews, adjusts, and compiles each charter LEA's next-year projections. Charter LEAs receive funding based on their current year enrollment and are funded for enrollment and added weights for sub groups (special education, at risk, or ELL students), if they have more than they projected for their October official count day.

### PCSB Collection via the HUB

Each December, charter LEAs submit their next-year enrollment projections to PCSB using the HUB, an online portal for LEA data managers, managed by PCSB.

## PCS DME Review

The Office of the Deputy Mayor for Education (DME), reviews the preliminary projections of the charter LEAs. The DME reviews each submitted projection and flags any LEAs that submit a projected October enrollment growth of 2% or more compared to their previous audited enrollment<sup>22</sup>. Flagged submissions receive additional scrutiny, and potentially revised projections, based on the following criteria:

- Enrollment ceiling
- History of meeting their projections
- School enrollment trends over the past 5 years
- Whether PCS LEAs are adding new schools, grades, new classrooms
- Moving locations/growing in capacity
- Wait-list data
- Historic attrition for each school's grade

LEAs may submit “final feedback”<sup>23</sup> before projections are finalized. Written procedures for adjusting enrollment projections are vague, but both the LEA and DME, while seeking accuracy, consider the charter projections a lower stakes projection than DCPS because the budgeting for the charters is adjusted based on actual October enrollment.

## Certification of Enrollment Projections

The Deputy Mayor for Education certifies the next-year enrollment projections before they go to the Mayor's Office of Budget and Finance for use in building the District's budget. In a recent memo from the Deputy Mayor for Education, on DC PCS SY19-20 Enrollment Projections Timeline for FY20 Budget Development, the DME informed the DCPS and charter LEAs that the enrollment process is to be moved forward by nearly 6 weeks.<sup>24</sup>

While it appears that the processes described for DCPS and PCS LEAs constitute a degree of due diligence by LEAs, PCSB, and DME, to ensure accurate projections, there is no defined, published and accessible check list or criteria that are used to certify the work that has been done. The absence of written policies and procedures and the opaque nature of the oversight and approval process may be issues that District policymakers will want to address.

## Council Review

The Council of the District of Columbia has final authority over the District's annual budget. Following the DME certification process, the Mayor submits all next-year enrollment projections in March as part of the proposed budget. The Council Committee on Education hears public testimony and may adjust next-year projections for DCPS or the public charter school sector. In the Fiscal Year 2018 budget, the Committee on Education reduced the projected number of students with disabilities in the public charter sector by 110 total students across all four levels of IEP: Level 1 was reduced by 11 students, Level 2 reduced by 27, Level 3 reduced by 36 students, and Level 4 was reduced by 36 students<sup>25</sup>. OCFO distributed these adjustments to the two largest charter LEAs, KIPP DC and Friendship public charter schools, for them to absorb.<sup>26</sup>

## Key Findings

Currently the LEAs and the DME lack detailed documentation on formulas, adjustments, and certifications made in the enrollment projections process. While it is not recommended that certified enrollment projections be changed, if D.C. Council exercises the authority of post-certification changes, detailed documentation should be recorded. This information is important in improving enrollment projection accuracy and transparency over time.

The use of the projection portal by DCPS and the HUB by PCSB provide helpful and efficient communication between DCPS central office and local schools and charter LEAs. If the portal were expanded to include data inputs such as live birth data, housing data, historical and projection enrollments, and charter and DCPS enrollment and facility plans, then a catalogued longitudinal dataset could be shared between each LEA leading to an improved data driven and documented enrollment projections process.

Enrollment projections for 10 years by year, by grade provide a consistent platform that can be readily used for budgeting (next year projections) and facilities capital planning (5- and 10-year projections).

- 
- <sup>1</sup> Master Facility Plans were done in 1995, 1997, 2000, 2006, 2008, 2010, 2013, and DME is responsible for producing a 2018 plan by August 2018.
- <sup>2</sup> D.C. Forecasts, Office of Planning State Data Center: <https://planning.dc.gov/node/1212966>
- <sup>3</sup> DME Memo to Charter LEA Leaders, June 22, 2017:  
<https://dme.dc.gov/sites/default/files/dc/sites/dme/publication/attachments/2017-18%20UPSFF%20Payment%20Letter.pdf>
- <sup>4</sup> D.C. Code § 38-2911 (c): <https://code.dccouncil.us/dc/council/code/sections/38-2911.html>
- <sup>5</sup> D.C. Code § 38-2905: <https://code.dccouncil.us/dc/council/code/sections/38-2905.html>
- <sup>6</sup> DCPS funded on projection, DC public charter schools Q1 on projected, Q2/3 unverified, Q4 on audited
- <sup>7</sup> At Risk Defined in DC Code § 38-2901 (2A): <https://code.dccouncil.us/dc/council/code/sections/38-2901.html>
- <sup>8</sup> D.C. Code § 38-2908 (c): <https://code.dccouncil.us/dc/council/code/sections/38-2908.html>
- <sup>9</sup> D.C. Code § 38-2908 (2-3): <https://code.dccouncil.us/dc/council/code/sections/38-2908.html>
- <sup>10</sup> June 22, 2017 Memo to Charter LEA Leaders from Jennie Niles, Deputy Mayor for Education:  
<https://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/2017-18%20UPSFF%20Payment%20Letter.pdf>
- <sup>11</sup> Yang, Rui, et al. "My School DC Lottery Program Evaluation of School Year 2017-18" American Institutes for Research. May 2018, page 16.
- <sup>12</sup> DCPS FY19 School Budget Development Guide, pg. 7: [http://www.dcpsschoolbudgetguide.com/fy19\\_budget\\_guide.pdf](http://www.dcpsschoolbudgetguide.com/fy19_budget_guide.pdf)
- <sup>13</sup> DCPS uses unaudited enrollment for the current school year because OSSE does not release verified audited enrollments for the current school year until the spring. Enrollments for the previous three years are audited.
- <sup>14</sup> OSSE Regulations on Licensing of Child Development Facilities:  
<https://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/Final%20Rulemaking%20for%20the%20Licensing%20of%20Child%20Development%20Facilities.pdf>
- <sup>15</sup> My School DC Common Lottery Results, March 30, 2018: <http://enrolldcps.dc.gov/node/61>
- <sup>16</sup> [https://enrolldcps.dc.gov/sites/dcpsenrollment/files/page\\_content/attachments/Generic%20Early%20Action%20Flyer%202017-18.pdf](https://enrolldcps.dc.gov/sites/dcpsenrollment/files/page_content/attachments/Generic%20Early%20Action%20Flyer%202017-18.pdf)
- <sup>17</sup> D.C. Municipal Regulations 5-A1 § 121: <https://dcregs.dc.gov/Common/DCMR/RuleDetail.aspx?RuleId=R0020779>
- National Institute for Early Education Research [www.nieer.org](http://www.nieer.org)
- <sup>18</sup> DCPS FY19 School Budget Development Guide, pg. 8: [http://www.dcpsschoolbudgetguide.com/fy19\\_budget\\_guide.pdf](http://www.dcpsschoolbudgetguide.com/fy19_budget_guide.pdf)
- <sup>19</sup> LSAT chair people can see projections through the online portal but cannot make their own adjustments.
- <sup>20</sup> Deputy Mayor for Education, "Responses to FY19 Budget Oversight Follow-up Questions", May 1, 2018.
- <sup>21</sup> D.C. Code § 38-2906 (e): <https://code.dccouncil.us/dc/council/code/sections/38-2906.html>
- <sup>22</sup> DME submitted documentation entitled "Public Charter Enrollment Projection Methodology".
- <sup>23</sup> Ibid.
- <sup>24</sup> Smith, Ahnna. "DC PCS SY19-20 Enrollment Projections Timeline for FY20 Budget Development". July 31, 2018.
- <sup>25</sup> DC Council Committee on Education, "Report and Recommendations of the Committee on Education on the Fiscal Year 2018 Budget for Agencies under its Purview", May 18, 2017, pg. 65: [http://dccouncil.us/files/user\\_uploads/budget/Marked-up\\_Committee\\_on\\_Education\\_FY18\\_Budget\\_Report.pdf](http://dccouncil.us/files/user_uploads/budget/Marked-up_Committee_on_Education_FY18_Budget_Report.pdf)
- <sup>26</sup> Final FY18 PCS Projections by Campus and LEA – with Council adjustment explainer tab.

## Section 5: Testing and Developing Methods for D.C.

The following studies were conducted to test and develop recommendations for an enrollment projection process and methodology for the District of Columbia.

- Accuracy of Current Projections – the accuracy of next year projections by school and grade developed using current processes and methods used for budgeting and staffing were evaluated
- Blind Study of Enrollment Projections - enrollment was projected using a traditional cohort survival method, and then compared the projections to actual enrollments by district, sector, grade-levels, and school
- Student Mobility in D.C. Public and Public Charter Schools - as a function of *gross* mobility was analyzed
- What Matters Most: Factors Affecting Projection Accuracy - how neighborhood and school characteristics correlated with the accuracy of 1-year enrollment projections conducted by a standard cohort projection model, for the case of District of Columbia public and charter schools for school year 2017-18.

### Accuracy of Current Projections

#### One-Year Comparison of Audited to Projected Enrollment

The analysis of the accuracy of 1-year enrollment projections from DCPS utilizes two common statistical measures for comparing projected to actual (audited) enrollments – the Mean Absolute Percentage Error (MAPE) and the ratio of projection to enrollment (P/E). Each comparison summarizes each measure for analyses of aggregate totals, then by Ward, by year, by grade level, and by individual school. The comparison was completed for the school years 2013-2014 through 2017-2018; and PCS Schools for school years 2016-17 and 2017-18.

Key takeaways from the DCPS analysis include the following:

- The magnitude of projection errors varies by ward, year, and grade.
- The direction of projection errors (too low or too high) also varies by ward, year, and grade, in ways that often do not correspond to the magnitude of the errors.

This research also analyzes the accuracy of 1-year enrollment projections from PCS Schools for school years 2016-17 and 2017-18. Only one year of projections were compared as school-level data was only available for the 2016-17 school year.

Key takeaways from the PCS analysis include the following:

- PCS schools had about the same absolute projection errors across wards and showed reductions in projection error from the 2016-17 to the 2017-18 school years.
- PCS schools produced projections that skewed high in the 2017-18 school year.

## Mean Absolute Percent Error (MAPE)

### Basic Information

The Mean Absolute Percent Error (MAPE) is a standard measure of the accuracy of projections. Using terms for projected enrollment  $E_p$  and audited enrollment  $E_a$ , MAPE can be defined by the equation below:

$$MAPE = \left| \left( \frac{E_p - E_a}{E_a} \right) - 1 \right| * 100\%$$

MAPE has the property of treating positive errors the same as negative errors – counting both equally as deviations from the desired outcome of a zero percent error. It is the standard used by the National Center for Education Statistics to evaluate the accuracy of its past enrollment projections ([Hussar and Bailey 2017](#)).

### Results for DCPS Schools

For the total sample of all observed DCPS schools for SY 2013-14 through SY 2017-18, the MAPE has a value of 5.0%. In other words, for a given school at a given year, an average enrollment projection produced by the DCPS methods and process missed the audited projection by about 5% high or 5% low. Some schools had projections closer to the actual enrollments, and other schools had projections farther from the actual enrollments.

\*Note that all statistical analysis results do not include CHOICE Academy at Emery and the Incarcerated Youth Program because of their small enrollments and unique characteristics, though their projection and enrollment characteristics are listed with other schools in Appendix C.

### MAPE Results Overview

The top section of the following table summarizes values for the Mean Absolute Percent Error for 1-Year projections by DCPS for the school years SY 2013-14 to SY 2017-18.

The table below provides information about the numbers of observations in the samples, expressed in the number of schools observed times the number of years each school was observed. Five school years were assessed, but some sample sizes are not multiples of 5 because some schools did not have projection data and/or did not exist for all 5 years. MAPE values were weighted by the audited enrollments.

**Mean Absolute Percent Error (MAPE) for DCPS Schools 2013-14 to 2017-18**  
**By Ward, Year, Grade, and Grade Group**

|                       |                    | School*Years<br>Observed | Student*Years<br>Observed | Mean Absolute<br>Percent Error |
|-----------------------|--------------------|--------------------------|---------------------------|--------------------------------|
| <b>Total DCPS</b>     |                    | 554                      | 238,335                   | 5                              |
|                       |                    | School*Years             | Student*Years             | MAPE                           |
| <b>By Ward</b>        | Ward 1             | 50                       | 26,885                    | 4.3                            |
|                       | Ward 2             | 40                       | 14,760                    | 4                              |
|                       | Ward 3             | 50                       | 35,246                    | 2.4                            |
|                       | Ward 4             | 76                       | 37,005                    | 4.7                            |
|                       | Ward 5             | 70                       | 22,050                    | 8.1                            |
|                       | Ward 6             | 93                       | 35,694                    | 3.8                            |
|                       | Ward 7             | 80                       | 27,412                    | 6                              |
|                       | Ward 8             | 95                       | 39,283                    | 7.2                            |
|                       |                    | School*Years             | Student*Years             | MAPE                           |
| <b>By Year</b>        | 2013               | 109                      | 46,358                    | 5.4                            |
|                       | 2014               | 109                      | 47,515                    | 5                              |
|                       | 2015               | 110                      | 47,911                    | 5                              |
|                       | 2016               | 113                      | 48,457                    | 5.1                            |
|                       | 2017               | 113                      | 48,094                    | 4.6                            |
|                       |                    | School*Years             | Student*Years             | MAPE                           |
| <b>By Grade</b>       | Grade P3           | 339                      | 11,456                    | 9.1                            |
|                       | Grade P4           | 380                      | 17,049                    | 8.1                            |
|                       | Grade P5           | 380                      | 20,849                    | 10.8                           |
|                       | Grade 1            | 379                      | 20,625                    | 8.3                            |
|                       | Grade 2            | 378                      | 19,749                    | 7.8                            |
|                       | Grade 3            | 377                      | 18,984                    | 8.8                            |
|                       | Grade 4            | 376                      | 17,758                    | 8.5                            |
|                       | Grade 5            | 375                      | 15,540                    | 9.6                            |
|                       | Grade 6            | 146                      | 11,121                    | 13.6                           |
|                       | Grade 7            | 144                      | 11,452                    | 7.5                            |
|                       | Grade 8            | 143                      | 11,715                    | 7.4                            |
|                       | Grade 9            | 79                       | 17,648                    | 16.8                           |
|                       | Grade 10           | 78                       | 12,662                    | 13.3                           |
|                       | Grade 11           | 77                       | 11,685                    | 9.8                            |
|                       | Grade 12           | 76                       | 10,647                    | 8.2                            |
|                       |                    | School*Years             | Student*Years             | MAPE                           |
| <b>By Grade Group</b> | Grade P3 - Grade 5 | 386                      | 142,010                   | 3.7                            |
|                       | Grade 6 - Grade 8  | 148                      | 34,288                    | 7                              |
|                       | Grade 9 - Grade 12 | 79                       | 52,642                    | 7                              |
|                       | Adult              | 9                        | 5,337                     | 20.7                           |

## *Summary of Results for DCPS (MAPE)*

### Results by Ward

The values of MAPE were highest for Wards 5, 8, and 7 (8.1%, 7.2%, and 6.0% respectively) and lowest for Ward 3 (2.4%) – meaning projections deviated more from actual enrollments Wards 5, 7, and 8 and less in Ward 3. Differences in the accuracy of projections can depend on a number of factors, such as migration rates, variability in movement between public and public charter schools, and/or the effectiveness of school principals and other officials at negotiating accurate enrollment projections during the projection process. This descriptive analysis cannot determine the relative importance of those processes, but our later analysis of projection errors in the blind study revisits this issue and provides evidence that student mobility from school to school is an important part of the explanation.

### Results by Year

Values of MAPE were highest in 2013-14 (5.4%) and lowest in 2017-18 (4.6%). In other words, the results of the DCPS method and process have been improving in recent years, at least by this statistical measure. This analysis is not able to establish why such an improvement might be occurring. The improvement could reflect migration patterns or school choice patterns in 2017 being approximately the same as the average of previous years, or possibly an improvement in the projection process itself.

### Results by Grade

Values of MAPE were highest in grades 9, 6, 10, and Kindergarten (16.8%, 13.6%, 13.3%, and 10.8% respectively). Errors in enrollment projections tend to be largest at the grade levels where students typically transition into high school, into middle school, and into elementary school. Another important result is that the errors at any given grade level tend to exceed the errors for entire schools, as a percent of enrollment. MAPEs by grade level range from 7.4% to 16.8%, but overall MAPEs at the school level average only 5.0%. This result suggests that error processes are somewhat independent for adjacent grades – that the factors governing deviations in enrollment for one grade may be somewhat different from factors affecting adjacent grades at the same school.

### Results by Grade Group

Many DCPS schools have all their grade levels in one of these groups. Other schools, including schools with education campuses, may have enrollments in several of these categories. Values of MAPE are by far highest for adult enrollments (20.7% with a very small sample) and lowest for elementary enrollments (3.7%)

These results correspond roughly to historical average MAPE values for standard cohort-component projection methods, as estimated by the NCES for D.C. public school enrollments dating back to SY 1984-85. (6.6% for high school, 4.3% for Pre-Kindergarten to 8<sup>th</sup> grade). This comparison to NCES data is useful in that it can provide a sense of the relative unpredictability of D.C. enrollments to public school enrollments in other states. NCES results show that projections of D.C. public school enrollment historically have far higher error rates than projections for other states. Hence, projections for individual schools can only be so accurate if projections for all of DCPS typically have large errors, because of the District of Columbia's unique demographic, economic, and political circumstances.



### Background

Compared to the Mean Absolute Percent Error (MAPE), the ratio of Projection to Enrollment is a simple measure, but one that provides more information. The ratio of Projection to Enrollment is shown in the equation below:

$$P/E = \frac{E_p}{E_a}$$

Where MAPE has the property of treating positive errors the same as negative errors, P/E allows the reader to distinguish between errors where the projection was too low ( $P/E < 1$ ) and errors where the projection was too high ( $P/E > 1$ ).

The ability to discern high errors from low errors has practical significance for the DCPS projection process. If a school's resource allocation is based on enrollment projections, an error where the projection is too low means that school receives fewer resources than it requires for its actual enrollment. Conversely, if the projection is too high, such an error is innocuous or may even be beneficial if the school doesn't have to reimburse the extra money. Such asymmetrical consequences of projection error show that projection methodologies should be considered not only for the total magnitude of errors in enrollment projection, but also for the relative frequency of errors that miss high or low.

The table below provides a simple guide for easy interpretation of P/E ratios. Yellow represents errors of consequence to the school – errors where the projection is lower than the audited enrollment, so a school supposedly receives fewer resources than it requires. Gray represents enrollment projections that are essentially correct, and blue represents errors where the projection is higher than the audited enrollment, which implies that a better projection would have shifted some resources to other schools in the District. As a general rule for visualizing the magnitude of projection errors, we chose to divide projection/enrollment ratios into seven categories to correspond to the number of students under- or over-projected per classroom of 25 students.

#### Guide to interpreting Ratios of Projected to Audited Enrollments

*With impact presented in Units of Students per Class*

| Projection / Enrollment Ratio | Impact per 25-Student Class Size                    |
|-------------------------------|-----------------------------------------------------|
| 0.899 or less                 | Projection too low by 3 or more students per class  |
| 0.900 – 0.939                 | Projection too low by 2 students per class          |
| 0.940 – 0.979                 | Projection too low by 1 student per class           |
| 0.980 – 1.019                 | Same projected as enrolled                          |
| 1.020 – 1.059                 | Projection too high by 1 student per class          |
| 1.060 – 1.099                 | Projection too high by 2 students per class         |
| 1.100 or more                 | Projection too high by 3 or more students per class |

Figure 17 Guide to Interpreting Ratios of Projected to Audited Enrollments

## Summary of Results DCPS (P/E)

The figure below shows the distribution of projection to enrollment ratios for 1-Year projections by DCPS for the school years 2013-14 to 2017-18. The result that stands out is that cases where the projection is too high for the enrollment (blue) have outnumbered cases where the projection is too low for the enrollment (yellow). This asymmetrical pattern suggests that few schools are shortchanged by under-projections but that the allocation of resources might be somewhat inefficient overall as a result. The available data do not provide clear indications of why such asymmetry is occurring. Possibly some of the asymmetry could be coming from the existing cohort survival methodology, school- and district-level enrollment trends moving slightly but systematically away from the trends of the previous few years. It is also possible that some of the asymmetry could arise during the stages at which adjustments are made to the cohort survival projections, if those projection adjustments tend to occur more frequently in one direction than the other. Whatever the source, the fact of asymmetry in enrollment projection in a few historical years does not prove that asymmetry would continue in the future. Hence, policy makers are encouraged to be cognizant of problems both with the magnitude and the direction of projections errors, but recommend a primary focus on efforts to reduce the magnitude of projection error. Statistical processes leading to the magnitude of error are fairly well studied, so efforts to improve methodologies by reducing the overall magnitude of projection error are likely to be more robust than efforts to address recent asymmetry in projection error. Furthermore, if the overall magnitude of projection error can be decreased, the magnitude of any asymmetry will also be decreased.

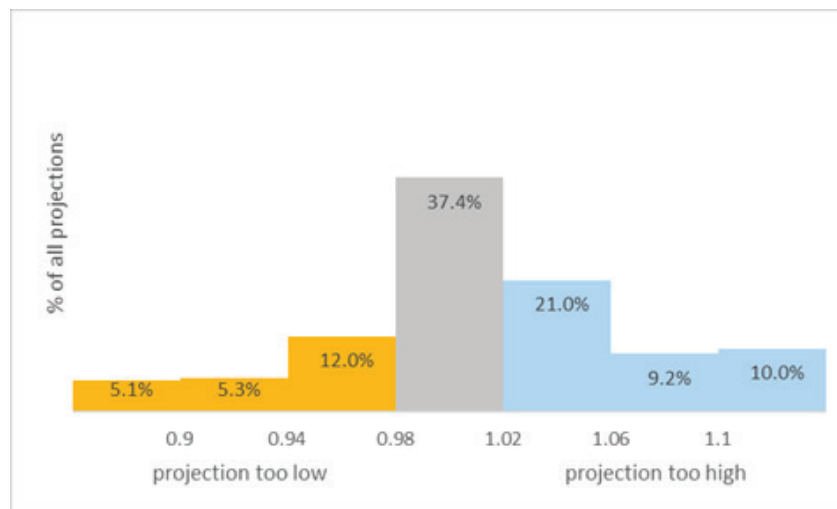


Figure 18 Ratios of Projected to Audited Enrollments for DCPSs Schools 2013-14 to 2017-18

## Results by Ward

Wards 2, 1, and 3 had the highest percentage of projections that matched audited enrollments (54.3%, 46.8%, and 46.4% respectively). Wards 5, 8, and 7 had the lowest percentage (20%, 21.3%, and 28.6% respectively).

The distribution of low and high projection errors also varied by ward:

- Ward 4 had more projection errors that were too low than too high, but in all other wards the high projection errors outnumbered the low ones.
- In Ward 5 a full 22.7% of projections exceeded the audited enrollments by a ratio of 1.1 or greater, an equivalent to three students more projected than enrolled per 25-student class.

- Ward 3 was notable in that while a significant share of its enrollment projections had some error, the errors were small, almost never exceeding one student too high or too low per 25-student class.

A major finding is that wards differ not only in the absolute magnitude of their enrollment errors, but also in the symmetry of those errors.

**See Appendix C:** Figures 2A through 2H show projection to enrollment ratios calculated separately for each Ward.

#### Results by Year

Results by year ratios of projected to audited enrollments show a trend toward projection errors being consistently on the high side. 49.6% of projected school enrollments for SY2017/18 exceeded the actual enrollments by a ratio of 1.02 or greater.

**See Appendix C:** Figures 3A through 3E

#### Results by Grade

In grades kindergarten, 11, and 12, the projection errors are skewed low overall. Conversely, in grades 9 and 10, the projection errors were particularly likely to skew high, resulting in projections that significantly exceeded actual enrollments.

These results suggest additional concerns to consider in developing models and processes for enrollment projections. The MAPE statistics demonstrated the enrollment projections are subject to uncertainty at school transition years like grades 6 and 9, but the P/E statistics also suggest that the cohort survival method and/or the adjustment process has been producing higher than expected projections through the high school years.

**See Appendix C:** Figures 4A through 4O show the projection to enrollment ratios calculated separately for each grade level.

#### Results by Grade Group

The tendency for projection errors to skew high is evident at the elementary (PK3 to 5), middle school (6 to 8), and high school (9 to 12) levels. Adult enrollment projections skewed low in the very small numbers of cases observed.

**See Appendix C:** Figures 5A through 5D shows projection to enrollment ratios calculated for groups of grades.

## Findings for Charter Schools

The table below shows mean absolute percent error (MAPE) for PCS schools, by ward, year, grade, and grade group of projections and enrollments of Public Charter Schools for the school years 2016-17 and 2017-18 only. For other years, projection data for PCS schools were available at the LEA level but not the school level.

### Mean Absolute Percent Error (MAPE) for PCS Schools 2016-17 to 2017-18

|                       |              | School*Years   | Student*Years   | Mean Absolute Percent Error | Equivalent DCPS MAPE |
|-----------------------|--------------|----------------|-----------------|-----------------------------|----------------------|
| <b>Total PCS</b>      |              | 238            | 84,884          | 5.1                         | 5.1                  |
|                       |              | <b>Schools</b> | <b>Students</b> | <b>PCS MAPE</b>             | <b>DCPS MAPE</b>     |
| <b>By Ward</b>        | Ward 1       | 21             | 11,040          | 4                           | 4.3                  |
|                       | Ward 2       | 6              | 2,565           | 6.7                         | 4                    |
|                       | Ward 3       | 0              | 0               | 0                           | 2.4                  |
|                       | Ward 4       | 39             | 11,696          | 3.6                         | 4.7                  |
|                       | Ward 5       | 60             | 21,228          | 6.9                         | 8.1                  |
|                       | Ward 6       | 32             | 9,374           | 4.6                         | 3.8                  |
|                       | Ward 7       | 40             | 13,275          | 4.1                         | 6                    |
|                       | Ward 8       | 40             | 15,706          | 5.6                         | 7.2                  |
|                       |              | <b>Schools</b> | <b>Students</b> | <b>PCS MAPE</b>             | <b>DCPS MAPE</b>     |
| <b>By Year</b>        | 2016         | 118            | 41,491          | 6                           | 5.1                  |
|                       | 2017         | 120            | 43,393          | 4.3                         | 4.6                  |
|                       |              | <b>Schools</b> | <b>Students</b> | <b>PCS MAPE</b>             | <b>DCPS MAPE</b>     |
| <b>By Grade</b>       | Grade P3     | 115            | 6,541           | 14.1                        | 9.1                  |
|                       | Grade P4     | 120            | 7,088           | 11.4                        | 8.1                  |
|                       | Grade P5     | 113            | 6,600           | 12.5                        | 10.8                 |
|                       | Grade 1      | 109            | 6,067           | 8.7                         | 8.3                  |
|                       | Grade 2      | 108            | 5,679           | 9.2                         | 7.8                  |
|                       | Grade 3      | 105            | 5,233           | 8.1                         | 8.8                  |
|                       | Grade 4      | 94             | 4,730           | 8.6                         | 8.5                  |
|                       | Grade 5      | 96             | 4,803           | 11.1                        | 9.6                  |
|                       | Grade 6      | 94             | 5,572           | 11.7                        | 13.6                 |
|                       | Grade 7      | 91             | 4,992           | 9.4                         | 7.5                  |
|                       | Grade 8      | 87             | 4,487           | 9.8                         | 7.4                  |
|                       | Grade 9      | 46             | 4,969           | 25.3                        | 16.8                 |
|                       | Grade 10     | 41             | 3,412           | 12.9                        | 13.3                 |
|                       | Grade 11     | 38             | 2,777           | 9.1                         | 9.8                  |
|                       | Grade 12     | 37             | 2,385           | 11.8                        | 8.2                  |
|                       |              | <b>Schools</b> | <b>Students</b> | <b>PCS MAPE</b>             | <b>DCPS MAPE</b>     |
| <b>By Grade Group</b> | Grade P3 – 5 | 167            | 46,323          | 5.7                         | 3.7                  |
|                       | Grade 6 - 8  | 96             | 15,051          | 7.7                         | 7                    |
|                       | Grade 9 – 12 | 46             | 13,543          | 7.9                         | 7                    |
|                       | Adult        | 10             | 7,482           | 4.1                         | 20.7                 |

### *PCS Findings for Mean Absolute Percent Error (MAPE)*

Across the two-year comparison, the MAPE values for PCS schools were comparable in that the same grades that had high levels of uncertainty in their absolute errors in DCPS schools also had high levels of uncertainty in those grades in PCS schools. Unlike DCPS schools, PCS schools had about the same absolute projection errors across wards. PCS schools showed very strong reductions in projection error from the 2016-17 to the 2017-18 school years.

### *Findings for Projection/Enrollment Ratios (P/E)*

The figure below shows distributions of projection to enrollment ratios (P/E) for PCS schools. One point of interest is that PCS schools are much like DCPS schools in producing projections that are more likely to skew high (blue color) than low (yellow color).

See Appendix C - Figure 7, 8, and 9 in by Ward, by Grade group, and by Year, respectively

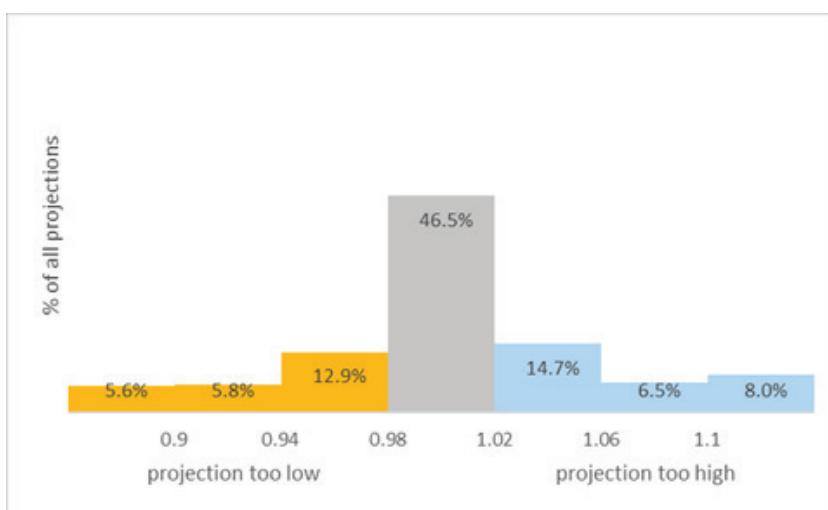


Figure 19 Ratios of Projected to Audited Enrollments for PSC Schools 2016-17 to 2017-18

### *Results for by Year and for Individual Schools*

See Appendix C - Table 4 is a table of projection to enrollment ratios for each DCPS school in each year, for reference purposes.

See Appendix C - Table 5 is a table of projection to enrollment ratios for each PCS school in 2016-17 and in 2017-18, for reference purposes.

## Blind Study of Enrollment Projections

Cooperative Strategies conducted a series of blind study enrollment projections to evaluate the accuracy based on the application of different projection ratios within the cohort survival model. The question posed in the blind study is, “How accurate are next year enrollment projections when using only the simple mathematical model that applies a standard set of projection ratios based on historic DCPS and PCS school-level data and survival ratios?”

A survival ratio is defined as the percentage of students that progress from grade to grade, year to year. A projection ratio is the factor that is applied to the historical enrollment to calculate projected enrollment. In this study, projection ratios were calculated by applying different averages of historical survival ratios.

This exercise was conducted using two different time periods of historical enrollment data, 2008-09 through 2015-16 and 2008-09 through 2016-17. Due to extensive boundary changes implemented in the 2014-15 school year, the projection ratios used in the blind study were limited to two and three years of historical survival ratios.

The projection ratios used in the blind studies are described below.

| Projection Ratios Used  | Description                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2-Year Simple Average   | Simple average of the most recent two years of survival ratios by school by grade.                                                                                                                                                                                                                                                                                                                             |
| 2-Year Weighted Average | Weighted average of the last two years of survival ratios, by school by grade. The previous years’ ratio will have higher influence on the projection ratio.<br><br>Weights exponentially decay from 1 (at the most recent year of available data) to 0.05 (at the first year of available data or one years before the most recent year of data, whichever is larger).                                        |
| 3-Year Simple Average   | Simple average of the most recent three years of survival ratios by school by grade.                                                                                                                                                                                                                                                                                                                           |
| 3-Year Weighted Average | Weighted average of the last three years of survival ratios by school by grade. The last years’ ratio will have the highest influence on the projection ratio, then the next year prior, and so on.<br><br>Weights exponentially decay from 1 (at the most recent year of available data) to 0.05 (at the first year of available data or two years before the most recent year of data, whichever is larger). |

The intent of this exercise was to compare the output from each set of enrollment projections to the actual audited enrollment to determine which projection ratios yields the greatest number of schools most accurately. It should be noted that one single approach regarding which projection ratios to use may not be the best application for each school and may fluctuate from year to year. For example, if a boundary change occurs 2 years prior to the development of enrollment projections, using projection ratios for more than 2 years would not likely be appropriate. In this case, a 2 year simple average or 2 year weighted average would likely be more appropriate.

For all blind study projections, all schools were projected assuming their most recent grade configuration in the historical data used. For example, if in 2016-17 a school had a grade configuration of kindergarten through 4<sup>th</sup>, the projection would reflect kindergarten through 4<sup>th</sup>, but the actual enrollment for comparison may reflect kindergarten through 5<sup>th</sup>.

The charts below compare each of the projections for DCPS and PCS schools independently. The numbers and bars in each chart correspond to the number of schools projected that were closest to the actual audited enrollment for each projection type. This shows that for DCPS, the 3-year simple average resulted in more schools (35) closer to the actual audited enrollment than all other projections. For PCS, the 2-year weighted resulted in more schools (36) closer to the actual audited enrollment than all other projections.

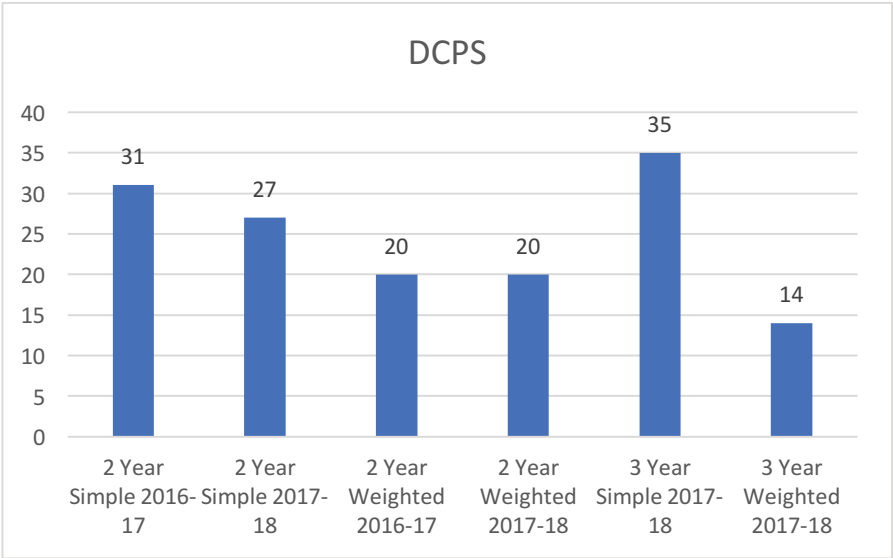


Figure 20 Number of DCPS Schools Projected Closest to the Actual Audited Enrollment for Each Projection Type

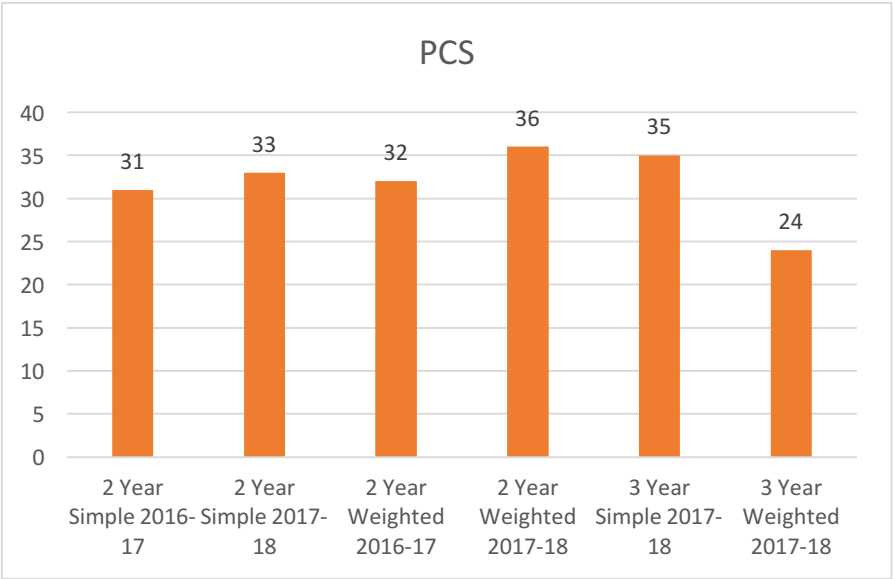


Figure 21 Number of PCS Schools Projected Closest to the Actual Audited Enrollment for Each Projection Type

Because PCS schools yielded a similar number of schools more accurate with 36 using the 2-year weighted and 35 using the 3 year simple, a deeper analysis of the net and absolute error of all schools projects that the 2-year weighted projection yields less error. The table below illustrates the percent error for the two models for PCS schools.

| <b>PCS Error Analysis</b> |                             |                                  |
|---------------------------|-----------------------------|----------------------------------|
| <b>Projection Model</b>   | <b>Net Projection Error</b> | <b>Absolute Projection Error</b> |
| 2 Year Weighted Average   | -4%                         | 12%                              |
| 3 Year Simple Average     | 7%                          | 22%                              |

Based on this information, the baseline projections developed for DCPS schools are based on the 3-year simple average of survival ratios and the projections for PCS schools are based on the 2-year weighted average of survival ratios.



## Student Mobility in D.C. Public and Public Charter Schools

Along with neighborhood characteristics (“demand” factors) and school characteristics (“supply” factors), student mobility is an additional characteristic of a school that can affect how well projection methods match projected to actual enrollment.

Standard cohort survival models of enrollment incorporate *net* student mobility. The grade to grade survival ratio that is used for enrollment projections is a function that includes the students who moved into a school for a given grade, minus the students who moved out of the school after the previous grade. The survival ratio inherently captures in aggregate the net effects of student dropout, students being held back, and students skipping over a grade.

We define student mobility as a function of *gross* mobility, which can be thought of as the extent to which the individuals within student population change from year to year, even if overall enrollment remains steady. This form of student mobility would be expected to have some relationship to the amount of uncertainty in enrollment projections. If a school has been experiencing “churn” in the past, then future enrollments could be likely to depart from the trajectory of past enrollments, subject to changes in the rate that students are moving in, the rate that they are moving out, or both. In contrast, a school with smaller levels of student mobility can be expected to have future enrollments that are more stable and easily predicted by cohort survival models, even if the schools have had similar progression ratios in the past.

We define student mobility as a property of a school in *the transition between adjacent grades*, not of the grades themselves. As such, student mobility is a function of three values:

- S, the number of students enrolled in the school at grade X in year Y, who *stay* enrolled in the same school at grade X+1 in year Y+1.
- I, the number of students not enrolled in the school at grade X in year Y, but who move *in* to the school for enrollment in grade X + 1 in year Y + 1.
- O, the number of students enrolled in the school at grade X in year Y, but who move *out* of the school and are not enrolled in grade X + 1 in year Y + 1.

In our definition, a student’s movement in or out can occur as a result of residential mobility, school choice, dropping out, or any other factor that determines enrollment. We propose the following equation to define student mobility M from grade X to X+1 in year Y to Y+1:

$$M = (O_{(X,Y)} + I_{(X+1, Y+1)}) / (S_{(X+1, Y+1)} + O_{(X,Y)} + I_{(X+1, Y+1)})$$

Under this definition, movement out and movement in are defined as positive values, so values of M can range from 0 to 1, with 0 meaning no turnover (all the students are stayers) and 1 meaning complete turnover (all the students are movers in or movers out).

Two transitions of concern are the transition from elementary to middle school from grade 5 to 6, and the transition from middle to high school from grade 8 to 9. To calculate mobility for these grade transitions, we use DCPS records of official feeder patterns from elementary to middle and from middle to high school. PCS information on feeder schools was not available. In light of this data difficulty and of the potential uniqueness of student mobility at these transitions, we have produced and analyzed all mobility information under multiple inclusion criteria: all grades PK3 – 12, grades K – 12, and grades PK3 – 12 excluding transitions from grades 5 – 6 and 8 – 9.

We developed separate information on “out” and “in” movement, of which the sum of those two values was the total measurement of churn (on the condition that “out” is measured at one grade level and “in” is measured at the following grade level). After comparing results for these and other measures, we determined that the overall churn was a crucial determinant of the magnitude of projection error, and that, furthermore, high levels of “churn” were almost invariably a combination of high levels of students moving “in” AND high levels of students moving “out”. Sensitivity models that examined separately schools that were experiencing rapid changes in enrollment (Where “in” was much higher or lower than “out”) confirmed that our story about overall churn was robust to selection to remove such cases

The table below shows results for summary statistics on student mobility, by grade transition, by year, by ward, and by type of school. We note three significant findings about student mobility in the District of Columbia schools.

1. Student mobility has been decreasing over the last three years.
2. Student mobility is highest in Wards 7 and 8, and lowest in Ward 3.
3. Student mobility is higher for PCS schools than for DCPS schools, on average.

### Mobility Index for Individual Schools

See Appendix C - Tables 6,7, and 8 are tables of mobility Indices for each school in each year (2014 – 2016), for reference purposes.

**Summary Statistics for Student Mobility in D.C. Schools, SY2014 to SY2017**

|                | <b>Stay</b>    | <b>Move out</b> | <b>Move in</b> | <b>Mobility</b> |
|----------------|----------------|-----------------|----------------|-----------------|
| Grade P3 – P4  | 12,493         | 4,607           | 8,789          | 0.517           |
| Grade P4 – K   | 13,940         | 6,976           | 7,998          | 0.518           |
| Grade K – 1    | 15,221         | 6,508           | 5,835          | 0.448           |
| Grade 1 – 2    | 16,327         | 4,562           | 3,874          | 0.341           |
| Grade 2 – 3    | 15,836         | 4,218           | 3,652          | 0.332           |
| Grade 3 – 4    | 13,774         | 4,972           | 4,456          | 0.406           |
| Grade 4 – 5    | 12,001         | 5,191           | 4,869          | 0.456           |
| Grade 5 - 6    | 3,830          | 11,088          | 11,003         | 0.852           |
| Grade 6 – 7    | 11,375         | 2,856           | 2,704          | 0.328           |
| Grade 7- 8     | 11,225         | 2,351           | 2,234          | 0.29            |
| Grade 8 – 9    | 2,122          | 10,643          | 13,356         | 0.919           |
| Grade 9 – 10   | 9,930          | 5,910           | 2,632          | 0.462           |
| Grade 10 – 11  | 8,970          | 3,268           | 2,718          | 0.4             |
| Grade 11 – 12  | 8,698          | 2,701           | 2,186          | 0.36            |
| <b>Total *</b> | <b>149,790</b> | <b>54,120</b>   | <b>51,947</b>  | <b>0.415</b>    |
| SY14 to SY15*  | 46,690         | 19,043          | 17,778         | 0.441           |
| SY15 to SY16*  | 50,483         | 17,149          | 17,101         | 0.404           |
| SY16 to SY17*  | 52,617         | 17,928          | 17,068         | 0.399           |
| Ward1 *        | 13,426         | 3,935           | 3,702          | 0.363           |
| Ward2 *        | 2,926          | 961             | 892            | 0.388           |
| Ward3 *        | 9,749          | 1,754           | 2,866          | 0.322           |
| Ward4 *        | 24,636         | 6,625           | 6,669          | 0.35            |
| Ward5 *        | 20,362         | 7,493           | 6,863          | 0.414           |
| Ward6 *        | 14,863         | 5,017           | 4,479          | 0.39            |
| Ward7 *        | 27,888         | 11,402          | 10,479         | 0.44            |
| Ward8 *        | 32,934         | 15,030          | 13,520         | 0.464           |
| PCS*           | 61,890         | 26,349          | 23,489         | 0.446           |
| DCPS*          | 87,809         | 27,257          | 28,458         | 0.388           |

\*Note: Due to incomplete data on feeder schools for the PCS system, total values exclude mobility from grade 5 to 6 and from grade 8 to 9.

## What Matters Most: Factors Affecting Projection Accuracy

The research on “what matters most” analyzes how neighborhood and school characteristics correlated with the accuracy of 1-year enrollment projections conducted by a standard cohort projection model, for the case of District of Columbia public and charter schools for school year 2017-18.

The objective of this research was to determine how the information might be used to inform the process DCPS and PCS use to produce 1-year enrollment projections. The methodology described for assessing how neighborhood and school characteristics were associated with results of a “blind” study compared historical enrollments to the enrollments that would have been projected based on a cohort survival model using previous years’ data.

### **Key findings from this analysis include the following:**

- For DCPS schools, the single most important characteristic that predicted projection error was the school’s student *mobility*, or how many students entered and left the school from year to year.
- For DCPS schools, some other neighborhood and school characteristics were associated with projection errors, probably by influencing student mobility.
- For PCS schools, the completion in the previous year of construction that resulted in a shift in stated school capacity, was associated with projection error. In other words, *a recent sudden shift* in stated school capacity was associated with projection error – in other words, a cohort survival model alone cannot anticipate future effects of recent changes in school capacity.

This research concludes by discussing how these findings might be incorporated into the existing process for developing enrollment projections.

### **Objectives of this Analysis**

This study identifies neighborhood and school characteristics that make a standard cohort survival model particularly susceptible to projection errors. There are two ways such an analysis could be used to improve projection methodologies and procedures.

- 1.) Identify additional variables to incorporate in a statistical methodology for enrollment projections
- 2.) Identify characteristics to guide and justify decisions for the human process of adjusting enrollment projections after the initial statistical methodology is used

We see this study as being primarily of use for the second objective. DCPS and other school systems use a standard cohort survival method (described elsewhere in this project) to produce baseline sets of enrollment projections.

## Methods of this Analysis

This analysis includes the following data for each DCPS and PCS school:

- The outcome of interest is the difference between actual enrollment in 2017-18 and the enrollment a basic cohort survival model would have projected, as described in [\*Blind Study of Enrollment Projections\*](#) portion of this report.
- The associations between blind study projection errors, and characteristics of the neighborhoods in the high school catchment area of that school were explored. This information comes from the [\*Demand and Supply Factors Affecting Enrollment Projections\*](#) section of the report
- The associations between blind study projection errors and the timing of changes in school characteristics such as gross square footage, student capacity, and recent completion of renovation, in cases where such information is available. This information comes from [\*Demand and Supply Factors Affecting Enrollment Projections\*](#) section of this report
- The association between blind study projection error and the student mobility into and out of each grade. For each grade, “stayers” are defined as students who attended the school (or its feeder schools) in the previous grade in the previous year and who attend the school in the current grade in the current year. “In” students moved into the school in the current year, and “out” students moved out of the school from the previous year, either by changing schools or by leaving school. This information comes from [\*Student Mobility in D.C. Public and Public Charter Schools\*](#) section of the report
- The relationship between blind study projection error and the schools’ racial and ethnic diversity as defined by the percent Black/African American, percent white and percent Hispanic at each school was examined. This information was based on the student data files provided by OSSE.
- The relationship between blind study projection error and the school’s frequency of being a first choice in the online school choice application and lottery (plus a control variable for PCS schools that do not participate in the lottery) was examined. This data was provided by My School D.C.

The main analysis is a series of simple ordinary least squares regressions at the school level, performed one at a time for each potential explanatory variable and including controls for whether the school serves elementary, middle, or high school students.

$$\ln(\text{projected enrollment} / \text{actual enrollment}) =$$

$$b_0 + b_1(\text{one neighborhood or school characteristic}) + b_2(\text{school serves middle school students}) + b_3(\text{school serves high school students})$$

In addition to the results shown here, sets of sensitivity analyses were run for a number of alternative model specifications and sampling frames, such as the following:

- Models of other grade groups than the PK3 – 12 used in the main analysis: K – 12 only and grades 1 – 5, 7 – 8, and 10 -12 only (no feeder schools).
- Enrollment projections based on average and weighted averages of survival ratios for the most recent 2 and 3 years
- Alternative specifications for the dependent and independent variables in the analysis.
- Multivariate models that include groups of the independent variables estimated together in the same model.
- A combined model for DCPS and PCS schools estimated together.

These analyses showed no substantive difference from the findings that follow.

## Findings

The table below shows summaries of the coefficients from models for the associations between 2017-18 projection error as measured in the blind study and the 3-year average values for the neighborhood and school characteristics that might have a relationship with projection error. The analyses include results for DCPS schools (sample size = 113) and PCS schools (sample size = 110). Rather than present the results in their original coefficients, standard errors, and significance values, we have provided a description of the nature of the result for coefficients that were statistically significant.

**Average Neighborhood and School Characteristics Associated with Projection Error in SY2017**  
Based on 3-Year Averages from 2014-2016

| For DCPS Schools                                     |                                                 |                                                 |
|------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
|                                                      | Association with Magnitude of Projection Errors | Association with Direction of Projection Errors |
| <b>Characteristics of High School Catchment Area</b> |                                                 |                                                 |
| Small total population                               | Greater error                                   | (Some) upward error                             |
| Lower % of Adults who are College Graduates          | Greater error                                   | (Some) upward error                             |
| Low median home sale prices                          | Greater error                                   | (Some) upward error                             |
| Number of Building Permits Issued                    | ---                                             | ---                                             |
|                                                      |                                                 |                                                 |
| <b>School and Other Characteristics</b>              |                                                 |                                                 |
| Student Mobility (Into AND Out of School)            | Greater error                                   | (Some) upward error                             |
| Few or No Selections as First Lottery Choice         | Greater error                                   | ---                                             |
| Proportion of Black/African American Students        | Greater error                                   | (Some) upward error                             |
| Proportion of Hispanic/Latino Students               | ---                                             | ---                                             |
|                                                      |                                                 |                                                 |
| For Public Charter Schools                           |                                                 |                                                 |
| <b>Characteristics of High School Catchment Area</b> | ---                                             | ---                                             |
| Small total population                               | ---                                             | ---                                             |
| Lower % of Adults who are College Graduates          | ---                                             | ---                                             |
| Low median home sale prices                          | ---                                             | ---                                             |
| Number of Building Permits Issued                    | ---                                             | ---                                             |
|                                                      |                                                 |                                                 |
| <b>School and Other Characteristics</b>              |                                                 |                                                 |
| Student Mobility (Into AND Out of School)            | Greater error                                   | (Some) upward error                             |
| Few or No Selections as First Lottery Choice         | ---                                             | ---                                             |
| Proportion of Black/African American Students        | ---                                             | ---                                             |
| Proportion of Hispanic/Latino Students               | ---                                             | ---                                             |
|                                                      |                                                 |                                                 |

For the DCPS schools, three of the neighborhood characteristics were associated with lower projection errors, at least when considered separately.

- A larger population in the high school catchment area
- Higher proportion of college graduates in the adult population
- Higher median home sale values

All were associated with “improved” performance by the blind study, in the sense that errors had smaller magnitude and projections were less likely to exceed actual enrollments. (On average, the blind study for DCPS in 2017 projected enrollments that were slightly higher than the actual enrollments.) Conversely, neighborhoods with smaller populations, lower education levels, and lower median home sale values were not as well served by the basic cohort survival model.

For the DCPS schools, the following additional characteristics were also associated with projection errors.

- Higher levels of student mobility and a higher percentage of Black/African American students in the student body were associated with a larger magnitude of error in enrollment projection, and in projections that exceeded actual enrollments.
- Being frequently picked as a first choice in the student lottery was associated with a smaller magnitude of projection error.

These results for projection error in our blind study – in particular, our results for student mobility and race - might help us understand some of the patterns in projection error that have been observed in *actual* DCPS projections. In the analysis from the blind study, the large magnitude of error observed for schools with a high proportion of Black/African American students is largely explained by the fact that DCPS schools with high proportions of Black/African American students also experience high levels of churn. It makes sense that substantial mobility in and out of schools from each grade level to the next would lead to more difficulty in making accurate enrollment projections. Differences in student mobility across schools might also explain why past DCPS projections have shown differences in the magnitude of projection error across Wards, with more significant errors in predominantly African-American Wards 5, 7 and 8. Differences in student mobility across schools might also explain why past DCPS projections have shown differences in the magnitude of projection error across Wards.

Please note that these findings come from an analysis of projection error in the blind study of hypothetical projections, so their implications for actual DCPS projections are not proven. Some of the school-level differences in errors in the actual DCPS projections could be caused by differences in the adjustment process that occurs after the initial cohort-component projections are completed. For example, if schools differ systematically in how frequently adjustments are requested, in how frequently adjustments are granted, and/or in how frequently the granted adjustments are accurate, none of those processes would be detectable in our analysis based on data from the blind study.

The bottom half of the table above shows the results of the same models estimated for PCS schools. As is the case for DCPS schools, higher levels of student mobility were associated with a larger magnitude of error and projections that exceeded actual enrollments in the PCS schools. Other neighborhood and school characteristics, however, showed no clear associations with projection error.

The table below shows results from an additional set of analyses. The variables tested for associations with projection error were NOT the average values from 2016 but were instead the amount that the 2016 values deviated from the 2014-2016 average. These analyses were designed in response to concerns that the standard cohort survival model, by using averaged enrollment information from earlier years, might be too late to respond to sudden recent changes in the enrollment environment.

The results from the table below suggest that sudden changes in school and neighborhood characteristics are not “missed” by a cohort survival model, with one possible exception. In the models for PCS schools, a change in student capacity in 2016 predicted a change in enrollment in 2017 that was NOT anticipated by the cohort survival model. The “change in student capacity” variable in the DCPS model had similar signs, but the coefficients were smaller than the threshold for statistical significance. There was also a statistically significant coefficient for a sudden increase in student mobility for the PCS schools only, but a clear explanation for this result was not found.

**Previous-Year Shifts in Neighborhood and School Characteristics Associated with Projection Error in SY2017**  
**Based on 2016 Values Compared to 3-Year Averages from 2014-2016**

| <b>For DCPS Schools</b>                              |                                                        |                                                        |
|------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
|                                                      | <b>Association with Magnitude of Projection Errors</b> | <b>Association with Direction of Projection Errors</b> |
| <b>Characteristics of High School Catchment Area</b> |                                                        |                                                        |
| <b>Small Total Population</b>                        | ---                                                    | ---                                                    |
| <b>Lower % of Adults who are College Graduates</b>   | ---                                                    | ---                                                    |
| <b>Low median home sale prices</b>                   | ---                                                    | ---                                                    |
| <b>Number of Building Permits Issued</b>             | ---                                                    | ---                                                    |
|                                                      |                                                        |                                                        |
| <b>School and Other Characteristics</b>              |                                                        |                                                        |
| <b>Student Mobility (Into AND Out of School)</b>     | ---                                                    | ---                                                    |
| <b>Few or No Selections as First Lottery Choice</b>  | ---                                                    | ---                                                    |
| <b>Proportion of Black/African American Students</b> | ---                                                    | ---                                                    |
| <b>Proportion of Hispanic/Latino Students</b>        | ---                                                    | ---                                                    |
| <b>Gross Square Footage</b>                          | ---                                                    | ---                                                    |
| <b>Completion of Building Renovation</b>             | ---                                                    | ---                                                    |
| <b>School Capacity</b>                               |                                                        |                                                        |
|                                                      |                                                        |                                                        |
| <b>For Public Charter Schools</b>                    |                                                        |                                                        |
| <b>Characteristics of High School Catchment Area</b> |                                                        |                                                        |
| <b>Small Total Population</b>                        | ---                                                    | ---                                                    |
| <b>Lower % of Adults who are College Graduates</b>   | ---                                                    | ---                                                    |
| <b>Low median home sale prices</b>                   | ---                                                    | ---                                                    |
| <b>Number of Building Permits Issued</b>             | ---                                                    | ---                                                    |
|                                                      |                                                        |                                                        |
| <b>School and Other Characteristics</b>              |                                                        |                                                        |
| <b>Student Mobility (Into AND Out of School)</b>     | Less error                                             | ---                                                    |
| <b>Few or No Selections as First Lottery Choice</b>  | ---                                                    | ---                                                    |
| <b>Proportion of Black/African American Students</b> | ---                                                    | ---                                                    |
| <b>Proportion of Hispanic/Latino Students</b>        | ---                                                    | ---                                                    |
| <b>Gross Square Footage</b>                          | ---                                                    | ---                                                    |
| <b>Completion of Building Renovation</b>             | ---                                                    | ---                                                    |
| <b>School Capacity</b>                               | Greater error                                          | Downward error                                         |
|                                                      |                                                        |                                                        |

The results indicate that for DCPS schools, several neighborhood, school, and other characteristics might be used to identify schools for which a baseline cohort survival model is more subject to error. However, these results are estimated for each variable separately, so it is not clear how many or which of these variables should be used to identify a school as a candidate for projection adjustment.

To turn these results into a set of potential recommendations for persons involved in the enrollment projection process, we looked for empirical or practical evidence for focusing on one variable. Normally, multivariable regression could be used as one source of evidence, but our multivariate models with all the variables together



contained too many unknowns for clear interpretations of the results (that is, the standard errors expanded until nothing was statistically significant anymore.) As an alternative approach, we examined possible associations between the neighborhood and school characteristics that might suggest whether one variable is mediating the others.

We focused on the student mobility variable, the characteristic with the clearest potential mechanism for making projections less accurate. If there are a lot of students moving into and out of a school from year to year, then there are two dimensions of uncertainty that could make projections less accurate – variability in how many students move into the school, and variability in how many students move out. The hypothesis is that increased mobility is the reason that other neighborhood and school characteristics are associated with less accurate projections.

For example, a school in a neighborhood with low median home sale values might experience higher than average “churn” from year to year, which tends to result in less accurate enrollment projections. If so, then a projection adjustment based on student mobility alone would be sufficient, and an additional adjustment for low median home values would be an incorrect over-adjustment.

The table below shows correlation coefficients between student mobility and the other variables that showed a significant relationship with projection errors. Simple correlation results cannot be conclusive, but these results show a nearly perfect correspondence. Each DCPS variable that is significantly associated with projection error is also moderately correlated with student mobility, and in the predicted direction. Similarly, for PCS schools, student mobility is a significant predictor of projection error, but none of the other variables are, and those variables are also not clearly correlated with student mobility, except for a correlation between percent black and mobility that is substantial but still smaller than the same correlation in DCPS schools.

#### **Correlations Between Student Mobility and Other Key Variables**

*Characteristics Associated with Projection Error in DCPS Schools are all Correlated with Student Mobility*

| <b>For DCPS Schools</b>                                 |                                          |                                                         |
|---------------------------------------------------------|------------------------------------------|---------------------------------------------------------|
|                                                         | <b>Correlation with Student Mobility</b> | <b>Association with Projection Error in Table Above</b> |
| <b>Small Total Population</b>                           | <b>-0.19</b>                             | <b>Significant, Negative</b>                            |
| <b>Lower % of Adults who are College Graduates</b>      | <b>-0.25</b>                             | <b>Significant, Negative</b>                            |
| <b>Low Median Home Sale Prices</b>                      | <b>-0.28</b>                             | <b>Significant, Negative</b>                            |
| <b>Proportion of Black or African American Students</b> | <b>0.49</b>                              | <b>Significant, Positive</b>                            |
| <b>For Public Charter Schools</b>                       |                                          |                                                         |
| <b>Small Total Population</b>                           | <b>0.19</b>                              | <b>No Significant Association</b>                       |
| <b>Lower % of Adults who are College Graduates</b>      | <b>0.12</b>                              | <b>No Significant Association</b>                       |
| <b>Low Median Home Sale Prices</b>                      | <b>-0.02</b>                             | <b>No Significant Association</b>                       |
| <b>Proportion of Black/ African American Students</b>   | <b>0.32</b>                              | <b>No Significant Association</b>                       |

#### **How these findings might be used**

Based on the findings outlined, we suggest that there could be value in gathering, sharing, and using information about student mobility to assist in the process of adjusting enrollment projections following the initial baseline projections developed using the cohort survival method. Schools with higher mobility should be analyzed more closely while schools with low mobility should be left alone unless there is a compelling reason to adjust.

## Section 6: Proposed Process and Methodology for Developing Enrollment Projections by School:

Based on this study it is recommended that the District of Columbia should develop baseline enrollment projections based on the cohort survival method with a documented review and approval process including clear documentation of any adjustments made to the baseline enrollment projections. Further, an audit of the enrollment projection process should be conducted every three years by an outside entity.

Today, the Office of the Deputy Mayor for Education has sufficient authority to oversee the schedule, policies, and procedures to be used by OSSE and LEAs in this process. While elements of the process are centralized, there are other steps that must be undertaken by the appropriate agency or agencies based on expertise and authority. The recommendations presented here are intended to make the overall process more timely, efficient, transparent, and accurate. A centralized data management system allows for the creation of a public portal establishing transparent access to relevant data. Longitudinal datasets used in this study include:

- Historical audited enrollment data for 10 years by DCPS and charter school, by grade, and by special population
- Student demographic and special population data with addresses for 5 years, including school and grade
- Live birth counts by address or aggregated to elementary boundaries
- DCPS feeder pattern information
- Gross square footage of school facilities (DCPS and PCS)
- Capacity of facilities (DCPS and PCS)
- Enrollment caps of charter schools
- Facility condition of DCPS
- Previous enrollment projections

The following are suggested strategies for streamlining data management:

1. OSSE, as an entity independent from DCPS and PCSB, should collect, maintain, and provide to LEAs and private schools information on enrollment of all D.C. residents.
2. LEAs should use one student information system housed in a central organization. It is recommended that OSSE house the central student information system because it currently houses and maintains all enrollment data used in this study.
3. All D.C. agencies should use a longitudinally consistent nomenclature for school names, school IDs, grades, grade assignment, race/ethnicity, and should implement a SPED designation across LEAs and private schools.
4. All D.C. agencies, as detailed below, should maintain longitudinal datasets of demand and supply factors that may affect future enrollment through data agreements and protocols with other D.C. agencies, including:
  - D.C. Department of Health – live birth counts by residence (address of mother)
  - D.C. Office of Planning - population and housing data (including age level population projections and projected residential growth)
  - D.C. Department of General Services - Facilities Condition Reports for data on DCPS school siting, size, condition, enrollment capacity and capital plans, using standard definitions.

- Public Charter School Board - enrollment ceilings of charter LEAs
- Charter LEAs - data and information about programs, and services provided, as well as data on school siting, facility size, condition, enrollment capacity and capital plans, using standard definitions

The following is a recommended process for the District of Columbia to follow in the development of enrollment projections:

**Step 1:** Maintain the most recent 10 years of historical enrollment data, including race, ethnicity, gender, special education, language, address, in a longitudinal database and compile it by school, LEA, grade, and subgroups using OSSE designated school numbers and names. Responsible agency: OSSE

Historical enrollment data used should be final audited enrollment by school, by grade, as provided by OSSE. It is important that this data comes from the same point in time each year and it is important to note that the projections will project to that same point in time for each year. A minimum of 5 years of historical data should be analyzed; however, 10 years of historical data is ideal. This data is used to calculate survival ratios from grade to grade, year to year, to analyze trends for projecting future enrollment.

**Step 2:** Collect the most recent 15 years of birth data by the address of the mother from the Department of Health and aggregate the data by elementary attendance boundary. Responsible agency: OSSE

Resident live birth counts, by the address of the mother, should be obtained from the Department of Health to the smallest geography available. In this study, the data was available by address and aggregated to the elementary attendance boundary level. The first year of birth data collected should be 5 years prior to the first year of historical enrollment data used. The birth data should be as current as possible. This data is used to project PK3, PK4, and kindergarten enrollment by calculating the percentage of students that appear at a school 3, 4, and 5 years after the birth year.

In this study, live birth counts were available through 2016 and projected kindergarten enrollment through 2021-22. For projected kindergarten enrollment after 2021-22, an average of the last three years of live birth counts was used. If *projected* live birth counts are available based on the latest year of actual live birth counts in the future, we recommend that data be used in lieu of a 3-year average of live birth counts to project PK3, PK4, and kindergarten enrollment.

**Step 3:** Identify geographic feeder patterns that define the assignment of students from school to school. Responsible agency: OSSE

To the extent possible, feeder assignments should be used in calculating survival ratios of transition grades (i.e. 5<sup>th</sup> to 6<sup>th</sup> grade). In cases where there is no assigned feeder, a system-wide total feeder should be applied. While most DCPS schools have geographic feeders that are clean, meaning for example, 100% of an elementary school's geographic feeder assignment is to one middle school, the reality is that not necessarily 100% of the students will actually attend their geographically assigned middle school. They may attend a PCS school, an "out-of-boundary" DCPS middle school, or a private school for middle school. This is not unusual in school systems that have robust school choice offerings. The actual observed deviations from the geographical feeder assignments are naturally captured in the historical survival ratios.

**Step 4:** Calculate a cohort survival ratio of students from birth to kindergarten and grade to grade, year to year for the 10 years of historical data. Responsible agency: OSSE

After compiling historical enrollment, live birth counts, and feeder patterns, survival ratios are calculated and analyzed.

**Step 5:** Apply the projection ratios to each grade, by school, by year for ten years, producing the baseline next year, five-year, and ten-year enrollment projections by school. Responsible agency: OSSE

A projection ratio for each grade should be developed to be applied to actual enrollment to calculate the projected enrollment at each school, by grade, by year. In this study, the last 3 years of survival ratios were averaged and used as the projection ratio for DCPS schools; and the weighted average of the last 2 years was used as the projection ratio for PCS schools. This is based on the results of the [Blind Study of Enrollment Projections](#) section of this report. However, what is the best approach for determining projection ratios one year, may not be the best approach the following year. Some factors that should be considered when determining projection ratios may include when boundary changes occur, new facilities are opened, school closures, program changes, etc.

In the [Baseline Enrollment Projections by School](#) section provided in this study, PK3 and PK4 enrollment by school were kept flat at the current enrollment due to PK specific classroom space limitations.

**Step 6:** Using student-level data, calculate the mobility index of students in, students out and students staying. Responsible agency: OSSE

**Step 7:** Each year, make available on OSSE website and provide each LEA with next year and five-year baseline enrollment projections for every school, along with historic enrollment data, survival ratios, live birth counts, supply data (including but not limited to capacity, square footage, facility condition, enrollment ceiling/caps, school location, program offerings, grade configuration, planned school/program closings and openings, and boundary changes), demand factors (including but not limited to residential building permits, lottery data), and mobility index in an interactive web-portal like the DCPS portal currently in use. Responsible agencies: OSSE, DCPS, and PCSB

**Step 8:** Develop system-wide enrollment projections (DCPS and PCS schools combined) by grade, by year, for ten years to be used internally, to align post-baseline adjusted enrollment projections. Responsible agency: OSSE

A larger sample size (i.e., system-wide) enrollment projections will yield more accurate results than a smaller sample size (i.e., by-school) enrollment projections. Therefore, in addition to baseline enrollment projections at the school level, a system-wide enrollment projection should be made for the total student enrollment (DCPS and PCS students). It should be noted that the sum of school-level projections will never be 100% equal to a separate enrollment projection done for the total student population.

In the [System-wide Enrollment Projections](#) section provided in this study, PK3 and PK4 enrollment were projected based on the last year of birth to PK3 and birth to PK4 survival ratios providing a target PK enrollment number to guide by-school post-baseline adjustments.

**Step 9:** Using the interactive web portal described in Step 7, DCPS and PCSB reviews OSSE’s baseline projection by school by grade and subgroup and adjusts the *next year* by grade and by school level baseline projections based on a review of information provided in the web portal; with DCPS and PCSB documenting the reasons for all requested adjustments on the web portal. Responsible agencies: DCPS and PCSB

DCPS and other school systems use variants on a standard cohort survival method to produce 5- and 10- year enrollment projections in Master Facilities Plans, and as a baseline step in the process of producing 1-year enrollment projections. There is a general understanding that although the cohort survival method has no clear substitute as a foundation for enrollment projections, adjustments to the baseline enrollment projections may be necessary to improve those projections. However, for the types of information commonly used for projection adjustments, the standard cohort survival method already has some of this information “baked in” the methodology, which would make further adjustment inappropriate.

Knowing what factors might predict high levels of error in the baseline enrollment projections, i.e., where adjustments were likely to be needed, was explored. The baseline enrollment projections provide no information about which schools it is projecting with precision, and which schools it is projecting with a higher degree of uncertainty. In response to these concerns, the following recommendations for identifying appropriate adjustments to make and appropriate circumstances in which to make those adjustments.

*Recommended adjustment #1: Identify schools for projection adjustments based on student mobility and changes in school physical and administrative structure.*

The analysis of neighborhood (“demand”), school (“supply”), student mobility, and lottery information has led us to recommend a small set of outside factors that indicate it is likely to be appropriate to make expert adjustments to the baseline cohort survival method-based enrollment projections. The clearest indicator that a baseline cohort survival method-based enrollment projection may be insufficient, is the student mobility of a given school. Schools with high student mobility have a lot of different students from one grade to the next, even if the survival ratio of enrollments is fairly constant. In the analyses, a simple cohort survival model provided consistently accurate enrollment projections for low mobility schools but tended to have more error for high mobility schools.

As described in the [\*Student Mobility in D.C. Public and Public Charter Schools\*](#) section of this report, levels that constitute “high” or “low mobility” can be evaluated based on the distribution of observed student mobility. In this study, mobility is generally defined for a given grade by counting “In” (students moving in for that grade), “Out” (students moving out after the previous grade), and “Stay” (students who stay from one grade to the next). If mobility is calculated as  $(\text{“In”} + \text{“Out”}) / (\text{“In”} + \text{“Out”} + \text{“Stay”})$ , then in general, a school with an overall student mobility above 0.5 (not counting the transition grades from feeder schools) might be considered a high mobility school, and a school with an overall student mobility below 0.3 might be considered a low mobility school.

Schools with high mobility should receive careful analysis and should be considered for adjustment. A basic cohort survival method-based enrollment projection may be more susceptible to error for such schools. Additionally, the uncertainty of long-term enrollment projections may be increased for high-mobility schools, so adjustments to improve the stability of these projections are recommended. If a school has high mobility one year, it may not in the future or vice versa which is why we note, as Step 6, calculating the mobility index on an annual basis and providing the information in the portal.

Conversely, schools with low mobility should only have adjustments made to the baseline cohort survival method-based enrollment projections in cases where there is a compelling case for such an adjustment. For such schools, levels and changes in school and neighborhood characteristics are usually captured adequately by the cohort survival method, and subsequent adjustments are likely to “double count” factors that affect enrollment – once in the cohort method, then again in a subsequent adjustment.

Additional recommendations for adjustments are as follows.

- School closings, consolidations, and openings, as well as planned or recently completed changes in school capacity, for structural or administrative reasons, are appropriate factors for projection adjustments, as the future effects of these changes appear not to be adequately captured in a standard baseline cohort survival model.
- Differences in neighborhood or population characteristics such as home values or the educational attainment of the population in the school catchment area, should not be used for projection adjustments under most circumstances. There is some evidence that any relationship to projection error for such characteristics is largely mediated through student mobility so that adjustment decisions guided by student mobility are sufficient. Similarly, differences in parents’ lottery preferences for schools appear to be associated with student mobility.
- There is no evidence, based on the factors of this study, that expected or recent changes in neighborhood or population characteristics indicate a need for projection adjustments. (Typically, when neighborhoods turn over or new construction occurs, the impact on student enrollment is somewhat gradual and tends to be captured in a cohort survival method. Since we are recommending that enrollment projections for 10 years be produced annually and reviewed annually, growth or decline due to changes in neighborhood or population characteristics will likely be captured thereby.) Additional data collection and/or analysis of very long-term projections could possibly uncover a relationship that has not yet been demonstrated.

#### **Recommended adjustment #2: PK3, PK4, Adult, UG, and SPED UG.**

The baseline enrollment projections provided in this study, projected PK3, PK4, Adult, UG, and SPED UG enrollments, do not follow the cohort survival method but reflects the actual 2017-18 enrollments. Adjustments should be made if data is available to support them. For example, if there is a planned increase in PK offerings at particular schools, adjustments should be made to increase PK enrollment.

**Step 10:** DCPS and PCSB share their preliminary adjusted projection (baseline plus adjustments and documented rationale) with the DCPS local schools and charter LEAs, who will be able to review the preliminary projections along with all data provided on the interactive web portal, including, but not limited to historic enrollment data, survival ratios, live birth counts, supply data (including but not limited to capacity, square footage, facility condition, enrollment ceiling/caps, school location, program offerings, grade configuration, planned school/program closings and openings, and boundary changes), demand factors (including but not limited to residential building permits, lottery data), and mobility index and baseline enrollment projection of their school and either propose documented adjustments to the preliminary adjusted enrollment projection of DCPS and PCSB or accept the preliminary adjusted enrollment projection from their LEA central office. Responsible agencies: DCPS, PCSB, DCPS schools, Charter LEAs

**Step 11:** Following the back and forth between DCPS and local schools and PCSB and LEAs, DCPS and PCSB submit their final next year and five-year projections to the ODME. Responsible agencies: DCPS and PCSB

**Step 12:** ODME rolls up the DCPS and PCSB projections from the final school and DCPS/PCSB approved projections (Step 11) and compares them to OSSE’s baseline (Step 5) and OSSE’s system-wide enrollment projections (Step 8). Responsible agency: ODME

**Step 13:** ODME works with DCPS and PCSB to reconcile the projections by grade, with the internal system-wide enrollment projections (Step 8)—making sure they align with the system-wide enrollment projections by grade, and by subgroup, by grade developed in Step 8 as much as reasonably possible. Responsible agencies: ODME, DCPS, and PCSB

The following is an example of where the post-baseline enrollment projections roll-up by school, by grade may deviate from the system-wide enrollment projections:

PK classroom capacity should be a key consideration in justifying any adjustments to PK enrollment projections. If changes in PK policy and/or PK capacity occur and are accounted for in the by-school post-baseline enrollment projections, the total PK enrollment projections roll-up may exceed the system-wide PK enrollment projections and should be documented as such.

The table below illustrates a system-wide (DCPS and PCS students) enrollment projection based on a 3-year simple average of survival ratios.



**Projected Enrollment - 3 Year Simple Average - System-wide**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23        | 2023-24        | 2024-25        | 2025-26        | 2026-27        | 2027-28        |
|--------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PK3                | 5,716         | 5,885         | 5,761         | 5,761         | 5,761          | 5,761          | 5,761          | 5,761          | 5,761          | 5,761          |
| PK4                | 7,226         | 7,269         | 7,484         | 7,326         | 7,326          | 7,326          | 7,326          | 7,326          | 7,326          | 7,326          |
| K                  | 7,435         | 7,636         | 7,682         | 7,909         | 7,742          | 7,742          | 7,742          | 7,742          | 7,742          | 7,742          |
| 1                  | 7,205         | 7,180         | 7,374         | 7,418         | 7,638          | 7,477          | 7,477          | 7,477          | 7,477          | 7,477          |
| 2                  | 6,924         | 6,926         | 6,902         | 7,089         | 7,131          | 7,342          | 7,187          | 7,187          | 7,187          | 7,187          |
| 3                  | 6,575         | 6,696         | 6,698         | 6,675         | 6,855          | 6,897          | 7,100          | 6,951          | 6,951          | 6,951          |
| 4                  | 6,354         | 6,366         | 6,483         | 6,485         | 6,463          | 6,637          | 6,677          | 6,875          | 6,730          | 6,730          |
| 5                  | 6,178         | 6,235         | 6,247         | 6,362         | 6,364          | 6,342          | 6,513          | 6,552          | 6,746          | 6,604          |
| 6                  | 5,830         | 5,902         | 5,957         | 5,968         | 6,078          | 6,080          | 6,059          | 6,222          | 6,259          | 6,445          |
| 7                  | 5,134         | 5,753         | 5,824         | 5,878         | 5,889          | 5,998          | 5,999          | 5,979          | 6,140          | 6,177          |
| 8                  | 4,830         | 5,058         | 5,668         | 5,738         | 5,791          | 5,802          | 5,909          | 5,911          | 5,890          | 6,049          |
| 9                  | 5,859         | 6,305         | 6,603         | 7,399         | 7,490          | 7,559          | 7,573          | 7,713          | 7,715          | 7,688          |
| 10                 | 4,297         | 4,313         | 4,641         | 4,860         | 5,446          | 5,513          | 5,564          | 5,575          | 5,677          | 5,679          |
| 11                 | 4,289         | 4,040         | 4,055         | 4,364         | 4,570          | 5,120          | 5,184          | 5,232          | 5,241          | 5,338          |
| 12                 | 3,888         | 4,056         | 3,821         | 3,835         | 4,127          | 4,321          | 4,842          | 4,902          | 4,947          | 4,957          |
| Adult              | 4,951         | 4,951         | 4,951         | 4,951         | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          |
| UG                 | 141           | 141           | 141           | 141           | 141            | 141            | 141            | 141            | 141            | 141            |
| SPED UG            | 384           | 384           | 384           | 384           | 384            | 384            | 384            | 384            | 384            | 384            |
| <b>Grand Total</b> | <b>93,216</b> | <b>95,096</b> | <b>96,676</b> | <b>98,543</b> | <b>100,147</b> | <b>101,393</b> | <b>102,389</b> | <b>102,881</b> | <b>103,265</b> | <b>103,587</b> |

Source: Cooperative Strategies

**Projected Enrollment - 3 Year Simple Average - System-wide**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23        | 2023-24        | 2024-25        | 2025-26        | 2026-27        | 2027-28        |
|--------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PK                 | 12,942        | 13,154        | 13,245        | 13,087        | 13,087         | 13,087         | 13,087         | 13,087         | 13,087         | 13,087         |
| K - 5              | 40,671        | 41,039        | 41,386        | 41,938        | 42,193         | 42,437         | 42,696         | 42,784         | 42,833         | 42,691         |
| 6 - 8              | 15,794        | 16,713        | 17,449        | 17,584        | 17,758         | 17,880         | 17,967         | 18,112         | 18,289         | 18,671         |
| 9 - 12             | 18,333        | 18,714        | 19,120        | 20,458        | 21,633         | 22,513         | 23,163         | 23,422         | 23,580         | 23,662         |
| Other              | 5,476         | 5,476         | 5,476         | 5,476         | 5,476          | 5,476          | 5,476          | 5,476          | 5,476          | 5,476          |
| <b>K - 12</b>      | <b>74,798</b> | <b>76,466</b> | <b>77,955</b> | <b>79,980</b> | <b>81,584</b>  | <b>82,830</b>  | <b>83,826</b>  | <b>84,318</b>  | <b>84,702</b>  | <b>85,024</b>  |
| <b>Grand Total</b> | <b>93,216</b> | <b>95,096</b> | <b>96,676</b> | <b>98,543</b> | <b>100,147</b> | <b>101,393</b> | <b>102,389</b> | <b>102,881</b> | <b>103,265</b> | <b>103,587</b> |

Source: Cooperative Strategies

**Step 14:** ODME certifies the next year projection and provides comments on the five-year projection. Responsible agency: ODME

Upon completion of the baseline and post-baseline enrollment projections, a documented review and approval process should be conducted by the DME. All assumptions and adjustments should be fully documented by any parties producing baseline enrollment projections or making school level adjustments and are available to any requesting entity upon request. The roll-up of the post-baseline enrollment projections by school, by grade is the final enrollment projection to be certified. It is important to note that while these should align to the system-wide enrollment projections developed in Step 8 as much as reasonably possible, there are instances as described in Step 13 that may justify deviations from the system-wide enrollment projections and should be clearly documented.

**Step 15:** Annual enrollment projection review. Enrollment projections should be compared with the actual audited enrollment system-wide by grade; and by school, by grade; as well as for special populations. This is important in the continued improvement of the enrollment projection process. As discrepancies are found, it is good practice to try to determine the root of the error so that it may be considered in subsequent updates. Responsible agency: OSSE

### Use of Enrollment Projections:

Enrollment projections are important administrative responsibilities associated with district, LEA and school budgeting, staffing, and facility planning, including for school openings, closings and consolidations—within LEAs and across sectors. Enrollment projections based on school of attendance are useful for budget development, staff planning, and determining the number of available lottery seats each year. Knowing how many students per grade at a school provides guidance on determining how many teachers per grade level may be needed. Enrollment projections based on boundary of residence are useful for planning school facilities and/or attendance boundaries. Knowing if the student population in a boundary is increasing or decreasing provides guidance for capital planning.

DCPS and PCS will benefit from the recommendations outlined above and especially centralized data management. A defined process of projecting and reviewing enrollment should allow for improved efficiencies that should expedite the process for finalizing enrollment projections for purposes budgeting, staffing, and identifying the number of available lottery seats available.

Even as projections are essential tools for planning and budgeting, it is important to note, that in the highly dynamic and complicated system in the District of Columbia, enrollment projections do not capture the complexity of enrollment or attendance patterns. It is also the case that there is no simple demand and supply relationship. The enrollment projections reflect historic public policies that govern and regulate the supply of schools. This was true with segregation and then desegregation; with the policies that introduced DCPS “out-of-boundary” choice in the 1970s; for school choice expanded to privately operated charters; and with the expansion of early childhood education. Each of these policy actions has had a dramatic effect on the enrollment of the public schools in the District of Columbia.

## Section 7: Historical / Projected Enrollment

### Historical Enrollment

Historical enrollment in the District of Columbia (DCPS and PCS schools), based on the official audited enrollment, increased 20,840 students, or approximately 29.5 percent, from the 2008-09 to the 2017-18 school year.

#### Historical Enrollment - System-wide

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK3                | 2,561         | 3,135         | 3,985         | 4,515         | 4,929         | 5,131         | 5,382         | 5,333         | 5,591         | 5,682         |
| PK4                | 4,506         | 5,076         | 5,596         | 6,263         | 6,499         | 6,724         | 6,658         | 6,976         | 6,938         | 7,036         |
| K                  | 5,064         | 5,188         | 5,939         | 6,292         | 6,980         | 7,163         | 7,264         | 7,309         | 7,561         | 7,461         |
| 1                  | 4,971         | 5,020         | 5,240         | 5,757         | 6,163         | 6,773         | 7,019         | 7,043         | 7,126         | 7,203         |
| 2                  | 5,072         | 4,908         | 4,915         | 5,054         | 5,629         | 5,990         | 6,642         | 6,764         | 6,804         | 6,799         |
| 3                  | 5,049         | 4,993         | 4,873         | 4,791         | 4,991         | 5,453         | 5,819         | 6,427         | 6,555         | 6,563         |
| 4                  | 4,540         | 4,891         | 4,877         | 4,629         | 4,631         | 4,804         | 5,257         | 5,655         | 6,248         | 6,296         |
| 5                  | 4,633         | 4,513         | 4,825         | 4,754         | 4,575         | 4,629         | 4,784         | 5,199         | 5,531         | 6,103         |
| 6                  | 4,453         | 4,516         | 4,391         | 4,550         | 4,627         | 4,433         | 4,593         | 4,637         | 4,970         | 5,203         |
| 7                  | 4,526         | 4,394         | 4,439         | 4,236         | 4,559         | 4,596         | 4,404         | 4,528         | 4,581         | 4,903         |
| 8                  | 4,477         | 4,451         | 4,307         | 4,310         | 4,202         | 4,397         | 4,515         | 4,351         | 4,473         | 4,489         |
| 9                  | 6,251         | 6,179         | 5,849         | 5,823         | 6,253         | 5,615         | 5,818         | 5,785         | 5,785         | 5,838         |
| 10                 | 4,280         | 4,430         | 4,495         | 4,179         | 4,210         | 4,104         | 3,976         | 4,012         | 4,224         | 4,562         |
| 11                 | 3,664         | 3,682         | 3,841         | 3,580         | 3,739         | 3,488         | 3,619         | 3,645         | 3,734         | 4,111         |
| 12                 | 3,389         | 3,300         | 3,404         | 3,101         | 3,315         | 2,980         | 3,177         | 3,274         | 3,370         | 3,763         |
| Adult              | 2,816         | 3,067         | 3,712         | 3,810         | 4,151         | 4,768         | 4,488         | 4,545         | 4,692         | 4,951         |
| UG                 | 396           | 449           | 246           | 1,049         | 729           | 1,884         | 1,592         | 1,451         | 1,388         | 141           |
| SPED UG            | NA            | NA            | NA            | NA            | NA            | NA            | 368           | 376           | 382           | 384           |
| <b>Grand Total</b> | <b>70,648</b> | <b>72,192</b> | <b>74,934</b> | <b>76,693</b> | <b>80,182</b> | <b>82,932</b> | <b>85,375</b> | <b>87,310</b> | <b>89,953</b> | <b>91,488</b> |

Source: OSSE Audited Enrollment

#### Historical Enrollment - System-wide

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 7,067         | 8,211         | 9,581         | 10,778        | 11,428        | 11,855        | 12,040        | 12,309        | 12,529        | 12,718        |
| K - 5              | 29,329        | 29,513        | 30,669        | 31,277        | 32,969        | 34,812        | 36,785        | 38,397        | 39,825        | 40,425        |
| 6 - 8              | 13,456        | 13,361        | 13,137        | 13,096        | 13,388        | 13,426        | 13,512        | 13,516        | 14,024        | 14,595        |
| 9 - 12             | 17,584        | 17,591        | 17,589        | 16,683        | 17,517        | 16,187        | 16,590        | 16,716        | 17,113        | 18,274        |
| Other              | 3,212         | 3,516         | 3,958         | 4,859         | 4,880         | 6,652         | 6,448         | 6,372         | 6,462         | 5,476         |
| <b>K - 12</b>      | <b>60,369</b> | <b>60,465</b> | <b>61,395</b> | <b>61,056</b> | <b>63,874</b> | <b>64,425</b> | <b>66,887</b> | <b>68,629</b> | <b>70,962</b> | <b>73,294</b> |
| <b>Grand Total</b> | <b>70,648</b> | <b>72,192</b> | <b>74,934</b> | <b>76,693</b> | <b>80,182</b> | <b>82,932</b> | <b>85,375</b> | <b>87,310</b> | <b>89,953</b> | <b>91,488</b> |

Source: OSSE Audited Enrollment

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.<sup>1</sup>

Historical enrollment in the DCPS schools, based on the official audited enrollment, increased 2,698 students, or approximately 6 percent, from the 2008-09 to the 2017-18 school year.

**Historical Enrollment - DCPS**

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK3                | 1,498         | 1,712         | 2,121         | 2,105         | 2,161         | 2,197         | 2,276         | 2,310         | 2,362         | 2,374         |
| PK4                | 2,749         | 2,895         | 3,114         | 3,291         | 3,409         | 3,368         | 3,339         | 3,522         | 3,467         | 3,423         |
| K                  | 3,355         | 3,277         | 3,732         | 3,790         | 4,123         | 4,179         | 4,108         | 4,208         | 4,224         | 4,201         |
| 1                  | 3,471         | 3,299         | 3,256         | 3,687         | 3,741         | 4,109         | 4,141         | 4,163         | 4,181         | 4,093         |
| 2                  | 3,582         | 3,389         | 3,235         | 3,205         | 3,546         | 3,682         | 4,098         | 4,107         | 3,995         | 3,939         |
| 3                  | 3,654         | 3,481         | 3,373         | 3,233         | 3,182         | 3,450         | 3,618         | 4,078         | 4,040         | 3,855         |
| 4                  | 3,247         | 3,458         | 3,275         | 3,162         | 3,082         | 3,050         | 3,341         | 3,590         | 3,951         | 3,878         |
| 5                  | 3,155         | 2,932         | 3,160         | 3,016         | 2,799         | 2,843         | 2,781         | 3,097         | 3,259         | 3,586         |
| 6                  | 2,405         | 2,512         | 2,314         | 2,348         | 2,279         | 2,237         | 2,233         | 2,070         | 2,310         | 2,306         |
| 7                  | 2,344         | 2,295         | 2,389         | 2,203         | 2,338         | 2,355         | 2,304         | 2,274         | 2,144         | 2,362         |
| 8                  | 2,459         | 2,375         | 2,347         | 2,357         | 2,194         | 2,396         | 2,509         | 2,311         | 2,324         | 2,169         |
| 9                  | 4,292         | 4,007         | 3,654         | 3,706         | 3,972         | 3,654         | 3,855         | 3,767         | 3,273         | 3,347         |
| 10                 | 2,881         | 2,864         | 2,900         | 2,682         | 2,558         | 2,444         | 2,438         | 2,558         | 2,580         | 2,760         |
| 11                 | 2,624         | 2,490         | 2,639         | 2,424         | 2,355         | 2,235         | 2,249         | 2,316         | 2,435         | 2,602         |
| 12                 | 2,538         | 2,370         | 2,383         | 2,114         | 2,028         | 1,869         | 2,046         | 2,130         | 2,223         | 2,514         |
| Adult              | 972           | 979           | 1,430         | 1,394         | 1,378         | 1,428         | 1,393         | 1,253         | 1,079         | 408           |
| UG                 | 171           | 224           | 246           | 414           | 363           | 871           | 675           | 526           | 484           | 141           |
| SPED UG            | NA            | NA            | NA            | NA            | NA            | NA            | 116           | 125           | 131           | 137           |
| <b>Grand Total</b> | <b>45,397</b> | <b>44,559</b> | <b>45,568</b> | <b>45,131</b> | <b>45,508</b> | <b>46,367</b> | <b>47,520</b> | <b>48,405</b> | <b>48,462</b> | <b>48,095</b> |

Source: OSSE Audited Enrollment

**Historical Enrollment - DCPS**

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 4,247         | 4,607         | 5,235         | 5,396         | 5,570         | 5,565         | 5,615         | 5,832         | 5,829         | 5,797         |
| K - 5              | 20,464        | 19,836        | 20,031        | 20,093        | 20,473        | 21,313        | 22,087        | 23,243        | 23,650        | 23,552        |
| 6 - 8              | 7,208         | 7,182         | 7,050         | 6,908         | 6,811         | 6,988         | 7,046         | 6,655         | 6,778         | 6,837         |
| 9 - 12             | 12,335        | 11,731        | 11,576        | 10,926        | 10,913        | 10,202        | 10,588        | 10,771        | 10,511        | 11,223        |
| Other              | 1,143         | 1,203         | 1,676         | 1,808         | 1,741         | 2,299         | 2,184         | 1,904         | 1,694         | 686           |
| <b>K - 12</b>      | <b>40,007</b> | <b>38,749</b> | <b>38,657</b> | <b>37,927</b> | <b>38,197</b> | <b>38,503</b> | <b>39,721</b> | <b>40,669</b> | <b>40,939</b> | <b>41,612</b> |
| <b>Grand Total</b> | <b>45,397</b> | <b>44,559</b> | <b>45,568</b> | <b>45,131</b> | <b>45,508</b> | <b>46,367</b> | <b>47,520</b> | <b>48,405</b> | <b>48,462</b> | <b>48,095</b> |

Source: OSSE Audited Enrollment

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.<sup>1</sup>

Historical enrollment in the PCS schools, based on the official audited enrollment, increased 18,142 students, or approximately 72 percent, from the 2008-09 to the 2017-18 school year.

**Historical Enrollment - PCS**

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK3                | 1,063         | 1,423         | 1,864         | 2,410         | 2,768         | 2,934         | 3,106         | 3,023         | 3,229         | 3,308         |
| PK4                | 1,757         | 2,181         | 2,482         | 2,972         | 3,090         | 3,356         | 3,319         | 3,454         | 3,471         | 3,613         |
| K                  | 1,709         | 1,911         | 2,207         | 2,502         | 2,857         | 2,984         | 3,156         | 3,101         | 3,337         | 3,260         |
| 1                  | 1,500         | 1,721         | 1,984         | 2,070         | 2,422         | 2,664         | 2,878         | 2,880         | 2,945         | 3,110         |
| 2                  | 1,490         | 1,519         | 1,680         | 1,849         | 2,083         | 2,308         | 2,544         | 2,657         | 2,809         | 2,860         |
| 3                  | 1,395         | 1,512         | 1,500         | 1,558         | 1,809         | 2,003         | 2,201         | 2,349         | 2,515         | 2,708         |
| 4                  | 1,293         | 1,433         | 1,602         | 1,467         | 1,549         | 1,754         | 1,916         | 2,065         | 2,297         | 2,418         |
| 5                  | 1,478         | 1,581         | 1,665         | 1,738         | 1,776         | 1,786         | 2,003         | 2,102         | 2,272         | 2,517         |
| 6                  | 2,048         | 2,004         | 2,077         | 2,202         | 2,348         | 2,196         | 2,360         | 2,567         | 2,660         | 2,897         |
| 7                  | 2,182         | 2,099         | 2,050         | 2,033         | 2,221         | 2,241         | 2,100         | 2,254         | 2,437         | 2,541         |
| 8                  | 2,018         | 2,076         | 1,960         | 1,953         | 2,008         | 2,001         | 2,006         | 2,040         | 2,149         | 2,320         |
| 9                  | 1,959         | 2,172         | 2,195         | 2,117         | 2,281         | 1,961         | 1,963         | 2,018         | 2,512         | 2,491         |
| 10                 | 1,399         | 1,566         | 1,595         | 1,497         | 1,652         | 1,660         | 1,538         | 1,454         | 1,644         | 1,802         |
| 11                 | 1,040         | 1,192         | 1,202         | 1,156         | 1,384         | 1,253         | 1,370         | 1,329         | 1,299         | 1,509         |
| 12                 | 851           | 930           | 1,021         | 987           | 1,287         | 1,111         | 1,131         | 1,144         | 1,147         | 1,249         |
| Adult              | 1,844         | 2,088         | 2,282         | 2,416         | 2,773         | 3,340         | 3,095         | 3,292         | 3,613         | 4,543         |
| UG                 | 225           | 225           | NA            | 635           | 366           | 1,013         | 917           | 925           | 904           | NA            |
| SPED UG            | NA            | NA            | NA            | NA            | NA            | NA            | 252           | 251           | 251           | 247           |
| <b>Grand Total</b> | <b>25,251</b> | <b>27,633</b> | <b>29,366</b> | <b>31,562</b> | <b>34,674</b> | <b>36,565</b> | <b>37,855</b> | <b>38,905</b> | <b>41,491</b> | <b>43,393</b> |

Source: OSSE Audited Enrollment

**Historical Enrollment - PCS**

| Grade              | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 2,820         | 3,604         | 4,346         | 5,382         | 5,858         | 6,290         | 6,425         | 6,477         | 6,700         | 6,921         |
| K - 5              | 8,865         | 9,677         | 10,638        | 11,184        | 12,496        | 13,499        | 14,698        | 15,154        | 16,175        | 16,873        |
| 6 - 8              | 6,248         | 6,179         | 6,087         | 6,188         | 6,577         | 6,438         | 6,466         | 6,861         | 7,246         | 7,758         |
| 9 - 12             | 5,249         | 5,860         | 6,013         | 5,757         | 6,604         | 5,985         | 6,002         | 5,945         | 6,602         | 7,051         |
| Other              | 2,069         | 2,313         | 2,282         | 3,051         | 3,139         | 4,353         | 4,264         | 4,468         | 4,768         | 4,790         |
| <b>K - 12</b>      | <b>20,362</b> | <b>21,716</b> | <b>22,738</b> | <b>23,129</b> | <b>25,677</b> | <b>25,922</b> | <b>27,166</b> | <b>27,960</b> | <b>30,023</b> | <b>31,682</b> |
| <b>Grand Total</b> | <b>25,251</b> | <b>27,633</b> | <b>29,366</b> | <b>31,562</b> | <b>34,674</b> | <b>36,565</b> | <b>37,855</b> | <b>38,905</b> | <b>41,491</b> | <b>43,393</b> |

Source: OSSE Audited Enrollment

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.<sup>1</sup>

## Summary of Enrollment Projections

The following enrollment projections were developed as part of this study for the District of Columbia:

- Baseline enrollment projections by school (*[Step 5 of Section 6: Proposed Process and Methodology for Developing Enrollment Projections by School](#)*)
- System-wide enrollment projections (*[Step 8 of Section 6: Proposed Process and Methodology for Developing Enrollment Projections by School](#)*)
- Enrollment projections based on residence

It should be noted that the overall historical enrollment between the baseline by school and elementary boundary (residence) projections differ (due to being different data sets) and therefore the enrollment projections presented also differ. In addition, aggregating the data differently will yield different results.

## Baseline Enrollment Projections by School

Enrollment projections based on school of attendance are useful for budget development and staff planning. Knowing how many students per grade at a school provides guidance on determining how many teachers per grade level may be needed. *These enrollment projections relate to Step 5 of Section 6: Proposed Process and Methodology for Developing Enrollment Projections by School*

## Feeder Patterns

Geographic feeder patterns were incorporated based on data available on the DCPS website for school years 2014-15 through 2018-19 (<https://dcps.dc.gov/boundaries>). In a few cases, a different feeder pattern was applied based on a review of geocoded students and where they attended the following year. These cases, if applicable, are noted in the enrollment projections by school profiles.

## Birth Data

Resident live birth counts by address were provided by the District of Columbia Department of Health, aggregated by elementary boundary, and used to project kindergarten enrollment for schools assigned to those boundaries. In the cases of PCS elementary schools and DCPS elementary schools with no assigned boundary, city-wide live birth counts were used to project kindergarten enrollment. It should be noted that actual live birth counts are available through 2016 and project kindergarten enrollment through 2021-22. To project kindergarten through 2027-28, an average number of live births for the 3 most recent years of available data was used.

## Enrollment Projection Methodology

Projected PK3, PK4, Adult, UG, and SPED UG enrollments do not follow the cohort survival method but reflect the actual 2017-18 enrollments.

Based on the findings of the blind study described previously in this report, the baseline enrollment projections were developed using the cohort survival method using a 3-year simple average of survival ratios for DCPS schools and a 2-year weighted average of survival ratios for PCS schools. Additional adjustments beyond these and what is noted in the enrollment projections by school profiles were not applied. We recommend that DCPS and PCS

continue the practice of obtaining feedback from school principals, Local School Advisory Teams, LEAs, etc. to make appropriate adjustments, if necessary.

## Survival Ratios

The chart below demonstrates the ten-year changes in enrollment as students move through the system. Percentages greater than 100 indicate that there are more students than there were in the previous grade the previous year. In other words, there was an increase in student population where new students were added to the system. Percentages less than 100 indicate that there was a decline or students left the system. If the exact number of students in 1st grade during the 2010-11 school year were present in 2nd grade for the 2011-12 school year, the survival ratio would be 100 percent.

Birth-to-Kindergarten and Birth-to-First Grade: This ratio indicates the number of children born in the area who attend kindergarten and first grade in D.C. (DCPS and PCS) five and six years later.

Grades 8 to 9: The higher than usual percentage often is a result of school district promotion policies. Often in school districts, students are promoted from 8<sup>th</sup> to 9<sup>th</sup> grade and after one year in 9<sup>th</sup> grade do not have sufficient credits to be classified as a 10<sup>th</sup> grader and are counted again as 9<sup>th</sup> graders the following year. There may also be students who are attending private schools or are home-schooled through grade 9 and then attend public schools for high school education.

The following table illustrates the historical survival ratios in D.C. (DCPS and PCS) over the past ten years by grade level. What is important to note is the trend in survival ratios, not necessarily the actual number

Survival Ratios - District-wide

| from                         | to   | Birth to K | K to 1  | Birth to 1 | 1 to 2 | 2 to 3 | 3 to 4 | 4 to 5 | 5 to 6 | 6 to 7  | 7 to 8 | 8 to 9  | 9 to 10 | 10 to 11 | 11 to 12 |
|------------------------------|------|------------|---------|------------|--------|--------|--------|--------|--------|---------|--------|---------|---------|----------|----------|
| 2008                         | 2009 | 65.35%     | 99.13%  | 65.91%     | 98.73% | 98.44% | 96.87% | 99.41% | 97.47% | 98.68%  | 98.34% | 138.02% | 70.87%  | 86.03%   | 90.07%   |
| 2009                         | 2010 | 74.71%     | 101.00% | 66.00%     | 97.91% | 99.29% | 97.68% | 98.65% | 97.30% | 98.29%  | 98.02% | 131.41% | 72.75%  | 86.70%   | 92.45%   |
| 2010                         | 2011 | 73.82%     | 96.94%  | 72.42%     | 96.45% | 97.48% | 94.99% | 97.48% | 94.30% | 96.47%  | 97.09% | 135.20% | 71.45%  | 79.64%   | 80.73%   |
| 2011                         | 2012 | 78.69%     | 97.95%  | 72.30%     | 97.78% | 98.75% | 96.66% | 98.83% | 97.33% | 100.20% | 99.20% | 145.08% | 72.30%  | 89.47%   | 92.60%   |
| 2012                         | 2013 | 78.42%     | 97.03%  | 76.36%     | 97.19% | 96.87% | 96.25% | 99.96% | 96.90% | 99.33%  | 96.45% | 133.63% | 65.63%  | 82.85%   | 79.70%   |
| 2013                         | 2014 | 80.65%     | 97.99%  | 76.84%     | 98.07% | 97.15% | 96.41% | 99.58% | 99.22% | 99.35%  | 98.24% | 132.32% | 70.81%  | 88.18%   | 91.08%   |
| 2014                         | 2015 | 79.83%     | 96.96%  | 78.19%     | 96.37% | 96.76% | 97.18% | 98.90% | 96.93% | 98.58%  | 98.80% | 128.13% | 68.96%  | 91.68%   | 90.47%   |
| 2015                         | 2016 | 81.40%     | 97.50%  | 77.83%     | 96.61% | 96.91% | 97.21% | 97.81% | 95.60% | 98.79%  | 98.79% | 132.96% | 73.02%  | 93.07%   | 92.46%   |
| 2016                         | 2017 | 79.55%     | 95.27%  | 77.54%     | 95.41% | 96.46% | 96.05% | 97.68% | 94.07% | 98.65%  | 97.99% | 130.52% | 78.86%  | 97.32%   | 100.78%  |
| mean simple all years        |      | 76.93%     | 97.75%  | 73.71%     | 97.17% | 97.57% | 96.59% | 98.70% | 96.57% | 98.70%  | 98.10% | 134.14% | 71.63%  | 88.33%   | 90.04%   |
| std. dev. simple all years   |      | 5.04%      | 1.61%   | 4.90%      | 1.04%  | 1.01%  | 0.79%  | 0.88%  | 1.64%  | 1.01%   | 0.87%  | 4.97%   | 3.54%   | 5.35%    | 6.41%    |
| mean simple 5 years          |      | 79.97%     | 96.95%  | 77.35%     | 96.73% | 96.83% | 96.62% | 98.78% | 96.54% | 98.94%  | 98.05% | 131.51% | 71.46%  | 90.62%   | 90.90%   |
| std. dev. simple 5 years     |      | 1.13%      | 1.03%   | 0.74%      | 0.99%  | 0.25%  | 0.54%  | 1.02%  | 1.90%  | 0.37%   | 0.96%  | 2.22%   | 4.94%   | 5.44%    | 7.51%    |
| mean simple 3 years          |      | 80.26%     | 96.57%  | 77.86%     | 96.13% | 96.71% | 96.82% | 98.13% | 95.53% | 98.68%  | 98.52% | 130.53% | 73.61%  | 94.02%   | 94.57%   |
| std. dev. simple 3 years     |      | 1.00%      | 1.16%   | 0.33%      | 0.63%  | 0.23%  | 0.66%  | 0.67%  | 1.43%  | 0.11%   | 0.46%  | 2.41%   | 4.98%   | 2.94%    | 5.47%    |
| mean simple 2 years          |      | 80.47%     | 96.38%  | 77.69%     | 96.01% | 96.68% | 96.63% | 97.74% | 94.83% | 98.72%  | 98.39% | 131.74% | 75.94%  | 95.20%   | 96.62%   |
| std. dev. simple 2 years     |      | 1.31%      | 1.58%   | 0.20%      | 0.85%  | 0.32%  | 0.82%  | 0.09%  | 1.08%  | 0.10%   | 0.56%  | 1.73%   | 4.13%   | 3.01%    | 5.88%    |
| mean weighted all years      |      | 79.46%     | 96.82%  | 76.65%     | 96.50% | 96.96% | 96.58% | 98.36% | 95.89% | 98.79%  | 98.24% | 132.14% | 73.39%  | 92.08%   | 93.34%   |
| std. dev. weighted all years |      | 2.59%      | 1.34%   | 2.81%      | 1.00%  | 0.69%  | 0.64%  | 0.86%  | 1.77%  | 0.63%   | 0.72%  | 3.80%   | 4.51%   | 5.17%    | 6.62%    |
| mean weighted 5 years        |      | 80.09%     | 96.24%  | 77.62%     | 96.03% | 96.66% | 96.51% | 98.03% | 95.17% | 98.74%  | 98.26% | 131.04% | 75.36%  | 94.64%   | 96.29%   |
| std. dev. weighted 5 years   |      | 0.93%      | 1.21%   | 0.41%      | 0.85%  | 0.26%  | 0.61%  | 0.71%  | 1.62%  | 0.22%   | 0.54%  | 1.73%   | 4.57%   | 3.83%    | 5.88%    |
| mean weighted 3 years        |      | 79.89%     | 95.72%  | 77.62%     | 95.66% | 96.55% | 96.30% | 97.75% | 94.45% | 98.67%  | 98.16% | 130.85% | 77.44%  | 96.36%   | 98.91%   |
| std. dev. weighted 3 years   |      | 0.86%      | 1.08%   | 0.19%      | 0.58%  | 0.22%  | 0.58%  | 0.29%  | 0.94%  | 0.07%   | 0.40%  | 1.32%   | 3.43%   | 2.29%    | 4.39%    |
| mean weighted 2 years        |      | 79.64%     | 95.37%  | 77.56%     | 95.47% | 96.48% | 96.10% | 97.69% | 94.14% | 98.66%  | 98.03% | 130.63% | 78.58%  | 97.12%   | 100.38%  |
| std. dev. weighted 2 years   |      | 0.56%      | 0.67%   | 0.09%      | 0.36%  | 0.14%  | 0.35%  | 0.04%  | 0.46%  | 0.04%   | 0.24%  | 0.74%   | 1.76%   | 1.28%    | 2.51%    |

The following table illustrates the historical survival ratios in DCPS over the past ten years by grade level.

Survival Ratios - DCPS

| from                         | to   | Birth to K | K to 1  | Birth to 1 | 1 to 2 | 2 to 3 | 3 to 4 | 4 to 5 | 5 to 6 | 6 to 7  | 7 to 8  | 8 to 9  | 9 to 10 | 10 to 11 | 11 to 12 |
|------------------------------|------|------------|---------|------------|--------|--------|--------|--------|--------|---------|---------|---------|---------|----------|----------|
| 2008                         | 2009 | 41.28%     | 98.33%  | 43.32%     | 97.64% | 97.18% | 94.64% | 90.30% | 79.62% | 95.43%  | 101.32% | 162.95% | 66.73%  | 86.43%   | 90.32%   |
| 2009                         | 2010 | 46.95%     | 99.36%  | 41.01%     | 98.06% | 99.53% | 94.08% | 91.38% | 78.92% | 95.10%  | 102.27% | 153.85% | 72.37%  | 92.14%   | 95.70%   |
| 2010                         | 2011 | 44.46%     | 98.79%  | 46.38%     | 98.43% | 99.94% | 93.74% | 92.09% | 74.30% | 95.20%  | 98.66%  | 157.90% | 73.40%  | 83.59%   | 80.11%   |
| 2011                         | 2012 | 46.48%     | 98.71%  | 43.89%     | 96.18% | 99.28% | 95.33% | 88.52% | 75.56% | 99.57%  | 99.59%  | 168.52% | 69.02%  | 87.81%   | 83.66%   |
| 2012                         | 2013 | 45.75%     | 99.66%  | 46.32%     | 98.42% | 97.29% | 95.85% | 92.25% | 79.92% | 103.33% | 102.48% | 166.55% | 61.53%  | 87.37%   | 79.36%   |
| 2013                         | 2014 | 45.61%     | 99.09%  | 45.34%     | 99.73% | 98.26% | 96.84% | 91.18% | 78.54% | 103.00% | 106.54% | 160.89% | 66.72%  | 92.02%   | 91.54%   |
| 2014                         | 2015 | 45.96%     | 101.34% | 46.22%     | 99.18% | 99.51% | 99.23% | 92.70% | 74.43% | 101.84% | 100.30% | 150.14% | 66.36%  | 95.00%   | 94.71%   |
| 2015                         | 2016 | 45.47%     | 99.36%  | 45.66%     | 95.96% | 98.37% | 96.89% | 90.78% | 74.59% | 103.57% | 102.20% | 141.63% | 68.49%  | 95.19%   | 95.98%   |
| 2016                         | 2017 | 44.79%     | 96.90%  | 44.06%     | 94.21% | 96.50% | 95.99% | 90.76% | 70.76% | 102.25% | 101.17% | 144.02% | 84.33%  | 100.85%  | 103.24%  |
| mean simple all years        |      | 45.20%     | 99.06%  | 44.69%     | 97.54% | 98.43% | 95.84% | 91.11% | 76.29% | 99.92%  | 101.61% | 156.27% | 69.88%  | 91.16%   | 90.52%   |
| std. dev. simple all years   |      | 1.66%      | 1.18%   | 1.79%      | 1.76%  | 1.23%  | 1.69%  | 1.25%  | 3.12%  | 3.70%   | 2.25%   | 9.57%   | 6.44%   | 5.38%    | 8.04%    |
| mean simple 5 years          |      | 45.52%     | 99.27%  | 45.52%     | 97.50% | 97.99% | 96.96% | 91.53% | 75.65% | 102.80% | 102.54% | 152.64% | 69.48%  | 94.09%   | 92.97%   |
| std. dev. simple 5 years     |      | 0.44%      | 1.59%   | 0.91%      | 2.34%  | 1.15%  | 1.35%  | 0.89%  | 3.65%  | 0.73%   | 2.40%   | 10.76%  | 8.69%   | 4.93%    | 8.73%    |
| mean simple 3 years          |      | 45.41%     | 99.20%  | 45.32%     | 96.45% | 98.13% | 97.37% | 91.41% | 73.26% | 102.55% | 101.22% | 145.26% | 73.06%  | 97.01%   | 97.98%   |
| std. dev. simple 3 years     |      | 0.59%      | 2.22%   | 1.12%      | 2.52%  | 1.52%  | 1.67%  | 1.11%  | 2.17%  | 0.91%   | 0.95%   | 4.39%   | 9.82%   | 3.33%    | 4.60%    |
| mean simple 2 years          |      | 45.13%     | 98.13%  | 44.86%     | 95.09% | 97.43% | 96.44% | 90.77% | 72.67% | 102.91% | 101.68% | 142.82% | 76.41%  | 98.02%   | 99.61%   |
| std. dev. simple 2 years     |      | 0.48%      | 1.74%   | 1.13%      | 1.24%  | 1.32%  | 0.63%  | 0.01%  | 2.71%  | 0.94%   | 0.73%   | 1.69%   | 11.20%  | 4.00%    | 5.13%    |
| mean weighted all years      |      | 45.34%     | 98.79%  | 45.03%     | 96.63% | 97.96% | 96.59% | 91.15% | 74.35% | 101.99% | 101.79% | 150.06% | 72.85%  | 95.12%   | 95.21%   |
| std. dev. weighted all years |      | 0.82%      | 1.61%   | 1.21%      | 2.23%  | 1.27%  | 1.43%  | 1.02%  | 3.23%  | 2.25%   | 1.98%   | 9.59%   | 8.74%   | 5.26%    | 7.90%    |
| mean weighted 5 years        |      | 45.18%     | 98.26%  | 44.87%     | 95.69% | 97.46% | 96.65% | 91.06% | 72.87% | 102.61% | 101.67% | 145.72% | 76.49%  | 97.83%   | 99.05%   |
| std. dev. weighted 5 years   |      | 0.49%      | 1.78%   | 1.00%      | 2.18%  | 1.25%  | 1.16%  | 0.73%  | 2.88%  | 0.71%   | 1.50%   | 6.43%   | 9.58%   | 3.96%    | 5.90%    |
| mean weighted 3 years        |      | 44.96%     | 97.50%  | 44.43%     | 94.71% | 96.94% | 96.27% | 90.84% | 71.57% | 102.47% | 101.31% | 143.84% | 80.84%  | 99.63%   | 101.63%  |
| std. dev. weighted 3 years   |      | 0.40%      | 1.48%   | 0.87%      | 1.37%  | 1.08%  | 0.84%  | 0.46%  | 1.91%  | 0.63%   | 0.54%   | 1.91%   | 8.18%   | 2.87%    | 3.78%    |
| mean weighted 2 years        |      | 44.82%     | 97.02%  | 44.14%     | 94.30% | 96.58% | 96.03% | 90.76% | 70.94% | 102.31% | 101.22% | 143.91% | 83.57%  | 100.58%  | 102.90%  |
| std. dev. weighted 2 years   |      | 0.21%      | 0.74%   | 0.48%      | 0.53%  | 0.56%  | 0.27%  | 0.01%  | 1.15%  | 0.40%   | 0.31%   | 0.72%   | 4.77%   | 1.70%    | 2.19%    |

The following table illustrates the historical survival ratios in PCS over the past ten years by grade level.

Survival Ratios - PCS

| from                         | to   | Birth to K | K to 1  | Birth to 1 | 1 to 2  | 2 to 3  | 3 to 4  | 4 to 5  | 5 to 6  | 6 to 7  | 7 to 8 | 8 to 9  | 9 to 10 | 10 to 11 | 11 to 12 |
|------------------------------|------|------------|---------|------------|---------|---------|---------|---------|---------|---------|--------|---------|---------|----------|----------|
| 2008                         | 2009 | 24.07%     | 100.70% | 22.60%     | 101.27% | 101.48% | 102.72% | 122.27% | 135.59% | 102.49% | 95.14% | 107.63% | 79.94%  | 85.20%   | 89.42%   |
| 2009                         | 2010 | 27.76%     | 103.82% | 24.99%     | 97.62%  | 98.75%  | 105.95% | 116.19% | 131.37% | 102.30% | 93.38% | 105.73% | 73.43%  | 76.76%   | 85.65%   |
| 2010                         | 2011 | 29.35%     | 93.79%  | 26.04%     | 93.20%  | 92.74%  | 97.80%  | 108.49% | 132.25% | 97.88%  | 95.27% | 108.01% | 68.20%  | 72.48%   | 82.11%   |
| 2011                         | 2012 | 32.21%     | 96.80%  | 28.41%     | 100.63% | 97.84%  | 99.42%  | 121.06% | 135.10% | 100.86% | 98.77% | 116.79% | 78.03%  | 92.45%   | 111.33%  |
| 2012                         | 2013 | 32.67%     | 93.24%  | 30.03%     | 95.29%  | 96.16%  | 96.96%  | 115.30% | 123.65% | 95.44%  | 90.09% | 97.66%  | 72.78%  | 75.85%   | 80.27%   |
| 2013                         | 2014 | 35.04%     | 96.45%  | 31.51%     | 95.50%  | 95.36%  | 95.66%  | 114.20% | 132.14% | 95.63%  | 89.51% | 98.10%  | 78.43%  | 82.53%   | 90.26%   |
| 2014                         | 2015 | 33.87%     | 91.25%  | 31.98%     | 92.32%  | 92.33%  | 93.82%  | 109.71% | 128.16% | 95.51%  | 97.14% | 100.60% | 74.07%  | 86.41%   | 83.50%   |
| 2015                         | 2016 | 35.92%     | 94.97%  | 32.16%     | 97.53%  | 94.66%  | 97.79%  | 110.02% | 126.55% | 94.94%  | 95.34% | 123.14% | 81.47%  | 89.34%   | 86.31%   |
| 2016                         | 2017 | 34.76%     | 93.20%  | 33.48%     | 97.11%  | 96.40%  | 96.14%  | 109.58% | 127.51% | 95.53%  | 95.20% | 115.91% | 71.74%  | 91.79%   | 96.15%   |
| mean simple all years        |      | 31.74%     | 96.03%  | 29.02%     | 96.72%  | 96.19%  | 98.47%  | 114.09% | 130.26% | 97.84%  | 94.43% | 108.18% | 75.34%  | 83.64%   | 89.45%   |
| std. dev. simple all years   |      | 3.93%      | 4.00%   | 3.75%      | 3.02%   | 2.90%   | 3.76%   | 5.11%   | 4.03%   | 3.17%   | 3.02%  | 8.90%   | 4.35%   | 7.25%    | 9.50%    |
| mean simple 5 years          |      | 34.45%     | 93.82%  | 31.83%     | 95.55%  | 94.98%  | 96.07%  | 111.76% | 127.60% | 95.41%  | 93.46% | 107.08% | 75.70%  | 85.18%   | 87.30%   |
| std. dev. simple 5 years     |      | 1.24%      | 1.97%   | 1.24%      | 2.05%   | 1.63%   | 1.50%   | 2.76%   | 3.07%   | 0.27%   | 3.43%  | 11.70%  | 4.11%   | 6.26%    | 6.16%    |
| mean simple 3 years          |      | 34.85%     | 93.14%  | 32.54%     | 95.66%  | 94.46%  | 95.92%  | 109.77% | 127.40% | 95.32%  | 95.89% | 113.22% | 75.76%  | 89.18%   | 88.65%   |
| std. dev. simple 3 years     |      | 1.03%      | 1.86%   | 0.82%      | 2.90%   | 2.04%   | 1.99%   | 0.23%   | 0.81%   | 0.34%   | 1.08%  | 11.51%  | 5.08%   | 2.69%    | 6.64%    |
| mean simple 2 years          |      | 35.34%     | 94.08%  | 32.82%     | 97.32%  | 95.53%  | 96.96%  | 109.80% | 127.03% | 95.23%  | 95.27% | 119.53% | 76.60%  | 90.56%   | 91.23%   |
| std. dev. simple 2 years     |      | 0.82%      | 1.25%   | 0.93%      | 0.30%   | 1.24%   | 1.16%   | 0.32%   | 0.68%   | 0.42%   | 0.10%  | 5.11%   | 6.88%   | 1.73%    | 6.96%    |
| mean weighted all years      |      | 34.11%     | 94.21%  | 31.62%     | 96.29%  | 95.35%  | 96.72%  | 111.49% | 128.36% | 96.01%  | 94.70% | 111.38% | 75.40%  | 87.21%   | 90.18%   |
| std. dev. weighted all years |      | 2.29%      | 2.51%   | 2.45%      | 2.33%   | 1.93%   | 2.31%   | 3.55%   | 2.98%   | 1.93%   | 2.67%  | 10.07%  | 4.35%   | 5.90%    | 7.78%    |
| mean weighted 5 years        |      | 34.91%     | 93.60%  | 32.76%     | 96.50%  | 95.40%  | 96.28%  | 110.13% | 127.50% | 95.38%  | 95.01% | 114.40% | 74.91%  | 89.56%   | 91.35%   |
| std. dev. weighted 5 years   |      | 0.82%      | 1.46%   | 0.96%      | 1.83%   | 1.51%   | 1.30%   | 1.52%   | 1.55%   | 0.29%   | 1.93%  | 9.11%   | 4.65%   | 3.84%    | 6.10%    |
| mean weighted 3 years        |      | 34.93%     | 93.43%  | 33.19%     | 97.00%  | 95.94%  | 96.34%  | 109.66% | 127.37% | 95.42%  | 95.30% | 116.58% | 73.54%  | 91.15%   | 93.93%   |
| std. dev. weighted 3 years   |      | 0.60%      | 0.98%   | 0.68%      | 1.17%   | 1.21%   | 0.98%   | 0.21%   | 0.49%   | 0.27%   | 0.46%  | 5.19%   | 4.52%   | 1.63%    | 5.25%    |
| mean weighted 2 years        |      | 34.81%     | 93.28%  | 33.42%     | 97.13%  | 96.32%  | 96.22%  | 109.60% | 127.46% | 95.50%  | 95.21% | 116.26% | 72.20%  | 91.67%   | 95.68%   |
| std. dev. weighted 2 years   |      | 0.35%      | 0.53%   | 0.40%      | 0.13%   | 0.53%   | 0.49%   | 0.13%   | 0.29%   | 0.18%   | 0.04%  | 2.18%   | 2.93%   | 0.74%    | 2.97%    |



## Enrollment Projections

Baseline enrollment projections by school were developed for the DCPS and PCS schools in the District of Columbia using the official audited enrollment by school, by grade from 2008-09 through 2017-18 provided by OSSE (<https://osse.dc.gov/enrollment>). The enrollment projections were developed using the cohort survival methodology. A 3-year simple average of survival ratios was used to project DCPS school enrollment and a 2-year weighted average of survival ratios was used to project PCs school enrollment. Live birth counts were used to project kindergarten enrollment; PK, Adult, UG, and SPED UG were kept flat at the current 2017-18 enrollment.

**Projected Enrollment - System-wide (Baseline)**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23       | 2023-24       | 2024-25       | 2025-26       | 2026-27       | 2027-28       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK3                | 5,682         | 5,682         | 5,682         | 5,682         | 5,682         | 5,682         | 5,682         | 5,682         | 5,682         | 5,682         |
| PK4                | 7,036         | 7,036         | 7,036         | 7,036         | 7,036         | 7,036         | 7,036         | 7,036         | 7,036         | 7,036         |
| K                  | 7,447         | 7,624         | 7,663         | 7,880         | 7,717         | 7,717         | 7,717         | 7,717         | 7,717         | 7,717         |
| 1                  | 7,170         | 7,165         | 7,329         | 7,356         | 7,565         | 7,414         | 7,414         | 7,414         | 7,414         | 7,414         |
| 2                  | 6,877         | 6,846         | 6,844         | 6,998         | 7,020         | 7,230         | 7,084         | 7,084         | 7,084         | 7,084         |
| 3                  | 6,611         | 6,684         | 6,657         | 6,647         | 6,796         | 6,809         | 7,023         | 6,879         | 6,879         | 6,879         |
| 4                  | 6,218         | 6,268         | 6,329         | 6,283         | 6,271         | 6,418         | 6,426         | 6,635         | 6,492         | 6,492         |
| 5                  | 6,038         | 5,906         | 5,953         | 5,995         | 5,935         | 5,942         | 6,079         | 6,082         | 6,295         | 6,149         |
| 6                  | 5,612         | 5,475         | 5,415         | 5,447         | 5,495         | 5,438         | 5,433         | 5,567         | 5,560         | 5,768         |
| 7                  | 5,070         | 5,452         | 5,330         | 5,276         | 5,310         | 5,360         | 5,318         | 5,315         | 5,451         | 5,439         |
| 8                  | 4,766         | 4,958         | 5,322         | 5,211         | 5,173         | 5,209         | 5,286         | 5,247         | 5,240         | 5,378         |
| 9                  | 5,916         | 6,451         | 6,675         | 6,908         | 6,732         | 6,724         | 6,762         | 6,846         | 6,870         | 6,877         |
| 10                 | 4,068         | 4,161         | 4,572         | 4,704         | 4,861         | 4,735         | 4,737         | 4,765         | 4,828         | 4,853         |
| 11                 | 4,125         | 3,663         | 3,765         | 4,148         | 4,273         | 4,387         | 4,273         | 4,281         | 4,304         | 4,359         |
| 12                 | 3,826         | 3,872         | 3,444         | 3,528         | 3,899         | 4,023         | 4,114         | 4,010         | 4,015         | 4,039         |
| Adult              | 4,951         | 4,951         | 4,951         | 4,951         | 4,951         | 4,951         | 4,951         | 4,951         | 4,951         | 4,951         |
| UG                 | 363           | 363           | 363           | 363           | 363           | 363           | 363           | 363           | 363           | 363           |
| SPED UG            | 384           | 384           | 384           | 384           | 384           | 384           | 384           | 384           | 384           | 384           |
| <b>Grand Total</b> | <b>92,160</b> | <b>92,941</b> | <b>93,714</b> | <b>94,797</b> | <b>95,463</b> | <b>95,822</b> | <b>96,082</b> | <b>96,258</b> | <b>96,565</b> | <b>96,864</b> |

Source: Cooperative Strategies

**Projected Enrollment - System-wide (Baseline)**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23       | 2023-24       | 2024-25       | 2025-26       | 2026-27       | 2027-28       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        | 12,718        |
| K - 5              | 40,361        | 40,493        | 40,775        | 41,159        | 41,304        | 41,530        | 41,743        | 41,811        | 41,881        | 41,735        |
| 6 - 8              | 15,448        | 15,885        | 16,067        | 15,934        | 15,978        | 16,007        | 16,037        | 16,129        | 16,251        | 16,585        |
| 9 - 12             | 17,935        | 18,147        | 18,456        | 19,288        | 19,765        | 19,869        | 19,886        | 19,902        | 20,017        | 20,128        |
| Other              | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         | 5,698         |
| <b>K - 12</b>      | <b>73,744</b> | <b>74,525</b> | <b>75,298</b> | <b>76,381</b> | <b>77,047</b> | <b>77,406</b> | <b>77,666</b> | <b>77,842</b> | <b>78,149</b> | <b>78,448</b> |
| <b>Grand Total</b> | <b>92,160</b> | <b>92,941</b> | <b>93,714</b> | <b>94,797</b> | <b>95,463</b> | <b>95,822</b> | <b>96,082</b> | <b>96,258</b> | <b>96,565</b> | <b>96,864</b> |

Source: Cooperative Strategies

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.

**Projected Enrollment - DCPS**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23       | 2023-24       | 2024-25       | 2025-26       | 2026-27       | 2027-28       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK3                | 2,374         | 2,374         | 2,374         | 2,374         | 2,374         | 2,374         | 2,374         | 2,374         | 2,374         | 2,374         |
| PK4                | 3,423         | 3,423         | 3,423         | 3,423         | 3,423         | 3,423         | 3,423         | 3,423         | 3,423         | 3,423         |
| K                  | 4,222         | 4,310         | 4,325         | 4,449         | 4,360         | 4,360         | 4,360         | 4,360         | 4,360         | 4,360         |
| 1                  | 4,190         | 4,205         | 4,291         | 4,300         | 4,425         | 4,339         | 4,339         | 4,339         | 4,339         | 4,339         |
| 2                  | 3,948         | 4,039         | 4,058         | 4,139         | 4,147         | 4,271         | 4,187         | 4,187         | 4,187         | 4,187         |
| 3                  | 3,870         | 3,888         | 3,983         | 3,996         | 4,074         | 4,074         | 4,203         | 4,116         | 4,116         | 4,116         |
| 4                  | 3,766         | 3,783         | 3,809         | 3,894         | 3,901         | 3,983         | 3,979         | 4,117         | 4,027         | 4,027         |
| 5                  | 3,554         | 3,450         | 3,466         | 3,507         | 3,570         | 3,590         | 3,667         | 3,663         | 3,799         | 3,707         |
| 6                  | 2,446         | 2,343         | 2,365         | 2,376         | 2,412         | 2,487         | 2,488         | 2,551         | 2,537         | 2,646         |
| 7                  | 2,390         | 2,525         | 2,427         | 2,452         | 2,463         | 2,498         | 2,580         | 2,583         | 2,653         | 2,635         |
| 8                  | 2,432         | 2,469         | 2,592         | 2,501         | 2,532         | 2,543         | 2,583         | 2,668         | 2,669         | 2,742         |
| 9                  | 3,521         | 3,952         | 4,065         | 4,099         | 3,977         | 3,991         | 4,011         | 4,062         | 4,106         | 4,114         |
| 10                 | 2,374         | 2,517         | 2,822         | 2,900         | 2,932         | 2,846         | 2,862         | 2,877         | 2,917         | 2,953         |
| 11                 | 2,675         | 2,293         | 2,434         | 2,731         | 2,815         | 2,829         | 2,748         | 2,764         | 2,779         | 2,814         |
| 12                 | 2,473         | 2,543         | 2,188         | 2,314         | 2,604         | 2,689         | 2,690         | 2,613         | 2,629         | 2,643         |
| Adult              | 408           | 408           | 408           | 408           | 408           | 408           | 408           | 408           | 408           | 408           |
| UG                 | 193           | 193           | 193           | 193           | 193           | 193           | 193           | 193           | 193           | 193           |
| SPED UG            | 137           | 137           | 137           | 137           | 137           | 137           | 137           | 137           | 137           | 137           |
| <b>Grand Total</b> | <b>48,396</b> | <b>48,852</b> | <b>49,360</b> | <b>50,193</b> | <b>50,747</b> | <b>51,035</b> | <b>51,232</b> | <b>51,435</b> | <b>51,653</b> | <b>51,818</b> |

Source: Cooperative Strategies

**Projected Enrollment - DCPS**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23       | 2023-24       | 2024-25       | 2025-26       | 2026-27       | 2027-28       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 5,797         | 5,797         | 5,797         | 5,797         | 5,797         | 5,797         | 5,797         | 5,797         | 5,797         | 5,797         |
| K - 5              | 23,550        | 23,675        | 23,932        | 24,285        | 24,477        | 24,617        | 24,735        | 24,782        | 24,828        | 24,736        |
| 6 - 8              | 7,268         | 7,337         | 7,384         | 7,329         | 7,407         | 7,528         | 7,651         | 7,802         | 7,859         | 8,023         |
| 9 - 12             | 11,043        | 11,305        | 11,509        | 12,044        | 12,328        | 12,355        | 12,311        | 12,316        | 12,431        | 12,524        |
| Other              | 738           | 738           | 738           | 738           | 738           | 738           | 738           | 738           | 738           | 738           |
| <b>K - 12</b>      | <b>41,861</b> | <b>42,317</b> | <b>42,825</b> | <b>43,658</b> | <b>44,212</b> | <b>44,500</b> | <b>44,697</b> | <b>44,900</b> | <b>45,118</b> | <b>45,283</b> |
| <b>Grand Total</b> | <b>48,396</b> | <b>48,852</b> | <b>49,360</b> | <b>50,193</b> | <b>50,747</b> | <b>51,035</b> | <b>51,232</b> | <b>51,435</b> | <b>51,653</b> | <b>51,818</b> |

Source: Cooperative Strategies

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.

**Projected Enrollment - PCS**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23       | 2023-24       | 2024-25       | 2025-26       | 2026-27       | 2027-28       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK3                | 3,308         | 3,308         | 3,308         | 3,308         | 3,308         | 3,308         | 3,308         | 3,308         | 3,308         | 3,308         |
| PK4                | 3,613         | 3,613         | 3,613         | 3,613         | 3,613         | 3,613         | 3,613         | 3,613         | 3,613         | 3,613         |
| K                  | 3,225         | 3,314         | 3,338         | 3,431         | 3,357         | 3,357         | 3,357         | 3,357         | 3,357         | 3,357         |
| 1                  | 2,980         | 2,960         | 3,038         | 3,056         | 3,140         | 3,075         | 3,075         | 3,075         | 3,075         | 3,075         |
| 2                  | 2,929         | 2,807         | 2,786         | 2,859         | 2,873         | 2,959         | 2,897         | 2,897         | 2,897         | 2,897         |
| 3                  | 2,741         | 2,796         | 2,674         | 2,651         | 2,722         | 2,735         | 2,820         | 2,763         | 2,763         | 2,763         |
| 4                  | 2,452         | 2,485         | 2,520         | 2,389         | 2,370         | 2,435         | 2,447         | 2,518         | 2,465         | 2,465         |
| 5                  | 2,484         | 2,456         | 2,487         | 2,488         | 2,365         | 2,352         | 2,412         | 2,419         | 2,496         | 2,442         |
| 6                  | 3,166         | 3,132         | 3,050         | 3,071         | 3,083         | 2,951         | 2,945         | 3,016         | 3,023         | 3,122         |
| 7                  | 2,680         | 2,927         | 2,903         | 2,824         | 2,847         | 2,862         | 2,738         | 2,732         | 2,798         | 2,804         |
| 8                  | 2,334         | 2,489         | 2,730         | 2,710         | 2,641         | 2,666         | 2,703         | 2,579         | 2,571         | 2,636         |
| 9                  | 2,395         | 2,499         | 2,610         | 2,809         | 2,755         | 2,733         | 2,751         | 2,784         | 2,764         | 2,763         |
| 10                 | 1,694         | 1,644         | 1,750         | 1,804         | 1,929         | 1,889         | 1,875         | 1,888         | 1,911         | 1,900         |
| 11                 | 1,450         | 1,370         | 1,331         | 1,417         | 1,458         | 1,558         | 1,525         | 1,517         | 1,525         | 1,545         |
| 12                 | 1,353         | 1,329         | 1,256         | 1,214         | 1,295         | 1,334         | 1,424         | 1,397         | 1,386         | 1,396         |
| Adult              | 4,543         | 4,543         | 4,543         | 4,543         | 4,543         | 4,543         | 4,543         | 4,543         | 4,543         | 4,543         |
| UG                 | 170           | 170           | 170           | 170           | 170           | 170           | 170           | 170           | 170           | 170           |
| SPED UG            | 247           | 247           | 247           | 247           | 247           | 247           | 247           | 247           | 247           | 247           |
| <b>Grand Total</b> | <b>43,764</b> | <b>44,089</b> | <b>44,354</b> | <b>44,604</b> | <b>44,716</b> | <b>44,787</b> | <b>44,850</b> | <b>44,823</b> | <b>44,912</b> | <b>45,046</b> |

Source: Cooperative Strategies

**Projected Enrollment - PCS**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23       | 2023-24       | 2024-25       | 2025-26       | 2026-27       | 2027-28       |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 6,921         | 6,921         | 6,921         | 6,921         | 6,921         | 6,921         | 6,921         | 6,921         | 6,921         | 6,921         |
| K - 5              | 16,811        | 16,818        | 16,843        | 16,874        | 16,827        | 16,913        | 17,008        | 17,029        | 17,053        | 16,999        |
| 6 - 8              | 8,180         | 8,548         | 8,683         | 8,605         | 8,571         | 8,479         | 8,386         | 8,327         | 8,392         | 8,562         |
| 9 - 12             | 6,892         | 6,842         | 6,947         | 7,244         | 7,437         | 7,514         | 7,575         | 7,586         | 7,586         | 7,604         |
| Other              | 4,960         | 4,960         | 4,960         | 4,960         | 4,960         | 4,960         | 4,960         | 4,960         | 4,960         | 4,960         |
| <b>K - 12</b>      | <b>31,883</b> | <b>32,208</b> | <b>32,473</b> | <b>32,723</b> | <b>32,835</b> | <b>32,906</b> | <b>32,969</b> | <b>32,942</b> | <b>33,031</b> | <b>33,165</b> |
| <b>Grand Total</b> | <b>43,764</b> | <b>44,089</b> | <b>44,354</b> | <b>44,604</b> | <b>44,716</b> | <b>44,787</b> | <b>44,850</b> | <b>44,823</b> | <b>44,912</b> | <b>45,046</b> |

Source: Cooperative Strategies

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.

## System-wide Enrollment Projections

Based on the system-wide enrollment projections, using the total student population, it is anticipated that enrollment will continue to increase over the next ten years by approximately 12,099 students, a majority of that growth anticipated in the first five [5] years. The system-wide enrollment projections were developed using the cohort survival methodology. A 3-year simple average of survival ratios was used. Live birth counts were used to project PK and kindergarten enrollment; Adult, UG, and SPED UG were kept flat at the current 2017-18 enrollment. These are the projections that the post-baseline enrollment projection by school roll-up should be reconciled to. *These enrollment projections relate to Step 8 of Section 6: Proposed Process and Methodology for Developing Enrollment Projections by School*

**Projected Enrollment - 3 Year Simple Average - System-wide**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23        | 2023-24        | 2024-25        | 2025-26        | 2026-27        | 2027-28        |
|--------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PK3                | 5,716         | 5,885         | 5,761         | 5,761         | 5,761          | 5,761          | 5,761          | 5,761          | 5,761          | 5,761          |
| PK4                | 7,226         | 7,269         | 7,484         | 7,326         | 7,326          | 7,326          | 7,326          | 7,326          | 7,326          | 7,326          |
| K                  | 7,435         | 7,636         | 7,682         | 7,909         | 7,742          | 7,742          | 7,742          | 7,742          | 7,742          | 7,742          |
| 1                  | 7,205         | 7,180         | 7,374         | 7,418         | 7,638          | 7,477          | 7,477          | 7,477          | 7,477          | 7,477          |
| 2                  | 6,924         | 6,926         | 6,902         | 7,089         | 7,131          | 7,342          | 7,187          | 7,187          | 7,187          | 7,187          |
| 3                  | 6,575         | 6,696         | 6,698         | 6,675         | 6,855          | 6,897          | 7,100          | 6,951          | 6,951          | 6,951          |
| 4                  | 6,354         | 6,366         | 6,483         | 6,485         | 6,463          | 6,637          | 6,677          | 6,875          | 6,730          | 6,730          |
| 5                  | 6,178         | 6,235         | 6,247         | 6,362         | 6,364          | 6,342          | 6,513          | 6,552          | 6,746          | 6,604          |
| 6                  | 5,830         | 5,902         | 5,957         | 5,968         | 6,078          | 6,080          | 6,059          | 6,222          | 6,259          | 6,445          |
| 7                  | 5,134         | 5,753         | 5,824         | 5,878         | 5,889          | 5,998          | 5,999          | 5,979          | 6,140          | 6,177          |
| 8                  | 4,830         | 5,058         | 5,668         | 5,738         | 5,791          | 5,802          | 5,909          | 5,911          | 5,890          | 6,049          |
| 9                  | 5,859         | 6,305         | 6,603         | 7,399         | 7,490          | 7,559          | 7,573          | 7,713          | 7,715          | 7,688          |
| 10                 | 4,297         | 4,313         | 4,641         | 4,860         | 5,446          | 5,513          | 5,564          | 5,575          | 5,677          | 5,679          |
| 11                 | 4,289         | 4,040         | 4,055         | 4,364         | 4,570          | 5,120          | 5,184          | 5,232          | 5,241          | 5,338          |
| 12                 | 3,888         | 4,056         | 3,821         | 3,835         | 4,127          | 4,321          | 4,842          | 4,902          | 4,947          | 4,957          |
| Adult              | 4,951         | 4,951         | 4,951         | 4,951         | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          |
| UG                 | 141           | 141           | 141           | 141           | 141            | 141            | 141            | 141            | 141            | 141            |
| SPED UG            | 384           | 384           | 384           | 384           | 384            | 384            | 384            | 384            | 384            | 384            |
| <b>Grand Total</b> | <b>93,216</b> | <b>95,096</b> | <b>96,676</b> | <b>98,543</b> | <b>100,147</b> | <b>101,393</b> | <b>102,389</b> | <b>102,881</b> | <b>103,265</b> | <b>103,587</b> |

Source: Cooperative Strategies

**Projected Enrollment - 3 Year Simple Average - System-wide**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22       | 2022-23        | 2023-24        | 2024-25        | 2025-26        | 2026-27        | 2027-28        |
|--------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PK                 | 12,942        | 13,154        | 13,245        | 13,087        | 13,087         | 13,087         | 13,087         | 13,087         | 13,087         | 13,087         |
| K - 5              | 40,671        | 41,039        | 41,386        | 41,938        | 42,193         | 42,437         | 42,696         | 42,784         | 42,833         | 42,691         |
| 6 - 8              | 15,794        | 16,713        | 17,449        | 17,584        | 17,758         | 17,880         | 17,967         | 18,112         | 18,289         | 18,671         |
| 9 - 12             | 18,333        | 18,714        | 19,120        | 20,458        | 21,633         | 22,513         | 23,163         | 23,422         | 23,580         | 23,662         |
| Other              | 5,476         | 5,476         | 5,476         | 5,476         | 5,476          | 5,476          | 5,476          | 5,476          | 5,476          | 5,476          |
| <b>K - 12</b>      | <b>74,798</b> | <b>76,466</b> | <b>77,955</b> | <b>79,980</b> | <b>81,584</b>  | <b>82,830</b>  | <b>83,826</b>  | <b>84,318</b>  | <b>84,702</b>  | <b>85,024</b>  |
| <b>Grand Total</b> | <b>93,216</b> | <b>95,096</b> | <b>96,676</b> | <b>98,543</b> | <b>100,147</b> | <b>101,393</b> | <b>102,389</b> | <b>102,881</b> | <b>103,265</b> | <b>103,587</b> |

Source: Cooperative Strategies

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.

## Enrollment Projections Based on Residence

Enrollment projections based on boundary of residence are useful for planning school facilities and/or attendance boundaries. Knowing if the student population in a boundary is increasing or decreasing provides guidance for capital planning. While this enrollment projection is not germane to the process recommendations in *Section 6: Proposed Process and Methodology for Developing Enrollment Projections by School*, these enrollment projections can be extremely useful in facility and boundary planning.

## Historical Enrollment

Student data by address points for school years 2013-14 through 2017-18, provided by OSSE, were geocoded and aggregated to the DCPS elementary boundaries. Historical enrollment in the District of Columbia (DCPS and PCS schools), based on the student data, increased 9,194 students, or approximately 11 percent, from the 2013-14 to the 2017-18 school year. It should be noted that the overall historical enrollment between the baseline by school and elementary boundary (residence) projections differ (due to being different data sets) and therefore the enrollment projections presented also differ. In addition, aggregating the data differently will yield different results.

**Historical Enrollment - System-wide (based on Residence)**

| Grade              | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|
| PK3                | 5,133         | 5,495         | 5,333         | 5,608         | 5,686         |
| PK4                | 6,734         | 6,801         | 6,983         | 6,949         | 7,041         |
| K                  | 7,174         | 7,268         | 7,319         | 7,578         | 7,465         |
| 1                  | 6,787         | 7,036         | 7,056         | 7,139         | 7,222         |
| 2                  | 6,005         | 6,659         | 6,789         | 6,827         | 6,820         |
| 3                  | 5,479         | 5,848         | 6,464         | 6,594         | 6,602         |
| 4                  | 4,826         | 5,294         | 5,701         | 6,293         | 6,339         |
| 5                  | 4,648         | 4,830         | 5,250         | 5,601         | 6,159         |
| 6                  | 4,452         | 4,649         | 4,703         | 5,036         | 5,270         |
| 7                  | 4,617         | 4,468         | 4,603         | 4,665         | 4,972         |
| 8                  | 4,425         | 4,604         | 4,429         | 4,566         | 4,567         |
| 9                  | 6,085         | 6,510         | 6,499         | 6,552         | 6,066         |
| 10                 | 4,370         | 4,284         | 4,350         | 4,610         | 4,687         |
| 11                 | 3,786         | 3,916         | 4,034         | 4,115         | 4,220         |
| 12                 | 3,267         | 3,415         | 3,702         | 3,629         | 3,862         |
| Adult              | 4,788         | 4,234         | 4,176         | 4,971         | 4,951         |
| UG                 | 159           | 940           | 509           | NA            | NA            |
| <b>Grand Total</b> | <b>82,735</b> | <b>86,251</b> | <b>87,900</b> | <b>90,733</b> | <b>91,929</b> |

Source: OSSE Student Data

**Historical Enrollment - System-wide (based on Residence)**

| Grade              | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       |
|--------------------|---------------|---------------|---------------|---------------|---------------|
| PK                 | 11,867        | 12,296        | 12,316        | 12,557        | 12,727        |
| K - 5              | 34,919        | 36,935        | 38,579        | 40,032        | 40,607        |
| 6 - 8              | 13,494        | 13,721        | 13,735        | 14,267        | 14,809        |
| 9 - 12             | 17,508        | 18,125        | 18,585        | 18,906        | 18,835        |
| Other              | 4,947         | 5,174         | 4,685         | 4,971         | 4,951         |
| <b>K - 12</b>      | <b>65,921</b> | <b>68,781</b> | <b>70,899</b> | <b>73,205</b> | <b>74,251</b> |
| <b>Grand Total</b> | <b>82,735</b> | <b>86,251</b> | <b>87,900</b> | <b>90,733</b> | <b>91,929</b> |

Source: OSSE Student Data

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.<sup>1</sup>

## Birth Data

Resident live birth counts by address were provided by the District of Columbia Department of Health, aggregated by elementary boundary, and used to project kindergarten enrollment of students living within each elementary boundary. It should be noted that actual live birth counts are available through 2016 and project kindergarten enrollment through 2021-22. To project kindergarten through 2027-28, an average number of live births for the 3 most recent years of available data was used.

## Survival Ratios

The following table illustrates the historical survival ratios in D.C. (based on the student data) over the past ten years by grade level.

Survival Ratios - System-wide (based on Residence)

| from | to   | Birth to K | K to 1 | Birth to 1 | 1 to 2 | 2 to 3 | 3 to 4 | 4 to 5  | 5 to 6  | 6 to 7  | 7 to 8 | 8 to 9  | 9 to 10 | 10 to 11 | 11 to 12 |
|------|------|------------|--------|------------|--------|--------|--------|---------|---------|---------|--------|---------|---------|----------|----------|
| 2013 | 2014 | 80.69%     | 98.08% | 77.03%     | 98.11% | 97.39% | 96.62% | 100.08% | 100.02% | 100.36% | 99.72% | 147.12% | 70.40%  | 89.61%   | 90.20%   |
| 2014 | 2015 | 79.94%     | 97.08% | 78.34%     | 96.49% | 97.07% | 97.49% | 99.17%  | 97.37%  | 99.01%  | 99.13% | 141.16% | 66.82%  | 94.16%   | 94.54%   |
| 2015 | 2016 | 81.58%     | 97.54% | 77.97%     | 96.75% | 97.13% | 97.35% | 98.25%  | 95.92%  | 99.19%  | 99.20% | 147.93% | 70.93%  | 94.60%   | 89.96%   |
| 2016 | 2017 | 79.59%     | 95.30% | 77.75%     | 95.53% | 96.70% | 96.13% | 97.87%  | 94.09%  | 98.73%  | 97.90% | 132.85% | 71.54%  | 91.54%   | 93.85%   |

## Enrollment Projections

Enrollment projections were developed based on the residence of where students (DCPS and PCS) live within DCPS elementary boundaries. The enrollment projections were developed using the cohort survival methodology. A 3-year simple average of survival ratios was used. Live birth counts were used to project kindergarten enrollment; PK and Adult were kept flat at the current 2017-18 enrollment.

**Projected Enrollment - System-wide (based on Residence)**

| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22        | 2022-23        | 2023-24        | 2024-25        | 2025-26        | 2026-27        | 2027-28        |
|--------------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PK3                | 5,686         | 5,686         | 5,686         | 5,686          | 5,686          | 5,686          | 5,686          | 5,686          | 5,686          | 5,686          |
| PK4                | 7,041         | 7,041         | 7,041         | 7,041          | 7,041          | 7,041          | 7,041          | 7,041          | 7,041          | 7,041          |
| K                  | 7,530         | 7,736         | 7,824         | 8,095          | 7,885          | 7,885          | 7,885          | 7,885          | 7,885          | 7,885          |
| 1                  | 7,263         | 7,337         | 7,519         | 7,616          | 7,879          | 7,674          | 7,674          | 7,674          | 7,674          | 7,674          |
| 2                  | 6,998         | 7,027         | 7,098         | 7,284          | 7,374          | 7,638          | 7,432          | 7,432          | 7,432          | 7,432          |
| 3                  | 6,663         | 6,842         | 6,879         | 6,952          | 7,124          | 7,220          | 7,484          | 7,276          | 7,276          | 7,276          |
| 4                  | 6,440         | 6,493         | 6,677         | 6,715          | 6,799          | 6,966          | 7,054          | 7,317          | 7,116          | 7,116          |
| 5                  | 6,285         | 6,374         | 6,443         | 6,625          | 6,659          | 6,750          | 6,918          | 7,010          | 7,281          | 7,074          |
| 6                  | 5,929         | 6,053         | 6,120         | 6,186          | 6,394          | 6,407          | 6,508          | 6,672          | 6,768          | 7,039          |
| 7                  | 5,244         | 5,893         | 6,022         | 6,090          | 6,157          | 6,372          | 6,381          | 6,483          | 6,650          | 6,741          |
| 8                  | 4,944         | 5,219         | 5,859         | 5,988          | 6,049          | 6,119          | 6,324          | 6,339          | 6,442          | 6,598          |
| 9                  | 6,497         | 6,989         | 7,359         | 8,290          | 8,454          | 8,541          | 8,616          | 8,912          | 8,915          | 9,076          |
| 10                 | 4,266         | 4,569         | 4,929         | 5,193          | 5,855          | 5,978          | 6,044          | 6,105          | 6,327          | 6,336          |
| 11                 | 4,412         | 4,017         | 4,302         | 4,638          | 4,890          | 5,517          | 5,621          | 5,704          | 5,756          | 5,969          |
| 12                 | 3,944         | 4,124         | 3,752         | 4,018          | 4,335          | 4,576          | 5,158          | 5,258          | 5,335          | 5,385          |
| Adult              | 4,951         | 4,951         | 4,951         | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          |
| <b>Grand Total</b> | <b>94,093</b> | <b>96,351</b> | <b>98,461</b> | <b>101,368</b> | <b>103,532</b> | <b>105,321</b> | <b>106,777</b> | <b>107,745</b> | <b>108,535</b> | <b>109,279</b> |

Source: Cooperative Strategies

**Projected Enrollment - System-wide (based on Residence)**

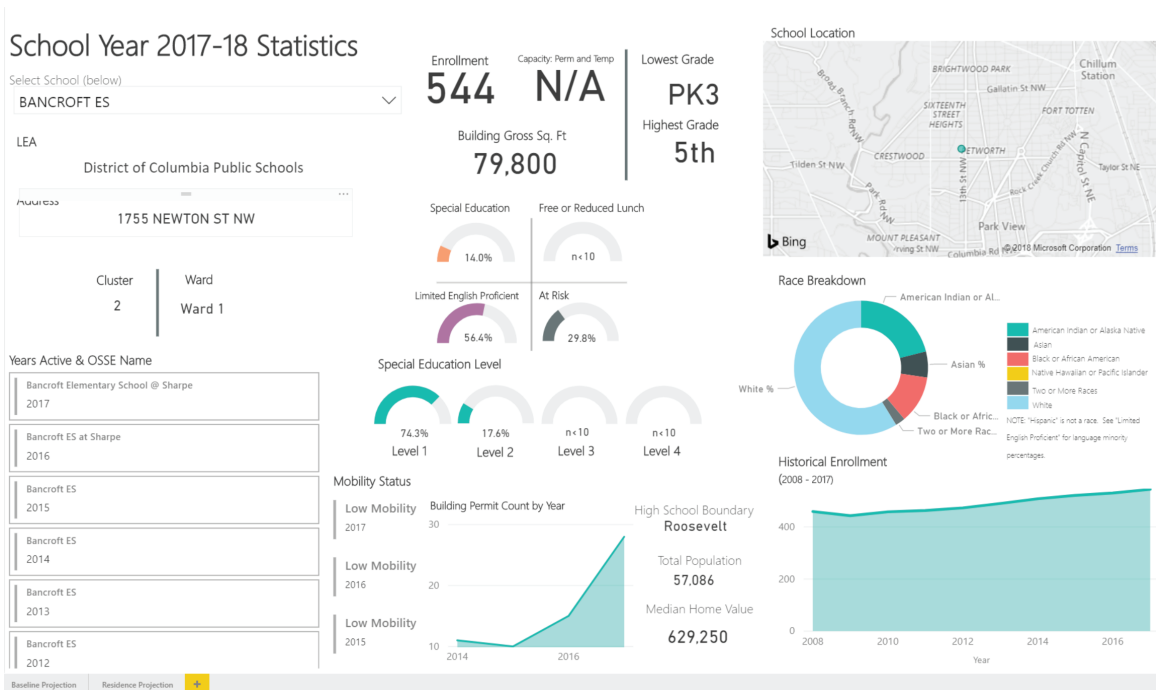
| Grade              | 2018-19       | 2019-20       | 2020-21       | 2021-22        | 2022-23        | 2023-24        | 2024-25        | 2025-26        | 2026-27        | 2027-28        |
|--------------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PK                 | 12,727        | 12,727        | 12,727        | 12,727         | 12,727         | 12,727         | 12,727         | 12,727         | 12,727         | 12,727         |
| K - 5              | 41,179        | 41,809        | 42,440        | 43,287         | 43,720         | 44,133         | 44,447         | 44,594         | 44,664         | 44,457         |
| 6 - 8              | 16,117        | 17,165        | 18,001        | 18,264         | 18,600         | 18,898         | 19,213         | 19,494         | 19,860         | 20,378         |
| 9 - 12             | 19,119        | 19,699        | 20,342        | 22,139         | 23,534         | 24,612         | 25,439         | 25,979         | 26,333         | 26,766         |
| Other              | 4,951         | 4,951         | 4,951         | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          | 4,951          |
| <b>K - 12</b>      | <b>76,415</b> | <b>78,673</b> | <b>80,783</b> | <b>83,690</b>  | <b>85,854</b>  | <b>87,643</b>  | <b>89,099</b>  | <b>90,067</b>  | <b>90,857</b>  | <b>91,601</b>  |
| <b>Grand Total</b> | <b>94,093</b> | <b>96,351</b> | <b>98,461</b> | <b>101,368</b> | <b>103,532</b> | <b>105,321</b> | <b>106,777</b> | <b>107,745</b> | <b>108,535</b> | <b>109,279</b> |

Source: Cooperative Strategies

The darker shades of blue represent smaller cohorts while the darker shades of red represent larger cohorts in comparison to the historical, and all of the projected district-wide enrollment.

## Interactive Dashboard

All information used in this process has been placed in an interactive dashboard, which is available at [dcauditor.org](http://dcauditor.org). Due to FERPA privacy requirements, any subgroup information that is representative of less than 10 students or encompasses all students may have been suppressed.



School-level data available on the dashboard includes:

### Background Data Sheet

- LEA
- Address
- School location map (includes program locations over the past 10 years)
- Cluster
- Ward
- Years open
- Total enrollment (2017-18)
- Historical enrollment (2008-2017)
- Capacity (permanent and temporary)
- Building square footage
- Racial makeup
- Special education percentage\*
  - Levels 1-4\*
- Free or reduced lunch percentage\*
- Limited English proficiency (LEP) percentage\*
- At risk percentage\*
- Mobility status
  - 2015-2017



- High school boundary
  - Building permit counts by year
  - Total population (2017)
  - Median home value (2017)

#### **Baseline Projection Sheet**

- Feeder pattern information
- Birth data (2009-2017)
- Historical enrollment (2008-2017)
- Survival ratios
- Baseline projected enrollment (2018-19 – 2027-28)

#### **Residence Projection Sheet**

- Historical and projected enrollment (2013 -14 – 2027-28)
- Births by boundary (2003-2016)
- Survival ratios

\*Denotes data that is subject to suppression due to FERPA requirements.

---

<sup>1</sup> The following schools are not included in the historical enrollment analyzed in this study but are included in the total OSSE Audited Enrollment Report:

- Non-Public
- General Education Residential Students
- Inspiring Youth Program (Incarcerated)
- Maya Angelou Academy at New Beginnings
- Headstart Phase 2
- Headstart Spanish Development

## Conclusion

Predicting future public-school enrollment, particularly in a dynamic school choice environment like the District of Columbia, is challenging. Potential changes in the regional economy, school openings and closings, and changing perceptions of school quality all interact in ways that require ongoing collection and analysis of data by people with local knowledge and with technical skills. Even with sound processes for capturing local knowledge and using technical support, there is no crystal ball for projecting enrollment.

The Study Team approached the research to focus on improving the accuracy of enrollment projections in the District of Columbia. In each study effort, the question of impact on accuracy was raised. In Section 1: Dynamic City and Schools, the question was “what factors appeared to affect the school supply and parental demand and what information is needed to make accurate projections?” In Section 2 and 3: Best Practices and Practices in Comparable Cities the question was, “can we find processes or methods from other cities and states that will improve the accuracy of DC’s enrollment projections?” In Section 4: Process and Methods, the questions were “what processes and methods are used by the agencies?” and “do they lead to accurate projections?” In Section 5: Testing and Developing Methods, we compared the projections done by DCPS and PCS to actual enrollments to understand what might be required to improve the methods; and we tested a standard projection methodology in a blind study to determine whether it was possible to achieve accurate projections using established industry planning standard methods, and finally, we tested a hypothesis that high levels of student mobility would strongly correlate to high levels of projection error.

The primary concern through the study was how to improve projections by school since the impact of errors at the school level can significantly affect resource equity for local school budgets. Errors in school level projections can affect whether a neighborhood will have access to adequate capacity in a school being planned and designed. Errors in school level projections can affect whether a charter enrollment cap is appropriate, or whether a new charter is authorized. It is clear from the study that getting accurate projections by school by grade is extremely difficult.

While the data and information collection and compilation was onerous, the Team found much good process and methodology used by the District. If the District adopts the proposed recommendations, there would be a much clearer path to short and long-term enrollment projections and increased accuracy at the District by grade level. By using a well-managed set of at least ten years of longitudinal student and school-level data and applying a cohort survival ratio to births and grade to grade change, the District should be able to reliably project its next year budget requirements by grade and sub-group and support long-term enrollment projections and planning.

However, there are intrinsic challenges to accurate projections in mobile populations that are small, as so many D.C. public schools are. Because of the inherent challenges to this, the study may raise some other questions.

We hope this study will open up dialogue in the city on school planning and budgeting. Officials and citizens alike can use the findings and questions raised by this study to explore improvements to public education planning and budgeting processes, to the benefit of the public schools for the families and communities in the District of Columbia, not just for the moment, but for generations to come.

## Acknowledgements

On behalf of Cooperative Strategies in partnership with the 21st Century School Fund and the Urban Institute, we would like to extend our appreciation to the Office of the D.C. Auditor for the opportunity to provide this Study of Enrollment in D.C. Public Schools Including Current Methodology and Future Projections. In addition, we would like to thank the agencies that provided the data analyzed in this study.

They include:

- Association of Independent Schools of Greater Washington
- D.C. Health, Center for Policy Planning & Evaluation
- D.C. Office of Planning (OP)
- D.C. Public Charter School Board (PCSB)
- Department of General Services (DGS)
- District of Columbia Public Schools (DCPS)
- My School D.C.
- Office of the Deputy Mayor of Education (DME)
- Office of the Chief Financial Officer (OCFO)
- Office of the Chief Technology Officer (OCTO)
- Office of the State Superintendent of Education (OSSE)
- Public Charter Schools (PCS)



**Cooperative Strategies**  
**3325 Hilliard Rome Rd., Hilliard OH, 43026**  
[www.coopstrategies.com](http://www.coopstrategies.com)

Tracy Richter, President, Partner  
Scott Leopold, Partner  
David Sturtz, Partner  
Ann Hoffsis, Senior Director  
Alex Boyer, Associate Director



**Thurgood Marshall Center**  
**1816 12th Street NW Washington, DC 20009**  
[www.21csf.org](http://www.21csf.org)

Mary Filardo, Executive Director  
Nancy Huvendick, DC Program Director  
Will Perkins, Research and Policy Associate



**Urban Institute**  
**2100 M Street NW, Washington, DC 20037**  
<https://www.urban.org>

Steven Martin, Senior Research Associate  
Megan Gallagher, Senior Research Associate  
Yipeng Su, Research Analyst  
Constance Lindsay, Research Associate  
Peter Tatian, Senior Fellow and Research Director for Urban-Greater DC  
Graham MacDonald, Chief Data Scientist

## Agency Comments

GOVERNMENT OF THE DISTRICT OF COLUMBIA  
Executive Office of Mayor Muriel Bowser



Office of the Deputy Mayor for Education

September 14, 2018

Kathleen Patterson  
District of Columbia Auditor  
717 14th Street NW, Suite 900  
Washington, DC 20005

Dear Ms. Patterson:

The Deputy Mayor for Education (DME) and District education agencies appreciate the opportunity to review and respond to your comprehensive and informative report, *Study of Enrollment in D.C. Public Schools*, researched and written by Cooperative Strategies, the Urban Institute, and the 21<sup>st</sup> Century School Fund.

As the authors' found, the next year enrollment projection process is complex and challenging due to Washington, DC's high choice school system and our growing population. Even recognizing this, total general education enrollment projections of District of Columbia Public Schools (DCPS) and the public charter local education agencies (LEAs), under DME's management, have been quite accurate and we are already implementing many of the gold standard approaches recommended.

The District's population started growing after 2000 and is now over 700,000 residents. Our child population has also increased by approximately 23,600 children between 2010 and 2017. Families have more confidence in our schools, as evidenced by the growing public school enrollment and the growing share of all Washington, DC students choosing to enroll in the public school system instead of private schools.

Washington, DC's educational system is also dynamic, as the report accurately noted. All families – regardless of economic status – deserve options, which include DCPS schools of right; DCPS out of boundary, selective, and citywide schools; and public charter schools. Our enrollment policies support school choice as opposed to assigning students to just one school option based on geography. DCPS and the DC Public Charter School Board have opened and closed schools over the last decade, and public charter school locations have changed depending on facility availability and replication and expansion of programs. The District has made historic investments in DCPS school modernizations over the last 10 years. We have also increased the public charter school facility allotment recently and committed to doing so for three additional fiscal years.



DME is committed to ensuring that the DCPS and public charter next-year enrollment projections are as accurate as possible so that schools have the funds they need and the city has the appropriate amount of money budgeted. The projections are critical to ensure that LEAs receive sufficient funding to operate their schools, in both the DCPS and charter school sectors. Accurate budgeting also ensures that the city does not have to face a budget shortfall: if the projections are too low, the District must find contingency funds after the budget has already been approved and committed.

Currently, DME manages the enrollment projection process and submits the final Uniform per Student Funding Formula (UPSFF) grade and special need enrollment projections to the Office of Budget and Performance to be considered by the Mayor and included in her budget. The DCPS sector-wide UPSFF enrollment projections take into account mid-year enrollment, since DCPS is the system of right in the District of Columbia and they tend to gain net two percent in enrollment during the course of the school year. DCPS's total general enrollment projections have been between 97% and 99% accurate compared to DCPS's highest enrollment for FY14 through FY17.

We found a number of the study's findings informative. First, it was helpful to learn about other enrollment project practices from comparable school districts and states. DCPS has been implementing what is considered the gold standard for the past 10 years, the cohort survival method and adjustment of projections based on expert on-the-ground knowledge through a centralized portal. Second, the authors' analysis of the accuracy of the DCPS and public charter school projections was also informative, as they showed that the accuracy of DCPS enrollment projections has improved over time. The study provided information about how close the projections were and in which direction they were off – some wards' projections were quite accurate (particularly Ward 3) while others wards (particularly Wards 5, 7, and 8) were less accurate than the average. We found it very interesting that student mobility contributes to inaccuracies when just the cohort survival method (without the expert adjustments that are implemented by DCPS and the public charter LEAs) is compared to the audited enrollments.

We had hoped that the authors would have analyzed how accurate the DCPS district-wide grade-band projections (e.g., early childhood, elementary, middle, and high school grades) were compared to the October audited enrollment instead of just at the school level. DCPS adjusts funding and resources to individual schools if the schools are identified as being under projected. DCPS will continue to analyze how close its grade band projections are to actual enrollment.

The authors identified the need to do long-term five or 10 year enrollment projections at the individual school level for facility planning purposes, separate from enrollment projections as a next year budgeting exercise. DME agrees and recognizes the importance of long-term projections; five and 10 year school-level enrollment projections were included in the 2018 Master Facilities Plan scope of work commissioned in February 2018. These longer-term enrollment projections are critical to inform more immediate modernization efforts as well future capital plans. The findings from this study, in addition to the analysis provided in the forthcoming 2018 Master Facilities Plan, will help inform how we address five and 10 enrollment projections in the future.

The authors recommend that the administration compile longitudinal information, at the school, facility, and neighborhood levels, to help assist with both the one-year enrollment projections for budgeting and longer-term facility enrollment projection processes. The DC Cross Sector Collaboration Task Force, commissioned by Mayor Bowser and co-chaired by the Deputy Mayor for Education, came to the same conclusion. The forthcoming report from this Task Force will recommend



that such data and information be compiled by DME to help support the decisions made around opening and siting of schools and programs. This effort will also benefit the enrollment projection (short and long term) process as well. There is substantial overlap in the specific metrics recommended by the study authors and the Task Force, and the DME will consider incorporating the additional data metrics the authors recommended.

While the majority of the report was informative, there are sections that we believe are inaccurate. The authors did not clarify that the DCPS projections process involves two internal steps resulting in the overall DCPS LEA-level projections. The report fails to include how the DCPS Office of Strategic School Planning and Enrollment provides the DCPS Office of the Chief Business Officer the school-level projections. The Office of the Chief Business Officer then develops DCPS's LEA UPSFF projections, which include the additional 2% for mid-year mobility. DME itself does not add the 2% to DCPS' enrollment projections. Additionally, the Office of the Chief Business Officer provides the LEA-level DCPS UPSFF enrollment projections to DME, not directly to the Office of the Chief Financial Officer, as stated in the report.

Further, the report did not accurately or comprehensively describe the factors that the DCPS Office of Strategic School Planning and Enrollment uses when developing the school-level projections. The office does not take facility capacities into account for kindergarten through 12th grade projections; however, it does flag for DCPS internal review when projections exceed facility capacities. In the entry grade section of the report, the DCPS team also relies on cohort survival for its estimations for kindergarten and education campuses (pre-K through 8th grade). In addition, the DCPS Office of Strategic School Planning and Enrollment relies on district-wide grade band totals to monitor trends at the school level and district level, not just during the principal petition process.

Finally, we want to clarify that while the report stated that public charter schools do not use estimates of their conversion rate to set their number of seats in the lottery, we know that some charters do set lottery seats and enrollment targets based on past conversion or capture from the lottery.

We also must object to some recommendations. The authors recommend that the Office of the State Superintendent for Education (OSSE) take responsibility of the processes that LEAs are already performing well. This recommendation fundamentally intrudes on the Mayor's prerogative to assign tasks to different agencies and offices – such as the DME or OSSE. Recommending that OSSE own responsibility to run individual school-level cohort analysis will not necessarily increase the accuracy of an admittedly difficult task. Legislating how LEAs and the District as a whole conduct their enrollment methodologies in such a dynamic and changing environment could potentially introduce more error. More importantly, shifting the responsibility of working with the LEAs away from DME to OSSE misses the critical role that DME plays in the development of the Mayor's budget. Additionally, while we agree that conducting long-term enrollment projections are critical for facility planning, we do not believe it needs to be conducted simultaneously during the budget development. The budgetary enrollment projection process happens in a relatively short time period. DME believes the long-term projections should be coordinated with the Master Facilities Plan process, including the information provided annually.



In sum, we appreciate this substantial piece of work that will inform not only our projections, but other aspects of research and planning, within the government and by others. We also look forward to working with our schools, school communities, and agencies to continue to improve upon our processes and help plan for the future.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ahnna Smith', with a stylized flourish at the end.

Ahnna Smith, Interim Deputy Mayor for Education

# Appendices

## Appendix A - Section 1: Dynamic City and Schools

### First Choice Schools 2014-2016

#### Top 10 Schools Listed as First Choice Schools in My School DC Lottery

Top 10 Schools listed as a first choice in the 2014-2015 lottery

| School Name                          | Count of First Choice |
|--------------------------------------|-----------------------|
| School Without Walls High School     | 623                   |
| Washington Latin PCS – Middle School | 537                   |
| Mundo Verde Bilingual PCS            | 485                   |
| Two Rivers PCS                       | 485                   |
| Oyster-Adams Bilingual School        | 444                   |
| Brent Elementary School              | 396                   |
| Duke Ellington School of the Arts    | 382                   |
| KIPP DC – LEAP Academy PCS           | 357                   |
| McKinley Technology High School      | 348                   |
| Capital City PCS – Lower School      | 329                   |

Source: Urban Institute tabulation of My School DC Lottery Data

Top 10 Schools listed as a first choice in the 2015-2016 lottery

| School Name                          | Count of First Choice |
|--------------------------------------|-----------------------|
| School Without Walls High School     | 594                   |
| Washington Latin PCS – Middle School | 486                   |
| Mundo Verde Bilingual PCS            | 459                   |
| Two Rivers PCS                       | 452                   |
| Washington Yu Ying PCS               | 433                   |
| Oyster-Adams Bilingual School        | 408                   |
| Duke Ellington School of the Arts    | 392                   |
| KIPP DC – LEAP Academy PCS           | 346                   |
| Brent Elementary School              | 345                   |
| KIPP DC – College Preparatory PCS    | 329                   |

Source: Urban Institute tabulation of My School DC Lottery Data

Top 10 schools listed as a first choice in the 2016-2017 lottery

| School Name                            | Count of First Choice |
|----------------------------------------|-----------------------|
| Washington Latin PCS – Middle School   | 602                   |
| School Without Walls High School       | 570                   |
| Mundo Verde Bilingual PCS              | 469                   |
| Rocketship DC PCS                      | 419                   |
| School-Within-School                   | 404                   |
| Creative Minds International PCS       | 397                   |
| Washington Yu Ying PCS                 | 386                   |
| Two Rivers PCS at 4th Street           | 362                   |
| Brent Elementary School                | 353                   |
| Oyster-Adams Bilingual School (Oyster) | 350                   |

Source: Urban Institute tabulation of My School DC Lottery Data

Top 10 Schools listed as a first choice in 2016-2017 lottery, by grade level

| School Name                            | Sector | Count of     |     |     |     |    |    |    |    |     |     |    |    |     |    |    |    |
|----------------------------------------|--------|--------------|-----|-----|-----|----|----|----|----|-----|-----|----|----|-----|----|----|----|
|                                        |        | First Choice | PK3 | PK4 | K   | 1  | 2  | 3  | 4  | 5   | 6   | 7  | 8  | 9   | 10 | 11 | 12 |
| Washington Latin PCS – Middle School   | PCS    | 602          | -   | -   | -   | -  | -  | -  | -  | 295 | 152 | 93 | 62 | -   | -  | -  | -  |
| School Without Walls High School       | DCPS   | 570          | -   | -   | -   | -  | -  | -  | -  | -   | -   | -  | -  | 456 | 69 | 38 | 7  |
| Mundo Verde Bilingual PCS              | PCS    | 469          | 198 | 98  | 73  | 35 | 30 | 17 | 13 | 5   | -   | -  | -  | -   | -  | -  | -  |
| Rocketship DC PCS                      | PCS    | 419          | 94  | 66  | 113 | 83 | 63 | -  | -  | -   | -   | -  | -  | -   | -  | -  | -  |
| School-Within-School                   | DCPS   | 404          | 156 | 88  | 59  | 34 | 26 | 18 | 16 | 7   | -   | -  | -  | -   | -  | -  | -  |
| Creative Minds International PCS       | PCS    | 397          | 161 | 65  | 53  | 43 | 28 | 18 | 13 | 8   | 8   | -  | -  | -   | -  | -  | -  |
| Washington Yu Ying PCS                 | PCS    | 386          | 163 | 85  | 70  | 42 | 26 | -  | -  | -   | -   | -  | -  | -   | -  | -  | -  |
| Two Rivers PCS at 4th Street           | PCS    | 362          | 81  | 33  | 35  | 27 | 21 | 34 | 39 | 33  | 32  | 19 | 8  | -   | -  | -  | -  |
| Brent Elementary School                | DCPS   | 353          | 94  | 84  | 43  | 40 | 30 | 26 | 18 | 18  | -   | -  | -  | -   | -  | -  | -  |
| Oyster-Adams Bilingual School (Oyster) | DCPS   | 350          | -   | 150 | 74  | 53 | 43 | 30 | -  | -   | -   | -  | -  | -   | -  | -  | -  |

Top 10 schools listed as a first  
choice for PK3 in 2016-2017

| <b>School Name</b>               | <b>Sector</b> | <b>Count of First<br/>Choice</b> |
|----------------------------------|---------------|----------------------------------|
| Mundo Verde Bilingual PCS        | PCS           | 198                              |
| KIPP DC – LEAP Academy PCS       | PCS           | 168                              |
| Washington Yu Ying PCS           | PCS           | 163                              |
| Creative Minds International PCS | PCS           | 161                              |
| Ross Elementary School           | DCPS          | 158                              |
| School-Within-School             | DCPS          | 156                              |
| KIPP DC – Discover Academy PCS   | PCS           | 129                              |
| Peabody Elementary School        | DCPS          | 114                              |
| Hyde-Addison Elementary School   | DCPS          | 105                              |
| DC Bilingual PCS                 | PCS           | 101                              |

Top 10 schools listed as a first choice for 6<sup>th</sup> Grade in 2016-2017

| School Name                                                          | Sector | Count of First Choice |
|----------------------------------------------------------------------|--------|-----------------------|
| Washington Latin PCS – Middle School                                 | PCS    | 152                   |
| Deal Middle School                                                   | DCPS   | 121                   |
| District of Columbia International School (Spanish Language Program) | PCS    | 102                   |
| BASIS DC PCS                                                         | PCS    | 71                    |
| MacFarland Middle School Dual Language Program                       | DCPS   | 55                    |
| KIPP DC – KEY Academy PCS                                            | PCS    | 53                    |
| Howard University Middle School of Mathematics and Science PCS       | PCS    | 52                    |
| Stuart-Hobson Middle School                                          | DCPS   | 52                    |
| KIPP DC – AIM Academy PCS                                            | PCS    | 45                    |
| District of Columbia International School (Chinese Language Program) | PCS    | 44                    |

Top 10 schools listed as a first choice for 9<sup>th</sup> Grade in 2016-2017

| School Name                                   | Sector | Count of First Choice |
|-----------------------------------------------|--------|-----------------------|
| School Without Walls High School              | DCPS   | 456                   |
| KIPP DC – College Preparatory PCS             | PCS    | 271                   |
| Duke Ellington School of the Arts             | DCPS   | 261                   |
| Benjamin Banneker High School                 | DCPS   | 226                   |
| McKinley Technology High School               | DCPS   | 201                   |
| Wilson High School                            | DCPS   | 140                   |
| Washington Leadership Academy PCS             | PCS    | 137                   |
| Columbia Heights Education Campus 9-12 (CHEC) | DCPS   | 135                   |
| Washington Latin PCS – Upper School           | PCS    | 100                   |
| Empowering Males High School                  | DCPS   | 84                    |

## Master Longitudinal Data Set

See attached excel sheet “MasterLongitudinalDataSet.xlsx” for more information.

## 65 Independent and Religious Private Schools

| DC PRIVATE SCHOOL                               | School Type                 | AISGW; DCOSP;<br>AIMS | Address                        | Zip   | Ward |
|-------------------------------------------------|-----------------------------|-----------------------|--------------------------------|-------|------|
| Academia De La Recta Porta Christian Day School | Independent Private Schools | DCOSP                 | 7614 Georgia Avenue NW         | 20012 | 4    |
| Academy for Ideal Education                     | Independent Private Schools | DCOSP                 | 4501 Dix Street NE             | 20019 | 5    |
| Aidan Montessori School                         | Independent Private Schools | AISGW/DCOSP           | 2700 27th Street, NW           | 20008 | 3    |
| Annunciation School                             | Archdiocese of Washington   | AISGW/DCOSP           | 3810 Massachusetts Ave., NW    | 20016 | 3    |
| Archbishop Carroll HS                           | Archdiocese of Washington   | AISGW/DCOSP           | 4300 Harewood Road NE          | 20017 | 5    |
| Beauvoir, The National Cathedral Elem. School   | Independent Private Schools | AISGW/DCOSP           | 500 Woodley Road, NW           | 20016 | 3    |
| Blessed Sacrament                               | Archdiocese of Washington   | AISGW/DCOSP           | 5841 Chevy Chase Parkway       | 20015 | 3    |
| Blythe Templeton Academy                        | Independent Private Schools | DCOSP                 | 921 Pennsylvania Avenue, SE    | 20003 | 6    |
| Calvary Christian Academy                       | Independent Private Schools | DCOSP                 | 806 Rhode Island Avenue NE     | 20018 | 5    |
| Capitol Hill Day School                         | Independent Private Schools | AISGW                 | 210 South Carolina Avenue, SE  | 20003 | 6    |
| Christian Family Montessori School              | Independent Private Schools | DCOSP                 | 201 Allison Street NW, Suite B | 20011 | 4    |
| Cornerstone School                              | Independent Private Schools | AIMS/DCOSP            | 3742 Ely Place SE              | 20019 | 7    |
| Dupont Park Adventist School (Alabama Ave.)     | Independent Private Schools | DCOSP                 | 3942 Alabama Avenue SE         | 20020 | 7    |
| Dupont Park Adventist School (Mass. Ave.)       | Independent Private Schools | DCOSP                 | 3985 Massachusetts Avenue SE   | 20020 | 7    |
| Edmund Burke School                             | Independent Private Schools | AISGW/DCOSP/AIM       | 4101 Connecticut Avenue, NW    | 20008 | 3    |
| Emerson Preparatory School                      | Independent Private Schools | AIMS/DCOSP            | 1816 12th St, NW               | 20009 | 4    |
| Georgetown Day School (High School)             | Independent Private Schools | AISGW/DCOSP           | 4200 Davenport Street NW       | 20016 | 3    |
| Georgetown Day School (Lower/Mid. School)       | Independent Private Schools | AISGW/DCOSP           | 4530 MacArthur Blvd., NW       | 20007 | 3    |
| Georgetown Visitation Preparatory School        | Independent Private Schools | AISGW/DCOSP           | 1524 35th Street, NW           | 20007 | 3    |

| DC PRIVATE SCHOOL                                                                                                                 | School Type                 | AISGW; DCOSP;<br>AIMS | Address                           | Zip   | Ward |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------|-----------------------------------|-------|------|
| Gonzaga College High School                                                                                                       | Independent Private Schools | AISGW/DCOSP           | 19 Eye Street, NW                 | 20001 | 6    |
| Holy Trinity School                                                                                                               | Archdiocese of Washington   | AISGW/DCOSP           | 1325 36th Street, NW              | 20007 | 2    |
| Howard University Early Learning Program                                                                                          | Independent Private Schools | DCOSP                 | 531 College Street NW             | 20059 | 1    |
| Jewish Primary Day School of the Nation's Capital (North Campus); Also Milton Gottesman Jewish Day School of the Nation's Capital | Independent Private Schools | AISGW/DCOSP/AIM       | 6045 16th Street NW               | 20011 | 4    |
| Jewish Primary Day School of the Nation's Capital (South Campus) Also Milton Gottesman Jewish Day School of the Nation's Capital  | Independent Private Schools | AISGW/DCOSP/AIM       | 4715 16th Street NW               | 20011 | 4    |
| Kuumba Learning Center                                                                                                            | Independent Private Schools | DCOSP                 | 3328-3332 MLK Jr. Avenue SE       | 20032 | 8    |
| Little Flower Montessori School                                                                                                   | Independent Private Schools | DCOSP                 | 3029 16th Street NW               | 20009 | 1    |
| Little Folks School                                                                                                               | Independent Private Schools | AISGW                 | 3247 Q Street NW                  | 20007 | 2    |
| Lowell School                                                                                                                     | Independent Private Schools | AISGW/DCOSP/AIM       | 1640 Kalmia Road, NW              | 20012 | 4    |
| Maret School                                                                                                                      | Independent Private Schools | AISGW/AIM             | 3000 Cathedral Avenue, NW         | 20008 | 3    |
| Mysa School                                                                                                                       | Independent Private Schools | NA                    | 1801 35th St. NW (Filmore School) | 20007 | 2    |
| National Cathedral School                                                                                                         | Independent Private Schools | AISGW/DCOSP/AIM       | 3612 Woodley NW                   | 20016 | 3    |
| National Child Research Center                                                                                                    | Independent Private Schools | AISGW/AIM             | 3209 Highland Place, NW           | 20008 | 3    |
| National Presbyterian School                                                                                                      | Independent Private Schools | AISGW/DCOSP/AIM       | 4121 Nebraska Avenue, NW          | 20016 | 3    |
| Our Lady of Victory School                                                                                                        | Archdiocese of Washington   | DCOSP                 | 4755 Whitehaven Parkway           | 2007  | 3    |
| Parkmont School                                                                                                                   | Independent Private Schools | AISGW/DCOSP/AIM       | 4842 16th Street, NW              | 20011 | 4    |
| Preparatory School of DC                                                                                                          | Independent Private Schools | DCOSP                 | 4501 16th Street NW               | 20011 | 4    |
| Randall Hyland Private School                                                                                                     | Independent Private Schools | DCOSP                 | 4339 Bowen Road SE                | 20019 | 7    |
| Roots Activity Learning Center                                                                                                    | Independent Private Schools | DCOSP                 | 6222 North Capitol St., NW        | 20011 | 4    |
| Sacred Heart Bilingual School                                                                                                     | Archdiocese of Washington   | DCOSP                 | 1625 Park Road, NW                | 20010 | 1    |
| San Miguel School                                                                                                                 | Independent Catholic        | DCOSP                 | 7705 Georgia Avenue NW            | 20012 | 4    |



| DC PRIVATE SCHOOL                          | School Type                 | AISGW; DCOSP;<br>AIMS | Address                                                         | Zip   | Ward |
|--------------------------------------------|-----------------------------|-----------------------|-----------------------------------------------------------------|-------|------|
| Sheridan School                            | Independent Private Schools | AISGW/DCOSP/AIM       | 4400 36th Street, NW                                            | 20008 | 3    |
| Sidwell Friends School                     | Independent Private Schools | AISGW/DCOSP/AIM       | 3825 Wisconsin Avenue, NW                                       | 20016 | 3    |
| St. Albans School (Washington, DC)         | Independent Private Schools | AISGW/DCOSP/AIM       | 3101 Wisconsin Ave., NW                                         | 20016 | 3    |
| St. Anselm's Abbey School (Washington, DC) | Independent Private Schools | AISGW/DCOSP/AIM       | 4501 South Dakota Avenue, NE                                    | 20017 | 5    |
| St. Anthony Catholic School                | Archdiocese of Washington   | DCOSP                 | 3400 12th Street, NE                                            | 2017  | 5    |
| St. Augustine Catholic Academy             | Archdiocese of Washington   | DCOSP                 | 1421 V St., NW                                                  | 20009 | 5    |
| St. Columba's Nursery School               | Independent Private Schools | AISGW                 | 4201 Albemarle Street NW                                        | 20016 | 3    |
| St. Francis Xavier Catholic Academy        | Archdiocese of Washington   | DCOSP                 | 2700 O St., SE                                                  | 20020 | 7    |
| St. John's College High School             | Independent Private Schools | AISGW/DCOSP           | 2607 Military Road, NW                                          | 20015 | 4    |
| St. Patrick's Episcopal Day School         | Independent Private Schools | AISGW                 | 4700 Whitehaven Parkway, NW                                     | 20007 | 3    |
| St. Peter's School                         | Archdiocese of Washington   | DCOSP                 | 422 Third Street SE                                             | 20003 | 6    |
| St. Thomas More Academy                    | Archdiocese of Washington   | DCOSP                 | 4265 Fourth Street SE                                           | 20032 | 8    |
| The Bishop Walker School for Boys          | Independent Private Schools | AISGW/DCOSP           | 3640 Martin Luther King, Jr. Avenue SE; (Holy Communion Campus) | 20032 | 8    |
| The Bishop Walker School for Boys          | Independent Private Schools | AISGW/DCOSP           | 2683 Douglass Road SE; (Washington View Campus)                 | 20020 | 8    |
| The Bridges Academy                        | Independent Private Schools | DCOSP                 | 6119 Georgia Avenue NW                                          | 20011 | 4    |
| The Field School                           | Independent Private Schools | AISGW/DCOSP           | 2301 Foxhall Road, NW                                           | 20007 | 3    |
| The Kingsbury Day School                   | Independent Private Schools | AISGW/DCOSP/AIM       | 5000 14th Street, NW                                            | 20011 | 4    |
| The Lab School of Washington               | Independent Private Schools | AISGW/AIM             | 4759 Reservoir Road, NW                                         | 20007 | 3    |
| The Monroe School                          | Independent Private Schools | DCOSP                 | 601 50th Street NE                                              | 20019 | 5    |
| The River School                           | Independent Private Schools | AISGW/AIM             | 4880 MacArthur Boulevard, NW                                    | 20007 | 3    |
| Washington International School            | Independent Private Schools | AISGW                 | 3100 Macomb Street, NW                                          | 20008 | 3    |
| Washington Jesuit Academy                  | Independent Private Schools | AISGW/AIM             | 900 Varnum Street, NE                                           | 20017 | 5    |

| <b>DC PRIVATE SCHOOL</b>           | <b>School Type</b>          | <b>AISGW; DCOSP;<br/>AIMS</b> | <b>Address</b>                           | <b>Zip</b> | <b>Ward</b> |
|------------------------------------|-----------------------------|-------------------------------|------------------------------------------|------------|-------------|
| Washington School for Girls        | Archdiocese of Washington   | AISGW/DCOSP                   | 1901 Mississippi Avenue,<br>SE, THE ARC; | 20020      | 8           |
| Washington School for Girls        | Archdiocese of Washington   | AISGW/DCOSP                   | 1600 Morris Road, S.E<br>(VIEW Campus)   | 20020      | 8           |
| The Children's House of Washington | Independent Private Schools |                               | 3133 Dumbarton St., NW                   | 20007      | 2           |

## Appendix B - Processes & Methods in Comparable Cities

### Interview Questions for Comparable Districts

#### **District – Survey Questions**

1. Contact information:
  - a. School District Name
  - b. Your name
  - c. Title
  - d. Email
  - e. Phone
  
2. Does your school district develop enrollment projections (internally or with external organizations)?
  - a. Yes
  - b. No

(if yes, continue with survey)

3. Who develops the enrollment projections for your school district?
  - a. Consultants
  - b. Internal staff
  - c. Other (please specify)
  
4. How many years are enrollment projections developed for?
  - a. 1 year
  - b. 5 years
  - c. 10 years
  - d. Other (please specify)
  
5. What is the primary purpose of these enrollment projections?
  - a. Budgeting
  - b. Facility Planning

- c. Both equally
  - d. Other (please specify)
6. What is the level of detail the enrollment projections are developed to? (Please select all that apply.)
- a. District-wide
  - b. By grade
  - c. By school
  - d. By geographic region
  - e. Other (please specify)
7. Are enrollment projections made public or used internally only?
- a. Public
  - b. Internal
  - c. Other (please specify)
8. Are there state regulations that need to be followed in the development of enrollment projections?
- a. Yes
  - b. No
  - c. Other (please specify)
9. What factors do you believe impacts enrollment in your District? (Please select all that apply.)
- a. Charter schools (openings, closings, growth, etc.)
  - b. Capacity
  - c. Enrollment caps (on public, charter, private schools, etc.)
  - d. Lottery and/or magnet schools
  - e. Program placement and movement
  - f. Open enrollment (inter- and intra-district)
  - g. Choice
  - h. Transfers
  - i. Facility planning (opening and closing)
  - j. Redistricting/Boundary changes
  - k. Policy changes
  - l. New housing development

- m. Economic growth/decline
- n. Private/non-public schools (openings, closings, growth, etc.)
- o. Homeschool (growth, decline, etc.)
- p. Other (please specify)

**District – Interview Questions (face-to-face)**

1. District Contact information (of interviewee):

- a. School District Name
- b. Name
- c. Title
- d. Email
- e. Phone

(if yes, to question 2 on survey – Do you develop enrollment projections?)

2. What is the data used to develop the enrollment projections?

- a. Live births?
- b. Housing?
- c. How much historical enrollment? What kind of historical enrollment (official headcount, ADM, etc.)?

3. What is the methodology used to develop the enrollment projections?

- a. Cohort model?
- b. Housing Model?
- c. Feedback collected?

4. Why do you believe the factors (checked in q. 9 of survey) impact enrollment and how are they factored into the development of enrollment projections?

- a. Charter schools (openings, closings, growth, etc.)
- b. Capacity
- c. Enrollment caps (on public, charter, private schools, etc.)
- d. Lottery and/or magnet schools
- e. Program placement and movement
- f. Open enrollment (inter- and intra-district)
- g. Choice
- h. Transfers
- i. Facility planning (opening and closing)
- j. Redistricting/Boundary changes
- k. Policy changes
- l. New housing development

- m. Economic growth/decline
- n. Private/non-public schools (openings, closings, growth, etc.)
- o. Homeschool (growth, decline, etc.)
- p. Other (please specify)

If yes to question 8 on survey (Are there state regulations that need to be followed in the development of enrollment projections?)

- 5. What are the state regulations that need to be followed in the development of enrollment projections? (provide description and documentation)

Based on answer to question 5 on survey (What is the primary purpose of these enrollment projections?)

- 6. Elaborate on how the enrollment projections are used to budget and/or plan (or other).

(if no to question 2 on survey – Do you develop enrollment projections?)

- 7. How do you budget or plan? (Does the state provide enrollment projections to you? Please elaborate.)

**State Agency – Interview Questions (face-to-face)**

1. State Agency Contact information (of interviewee):
  - a. State Agency Name
  - b. Name
  - c. Title
  - d. Email
  - e. Phone
  
2. Are enrollment projections developed or utilized by the state?
  - a. Yes
    - i. Developed
    - ii. Utilized (provided by District)
  - b. No
  - c. Other

***If yes to #2: (developed by state):***

3. Are enrollment projections approved by school districts? Is there an appeals process? (If so, please describe processes.)
4. Who develops the enrollment projections for the state?
  - a. Consultants
  - b. Internal staff
  - c. Other (please specify)
5. How many years are enrollment projections developed for?
  - a. 1 year
  - b. 5 years
  - c. 10 years
  - d. Other (please specify)
6. What is the level of detail the enrollment projections are developed to? (Please select all that apply.)
  - a. District-wide
  - b. By grade
  - c. By school
  - d. By geographic region
  - e. Other (please specify)
7. What is the data used to develop the enrollment projections?
  - a. Live births?



- b. Housing?
  - c. How much historical enrollment? What kind of historical enrollment (official headcount, ADM, etc.)?
- 8. What is the methodology used to develop the enrollment projections?
  - a. Cohort model?
  - b. Housing Model?
  - c. Feedback collected?
- 9. Are any of the following factored into the development of enrollment projections? If so, how?
  - a. Charter schools (openings, closings, growth, etc.)
  - b. Capacity
  - c. Enrollment caps (on public, charter, private schools, etc.)
  - d. Lottery and/or magnet schools
  - e. Program placement and movement
  - f. Open enrollment (inter- and intra-district)
  - g. Choice
  - h. Transfers
  - i. Facility planning (opening and closing)
  - j. Redistricting/Boundary changes
  - k. Policy changes
  - l. New housing development
  - m. Economic growth/decline
  - n. Private/non-public schools (openings, closings, growth, etc.)
  - o. Homeschool (growth, decline, etc.)
  - p. Other (please specify)

***If yes to #2: (utilized - provided by District):***

- 10. Are there guidelines/regulations school districts must follow for development of enrollment projections submitted to the state? (i.e., methodology, data, documentation, etc.) (Provide description and get documentation, if available)
- 11. Does the state need to review/approve the enrollment projections submitted by school districts? (If so, please describe approval process.)
- 12. What is the primary purpose of enrollment projections at the state level?
  - a. Plan for state share of education operating budget
  - b. Plan for state share of capital outlay facility / capital funding approvals
  - c. Both equally
  - d. Other (please specify)

***If no to #2:***

1. How are school facilities planned/funded?
2. How are budgets established?



March 12, 2018

Tom Boasberg, Superintendent  
Denver Public Schools  
Emily Griffith Campus  
1860 Lincoln St., 12<sup>th</sup> Floor  
Denver, CO 80203

Dear Superintendent Boasberg:

The [Office of the D.C. Auditor](#) is undertaking a comprehensive study of demographics and enrollment trends for the District of Columbia Public Schools (DCPS). The study is being conducted by the team of [Cooperative Strategies](#), [The 21st Century Fund](#), and [Urban Institute](#).

The [study](#) is designed to develop a replicable methodology to perform enrollment projections in a high-choice environment such as exists in Washington D.C. and other urban centers around the country. **The Office of the D.C. Auditor requested that any study of DCPS's enrollment involve comparison to how like-Districts around the country project enrollment, and your district was determined to be one such district.** As you are well aware, there are many challenges in the large city and urban environments when attempting to project future enrollment: Charter school enrollments, open boundary policies, schools of choice, changes in housing patterns and student yields, and so on. It is my hope that this study will provide insights into not only enrollment patterns in DC, but have findings that apply to other urban centers nationwide.

**I write today to request either an in person or virtual meeting between Cooperative Strategies and your school system to learn more about how you project student enrollment and how such projections are used.** These interviews will be used to compare DCPS' current practices with like-districts around the country. The meeting would be preceded by a short survey of questions in preparation for the one-to-one meeting to conduct as efficient a meeting as possible.

The final report from the study for the Office of the D.C. Auditor will be made available to the public, and will acknowledge those who volunteered their time. Tracy Richter and Ann Hoffsis of Cooperative Strategies will contact you within a week to request a meeting (virtual or in-person). I include their contact information below. Please accept their invitation and my appreciation for your insights into this important issue. If you have any questions regarding this study, please contact me ([kathy.patterson@dc.gov](mailto:kathy.patterson@dc.gov)) or members of the study team.

Sincerely yours,

Kathleen Patterson  
District of Columbia Auditor

cc: David Suppes, Chief Operating Officer

---

717 14th Street, N.W., Suite 900, Washington, D.C. 20005 (202) 727-3600



March 29, 2018

Megan Richardson, Administrative Lead  
School Finance and Operations Division  
Colorado Department of Education  
201 E. Colfax Ave.  
Denver, CO 80203

Dear Ms. Richardson:

The [Office of the D.C. Auditor](#) is undertaking a comprehensive study of demographics and enrollment trends for the District of Columbia Public Schools (DCPS). The study is being conducted by the team of [Cooperative Strategies](#), [The 21st Century Fund](#), and [Urban Institute](#).

The [study](#) is designed to develop a replicable methodology to perform enrollment projections in a high-choice environment such as exists in Washington D.C. and other urban centers around the country. **The Office of the D.C. Auditor's study of DCPS's enrollment will involve comparison to how like-Districts around the country project enrollment, and the Denver Public Schools was determined to be one such district.** As you are well aware, there are many challenges in the large city and urban environments when attempting to project future enrollment: Charter school enrollments, open boundary policies, schools of choice, changes in housing patterns and student yields, and so on. It is my hope that this study will provide insights into not only enrollment patterns in DC, but have findings that apply to other urban centers nationwide.

**I write today to request either an in person or virtual meeting between Cooperative Strategies and your agency to learn more about how you project student enrollment and how such projections are used.** These interviews will be used to compare DCPS' current practices with like-districts around the country. The meeting would be preceded by a short survey of questions in preparation for the one-to-one meeting to conduct as efficient a meeting as possible.

The final report from the study for the Office of the D.C. Auditor will be made available to the public, and will acknowledge those who volunteered their time. Tracy Richter and Ann Hoffsis of Cooperative Strategies will contact you within a week to request a meeting (virtual or in-person). I include their contact information below. Please accept their invitation and my appreciation for your insights into this important issue. If you have any questions regarding this study, please contact me ([kathy.patterson@dc.gov](mailto:kathy.patterson@dc.gov)) or members of the study team.

Sincerely yours,

Kathleen Patterson  
District of Columbia Auditor

---

717 14th Street, N.W., Suite 900, Washington, D.C. 20005 (202) 727-3600

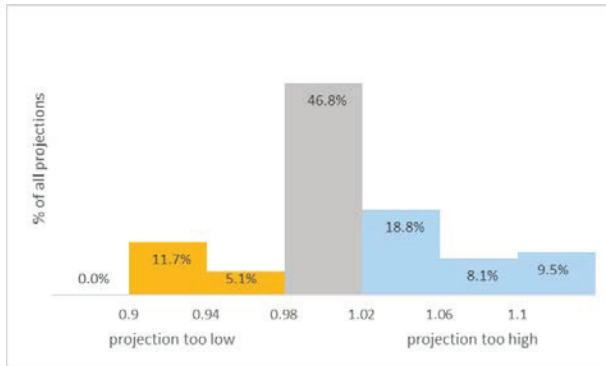
## Appendix C – Testing and Developing Methods for D.C.

### Projection to Enrollment Ratios by Ward for DCPS

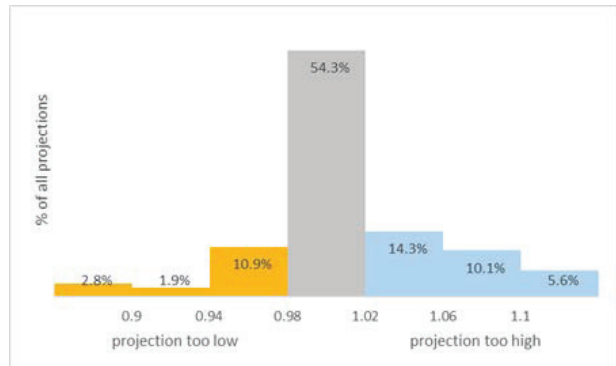
FIGURE 2A – 2H

#### Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18, By Ward

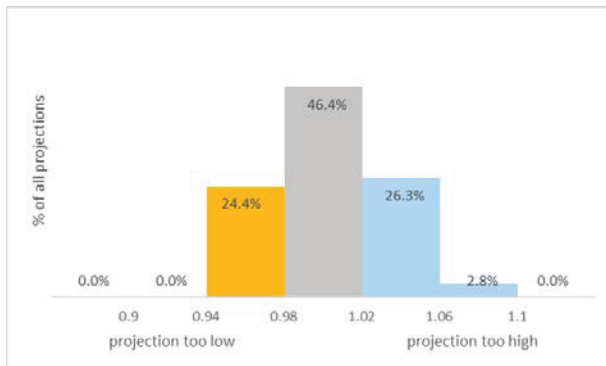
2A: Ward 1



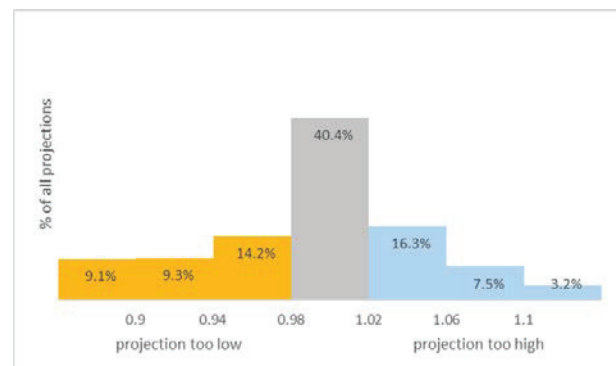
2B: Ward 2



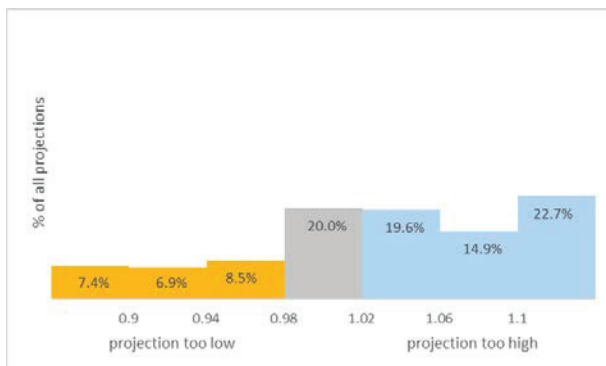
2C: Ward 3



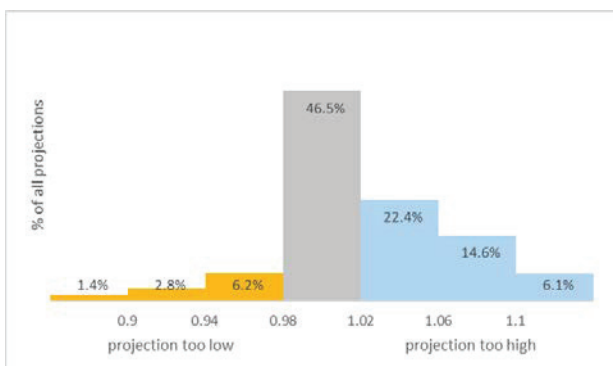
2D: Ward 4



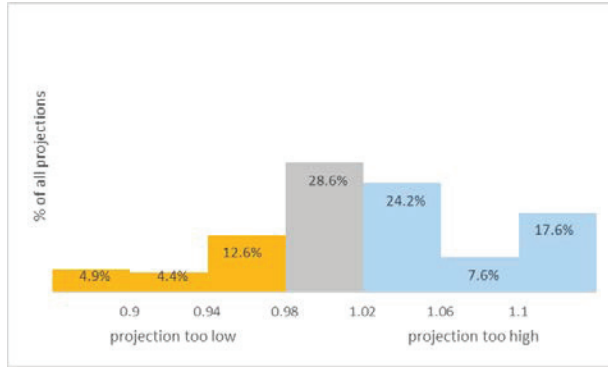
2E: Ward 5



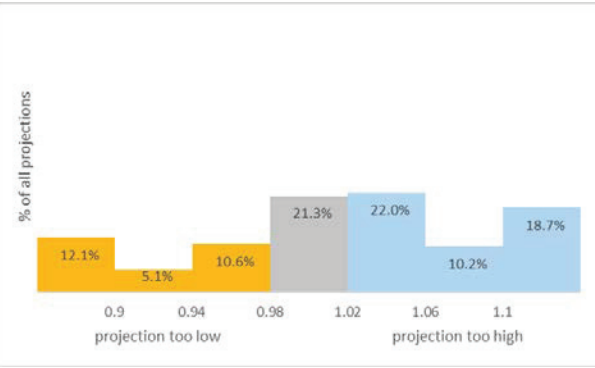
2F: Ward 6



2G: Ward 7



2H: Ward 8

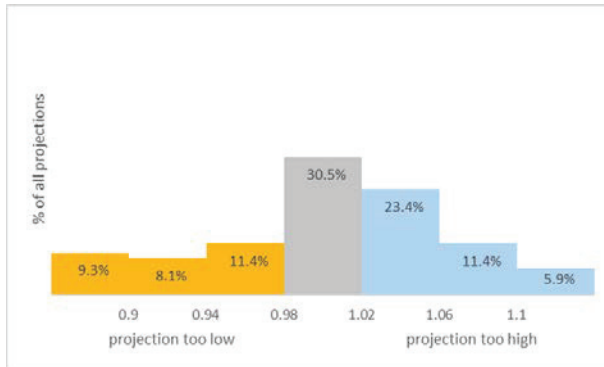


## Projection to Enrollment Ratios by Year for DCPS

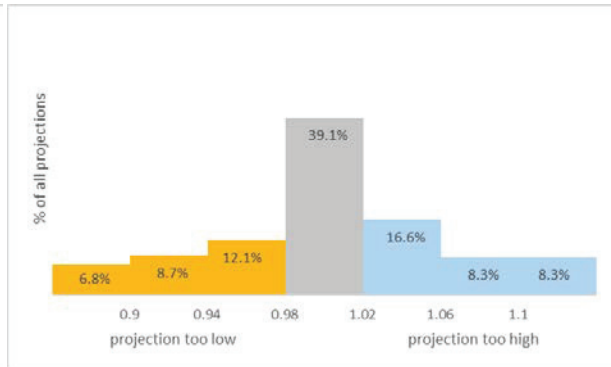
FIGURE 3A – 3E

### Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18, By Year

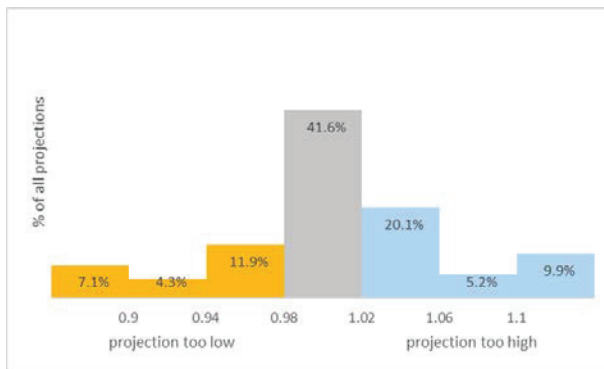
3A: SY 2013/14



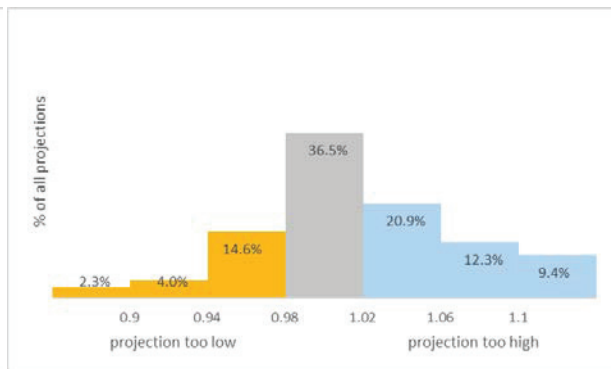
3B: SY 2014/15



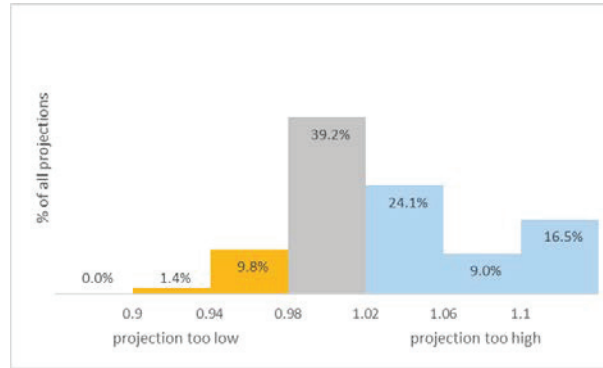
3C: SY 2015/16



3D: SY 2016/17



3E: SY 2017/18

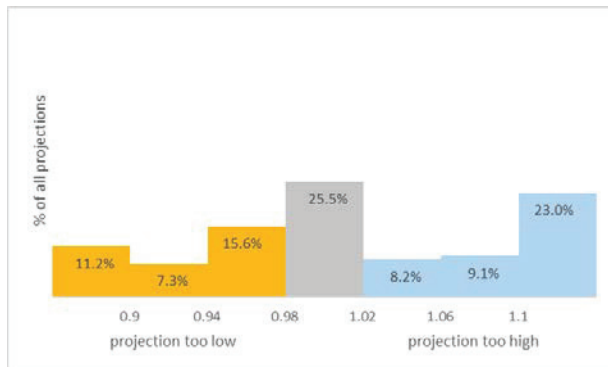


## Projection to Enrollment Ratios by Grade for DCPS

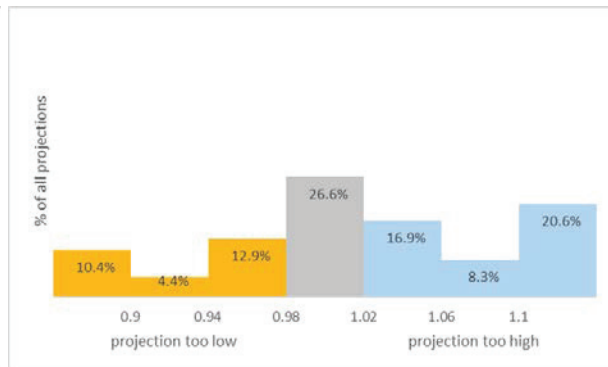
FIGURE 4A – 4O

### Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18, By Grade

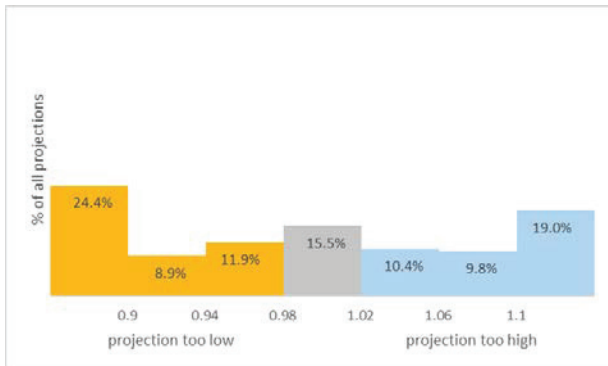
4A: Grade P3



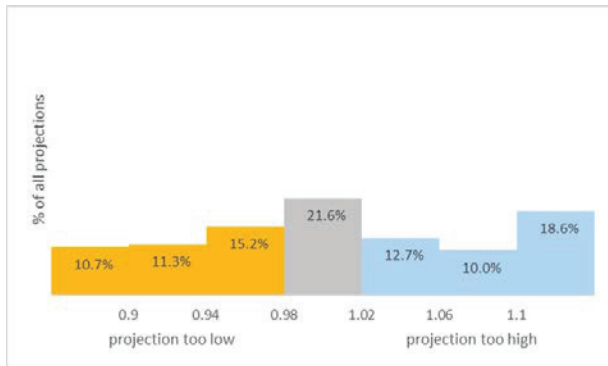
4B: Grade P4



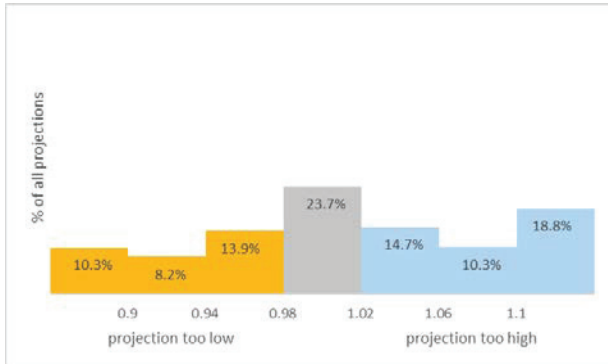
4C: Grade P5 (Kindergarten)



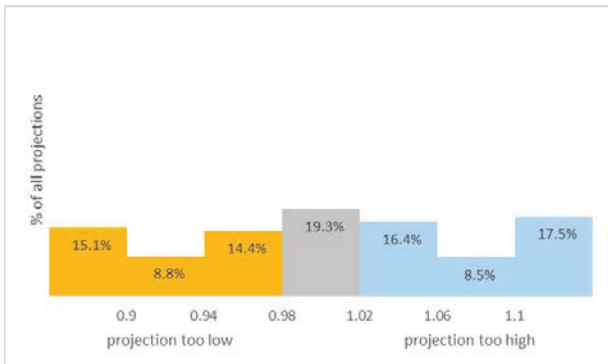
4D: Grade 1



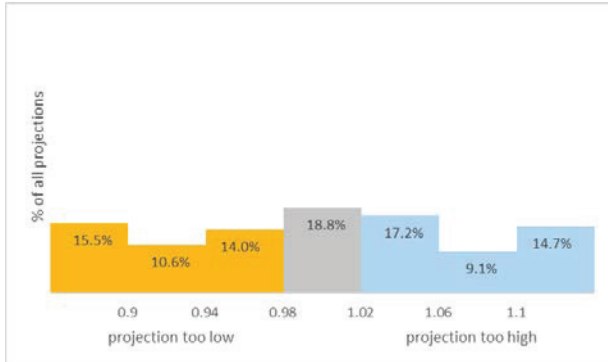
4E: Grade 2



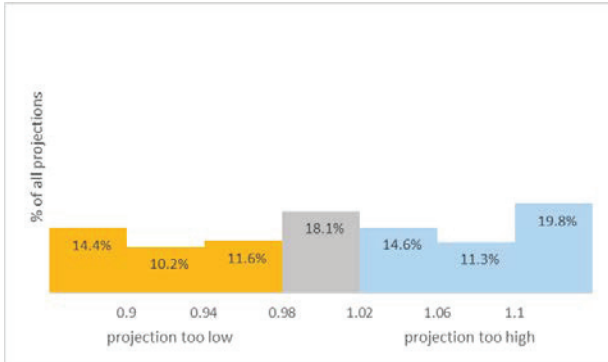
4F: Grade 3



4G: Grade 4

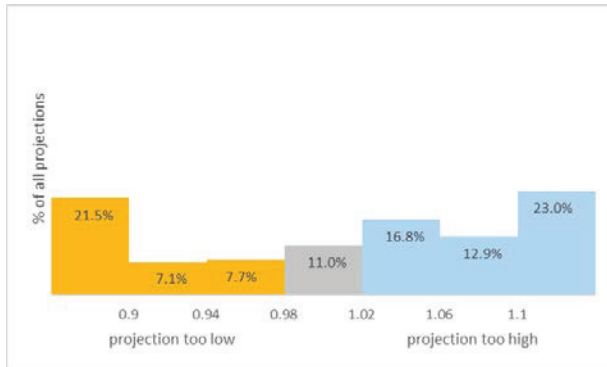


4H: Grade 5

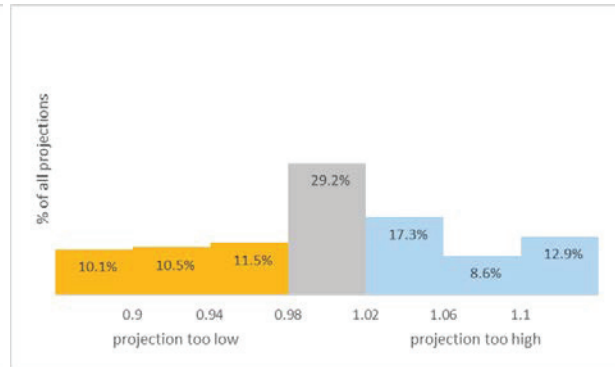




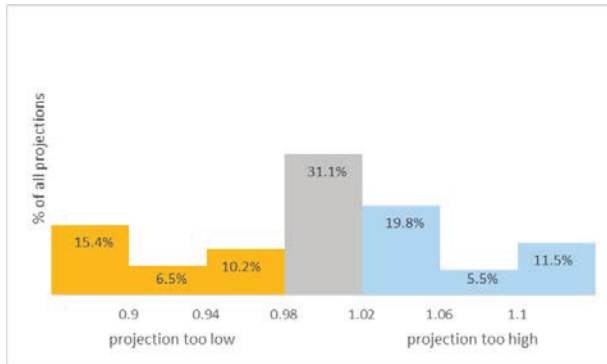
4I: Grade 6



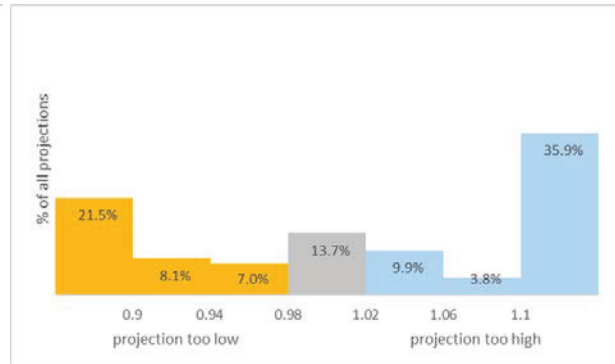
4J: Grade 7



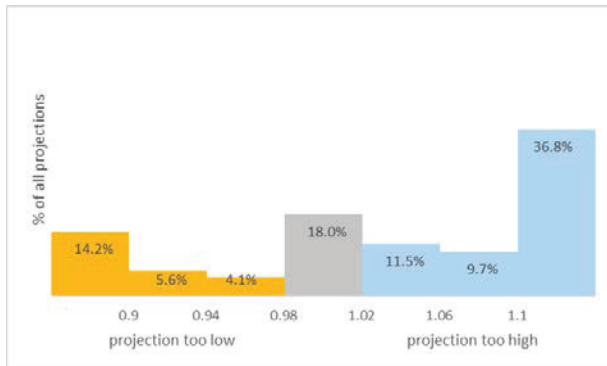
4K: Grade 8



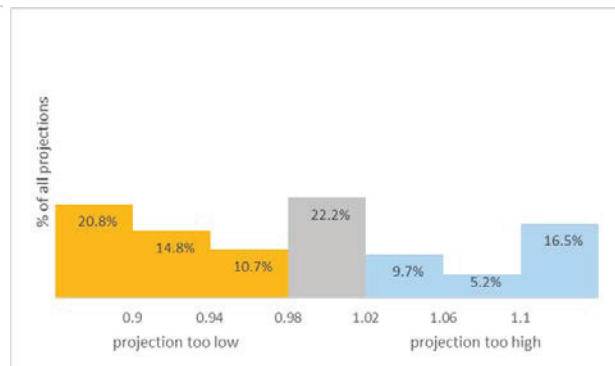
4L: Grade 9



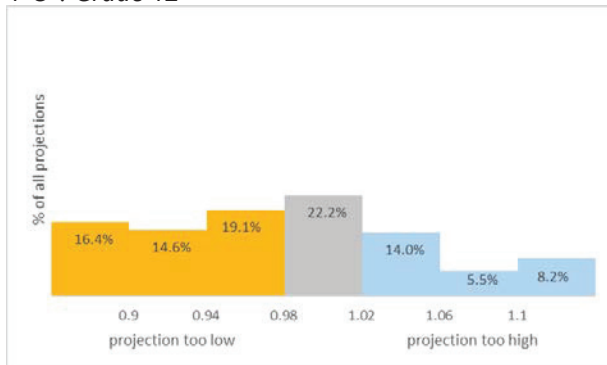
4M: Grade 10



4N: Grade 11



4"O": Grade 12

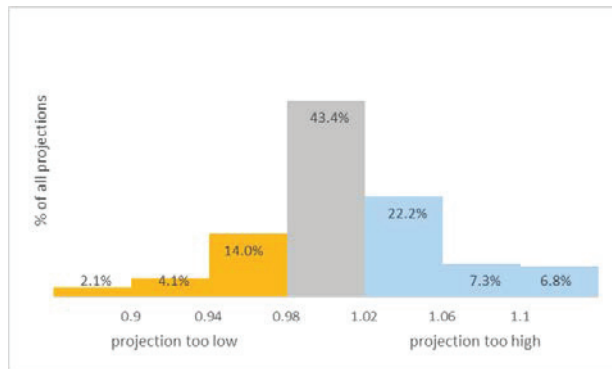


## Projection to Enrollment Ratios by Grade Group for DCPS

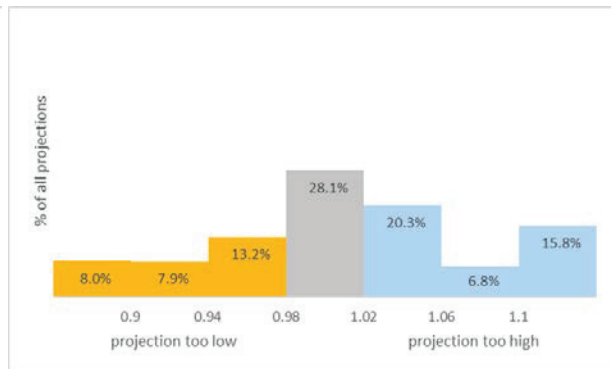
FIGURE 5A – 5D

### Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18, By Grade Group

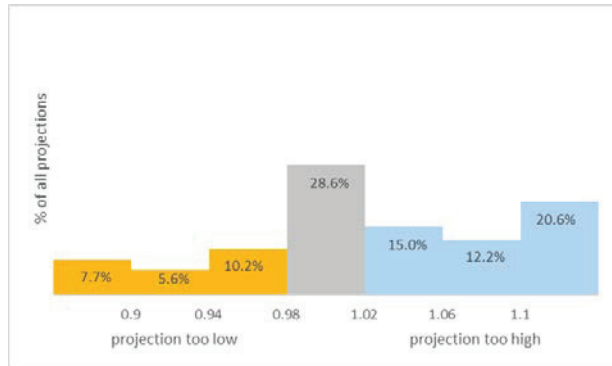
5A: Grade P3 – Grade 5



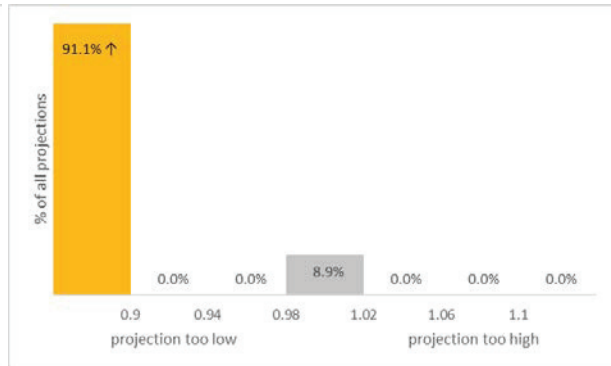
5B: Grade 6 – Grade 8



5C: Grade 9 – Grade 12



5D: Adult

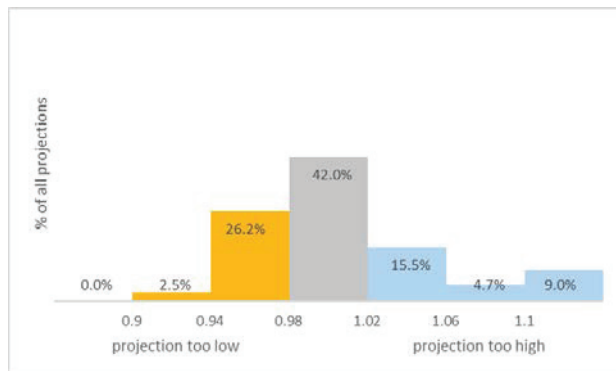


## Projection to Enrollment Ratios by Ward for PCS

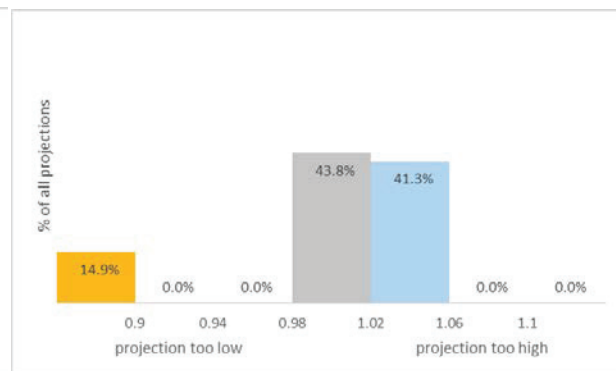
FIGURE 7A – 7H

### Ratios of Projected to Audited Enrollments for PCS Schools 2016/17 to 2017/18, By Ward

7A: Ward 1

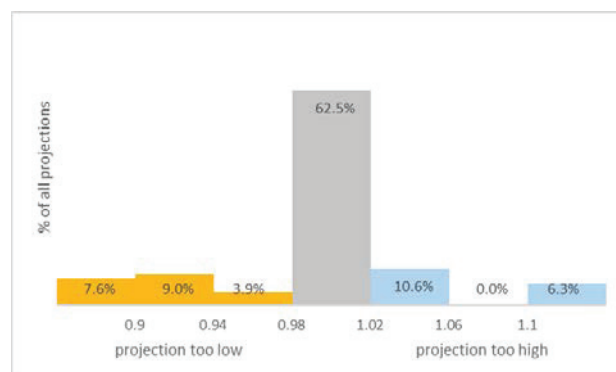


7B: Ward 2



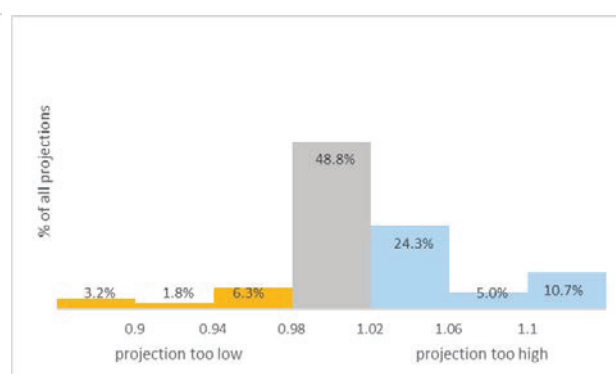
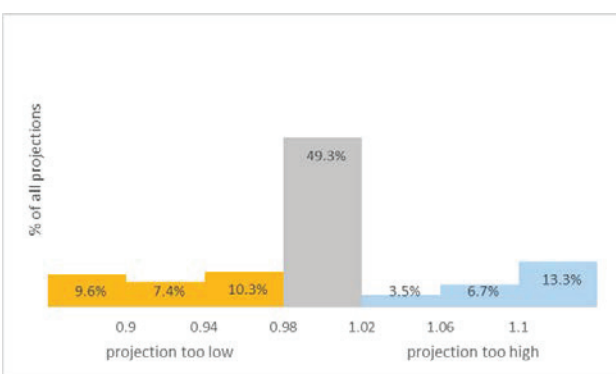
7C: Ward 3 (no schools)

7D: Ward 4



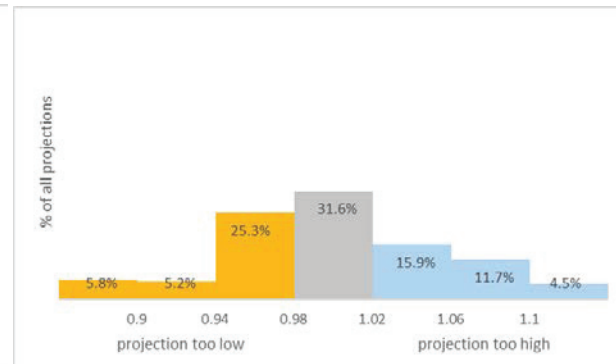
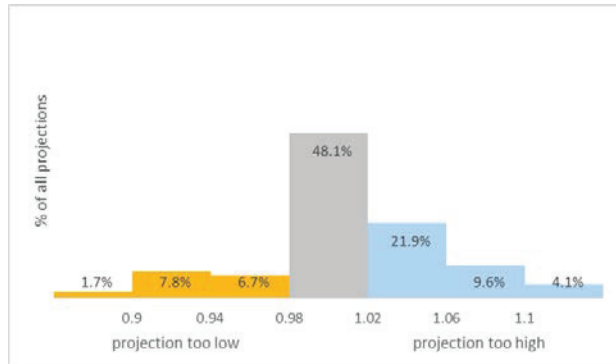
7E: Ward 5

7F: Ward 6



7G: Ward 7

7H: Ward 8

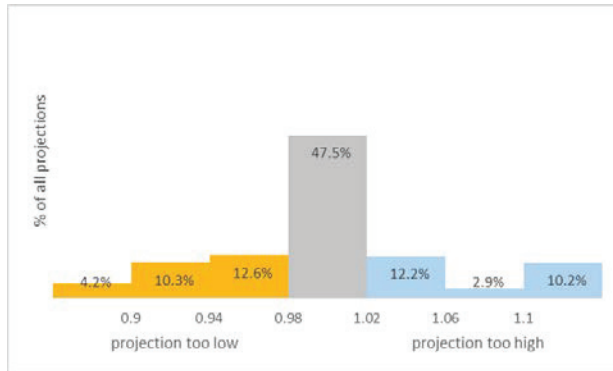


## Projection to Enrollment Ratios by Grade Group for PCS

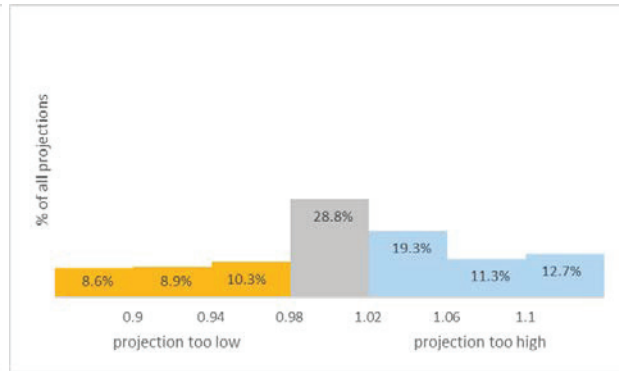
FIGURE 8A – 8D

### Ratios of Projected to Audited Enrollments for PCS 2016/17 to 2017/18, By Grade Group

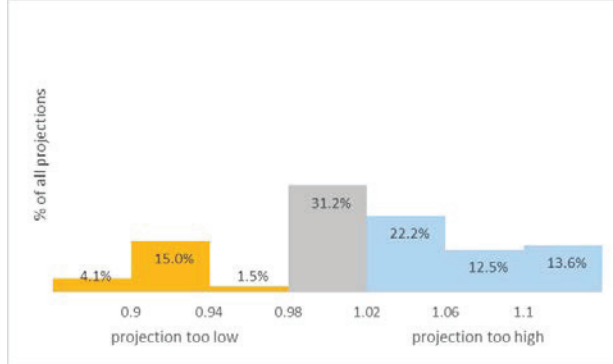
8A: Grade P3 – Grade 5



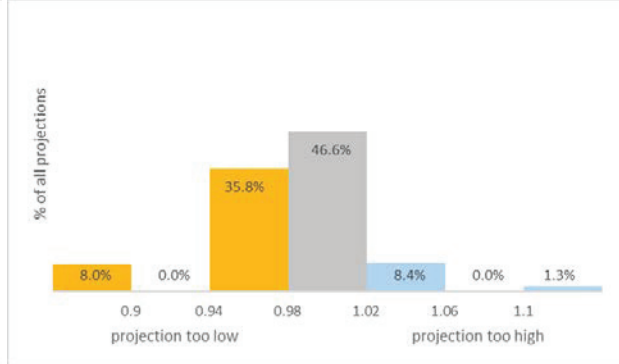
8B: Grade 6 – Grade 8



8C: Grade 9 – Grade 12



8D: Adult

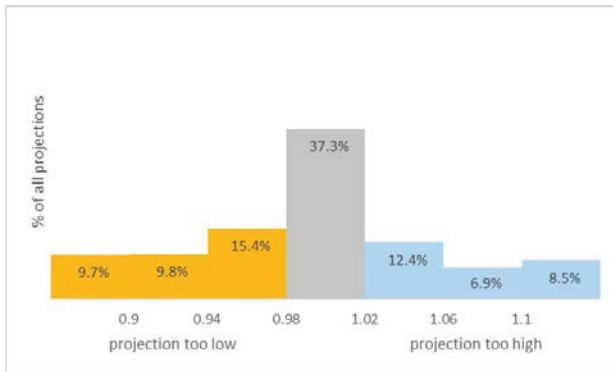


## Projection to Enrollment Ratios by Year for PCS

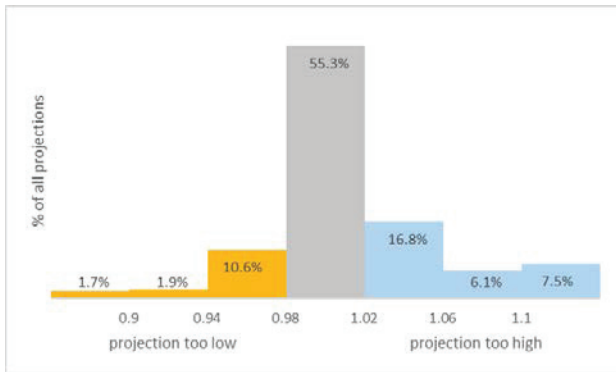
FIGURE 9A – 9B

### Ratios of Projected to Audited Enrollments for PCS Schools 2016/17 to 2017/18, By Year

9A: SY 2016/17



9B: SY 2017/18



## Projection to Enrollment Ratios by Year, by School for DCPS

TABLE 4

### Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS    | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-----------------|------|------|------|--------------------|-------------------------------|
| Aiton ES        | 202  | 7    | 2013 | 247                | 1.08                          |
| Aiton ES        | 202  | 7    | 2014 | 262                | 0.94                          |
| Aiton ES        | 202  | 7    | 2015 | 260                | 1.01                          |
| Aiton ES        | 202  | 7    | 2016 | 251                | 1.06                          |
| Aiton ES        | 202  | 7    | 2017 | 243                | 1.08                          |
| Amidon-Bowen ES | 203  | 6    | 2013 | 342                | 0.89                          |
| Amidon-Bowen ES | 203  | 6    | 2014 | 345                | 1.07                          |
| Amidon-Bowen ES | 203  | 6    | 2015 | 356                | 1.02                          |
| Amidon-Bowen ES | 203  | 6    | 2016 | 350                | 1.01                          |
| Amidon-Bowen ES | 203  | 6    | 2017 | 351                | 0.99                          |
| Anacostia HS    | 450  | 8    | 2013 | 751                | 0.89                          |
| Anacostia HS    | 450  | 8    | 2014 | 661                | 1.14                          |
| Anacostia HS    | 450  | 8    | 2015 | 597                | 1.01                          |
| Anacostia HS    | 450  | 8    | 2016 | 449                | 1.27                          |
| Anacostia HS    | 450  | 8    | 2017 | 379                | 1.12                          |
| Ballou HS       | 452  | 8    | 2013 | 678                | 1.06                          |
| Ballou HS       | 452  | 8    | 2014 | 755                | 0.85                          |
| Ballou HS       | 452  | 8    | 2015 | 933                | 0.85                          |
| Ballou HS       | 452  | 8    | 2016 | 930                | 1.13                          |
| Ballou HS       | 452  | 8    | 2017 | 880                | 1.03                          |
| Ballou STAY     | 462  | 8    | 2013 | 578                | 0.84                          |
| Ballou STAY     | 462  | 8    | 2014 | 591                | 0.83                          |
| Ballou STAY     | 462  | 8    | 2015 | 477                | 1.01                          |
| Ballou STAY     | 462  | 8    | 2016 | 466                | 1.04                          |
| Ballou STAY     | 462  | 8    | 2017 | 495                | 0.98                          |
| Bancroft ES     | 204  | 1    | 2013 | 490                | 0.97                          |
| Bancroft ES     | 204  | 1    | 2014 | 508                | 1                             |
| Bancroft ES     | 204  | 1    | 2015 | 521                | 1                             |
| Bancroft ES     | 204  | 1    | 2016 | 530                | 0.99                          |
| Bancroft ES     | 204  | 1    | 2017 | 544                | 0.98                          |
| Barnard ES      | 205  | 4    | 2013 | 583                | 1.03                          |
| Barnard ES      | 205  | 4    | 2014 | 602                | 1                             |
| Barnard ES      | 205  | 4    | 2015 | 637                | 1                             |
| Barnard ES      | 205  | 4    | 2016 | 649                | 0.99                          |
| Barnard ES      | 205  | 4    | 2017 | 642                | 1.01                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-----------------------------|------|------|------|--------------------|-------------------------------|
| Beers ES                    | 206  | 7    | 2013 | 422                | 0.93                          |
| Beers ES                    | 206  | 7    | 2014 | 438                | 1                             |
| Beers ES                    | 206  | 7    | 2015 | 437                | 1                             |
| Beers ES                    | 206  | 7    | 2016 | 464                | 0.94                          |
| Beers ES                    | 206  | 7    | 2017 | 484                | 0.96                          |
| Benjamin Banneker HS        | 402  | 1    | 2013 | 430                | 1.06                          |
| Benjamin Banneker HS        | 402  | 1    | 2014 | 449                | 1                             |
| Benjamin Banneker HS        | 402  | 1    | 2015 | 454                | 1                             |
| Benjamin Banneker HS        | 402  | 1    | 2016 | 481                | 1.03                          |
| Benjamin Banneker HS        | 402  | 1    | 2017 | 482                | 1.01                          |
| Brent ES                    | 212  | 6    | 2013 | 359                | 1.01                          |
| Brent ES                    | 212  | 6    | 2014 | 368                | 0.99                          |
| Brent ES                    | 212  | 6    | 2015 | 384                | 0.99                          |
| Brent ES                    | 212  | 6    | 2016 | 404                | 1                             |
| Brent ES                    | 212  | 6    | 2017 | 425                | 0.95                          |
| Brightwood EC               | 213  | 4    | 2013 | 615                | 1                             |
| Brightwood EC               | 213  | 4    | 2014 | 639                | 1                             |
| Brightwood EC               | 213  | 4    | 2015 | 709                | 0.95                          |
| Brightwood EC               | 213  | 4    | 2016 | 755                | 0.97                          |
| Brightwood EC               | 213  | 4    | 2017 | 737                | 1.06                          |
| Brookland EC at Bunker Hill | 346  | 5    | 2013 | 249                | 1.02                          |
| Brookland EC at Bunker Hill | 346  | 5    | 2014 | 225                | 1.03                          |
| Brookland EC at Bunker Hill | 346  | 5    | 2015 | 0                  | 0                             |
| Brookland EC at Bunker Hill | 346  | 5    | 2016 | 0                  | 0                             |
| Brookland EC at Bunker Hill | 346  | 5    | 2017 | 0                  | 0                             |
| Brookland MS                | 347  | 5    | 2013 | 0                  | 0                             |
| Brookland MS                | 347  | 5    | 2014 | 0                  | 0                             |
| Brookland MS                | 347  | 5    | 2015 | 315                | 0.72                          |
| Brookland MS                | 347  | 5    | 2016 | 254                | 1.22                          |
| Brookland MS                | 347  | 5    | 2017 | 238                | 1.03                          |
| Browne EC                   | 404  | 5    | 2013 | 349                | 1.03                          |
| Browne EC                   | 404  | 5    | 2014 | 353                | 0.99                          |
| Browne EC                   | 404  | 5    | 2015 | 333                | 1                             |
| Browne EC                   | 404  | 5    | 2016 | 309                | 1.07                          |
| Browne EC                   | 404  | 5    | 2017 | 325                | 0.98                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                     | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|----------------------------------|------|------|------|--------------------|-------------------------------|
| Bruce Monroe ES at Park View     | 296  | 1    | 2013 | 465                | 0.97                          |
| Bruce Monroe ES at Park View     | 296  | 1    | 2014 | 465                | 1.01                          |
| Bruce Monroe ES at Park View     | 296  | 1    | 2015 | 470                | 1.01                          |
| Bruce Monroe ES at Park View     | 296  | 1    | 2016 | 473                | 1                             |
| Bruce Monroe ES at Park View     | 296  | 1    | 2017 | 473                | 1.01                          |
| Bunker Hill ES                   | 219  | 5    | 2013 | 0                  | 0                             |
| Bunker Hill ES                   | 219  | 5    | 2014 | 0                  | 0                             |
| Bunker Hill ES                   | 219  | 5    | 2015 | 156                | 0.97                          |
| Bunker Hill ES                   | 219  | 5    | 2016 | 195                | 0.93                          |
| Bunker Hill ES                   | 219  | 5    | 2017 | 200                | 1                             |
| Burroughs EC                     | 220  | 5    | 2013 | 278                | 1.03                          |
| Burroughs EC                     | 220  | 5    | 2014 | 297                | 0.92                          |
| Burroughs EC                     | 220  | 5    | 2015 | 285                | 0.88                          |
| Burroughs EC                     | 220  | 5    | 2016 | 290                | 1                             |
| Burroughs EC                     | 220  | 5    | 2017 | 282                | 1.11                          |
| Burrville ES                     | 221  | 7    | 2013 | 354                | 1.02                          |
| Burrville ES                     | 221  | 7    | 2014 | 360                | 0.96                          |
| Burrville ES                     | 221  | 7    | 2015 | 326                | 1.15                          |
| Burrville ES                     | 221  | 7    | 2016 | 325                | 1.01                          |
| Burrville ES                     | 221  | 7    | 2017 | 300                | 1.16                          |
| Capitol Hill Montessori at Logan | 360  | 6    | 2013 | 288                | 1.04                          |
| Capitol Hill Montessori at Logan | 360  | 6    | 2014 | 310                | 1.06                          |
| Capitol Hill Montessori at Logan | 360  | 6    | 2015 | 330                | 1.02                          |
| Capitol Hill Montessori at Logan | 360  | 6    | 2016 | 361                | 1.03                          |
| Capitol Hill Montessori at Logan | 360  | 6    | 2017 | 365                | 1                             |
| Cardozo EC                       | 454  | 1    | 2013 | 681                | 1                             |
| Cardozo EC                       | 454  | 1    | 2014 | 781                | 0.9                           |
| Cardozo EC                       | 454  | 1    | 2015 | 783                | 1.02                          |
| Cardozo EC                       | 454  | 1    | 2016 | 796                | 0.98                          |
| Cardozo EC                       | 454  | 1    | 2017 | 788                | 1.11                          |
| CHOICE Academy at Emery          | 947  | 5    | 2013 | 9                  | 0                             |
| CHOICE Academy at Emery          | 947  | 5    | 2014 | 5                  | 5.4                           |
| CHOICE Academy at Emery          | 947  | 5    | 2015 | 2                  | 4.5                           |
| CHOICE Academy at Emery          | 947  | 5    | 2016 | 5                  | 0.6                           |
| CHOICE Academy at Emery          | 947  | 5    | 2017 | 1                  | 5                             |



TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS               | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|----------------------------|------|------|------|--------------------|-------------------------------|
| Cleveland ES               | 224  | 1    | 2013 | 303                | 1.03                          |
| Cleveland ES               | 224  | 1    | 2014 | 308                | 1                             |
| Cleveland ES               | 224  | 1    | 2015 | 319                | 1                             |
| Cleveland ES               | 224  | 1    | 2016 | 321                | 1.01                          |
| Cleveland ES               | 224  | 1    | 2017 | 317                | 1.03                          |
| Columbia Heights EC (CHEC) | 442  | 1    | 2013 | 1266               | 1.04                          |
| Columbia Heights EC (CHEC) | 442  | 1    | 2014 | 1384               | 0.92                          |
| Columbia Heights EC (CHEC) | 442  | 1    | 2015 | 1393               | 1                             |
| Columbia Heights EC (CHEC) | 442  | 1    | 2016 | 1336               | 1.06                          |
| Columbia Heights EC (CHEC) | 442  | 1    | 2017 | 1240               | 1.12                          |
| Coolidge HS                | 455  | 4    | 2013 | 433                | 1.04                          |
| Coolidge HS                | 455  | 4    | 2014 | 395                | 1.01                          |
| Coolidge HS                | 455  | 4    | 2015 | 384                | 1                             |
| Coolidge HS                | 455  | 4    | 2016 | 346                | 1.11                          |
| Coolidge HS                | 455  | 4    | 2017 | 310                | 1.18                          |
| CW Harris ES               | 247  | 7    | 2013 | 269                | 1.12                          |
| CW Harris ES               | 247  | 7    | 2014 | 291                | 0.96                          |
| CW Harris ES               | 247  | 7    | 2015 | 293                | 1.05                          |
| CW Harris ES               | 247  | 7    | 2016 | 285                | 1.05                          |
| CW Harris ES               | 247  | 7    | 2017 | 278                | 1.02                          |
| Deal MS                    | 405  | 3    | 2013 | 1248               | 1.02                          |
| Deal MS                    | 405  | 3    | 2014 | 1312               | 1                             |
| Deal MS                    | 405  | 3    | 2015 | 1341               | 1                             |
| Deal MS                    | 405  | 3    | 2016 | 1476               | 0.94                          |
| Deal MS                    | 405  | 3    | 2017 | 1475               | 1.03                          |
| Dorothy Height ES          | 349  | 4    | 2013 | 0                  | 0                             |
| Dorothy Height ES          | 349  | 4    | 2014 | 0                  | 0                             |
| Dorothy Height ES          | 349  | 4    | 2015 | 0                  | 0                             |
| Dorothy Height ES          | 349  | 4    | 2016 | 518                | 1                             |
| Dorothy Height ES          | 349  | 4    | 2017 | 479                | 1.1                           |
| Drew ES                    | 231  | 7    | 2013 | 168                | 0.92                          |
| Drew ES                    | 231  | 7    | 2014 | 201                | 0.85                          |
| Drew ES                    | 231  | 7    | 2015 | 247                | 0.9                           |
| Drew ES                    | 231  | 7    | 2016 | 253                | 1.03                          |
| Drew ES                    | 231  | 7    | 2017 | 272                | 1.02                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                      | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-----------------------------------|------|------|------|--------------------|-------------------------------|
| Duke Ellington School of the Arts | 471  | 2    | 2013 | 541                | 0.98                          |
| Duke Ellington School of the Arts | 471  | 2    | 2014 | 523                | 0.99                          |
| Duke Ellington School of the Arts | 471  | 2    | 2015 | 525                | 1                             |
| Duke Ellington School of the Arts | 471  | 2    | 2016 | 502                | 1.06                          |
| Duke Ellington School of the Arts | 471  | 2    | 2017 | 566                | 0.99                          |
| Dunbar HS                         | 467  | 5    | 2013 | 628                | 0.93                          |
| Dunbar HS                         | 467  | 5    | 2014 | 653                | 0.95                          |
| Dunbar HS                         | 467  | 5    | 2015 | 653                | 1.02                          |
| Dunbar HS                         | 467  | 5    | 2016 | 584                | 1.13                          |
| Dunbar HS                         | 467  | 5    | 2017 | 617                | 1                             |
| Eastern HS                        | 457  | 6    | 2013 | 783                | 1.08                          |
| Eastern HS                        | 457  | 6    | 2014 | 1025               | 0.98                          |
| Eastern HS                        | 457  | 6    | 2015 | 967                | 1.08                          |
| Eastern HS                        | 457  | 6    | 2016 | 818                | 1.21                          |
| Eastern HS                        | 457  | 6    | 2017 | 769                | 1.07                          |
| Eaton ES                          | 232  | 3    | 2013 | 470                | 1.01                          |
| Eaton ES                          | 232  | 3    | 2014 | 475                | 1                             |
| Eaton ES                          | 232  | 3    | 2015 | 478                | 1                             |
| Eaton ES                          | 232  | 3    | 2016 | 477                | 1                             |
| Eaton ES                          | 232  | 3    | 2017 | 476                | 1                             |
| Eliot-Hine MS                     | 407  | 6    | 2013 | 292                | 0.93                          |
| Eliot-Hine MS                     | 407  | 6    | 2014 | 257                | 1.07                          |
| Eliot-Hine MS                     | 407  | 6    | 2015 | 209                | 1.14                          |
| Eliot-Hine MS                     | 407  | 6    | 2016 | 200                | 0.94                          |
| Eliot-Hine MS                     | 407  | 6    | 2017 | 203                | 1.04                          |
| Garfield ES                       | 238  | 8    | 2013 | 266                | 0.95                          |
| Garfield ES                       | 238  | 8    | 2014 | 284                | 0.98                          |
| Garfield ES                       | 238  | 8    | 2015 | 317                | 0.94                          |
| Garfield ES                       | 238  | 8    | 2016 | 301                | 1.03                          |
| Garfield ES                       | 238  | 8    | 2017 | 301                | 0.99                          |
| Garrison ES                       | 239  | 2    | 2013 | 280                | 0.92                          |
| Garrison ES                       | 239  | 2    | 2014 | 244                | 1.18                          |
| Garrison ES                       | 239  | 2    | 2015 | 244                | 1.06                          |
| Garrison ES                       | 239  | 2    | 2016 | 253                | 0.95                          |
| Garrison ES                       | 239  | 2    | 2017 | 250                | 1                             |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS  | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|---------------|------|------|------|--------------------|-------------------------------|
| Hardy MS      | 246  | 2    | 2013 | 371                | 1.09                          |
| Hardy MS      | 246  | 2    | 2014 | 386                | 1.03                          |
| Hardy MS      | 246  | 2    | 2015 | 374                | 1.01                          |
| Hardy MS      | 246  | 2    | 2016 | 374                | 1.07                          |
| Hardy MS      | 246  | 2    | 2017 | 392                | 0.98                          |
| Hart MS       | 413  | 8    | 2013 | 561                | 0.95                          |
| Hart MS       | 413  | 8    | 2014 | 479                | 1.19                          |
| Hart MS       | 413  | 8    | 2015 | 381                | 1.13                          |
| Hart MS       | 413  | 8    | 2016 | 349                | 0.98                          |
| Hart MS       | 413  | 8    | 2017 | 337                | 0.99                          |
| HD Cooke ES   | 227  | 1    | 2013 | 396                | 1.01                          |
| HD Cooke ES   | 227  | 1    | 2014 | 400                | 1.03                          |
| HD Cooke ES   | 227  | 1    | 2015 | 397                | 1                             |
| HD Cooke ES   | 227  | 1    | 2016 | 420                | 0.96                          |
| HD Cooke ES   | 227  | 1    | 2017 | 404                | 1.08                          |
| HD Woodson HS | 464  | 7    | 2013 | 762                | 0.99                          |
| HD Woodson HS | 464  | 7    | 2014 | 639                | 1.13                          |
| HD Woodson HS | 464  | 7    | 2015 | 660                | 0.88                          |
| HD Woodson HS | 464  | 7    | 2016 | 634                | 1                             |
| HD Woodson HS | 464  | 7    | 2017 | 488                | 1.24                          |
| Hearst ES     | 258  | 3    | 2013 | 287                | 1                             |
| Hearst ES     | 258  | 3    | 2014 | 291                | 1                             |
| Hearst ES     | 258  | 3    | 2015 | 316                | 0.95                          |
| Hearst ES     | 258  | 3    | 2016 | 312                | 1.01                          |
| Hearst ES     | 258  | 3    | 2017 | 312                | 1.01                          |
| Hendley ES    | 249  | 8    | 2013 | 521                | 1                             |
| Hendley ES    | 249  | 8    | 2014 | 503                | 1.05                          |
| Hendley ES    | 249  | 8    | 2015 | 463                | 1.1                           |
| Hendley ES    | 249  | 8    | 2016 | 445                | 1.07                          |
| Hendley ES    | 249  | 8    | 2017 | 379                | 1.16                          |
| Houston ES    | 251  | 7    | 2013 | 274                | 1.05                          |
| Houston ES    | 251  | 7    | 2014 | 279                | 1.01                          |
| Houston ES    | 251  | 7    | 2015 | 275                | 1.05                          |
| Houston ES    | 251  | 7    | 2016 | 299                | 0.94                          |
| Houston ES    | 251  | 7    | 2017 | 269                | 1.08                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                                         | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|------------------------------------------------------|------|------|------|--------------------|-------------------------------|
| Hyde-Addison ES                                      | 252  | 2    | 2013 | 334                | 1.02                          |
| Hyde-Addison ES                                      | 252  | 2    | 2014 | 305                | 1.11                          |
| Hyde-Addison ES                                      | 252  | 2    | 2015 | 316                | 1.01                          |
| Hyde-Addison ES                                      | 252  | 2    | 2016 | 329                | 1.02                          |
| Hyde-Addison ES                                      | 252  | 2    | 2017 | 320                | 1.04                          |
| Incarc. Youth Prog., Correctional Detention Facility | 480  | 7    | 2013 | 26                 | 1.5                           |
| Incarc. Youth Prog., Correctional Detention Facility | 480  | 7    | 2014 | 28                 | 0.86                          |
| Incarc. Youth Prog., Correctional Detention Facility | 480  | 7    | 2015 | 34                 | 0.71                          |
| Incarc. Youth Prog., Correctional Detention Facility | 480  | 7    | 2016 | 48                 | 0.59                          |
| Incarc. Youth Prog., Correctional Detention Facility | 480  | 7    | 2017 | 40                 | 0.95                          |
| Janney ES                                            | 254  | 3    | 2013 | 627                | 1.02                          |
| Janney ES                                            | 254  | 3    | 2014 | 693                | 0.97                          |
| Janney ES                                            | 254  | 3    | 2015 | 731                | 1                             |
| Janney ES                                            | 254  | 3    | 2016 | 722                | 1.01                          |
| Janney ES                                            | 254  | 3    | 2017 | 737                | 0.99                          |
| Jefferson Middle School Academy                      | 433  | 6    | 2013 | 299                | 1.03                          |
| Jefferson Middle School Academy                      | 433  | 6    | 2014 | 277                | 1.1                           |
| Jefferson Middle School Academy                      | 433  | 6    | 2015 | 273                | 1.03                          |
| Jefferson Middle School Academy                      | 433  | 6    | 2016 | 305                | 0.91                          |
| Jefferson Middle School Academy                      | 433  | 6    | 2017 | 314                | 0.99                          |
| JO Wilson ES                                         | 339  | 6    | 2013 | 433                | 1                             |
| JO Wilson ES                                         | 339  | 6    | 2014 | 466                | 1                             |
| JO Wilson ES                                         | 339  | 6    | 2015 | 505                | 0.98                          |
| JO Wilson ES                                         | 339  | 6    | 2016 | 495                | 1.04                          |
| JO Wilson ES                                         | 339  | 6    | 2017 | 509                | 1                             |
| Johnson MS                                           | 416  | 8    | 2013 | 271                | 1.08                          |
| Johnson MS                                           | 416  | 8    | 2014 | 291                | 0.98                          |
| Johnson MS                                           | 416  | 8    | 2015 | 291                | 1.02                          |
| Johnson MS                                           | 416  | 8    | 2016 | 252                | 1.11                          |
| Johnson MS                                           | 416  | 8    | 2017 | 255                | 0.96                          |
| Kelly Miller MS                                      | 421  | 7    | 2013 | 513                | 0.95                          |
| Kelly Miller MS                                      | 421  | 7    | 2014 | 546                | 1.04                          |
| Kelly Miller MS                                      | 421  | 7    | 2015 | 450                | 1.25                          |
| Kelly Miller MS                                      | 421  | 7    | 2016 | 449                | 0.98                          |
| Kelly Miller MS                                      | 421  | 7    | 2017 | 387                | 1.11                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|--------------|------|------|------|--------------------|-------------------------------|
| Ketcham ES   | 257  | 8    | 2013 | 306                | 0.88                          |
| Ketcham ES   | 257  | 8    | 2014 | 309                | 1.02                          |
| Ketcham ES   | 257  | 8    | 2015 | 313                | 1.02                          |
| Ketcham ES   | 257  | 8    | 2016 | 309                | 1.02                          |
| Ketcham ES   | 257  | 8    | 2017 | 310                | 0.98                          |
| Key ES       | 272  | 3    | 2013 | 381                | 1.01                          |
| Key ES       | 272  | 3    | 2014 | 383                | 1.02                          |
| Key ES       | 272  | 3    | 2015 | 386                | 1.02                          |
| Key ES       | 272  | 3    | 2016 | 397                | 1.02                          |
| Key ES       | 272  | 3    | 2017 | 417                | 0.97                          |
| Kimball ES   | 259  | 7    | 2013 | 330                | 0.99                          |
| Kimball ES   | 259  | 7    | 2014 | 348                | 1                             |
| Kimball ES   | 259  | 7    | 2015 | 356                | 0.99                          |
| Kimball ES   | 259  | 7    | 2016 | 372                | 0.96                          |
| Kimball ES   | 259  | 7    | 2017 | 325                | 1.18                          |
| King ES      | 344  | 8    | 2013 | 410                | 1.12                          |
| King ES      | 344  | 8    | 2014 | 372                | 1.1                           |
| King ES      | 344  | 8    | 2015 | 394                | 0.99                          |
| King ES      | 344  | 8    | 2016 | 374                | 1.09                          |
| King ES      | 344  | 8    | 2017 | 346                | 1.12                          |
| Kramer MS    | 417  | 8    | 2013 | 368                | 0.85                          |
| Kramer MS    | 417  | 8    | 2014 | 333                | 1.11                          |
| Kramer MS    | 417  | 8    | 2015 | 247                | 1.28                          |
| Kramer MS    | 417  | 8    | 2016 | 193                | 1.26                          |
| Kramer MS    | 417  | 8    | 2017 | 194                | 1.06                          |
| Lafayette ES | 261  | 4    | 2013 | 689                | 1                             |
| Lafayette ES | 261  | 4    | 2014 | 697                | 1                             |
| Lafayette ES | 261  | 4    | 2015 | 700                | 0.99                          |
| Lafayette ES | 261  | 4    | 2016 | 761                | 0.94                          |
| Lafayette ES | 261  | 4    | 2017 | 816                | 0.98                          |
| Langdon EC   | 262  | 5    | 2013 | 349                | 1.27                          |
| Langdon EC   | 262  | 5    | 2014 | 340                | 1                             |
| Langdon EC   | 262  | 5    | 2015 | 300                | 0.87                          |
| Langdon EC   | 262  | 5    | 2016 | 323                | 0.97                          |
| Langdon EC   | 262  | 5    | 2017 | 324                | 1.03                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS          | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-----------------------|------|------|------|--------------------|-------------------------------|
| Langley ES            | 370  | 5    | 2013 | 280                | 1                             |
| Langley ES            | 370  | 5    | 2014 | 289                | 1                             |
| Langley ES            | 370  | 5    | 2015 | 278                | 1.11                          |
| Langley ES            | 370  | 5    | 2016 | 284                | 1.04                          |
| Langley ES            | 370  | 5    | 2017 | 275                | 1.03                          |
| LaSalle Backus EC     | 264  | 4    | 2013 | 342                | 0.87                          |
| LaSalle Backus EC     | 264  | 4    | 2014 | 349                | 1.02                          |
| LaSalle Backus EC     | 264  | 4    | 2015 | 341                | 1.03                          |
| LaSalle Backus EC     | 264  | 4    | 2016 | 369                | 0.95                          |
| LaSalle Backus EC     | 264  | 4    | 2017 | 363                | 1.02                          |
| Leckie ES             | 266  | 8    | 2013 | 374                | 0.99                          |
| Leckie ES             | 266  | 8    | 2014 | 478                | 0.85                          |
| Leckie ES             | 266  | 8    | 2015 | 519                | 0.92                          |
| Leckie ES             | 266  | 8    | 2016 | 552                | 0.98                          |
| Leckie ES             | 266  | 8    | 2017 | 558                | 1.07                          |
| Ludlow-Taylor ES      | 271  | 6    | 2013 | 299                | 0.98                          |
| Ludlow-Taylor ES      | 271  | 6    | 2014 | 340                | 0.99                          |
| Ludlow-Taylor ES      | 271  | 6    | 2015 | 370                | 0.95                          |
| Ludlow-Taylor ES      | 271  | 6    | 2016 | 373                | 1.08                          |
| Ludlow-Taylor ES      | 271  | 6    | 2017 | 414                | 0.95                          |
| Luke C Moore HS       | 884  | 5    | 2013 | 364                | 1.08                          |
| Luke C Moore HS       | 884  | 5    | 2014 | 350                | 1.09                          |
| Luke C Moore HS       | 884  | 5    | 2015 | 297                | 1.21                          |
| Luke C Moore HS       | 884  | 5    | 2016 | 266                | 1.28                          |
| Luke C Moore HS       | 884  | 5    | 2017 | 251                | 1.21                          |
| MacFarland MS         | 420  | 4    | 2013 | 0                  | 0                             |
| MacFarland MS         | 420  | 4    | 2014 | 0                  | 0                             |
| MacFarland MS         | 420  | 4    | 2015 | 0                  | 0                             |
| MacFarland MS         | 420  | 4    | 2016 | 69                 | 1.04                          |
| MacFarland MS         | 420  | 4    | 2017 | 132                | 1.07                          |
| Malcolm X ES at Green | 308  | 8    | 2013 | 225                | 0.96                          |
| Malcolm X ES at Green | 308  | 8    | 2014 | 244                | 0.9                           |
| Malcolm X ES at Green | 308  | 8    | 2015 | 238                | 0.97                          |
| Malcolm X ES at Green | 308  | 8    | 2016 | 237                | 1.05                          |
| Malcolm X ES at Green | 308  | 8    | 2017 | 256                | 1.01                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS           | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|------------------------|------|------|------|--------------------|-------------------------------|
| Mamie D Lee School     | 265  | 5    | 2013 | 62                 | 1.08                          |
| Mamie D Lee School     | 265  | 5    | 2014 | 56                 | 1.1                           |
| Mamie D Lee School     | 265  | 5    | 2015 | 0                  | 0                             |
| Mamie D Lee School     | 265  | 5    | 2016 | 0                  | 0                             |
| Mamie D Lee School     | 265  | 5    | 2017 | 0                  | 0                             |
| Mann ES                | 273  | 3    | 2013 | 287                | 1.05                          |
| Mann ES                | 273  | 3    | 2014 | 302                | 1                             |
| Mann ES                | 273  | 3    | 2015 | 360                | 0.94                          |
| Mann ES                | 273  | 3    | 2016 | 379                | 1                             |
| Mann ES                | 273  | 3    | 2017 | 400                | 1                             |
| Marie Reed ES          | 284  | 1    | 2013 | 377                | 1                             |
| Marie Reed ES          | 284  | 1    | 2014 | 393                | 1                             |
| Marie Reed ES          | 284  | 1    | 2015 | 399                | 0.99                          |
| Marie Reed ES          | 284  | 1    | 2016 | 398                | 1.01                          |
| Marie Reed ES          | 284  | 1    | 2017 | 427                | 0.93                          |
| Maury ES               | 274  | 6    | 2013 | 339                | 0.98                          |
| Maury ES               | 274  | 6    | 2014 | 366                | 0.99                          |
| Maury ES               | 274  | 6    | 2015 | 383                | 0.99                          |
| Maury ES               | 274  | 6    | 2016 | 387                | 1.03                          |
| Maury ES               | 274  | 6    | 2017 | 407                | 0.99                          |
| McKinley Middle School | 435  | 5    | 2013 | 193                | 1.02                          |
| McKinley Middle School | 435  | 5    | 2014 | 202                | 1.03                          |
| McKinley Middle School | 435  | 5    | 2015 | 226                | 1.1                           |
| McKinley Middle School | 435  | 5    | 2016 | 213                | 0.99                          |
| McKinley Middle School | 435  | 5    | 2017 | 241                | 0.92                          |
| McKinley Technology HS | 458  | 5    | 2013 | 674                | 1.11                          |
| McKinley Technology HS | 458  | 5    | 2014 | 645                | 1.08                          |
| McKinley Technology HS | 458  | 5    | 2015 | 656                | 0.99                          |
| McKinley Technology HS | 458  | 5    | 2016 | 619                | 1.08                          |
| McKinley Technology HS | 458  | 5    | 2017 | 620                | 1.03                          |
| Miner ES               | 280  | 6    | 2013 | 426                | 1.11                          |
| Miner ES               | 280  | 6    | 2014 | 398                | 1.02                          |
| Miner ES               | 280  | 6    | 2015 | 398                | 1.01                          |
| Miner ES               | 280  | 6    | 2016 | 384                | 1.03                          |
| Miner ES               | 280  | 6    | 2017 | 345                | 1.1                           |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                  | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-------------------------------|------|------|------|--------------------|-------------------------------|
| Moten ES                      | 285  | 8    | 2013 | 362                | 0.93                          |
| Moten ES                      | 285  | 8    | 2014 | 395                | 1.01                          |
| Moten ES                      | 285  | 8    | 2015 | 423                | 1                             |
| Moten ES                      | 285  | 8    | 2016 | 405                | 1.04                          |
| Moten ES                      | 285  | 8    | 2017 | 401                | 1.04                          |
| Murch ES                      | 287  | 3    | 2013 | 626                | 0.97                          |
| Murch ES                      | 287  | 3    | 2014 | 620                | 1.09                          |
| Murch ES                      | 287  | 3    | 2015 | 625                | 1.01                          |
| Murch ES                      | 287  | 3    | 2016 | 572                | 1.04                          |
| Murch ES                      | 287  | 3    | 2017 | 573                | 1                             |
| Nalle ES                      | 288  | 7    | 2013 | 369                | 0.89                          |
| Nalle ES                      | 288  | 7    | 2014 | 384                | 0.99                          |
| Nalle ES                      | 288  | 7    | 2015 | 391                | 1                             |
| Nalle ES                      | 288  | 7    | 2016 | 391                | 1                             |
| Nalle ES                      | 288  | 7    | 2017 | 387                | 1.04                          |
| Noyes EC                      | 290  | 5    | 2013 | 305                | 0.87                          |
| Noyes EC                      | 290  | 5    | 2014 | 289                | 1.06                          |
| Noyes EC                      | 290  | 5    | 2015 | 192                | 1.11                          |
| Noyes EC                      | 290  | 5    | 2016 | 197                | 1                             |
| Noyes EC                      | 290  | 5    | 2017 | 195                | 0.96                          |
| Orr ES                        | 291  | 8    | 2013 | 355                | 1.07                          |
| Orr ES                        | 291  | 8    | 2014 | 384                | 0.97                          |
| Orr ES                        | 291  | 8    | 2015 | 421                | 0.95                          |
| Orr ES                        | 291  | 8    | 2016 | 408                | 1.06                          |
| Orr ES                        | 291  | 8    | 2017 | 404                | 1.04                          |
| Oyster-Adams Bilingual School | 292  | 3    | 2013 | 661                | 1.01                          |
| Oyster-Adams Bilingual School | 292  | 3    | 2014 | 650                | 1.01                          |
| Oyster-Adams Bilingual School | 292  | 3    | 2015 | 663                | 0.97                          |
| Oyster-Adams Bilingual School | 292  | 3    | 2016 | 674                | 1.01                          |
| Oyster-Adams Bilingual School | 292  | 3    | 2017 | 677                | 1                             |
| Patterson ES                  | 294  | 8    | 2013 | 356                | 0.94                          |
| Patterson ES                  | 294  | 8    | 2014 | 380                | 0.99                          |
| Patterson ES                  | 294  | 8    | 2015 | 404                | 1                             |
| Patterson ES                  | 294  | 8    | 2016 | 394                | 1.04                          |
| Patterson ES                  | 294  | 8    | 2017 | 374                | 1.04                          |



TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                                        | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-----------------------------------------------------|------|------|------|--------------------|-------------------------------|
| Payne ES                                            | 295  | 6    | 2013 | 258                | 1.01                          |
| Payne ES                                            | 295  | 6    | 2014 | 277                | 1                             |
| Payne ES                                            | 295  | 6    | 2015 | 308                | 0.94                          |
| Payne ES                                            | 295  | 6    | 2016 | 300                | 0.99                          |
| Payne ES                                            | 295  | 6    | 2017 | 315                | 1                             |
| Peabody ES                                          | 301  | 6    | 2013 | 228                | 1                             |
| Peabody ES                                          | 301  | 6    | 2014 | 227                | 1                             |
| Peabody ES                                          | 301  | 6    | 2015 | 227                | 1.01                          |
| Peabody ES                                          | 301  | 6    | 2016 | 230                | 1                             |
| Peabody ES                                          | 301  | 6    | 2017 | 227                | 1                             |
| Phelps Architecture Construction and Engineering HS | 478  | 5    | 2013 | 319                | 1.28                          |
| Phelps Architecture Construction and Engineering HS | 478  | 5    | 2014 | 323                | 1.09                          |
| Phelps Architecture Construction and Engineering HS | 478  | 5    | 2015 | 306                | 1.17                          |
| Phelps Architecture Construction and Engineering HS | 478  | 5    | 2016 | 328                | 0.86                          |
| Phelps Architecture Construction and Engineering HS | 478  | 5    | 2017 | 260                | 1.2                           |
| Plummer ES                                          | 299  | 7    | 2013 | 416                | 0.98                          |
| Plummer ES                                          | 299  | 7    | 2014 | 428                | 1.01                          |
| Plummer ES                                          | 299  | 7    | 2015 | 409                | 1.14                          |
| Plummer ES                                          | 299  | 7    | 2016 | 391                | 1.04                          |
| Plummer ES                                          | 299  | 7    | 2017 | 375                | 1.04                          |
| Powell ES                                           | 300  | 4    | 2013 | 406                | 1.05                          |
| Powell ES                                           | 300  | 4    | 2014 | 446                | 0.98                          |
| Powell ES                                           | 300  | 4    | 2015 | 512                | 0.97                          |
| Powell ES                                           | 300  | 4    | 2016 | 534                | 0.99                          |
| Powell ES                                           | 300  | 4    | 2017 | 548                | 0.98                          |
| Randle Highlands ES                                 | 316  | 7    | 2013 | 335                | 1.08                          |
| Randle Highlands ES                                 | 316  | 7    | 2014 | 360                | 0.92                          |
| Randle Highlands ES                                 | 316  | 7    | 2015 | 339                | 1.07                          |
| Randle Highlands ES                                 | 316  | 7    | 2016 | 333                | 1.03                          |
| Randle Highlands ES                                 | 316  | 7    | 2017 | 325                | 1.05                          |
| Raymond EC                                          | 302  | 4    | 2013 | 543                | 1                             |
| Raymond EC                                          | 302  | 4    | 2014 | 581                | 0.96                          |
| Raymond EC                                          | 302  | 4    | 2015 | 572                | 1.02                          |
| Raymond EC                                          | 302  | 4    | 2016 | 613                | 0.95                          |
| Raymond EC                                          | 302  | 4    | 2017 | 589                | 1.06                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                              | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-------------------------------------------|------|------|------|--------------------|-------------------------------|
| River Terrace ES                          | 304  | 7    | 2013 | 0                  | 0                             |
| River Terrace ES                          | 304  | 7    | 2014 | 0                  | 0                             |
| River Terrace ES                          | 304  | 7    | 2015 | 125                | 0.87                          |
| River Terrace ES                          | 304  | 7    | 2016 | 131                | 1                             |
| River Terrace ES                          | 304  | 7    | 2017 | 137                | 1.04                          |
| Ron Brown College Preparatory High School | 436  | 7    | 2013 | 0                  | 0                             |
| Ron Brown College Preparatory High School | 436  | 7    | 2014 | 0                  | 0                             |
| Ron Brown College Preparatory High School | 436  | 7    | 2015 | 0                  | 0                             |
| Ron Brown College Preparatory High School | 436  | 7    | 2016 | 105                | 1.42                          |
| Ron Brown College Preparatory High School | 436  | 7    | 2017 | 209                | 1.05                          |
| Ron Brown MS                              | 425  | 7    | 2013 | 0                  | 0                             |
| Ron Brown MS                              | 425  | 7    | 2014 | 0                  | 0                             |
| Ron Brown MS                              | 425  | 7    | 2015 | 0                  | 0                             |
| Ron Brown MS                              | 425  | 7    | 2016 | 0                  | 0                             |
| Ron Brown MS                              | 425  | 7    | 2017 | 0                  | 0                             |
| Roosevelt HS at MacFarland                | 459  | 4    | 2013 | 438                | 1.01                          |
| Roosevelt HS at MacFarland                | 459  | 4    | 2014 | 476                | 0.91                          |
| Roosevelt HS at MacFarland                | 459  | 4    | 2015 | 482                | 1.06                          |
| Roosevelt HS at MacFarland                | 459  | 4    | 2016 | 667                | 0.9                           |
| Roosevelt HS at MacFarland                | 459  | 4    | 2017 | 698                | 0.98                          |
| Roosevelt STAY at MacFarland              | 456  | 4    | 2013 | 850                | 0.78                          |
| Roosevelt STAY at MacFarland              | 456  | 4    | 2014 | 802                | 0.82                          |
| Roosevelt STAY at MacFarland              | 456  | 4    | 2015 | 776                | 0.85                          |
| Roosevelt STAY at MacFarland              | 456  | 4    | 2016 | 613                | 0.78                          |
| Roosevelt STAY at MacFarland              | 456  | 4    | 2017 | 515                | 1                             |
| Ross ES                                   | 305  | 2    | 2013 | 161                | 1                             |
| Ross ES                                   | 305  | 2    | 2014 | 166                | 1.01                          |
| Ross ES                                   | 305  | 2    | 2015 | 167                | 1.01                          |
| Ross ES                                   | 305  | 2    | 2016 | 171                | 1.01                          |
| Ross ES                                   | 305  | 2    | 2017 | 174                | 1                             |
| Savoy ES                                  | 307  | 8    | 2013 | 408                | 1                             |
| Savoy ES                                  | 307  | 8    | 2014 | 408                | 1.02                          |
| Savoy ES                                  | 307  | 8    | 2015 | 349                | 1.16                          |
| Savoy ES                                  | 307  | 8    | 2016 | 315                | 1.09                          |
| Savoy ES                                  | 307  | 8    | 2017 | 267                | 1.2                           |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                            | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-----------------------------------------|------|------|------|--------------------|-------------------------------|
| School Within School at Goding          | 175  | 6    | 2013 | 205                | 0.97                          |
| School Within School at Goding          | 175  | 6    | 2014 | 248                | 0.98                          |
| School Within School at Goding          | 175  | 6    | 2015 | 289                | 1                             |
| School Within School at Goding          | 175  | 6    | 2016 | 307                | 1.02                          |
| School Within School at Goding          | 175  | 6    | 2017 | 308                | 1                             |
| School Without Walls at Francis Stevens | 409  | 2    | 2013 | 284                | 1.34                          |
| School Without Walls at Francis Stevens | 409  | 2    | 2014 | 414                | 0.79                          |
| School Without Walls at Francis Stevens | 409  | 2    | 2015 | 441                | 1                             |
| School Without Walls at Francis Stevens | 409  | 2    | 2016 | 471                | 0.97                          |
| School Without Walls at Francis Stevens | 409  | 2    | 2017 | 473                | 1.02                          |
| School Without Walls HS                 | 466  | 2    | 2013 | 585                | 0.98                          |
| School Without Walls HS                 | 466  | 2    | 2014 | 590                | 0.98                          |
| School Without Walls HS                 | 466  | 2    | 2015 | 589                | 0.98                          |
| School Without Walls HS                 | 466  | 2    | 2016 | 584                | 1                             |
| School Without Walls HS                 | 466  | 2    | 2017 | 592                | 0.99                          |
| Seaton ES                               | 309  | 6    | 2013 | 253                | 1                             |
| Seaton ES                               | 309  | 6    | 2014 | 295                | 0.95                          |
| Seaton ES                               | 309  | 6    | 2015 | 311                | 1.04                          |
| Seaton ES                               | 309  | 6    | 2016 | 341                | 1                             |
| Seaton ES                               | 309  | 6    | 2017 | 371                | 1                             |
| Sharpe Health School                    | 312  | 4    | 2013 | 67                 | 1.05                          |
| Sharpe Health School                    | 312  | 4    | 2014 | 60                 | 1.11                          |
| Sharpe Health School                    | 312  | 4    | 2015 | 0                  | 0                             |
| Sharpe Health School                    | 312  | 4    | 2016 | 0                  | 0                             |
| Sharpe Health School                    | 312  | 4    | 2017 | 0                  | 0                             |
| Shepherd ES                             | 313  | 4    | 2013 | 304                | 1.03                          |
| Shepherd ES                             | 313  | 4    | 2014 | 318                | 1                             |
| Shepherd ES                             | 313  | 4    | 2015 | 330                | 0.99                          |
| Shepherd ES                             | 313  | 4    | 2016 | 360                | 0.99                          |
| Shepherd ES                             | 313  | 4    | 2017 | 364                | 1.01                          |
| Simon ES                                | 315  | 8    | 2013 | 296                | 0.94                          |
| Simon ES                                | 315  | 8    | 2014 | 293                | 1.05                          |
| Simon ES                                | 315  | 8    | 2015 | 301                | 1.01                          |
| Simon ES                                | 315  | 8    | 2016 | 276                | 1.05                          |
| Simon ES                                | 315  | 8    | 2017 | 274                | 0.97                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS     | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|------------------|------|------|------|--------------------|-------------------------------|
| Smothers ES      | 322  | 7    | 2013 | 290                | 1.05                          |
| Smothers ES      | 322  | 7    | 2014 | 275                | 1.1                           |
| Smothers ES      | 322  | 7    | 2015 | 274                | 1.04                          |
| Smothers ES      | 322  | 7    | 2016 | 253                | 1.1                           |
| Smothers ES      | 322  | 7    | 2017 | 252                | 1.02                          |
| Sousa MS         | 427  | 7    | 2013 | 295                | 1                             |
| Sousa MS         | 427  | 7    | 2014 | 284                | 1                             |
| Sousa MS         | 427  | 7    | 2015 | 255                | 1.01                          |
| Sousa MS         | 427  | 7    | 2016 | 255                | 1                             |
| Sousa MS         | 427  | 7    | 2017 | 228                | 1.14                          |
| Stanton ES       | 319  | 8    | 2013 | 585                | 0.97                          |
| Stanton ES       | 319  | 8    | 2014 | 578                | 1.05                          |
| Stanton ES       | 319  | 8    | 2015 | 526                | 1.02                          |
| Stanton ES       | 319  | 8    | 2016 | 520                | 0.99                          |
| Stanton ES       | 319  | 8    | 2017 | 493                | 1.03                          |
| Stoddert ES      | 321  | 3    | 2013 | 381                | 1.07                          |
| Stoddert ES      | 321  | 3    | 2014 | 418                | 1.02                          |
| Stoddert ES      | 321  | 3    | 2015 | 432                | 0.98                          |
| Stoddert ES      | 321  | 3    | 2016 | 435                | 1                             |
| Stoddert ES      | 321  | 3    | 2017 | 438                | 0.97                          |
| Stuart-Hobson MS | 428  | 6    | 2013 | 417                | 0.9                           |
| Stuart-Hobson MS | 428  | 6    | 2014 | 423                | 1                             |
| Stuart-Hobson MS | 428  | 6    | 2015 | 424                | 1                             |
| Stuart-Hobson MS | 428  | 6    | 2016 | 431                | 0.99                          |
| Stuart-Hobson MS | 428  | 6    | 2017 | 422                | 1.02                          |
| Takoma EC        | 324  | 4    | 2013 | 442                | 0.91                          |
| Takoma EC        | 324  | 4    | 2014 | 442                | 1.03                          |
| Takoma EC        | 324  | 4    | 2015 | 468                | 1.02                          |
| Takoma EC        | 324  | 4    | 2016 | 468                | 1                             |
| Takoma EC        | 324  | 4    | 2017 | 473                | 0.99                          |
| Thomas ES        | 325  | 7    | 2013 | 414                | 0.97                          |
| Thomas ES        | 325  | 7    | 2014 | 408                | 1.06                          |
| Thomas ES        | 325  | 7    | 2015 | 411                | 1.03                          |
| Thomas ES        | 325  | 7    | 2016 | 409                | 1.03                          |
| Thomas ES        | 325  | 7    | 2017 | 384                | 1.11                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS    | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-----------------|------|------|------|--------------------|-------------------------------|
| Thomson ES      | 326  | 2    | 2013 | 289                | 0.96                          |
| Thomson ES      | 326  | 2    | 2014 | 272                | 1.02                          |
| Thomson ES      | 326  | 2    | 2015 | 287                | 0.96                          |
| Thomson ES      | 326  | 2    | 2016 | 313                | 0.95                          |
| Thomson ES      | 326  | 2    | 2017 | 308                | 0.99                          |
| Truesdell EC    | 327  | 4    | 2013 | 480                | 1.06                          |
| Truesdell EC    | 327  | 4    | 2014 | 526                | 0.93                          |
| Truesdell EC    | 327  | 4    | 2015 | 588                | 0.97                          |
| Truesdell EC    | 327  | 4    | 2016 | 679                | 0.93                          |
| Truesdell EC    | 327  | 4    | 2017 | 698                | 1.03                          |
| Tubman ES       | 328  | 1    | 2013 | 509                | 1.01                          |
| Tubman ES       | 328  | 1    | 2014 | 498                | 1.05                          |
| Tubman ES       | 328  | 1    | 2015 | 545                | 0.92                          |
| Tubman ES       | 328  | 1    | 2016 | 542                | 1.03                          |
| Tubman ES       | 328  | 1    | 2017 | 535                | 0.98                          |
| Turner ES       | 329  | 8    | 2013 | 403                | 0.92                          |
| Turner ES       | 329  | 8    | 2014 | 392                | 1.08                          |
| Turner ES       | 329  | 8    | 2015 | 460                | 0.92                          |
| Turner ES       | 329  | 8    | 2016 | 484                | 1.03                          |
| Turner ES       | 329  | 8    | 2017 | 463                | 1.11                          |
| Tyler ES        | 330  | 6    | 2013 | 507                | 1.06                          |
| Tyler ES        | 330  | 6    | 2014 | 522                | 1.05                          |
| Tyler ES        | 330  | 6    | 2015 | 520                | 1.03                          |
| Tyler ES        | 330  | 6    | 2016 | 514                | 1.03                          |
| Tyler ES        | 330  | 6    | 2017 | 525                | 1                             |
| Van Ness ES     | 331  | 6    | 2013 | 0                  | 0                             |
| Van Ness ES     | 331  | 6    | 2014 | 0                  | 0                             |
| Van Ness ES     | 331  | 6    | 2015 | 86                 | 1.27                          |
| Van Ness ES     | 331  | 6    | 2016 | 171                | 0.84                          |
| Van Ness ES     | 331  | 6    | 2017 | 215                | 1.02                          |
| Walker-Jones EC | 332  | 6    | 2013 | 454                | 0.98                          |
| Walker-Jones EC | 332  | 6    | 2014 | 465                | 1                             |
| Walker-Jones EC | 332  | 6    | 2015 | 449                | 1.07                          |
| Walker-Jones EC | 332  | 6    | 2016 | 451                | 1.04                          |
| Walker-Jones EC | 332  | 6    | 2017 | 435                | 1.09                          |

TABLE 4 (CONTINUED)

Ratios of Projected to Audited Enrollments for DCPS Schools 2013/14 to 2017/18: By School and Year

| NamePerSLIMS                              | S_ID | Ward | Year | Audited Enrollment | Projection / Enrollment Ratio |
|-------------------------------------------|------|------|------|--------------------|-------------------------------|
| Washington Metropolitan HS (formerly YEA) | 474  | 1    | 2013 | 280                | 1.02                          |
| Washington Metropolitan HS (formerly YEA) | 474  | 1    | 2014 | 244                | 1.24                          |
| Washington Metropolitan HS (formerly YEA) | 474  | 1    | 2015 | 150                | 1.67                          |
| Washington Metropolitan HS (formerly YEA) | 474  | 1    | 2016 | 125                | 1.56                          |
| Washington Metropolitan HS (formerly YEA) | 474  | 1    | 2017 | 195                | 1.02                          |
| Watkins ES                                | 333  | 6    | 2013 | 545                | 0.98                          |
| Watkins ES                                | 333  | 6    | 2014 | 500                | 1.04                          |
| Watkins ES                                | 333  | 6    | 2015 | 463                | 1.04                          |
| Watkins ES                                | 333  | 6    | 2016 | 436                | 1                             |
| Watkins ES                                | 333  | 6    | 2017 | 428                | 1                             |
| West EC                                   | 336  | 4    | 2013 | 258                | 0.99                          |
| West EC                                   | 336  | 4    | 2014 | 267                | 1.02                          |
| West EC                                   | 336  | 4    | 2015 | 303                | 0.92                          |
| West EC                                   | 336  | 4    | 2016 | 315                | 1                             |
| West EC                                   | 336  | 4    | 2017 | 330                | 1.04                          |
| Wheatley EC                               | 335  | 5    | 2013 | 442                | 1.05                          |
| Wheatley EC                               | 335  | 5    | 2014 | 463                | 0.94                          |
| Wheatley EC                               | 335  | 5    | 2015 | 359                | 1.27                          |
| Wheatley EC                               | 335  | 5    | 2016 | 321                | 1.07                          |
| Wheatley EC                               | 335  | 5    | 2017 | 324                | 1.01                          |
| Whittier EC                               | 338  | 4    | 2013 | 362                | 0.91                          |
| Whittier EC                               | 338  | 4    | 2014 | 350                | 1                             |
| Whittier EC                               | 338  | 4    | 2015 | 365                | 0.96                          |
| Whittier EC                               | 338  | 4    | 2016 | 341                | 1.07                          |
| Whittier EC                               | 338  | 4    | 2017 | 325                | 1.02                          |
| Wilson HS                                 | 463  | 3    | 2013 | 1696               | 1.05                          |
| Wilson HS                                 | 463  | 3    | 2014 | 1788               | 0.95                          |
| Wilson HS                                 | 463  | 3    | 2015 | 1791               | 1.04                          |
| Wilson HS                                 | 463  | 3    | 2016 | 1749               | 1.01                          |
| Wilson HS                                 | 463  | 3    | 2017 | 1829               | 0.96                          |
| Youth Services Center                     | 861  | 5    | 2013 | 89                 | 0.88                          |
| Youth Services Center                     | 861  | 5    | 2014 | 76                 | 0.93                          |
| Youth Services Center                     | 861  | 5    | 2015 | 77                 | 0.95                          |
| Youth Services Center                     | 861  | 5    | 2016 | 88                 | 0.93                          |
| Youth Services Center                     | 861  | 5    | 2017 | 52                 | 1.75                          |

## Projection to Enrollment Ratios by Year, by School for PCS

TABLE 5

### Ratios of Projected to Audited Enrollments for PCS Schools 2016/17: By School

| School Name                                                          | School Code | Ward(s) | Audited Enrollment | Projection / Enrollment Ratio |
|----------------------------------------------------------------------|-------------|---------|--------------------|-------------------------------|
| Academy of Hope Adult PCS                                            | 233         | 5,8     | 375                | 1.00                          |
| Achievement Preparatory Academy PCS - Wahler Place Elementary School | 217         | 8       | 464                | 1.10                          |
| Achievement Preparatory Academy PCS - Wahler Place Middle School     | 1100        | 8       | 468                | 1.15                          |
| AppleTree Early Learning Center PCS - Columbia Heights               | 140         | 1       | 160                | 1.02                          |
| AppleTree Early Learning Center PCS - Lincoln Park                   | 3073        | 6       | 60                 | 1.00                          |
| AppleTree Early Learning Center PCS - Oklahoma Avenue                | 1137        | 7       | 134                | 0.85                          |
| AppleTree Early Learning Center PCS - Southeast                      | 3072        | 8       | 169                | 0.99                          |
| AppleTree Early Learning Center PCS - Southwest                      | 141         | 6       | 108                | 1.00                          |
| BASIS DC PCS                                                         | 3068        | 2       | 597                | 1.00                          |
| Breakthrough Montessori PCS                                          | 289         | 4       | 81                 | 1.01                          |
| Bridges PCS                                                          | 142         | 5       | 328                | 0.90                          |
| Briya PCS                                                            | 126         | 1,4,5   | 644                | 1.17                          |
| Capital City PCS - High School                                       | 1207        | 4       | 333                | 1.00                          |
| Capital City PCS - Lower School                                      | 184         | 4       | 325                | 1.00                          |
| Capital City PCS - Middle School                                     | 182         | 4       | 325                | 1.00                          |
| Carlos Rosario International PCS                                     | 1119        | 1,5     | 2064               | 1.05                          |
| Cedar Tree Academy PCS                                               | 188         | 8       | 385                | 1.04                          |
| Center City PCS - Brightwood                                         | 1103        | 4       | 276                | 1.04                          |
| Center City PCS - Capitol Hill                                       | 1104        | 6       | 238                | 0.95                          |
| Center City PCS - Congress Heights                                   | 1105        | 8       | 253                | 0.95                          |
| Center City PCS - Petworth                                           | 1106        | 4       | 257                | 0.97                          |
| Center City PCS - Shaw                                               | 1107        | 6       | 234                | 0.96                          |
| Center City PCS - Trinidad                                           | 1108        | 5       | 184                | 0.90                          |
| Cesar Chavez PCS for Public Policy - Capitol Hill                    | 153         | 6       | 332                | 0.79                          |
| Cesar Chavez PCS for Public Policy - Chavez Prep                     | 127         | 1       | 306                | 0.84                          |
| Cesar Chavez PCS for Public Policy - Parkside High School            | 109         | 7       | 359                | 0.94                          |
| Cesar Chavez PCS for Public Policy - Parkside Middle School          | 102         | 7       | 278                | 0.91                          |
| City Arts & Prep PCS                                                 | 210         | 5       | 522                | 1.13                          |
| Community College Preparatory Academy PCS                            | 216         | 6,8     | 476                | 1.06                          |
| Creative Minds International PCS                                     | 3069        | 5       | 341                | 1.09                          |
| DC Bilingual PCS                                                     | 199         | 5       | 410                | 1.01                          |
| DC Prep PCS - Anacostia Elementary School                            | 276         | 8       | 203                | 0.99                          |
| DC Prep PCS - Benning Elementary School                              | 1110        | 7       | 449                | 1.00                          |
| DC Prep PCS - Benning Middle School                                  | 218         | 7       | 281                | 1.01                          |
| DC Prep PCS - Edgewood Elementary School                             | 130         | 5       | 447                | 1.00                          |

TABLE 5 (CONTINUED)

**Ratios of Projected to Audited Enrollments for PCS Schools 2016/17: By School**

| School Name                                                    | School Code | Ward(s) | Audited Enrollment | Projection / Enrollment Ratio |
|----------------------------------------------------------------|-------------|---------|--------------------|-------------------------------|
| DC Prep PCS - Edgewood Middle School                           | 196         | 5       | 330                | 1.03                          |
| DC Scholars PCS                                                | 3070        | 7       | 505                | 1.00                          |
| Democracy Prep Congress Heights PCS                            | 234         | 8       | 656                | 1.03                          |
| District of Columbia International School                      | 248         | 1       | 520                | 0.94                          |
| E.L. Haynes PCS - Elementary School                            | 1206        | 4       | 345                | 1.02                          |
| E.L. Haynes PCS - High School                                  | 1138        | 4       | 450                | 1.00                          |
| E.L. Haynes PCS - Middle School                                | 146         | 1       | 348                | 0.99                          |
| Eagle Academy PCS - Capitol Riverfront                         | 1125        | 6       | 144                | 0.94                          |
| Eagle Academy PCS - Congress Heights                           | 195         | 8       | 734                | 0.96                          |
| Early Childhood Academy PCS                                    | 138         | 8       | 229                | 0.85                          |
| Elsie Whitlow Stokes Community Freedom PCS                     | 159         | 5       | 350                | 1.00                          |
| Excel Academy PCS                                              | 1113        | 8       | 702                | 0.91                          |
| Friendship PCS - Armstrong                                     | 269         | 5       | 438                | 0.98                          |
| Friendship PCS - Blow Pierce Elementary School                 | 361         | 7       | 388                | 0.96                          |
| Friendship PCS - Blow Pierce Middle School                     | 362         | 7       | 230                | 1.11                          |
| Friendship PCS - Chamberlain Elementary School                 | 363         | 6       | 387                | 1.02                          |
| Friendship PCS - Chamberlain Middle School                     | 364         | 6       | 330                | 0.97                          |
| Friendship PCS - Collegiate Academy                            | 186         | 7       | 751                | 0.97                          |
| Friendship PCS - Online                                        | 268         | 4       | 145                | 1.08                          |
| Friendship PCS - Southeast Academy                             | 113         | 8       | 553                | 1.00                          |
| Friendship PCS - Technology Preparatory High School            | 1164        | 8       | 233                | 0.91                          |
| Friendship PCS - Technology Preparatory Middle School          | 1124        | 8       | 257                | 0.90                          |
| Friendship PCS - Woodridge Elementary School                   | 365         | 5       | 305                | 1.09                          |
| Friendship PCS - Woodridge Middle School                       | 366         | 5       | 199                | 1.03                          |
| Goodwill Excel Center PCS                                      | 297         | 2       | 382                | 1.36                          |
| Harmony DC PCS - School of Excellence                          | 245         | 5       | 97                 | 0.52                          |
| Hope Community PCS - Lamond                                    | 131         | 4       | 321                | 1.01                          |
| Hope Community PCS - Tolson                                    | 114         | 5       | 561                | 1.12                          |
| Howard University Middle School of Mathematics and Science PCS | 115         | 1       | 278                | 1.07                          |
| IDEA PCS                                                       | 163         | 7       | 262                | 0.82                          |
| Ideal Academy PCS                                              | 134         | 4       | 300                | 1.02                          |
| Ingenuity Prep PCS                                             | 200         | 8       | 376                | 1.00                          |
| Inspired Teaching Demonstration PCS                            | 3064        | 5       | 414                | 1.00                          |
| KIPP DC - AIM Academy PCS                                      | 116         | 8       | 373                | 1.06                          |
| KIPP DC - Arts and Technology Academy PCS                      | 236         | 7       | 277                | 1.05                          |



TABLE 5 (CONTINUED)

**Ratios of Projected to Audited Enrollments for PCS Schools 2016/17: By School**

| School Name                                      | School Code | Ward(s) | Audited Enrollment | Projection / Enrollment Ratio |
|--------------------------------------------------|-------------|---------|--------------------|-------------------------------|
| KIPP DC - College Preparatory Academy PCS        | 1123        | 5       | 594                | 1.07                          |
| KIPP DC - Connect Academy PCS                    | 209         | 5       | 325                | 1.08                          |
| KIPP DC - Discover Academy PCS                   | 1122        | 8       | 352                | 1.07                          |
| KIPP DC - Grow Academy PCS                       | 1129        | 6       | 328                | 1.06                          |
| KIPP DC - Heights Academy PCS                    | 3071        | 8       | 461                | 0.97                          |
| KIPP DC - KEY Academy PCS                        | 189         | 7       | 337                | 0.97                          |
| KIPP DC - LEAP Academy PCS                       | 132         | 7       | 198                | 1.00                          |
| KIPP DC - Lead Academy PCS                       | 190         | 6       | 418                | 1.00                          |
| KIPP DC - Northeast Academy PCS                  | 242         | 5       | 326                | 1.03                          |
| KIPP DC - Promise Academy PCS                    | 1121        | 7       | 525                | 1.01                          |
| KIPP DC - Quest Academy PCS                      | 237         | 7       | 365                | 1.09                          |
| KIPP DC - Spring Academy PCS                     | 214         | 5       | 335                | 0.99                          |
| KIPP DC - Valor Academy PCS                      | 243         | 7       | 223                | 1.01                          |
| KIPP DC - WILL Academy PCS                       | 121         | 6       | 346                | 1.00                          |
| Kingsman Academy PCS                             | 267         | 6       | 216                | 0.72                          |
| LAYC Career Academy PCS                          | 104         | 5       | 185                | 0.97                          |
| Latin American Montessori Bilingual PCS          | 193         | 4       | 426                | 1.07                          |
| Lee Montessori PCS                               | 228         | 1       | 145                | 1.06                          |
| Mary McLeod Bethune Day Academy PCS              | 135         | 5       | 402                | 0.89                          |
| Maya Angelou PCS - High School                   | 101         | 4       | 209                | 1.00                          |
| Maya Angelou PCS - Young Adult Learning Center   | 137         | 5       | 101                | 0.67                          |
| Meridian PCS                                     | 165         | 7       | 692                | 0.84                          |
| Monument Academy PCS                             | 260         | 7       | 76                 | 0.95                          |
| Mundo Verde Bilingual PCS                        | 3065        | 1       | 563                | 1.00                          |
| National Collegiate Preparatory PCHS             | 1120        | 6       | 275                | 1.02                          |
| Paul PCS - International High School             | 222         | 5       | 487                | 1.09                          |
| Paul PCS - Middle School                         | 170         | 8       | 242                | 1.14                          |
| Perry Street Preparatory PCS                     | 161         | 4       | 306                | 0.98                          |
| Richard Wright PCS for Journalism and Media Arts | 3067        | 4       | 300                | 1.12                          |
| Rocketship DC PCS - Rise Academy                 | 286         | 6       | 441                | 1.45                          |
| Roots PCS                                        | 173         | 8       | 118                | 1.13                          |
| SEED PCS of Washington DC                        | 174         | 4       | 361                | 1.05                          |
| Sela PCS                                         | 197         | 7       | 177                | 1.05                          |
| Shining Stars Montessori Academy PCS             | 3066        | 4       | 203                | 1.01                          |
| Somerset Preparatory Academy PCS                 | 187         | 5       | 324                | 1.00                          |

TABLE 5 (CONTINUED)

**Ratios of Projected to Audited Enrollments for PCS Schools 2016/17: By School**

| School Name                                    | School Code | Ward(s) | Audited Enrollment | Projection / Enrollment Ratio |
|------------------------------------------------|-------------|---------|--------------------|-------------------------------|
| St. Coletta Special Education PCS              | 1047        | 8       | 251                | 1.00                          |
| The Children's Guild PCS                       | 255         | 5       | 342                | 0.91                          |
| The Next Step El Proximo Paso PCS              | 168         | 1       | 393                | 1.00                          |
| Thurgood Marshall Academy PCS                  | 191         | 8       | 388                | 1.00                          |
| Two Rivers PCS - 4th St                        | 198         | 6       | 527                | 1.01                          |
| Two Rivers PCS - Young                         | 270         | 5       | 226                | 0.99                          |
| Washington Global PCS                          | 263         | 6       | 174                | 0.97                          |
| Washington Latin PCS - Middle School           | 125         | 4       | 362                | 1.00                          |
| Washington Latin PCS - Upper School            | 1118        | 4       | 335                | 1.02                          |
| Washington Leadership Academy PCS              | 283         | 5       | 110                | 1.18                          |
| Washington Mathematics Science Technology PCHS | 178         | 5       | 277                | 0.93                          |
| Washington Yu Ying PCS                         | 1117        | 5       | 571                | 1.02                          |
| Youthbuild PCS                                 | 128         | 1       | 117                | 1.01                          |

TABLE 5 (CONTINUED)

**Ratios of Projected to Audited Enrollments for PCS Schools 2017/18: By School**

| School Name                                                          | School Code | Ward(s) | Audited Enrollment | Projection / Enrollment Ratio |
|----------------------------------------------------------------------|-------------|---------|--------------------|-------------------------------|
| Academy of Hope Adult PCS                                            | 233         | 5,8     | 387                | 0.99                          |
| Achievement Preparatory Academy PCS - Wahler Place Elementary School | 217         | 8       | 486                | 1.04                          |
| Achievement Preparatory Academy PCS - Wahler Place Middle School     | 1100        | 8       | 476                | 1                             |
| AppleTree Early Learning Center PCS - Columbia Heights               | 140         | 1       | 162                | 0.99                          |
| AppleTree Early Learning Center PCS - Lincoln Park                   | 3073        | 6       | 60                 | 1                             |
| AppleTree Early Learning Center PCS - Oklahoma Avenue                | 1137        | 7       | 143                | 0.98                          |
| AppleTree Early Learning Center PCS - Southeast                      | 3072        | 8       | 181                | 0.94                          |
| AppleTree Early Learning Center PCS - Southwest                      | 141         | 6       | 108                | 0.98                          |
| BASIS DC PCS                                                         | 3068        | 2       | 598                | 1.02                          |
| Breakthrough Montessori PCS                                          | 289         | 4       | 135                | 1                             |
| Bridges PCS                                                          | 142         | 5       | 399                | 0.95                          |
| Briya PCS                                                            | 126         | 1,4,5   | 673                | 1.05                          |
| Capital City PCS - High School                                       | 1207        | 4       | 335                | 0.99                          |
| Capital City PCS - Lower School                                      | 184         | 4       | 324                | 1                             |
| Capital City PCS - Middle School                                     | 182         | 4       | 334                | 0.98                          |
| Carlos Rosario International PCS                                     | 1119        | 1,5     | 2121               | 1                             |
| Cedar Tree Academy PCS                                               | 188         | 8       | 381                | 0.95                          |
| Center City PCS - Brightwood                                         | 1103        | 4       | 263                | 1.02                          |
| Center City PCS - Capitol Hill                                       | 1104        | 6       | 260                | 0.96                          |
| Center City PCS - Congress Heights                                   | 1105        | 8       | 256                | 0.97                          |
| Center City PCS - Petworth                                           | 1106        | 4       | 252                | 0.99                          |
| Center City PCS - Shaw                                               | 1107        | 6       | 236                | 0.98                          |
| Center City PCS - Trinidad                                           | 1108        | 5       | 202                | 0.88                          |
| Cesar Chavez PCS for Public Policy - Capitol Hill                    | 153         | 6       | 259                | 1.21                          |
| Cesar Chavez PCS for Public Policy - Chavez Prep                     | 127         | 1       | 294                | 0.97                          |
| Cesar Chavez PCS for Public Policy - Parkside High School            | 109         | 7       | 367                | 0.93                          |
| Cesar Chavez PCS for Public Policy - Parkside Middle School          | 102         | 7       | 257                | 0.97                          |
| City Arts & Prep PCS                                                 | 210         | 5       | 499                | 1.06                          |
| Community College Preparatory Academy PCS                            | 216         | 6,8     | 600                | 1                             |
| Creative Minds International PCS                                     | 3069        | 5       | 441                | 1                             |
| DC Bilingual PCS                                                     | 199         | 5       | 440                | 0.97                          |
| DC Prep PCS - Anacostia Elementary School                            | 276         | 8       | 304                | 1                             |
| DC Prep PCS - Benning Elementary School                              | 1110        | 7       | 453                | 1                             |
| DC Prep PCS - Benning Middle School                                  | 218         | 7       | 335                | 0.98                          |
| DC Prep PCS - Edgewood Elementary School                             | 130         | 5       | 451                | 1                             |

TABLE 5 (CONTINUED)

**Ratios of Projected to Audited Enrollments for PCS Schools 2017/18: By School**

| School Name                                                    | School Code | Ward(s) | Audited Enrollment | Projection / Enrollment Ratio |
|----------------------------------------------------------------|-------------|---------|--------------------|-------------------------------|
| DC Prep PCS - Edgewood Middle School                           | 196         | 5       | 332                | 0.99                          |
| DC Scholars PCS                                                | 3070        | 7       | 515                | 1                             |
| Democracy Prep Congress Heights PCS                            | 234         | 8       | 645                | 1.05                          |
| District of Columbia International School                      | 248         | 1       | 804                | 1.01                          |
| E.L. Haynes PCS - Elementary School                            | 1206        | 4       | 348                | 1                             |
| E.L. Haynes PCS - High School                                  | 1138        | 4       | 430                | 1.04                          |
| E.L. Haynes PCS - Middle School                                | 146         | 1       | 353                | 0.99                          |
| Eagle Academy PCS - Capitol Riverfront                         | 1125        | 6       | 166                | 0.9                           |
| Eagle Academy PCS - Congress Heights                           | 195         | 8       | 770                | 0.97                          |
| Early Childhood Academy PCS                                    | 138         | 8       | 246                | 1.01                          |
| Elsie Whitlow Stokes Community Freedom PCS                     | 159         | 5       | 350                | 1                             |
| Excel Academy PCS                                              | 1113        | 8       | 643                | 1.08                          |
| Friendship PCS - Armstrong                                     | 269         | 5       | 395                | 1.21                          |
| Friendship PCS - Blow Pierce Elementary School                 | 361         | 7       | 387                | 1.02                          |
| Friendship PCS - Blow Pierce Middle School                     | 362         | 7       | 242                | 1.03                          |
| Friendship PCS - Chamberlain Elementary School                 | 363         | 6       | 377                | 1.03                          |
| Friendship PCS - Chamberlain Middle School                     | 364         | 6       | 323                | 1.07                          |
| Friendship PCS - Collegiate Academy                            | 186         | 7       | 685                | 1.03                          |
| Friendship PCS - Online                                        | 268         | 4       | 180                | 0.84                          |
| Friendship PCS - Southeast Academy                             | 113         | 8       | 559                | 0.99                          |
| Friendship PCS - Technology Preparatory High School            | 1164        | 8       | 253                | 1.06                          |
| Friendship PCS - Technology Preparatory Middle School          | 1124        | 8       | 255                | 1                             |
| Friendship PCS - Woodridge Elementary School                   | 365         | 5       | 297                | 1.08                          |
| Friendship PCS - Woodridge Middle School                       | 366         | 5       | 218                | 1.01                          |
| Goodwill Excel Center PCS                                      | 297         | 2       | 358                | 0.98                          |
| Harmony DC PCS - School of Excellence                          | 245         | 5       | 94                 | 1.32                          |
| Hope Community PCS - Lamond                                    | 131         | 4       | 288                | 1.14                          |
| Hope Community PCS - Tolson                                    | 114         | 5       | 467                | 1.23                          |
| Howard University Middle School of Mathematics and Science PCS | 115         | 1       | 278                | 1.05                          |
| IDEA PCS                                                       | 163         | 7       | 306                | 0.92                          |
| Ideal Academy PCS                                              | 134         | 4       | 289                | 1.04                          |
| Ingenuity Prep PCS                                             | 200         | 8       | 496                | 0.96                          |
| Inspired Teaching Demonstration PCS                            | 3064        | 5       | 446                | 1                             |
| KIPP DC - AIM Academy PCS                                      | 116         | 8       | 378                | 1                             |
| KIPP DC - Arts and Technology Academy PCS                      | 236         | 7       | 347                | 1                             |

TABLE 5 (CONTINUED)

**Ratios of Projected to Audited Enrollments for PCS Schools 2017/18: By School**

| School Name                                      | School Code | Ward(s) | Audited Enrollment | Projection / Enrollment Ratio |
|--------------------------------------------------|-------------|---------|--------------------|-------------------------------|
| KIPP DC - College Preparatory Academy PCS        | 1123        | 5       | 713                | 0.98                          |
| KIPP DC - Connect Academy PCS                    | 209         | 5       | 325                | 1                             |
| KIPP DC - Discover Academy PCS                   | 1122        | 8       | 351                | 1                             |
| KIPP DC - Grow Academy PCS                       | 1129        | 6       | 321                | 1                             |
| KIPP DC - Heights Academy PCS                    | 3071        | 8       | 461                | 0.98                          |
| KIPP DC - KEY Academy PCS                        | 189         | 7       | 338                | 1.01                          |
| KIPP DC - LEAP Academy PCS                       | 132         | 7       | 198                | 1                             |
| KIPP DC - Lead Academy PCS                       | 190         | 6       | 405                | 1.01                          |
| KIPP DC - Northeast Academy PCS                  | 242         | 5       | 330                | 1                             |
| KIPP DC - Promise Academy PCS                    | 1121        | 7       | 520                | 1                             |
| KIPP DC - Quest Academy PCS                      | 237         | 7       | 391                | 1                             |
| KIPP DC - Spring Academy PCS                     | 214         | 5       | 410                | 1                             |
| KIPP DC - Valor Academy PCS                      | 243         | 7       | 307                | 1                             |
| KIPP DC - WILL Academy PCS                       | 121         | 6       | 321                | 1.04                          |
| Kingsman Academy PCS                             | 267         | 6       | 252                | 1.04                          |
| LAYC Career Academy PCS                          | 104         | 5       | 137                | 1.38                          |
| Latin American Montessori Bilingual PCS          | 193         | 4       | 462                | 1                             |
| Lee Montessori PCS                               | 228         | 1       | 177                | 1                             |
| Mary McLeod Bethune Day Academy PCS              | 135         | 5       | 458                | 1                             |
| Maya Angelou PCS - High School                   | 101         | 4       | 170                | 1.22                          |
| Maya Angelou PCS - Young Adult Learning Center   | 137         | 5       | 136                | 0.95                          |
| Meridian PCS                                     | 165         | 7       | 636                | 1.09                          |
| Monument Academy PCS                             | 260         | 7       | 116                | 1.03                          |
| Mundo Verde Bilingual PCS                        | 3065        | 1       | 578                | 1.04                          |
| National Collegiate Preparatory PCHS             | 1120        | 6       | 277                | 1.04                          |
| Paul PCS - International High School             | 222         | 5       | 480                | 1.01                          |
| Paul PCS - Middle School                         | 170         | 8       | 228                | 1.16                          |
| Perry Street Preparatory PCS                     | 161         | 4       | 351                | 0.89                          |
| Richard Wright PCS for Journalism and Media Arts | 3067        | 4       | 282                | 1.12                          |
| Rocketship DC PCS - Legacy Prep                  | 1016        | 5       | 106                | 3.25                          |
| Rocketship DC PCS - Rise Academy                 | 286         | 6       | 527                | 1                             |
| Roots PCS                                        | 173         | 8       | 118                | 1.01                          |
| SEED PCS of Washington DC                        | 174         | 4       | 363                | 0.98                          |
| Sela PCS                                         | 197         | 7       | 202                | 0.99                          |
| Shining Stars Montessori Academy PCS             | 3066        | 4       | 274                | 1                             |

TABLE 5 (CONTINUED)

**Ratios of Projected to Audited Enrollments for PCS Schools 2017/18: By School**

| School Name                                    | School Code | Ward(s) | Audited Enrollment | Projection / Enrollment Ratio |
|------------------------------------------------|-------------|---------|--------------------|-------------------------------|
| Somerset Preparatory Academy PCS               | 187         | 5       | 375                | 1.17                          |
| St. Coletta Special Education PCS              | 1047        | 8       | 247                | 1.01                          |
| Sustainable Futures PCS                        | 1000        | 7       | 46                 | 2.71                          |
| The Children's Guild PCS                       | 255         | 5       | 375                | 0.99                          |
| The Next Step El Proximo Paso PCS              | 168         | 1       | 418                | 0.95                          |
| Thurgood Marshall Academy PCS                  | 191         | 8       | 383                | 1.03                          |
| Two Rivers PCS - 4th St                        | 198         | 6       | 528                | 1                             |
| Two Rivers PCS - Young                         | 270         | 5       | 284                | 1                             |
| Washington Global PCS                          | 263         | 6       | 196                | 1.12                          |
| Washington Latin PCS - Middle School           | 125         | 4       | 367                | 0.99                          |
| Washington Latin PCS - Upper School            | 1118        | 4       | 331                | 1.01                          |
| Washington Leadership Academy PCS              | 283         | 5       | 204                | 0.94                          |
| Washington Mathematics Science Technology PCHS | 178         | 5       | 228                | 1.24                          |
| Washington Yu Ying PCS                         | 1117        | 5       | 579                | 0.98                          |
| Youthbuild PCS                                 | 128         | 1       | 119                | 0.97                          |

TABLE 6

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name          | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|----------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| AITON ES             | 202         | Ward 7 | 2015 | 158          | 63           | 44            | 0.40           |
| AITON ES             | 202         | Ward 7 | 2016 | 177          | 48           | 53            | 0.36           |
| AITON ES             | 202         | Ward 7 | 2017 | 146          | 66           | 60            | 0.46           |
| AMIDON BOWEN ES      | 203         | Ward 6 | 2015 | 242          | 84           | 38            | 0.34           |
| AMIDON BOWEN ES      | 203         | Ward 6 | 2016 | 236          | 86           | 43            | 0.35           |
| AMIDON BOWEN ES      | 203         | Ward 6 | 2017 | 238          | 88           | 39            | 0.35           |
| ANACOSTIA HS         | 450         | Ward 8 | 2015 | 214          | 136          | 160           | 0.58           |
| ANACOSTIA HS         | 450         | Ward 8 | 2016 | 210          | 141          | 168           | 0.60           |
| ANACOSTIA HS         | 450         | Ward 8 | 2017 | 228          | 124          | 184           | 0.57           |
| BALLOU HS            | 452         | Ward 8 | 2015 | 296          | 391          | 32            | 0.59           |
| BALLOU HS            | 452         | Ward 8 | 2016 | 394          | 371          | 59            | 0.52           |
| BALLOU HS            | 452         | Ward 8 | 2017 | 425          | 433          | 88            | 0.55           |
| BALLOU STAY          | 462         | Ward 8 | 2015 | 22           | 153          | 200           | 0.94           |
| BALLOU STAY          | 462         | Ward 8 | 2016 | 23           | 148          | 211           | 0.94           |
| BALLOU STAY          | 462         | Ward 8 | 2017 | 25           | 200          | 282           | 0.95           |
| BANCROFT ES          | 204         | Ward 4 | 2015 | 389          | 81           | 22            | 0.21           |
| BANCROFT ES          | 204         | Ward 4 | 2016 | 432          | 53           | 12            | 0.13           |
| BANCROFT ES          | 204         | Ward 4 | 2017 | 425          | 76           | 11            | 0.17           |
| BARNARD ES           | 205         | Ward 4 | 2015 | 447          | 116          | 51            | 0.27           |
| BARNARD ES           | 205         | Ward 4 | 2016 | 467          | 114          | 53            | 0.26           |
| BARNARD ES           | 205         | Ward 4 | 2017 | 490          | 91           | 53            | 0.23           |
| BEERS ES             | 206         | Ward 7 | 2015 | 288          | 102          | 50            | 0.35           |
| BEERS ES             | 206         | Ward 7 | 2016 | 326          | 96           | 46            | 0.30           |
| BEERS ES             | 206         | Ward 7 | 2017 | 341          | 101          | 40            | 0.29           |
| BENJAMIN BANNEKER HS | 402         | Ward 1 | 2015 | 297          | 145          | 32            | 0.37           |
| BENJAMIN BANNEKER HS | 402         | Ward 1 | 2016 | 344          | 134          | 18            | 0.31           |
| BENJAMIN BANNEKER HS | 402         | Ward 1 | 2017 | 338          | 144          | 31            | 0.34           |
| BRENT ES             | 212         | Ward 6 | 2015 | 270          | 80           | 40            | 0.31           |
| BRENT ES             | 212         | Ward 6 | 2016 | 308          | 64           | 31            | 0.24           |
| BRENT ES             | 212         | Ward 6 | 2017 | 314          | 79           | 24            | 0.25           |
| BRIGHTWOOD EC        | 213         | Ward 4 | 2015 | 502          | 158          | 41            | 0.28           |
| BRIGHTWOOD EC        | 213         | Ward 4 | 2016 | 537          | 172          | 56            | 0.30           |
| BRIGHTWOOD EC        | 213         | Ward 4 | 2017 | 551          | 145          | 67            | 0.28           |
| BROOKLAND MS         | 347         | Ward 5 | 2015 | 45           | 262          | 14            | 0.86           |
| BROOKLAND MS         | 347         | Ward 5 | 2016 | 172          | 79           | 67            | 0.46           |
| BROOKLAND MS         | 347         | Ward 5 | 2017 | 142          | 96           | 44            | 0.50           |

TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name                             | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-----------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| BROWNE EC                               | 404         | Ward 5 | 2015 | 201          | 95           | 66            | 0.44           |
| BROWNE EC                               | 404         | Ward 5 | 2016 | 200          | 73           | 71            | 0.42           |
| BROWNE EC                               | 404         | Ward 5 | 2017 | 220          | 80           | 38            | 0.35           |
| BRUCE MONROE ES AT PARK VIEW            | 296         | Ward 1 | 2015 | 354          | 70           | 40            | 0.24           |
| BRUCE MONROE ES AT PARK VIEW            | 296         | Ward 1 | 2016 | 346          | 81           | 38            | 0.26           |
| BRUCE MONROE ES AT PARK VIEW            | 296         | Ward 1 | 2017 | 361          | 68           | 32            | 0.22           |
| BUNKER HILL ES                          | 219         | Ward 5 | 2015 | <10          | 142          | <10           | 1.00           |
| BUNKER HILL ES                          | 219         | Ward 5 | 2016 | 112          | 57           | 10            | 0.37           |
| BUNKER HILL ES                          | 219         | Ward 5 | 2017 | 138          | 40           | 18            | 0.30           |
| BURROUGHS EC                            | 220         | Ward 5 | 2015 | 178          | 65           | 62            | 0.42           |
| BURROUGHS EC                            | 220         | Ward 5 | 2016 | 192          | 62           | 42            | 0.35           |
| BURROUGHS EC                            | 220         | Ward 5 | 2017 | 186          | 59           | 43            | 0.35           |
| BURRVILLE ES                            | 221         | Ward 7 | 2015 | 219          | 53           | 70            | 0.36           |
| BURRVILLE ES                            | 221         | Ward 7 | 2016 | 234          | 53           | 37            | 0.28           |
| BURRVILLE ES                            | 221         | Ward 7 | 2017 | 196          | 69           | 74            | 0.42           |
| C W HARRIS ES                           | 247         | Ward 7 | 2015 | 171          | 96           | 61            | 0.48           |
| C W HARRIS ES                           | 247         | Ward 7 | 2016 | 172          | 84           | 50            | 0.44           |
| C W HARRIS ES                           | 247         | Ward 7 | 2017 | 172          | 88           | 51            | 0.45           |
| CAPITOL HILL MONTESSORI SCHOOL AT LOGAN | 360         | Ward 6 | 2015 | 231          | 34           | 47            | 0.26           |
| CAPITOL HILL MONTESSORI SCHOOL AT LOGAN | 360         | Ward 6 | 2016 | 261          | 42           | 34            | 0.23           |
| CAPITOL HILL MONTESSORI SCHOOL AT LOGAN | 360         | Ward 6 | 2017 | 275          | 36           | 45            | 0.23           |
| CARDOZO EC                              | 454         | Ward 1 | 2015 | 344          | 278          | 301           | 0.63           |
| CARDOZO EC                              | 454         | Ward 1 | 2016 | 405          | 321          | 288           | 0.60           |
| CARDOZO EC                              | 454         | Ward 1 | 2017 | 427          | 336          | 274           | 0.59           |
| CHOICE ACADEMY                          | 947         | Ward 1 | 2015 | <10          | <10          | <10           | 1.00           |
| CHOICE ACADEMY                          | 947         | Ward 1 | 2016 | <10          | <10          | <10           | 1.00           |
| CHOICE ACADEMY                          | 947         | Ward 1 | 2017 | <10          | <10          | <10           | 1.00           |
| CLEVELAND ES                            | 224         | Ward 1 | 2015 | 222          | 55           | 41            | 0.30           |
| CLEVELAND ES                            | 224         | Ward 1 | 2016 | 226          | 54           | 31            | 0.27           |
| CLEVELAND ES                            | 224         | Ward 1 | 2017 | 224          | 60           | 38            | 0.30           |



TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name                  | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| COLUMBIA HEIGHTS EC (CHEC)   | 442         | Ward 1 | 2015 | 759          | 472          | 188           | 0.47           |
| COLUMBIA HEIGHTS EC (CHEC)   | 442         | Ward 1 | 2016 | 818          | 455          | 231           | 0.46           |
| COLUMBIA HEIGHTS EC (CHEC)   | 442         | Ward 1 | 2017 | 825          | 409          | 260           | 0.45           |
| COOKE HD ES                  | 227         | Ward 1 | 2015 | 268          | 89           | 50            | 0.34           |
| COOKE HD ES                  | 227         | Ward 1 | 2016 | 284          | 111          | 37            | 0.34           |
| COOKE HD ES                  | 227         | Ward 1 | 2017 | 270          | 102          | 60            | 0.38           |
| COOLIDGE HS                  | 455         | Ward 4 | 2015 | 151          | 119          | 134           | 0.63           |
| COOLIDGE HS                  | 455         | Ward 4 | 2016 | 162          | 100          | 128           | 0.58           |
| COOLIDGE HS                  | 455         | Ward 4 | 2017 | 166          | 134          | 184           | 0.66           |
| DEAL MS                      | 405         | Ward 3 | 2015 | 1139         | 202          | 16            | 0.16           |
| DEAL MS                      | 405         | Ward 3 | 2016 | 1249         | 228          | 28            | 0.17           |
| DEAL MS                      | 405         | Ward 3 | 2017 | 1254         | 221          | 41            | 0.17           |
| DOROTHY HEIGHTS ES           | 349         | Ward 4 | 2015 | <10          | 422          | <10           | 1.00           |
| DOROTHY HEIGHTS ES           | 349         | Ward 4 | 2016 | 351          | 114          | 68            | 0.34           |
| DOROTHY HEIGHTS ES           | 349         | Ward 4 | 2017 | 327          | 88           | 94            | 0.36           |
| DREW ES                      | 231         | Ward 7 | 2015 | 144          | 76           | 26            | 0.41           |
| DREW ES                      | 231         | Ward 7 | 2016 | 193          | 41           | 15            | 0.22           |
| DREW ES                      | 231         | Ward 7 | 2017 | 185          | 61           | 23            | 0.31           |
| DUNBAR HS                    | 467         | Ward 5 | 2015 | 310          | 164          | 156           | 0.51           |
| DUNBAR HS                    | 467         | Ward 5 | 2016 | 318          | 208          | 224           | 0.58           |
| DUNBAR HS                    | 467         | Ward 5 | 2017 | 324          | 282          | 268           | 0.63           |
| EASTERN HS                   | 457         | Ward 6 | 2015 | 572          | 208          | 201           | 0.42           |
| EASTERN HS                   | 457         | Ward 6 | 2016 | 531          | 189          | 306           | 0.48           |
| EASTERN HS                   | 457         | Ward 6 | 2017 | 529          | 218          | 318           | 0.50           |
| EATON ES                     | 232         | Ward 3 | 2015 | 350          | 120          | 10            | 0.27           |
| EATON ES                     | 232         | Ward 3 | 2016 | 352          | 120          | <10           | 0.26           |
| EATON ES                     | 232         | Ward 3 | 2017 | 358          | 118          | <10           | 0.26           |
| ELIOT HINE MS                | 407         | Ward 6 | 2015 | 156          | 48           | 117           | 0.51           |
| ELIOT HINE MS                | 407         | Ward 6 | 2016 | 136          | 59           | 91            | 0.52           |
| ELIOT HINE MS                | 407         | Ward 6 | 2017 | 138          | 65           | 72            | 0.50           |
| ELLINGTON SCHOOL OF THE ARTS | 471         | Ward 1 | 2015 | 315          | 173          | 10            | 0.37           |
| ELLINGTON SCHOOL OF THE ARTS | 471         | Ward 1 | 2016 | 323          | 205          | 12            | 0.40           |
| ELLINGTON SCHOOL OF THE ARTS | 471         | Ward 1 | 2017 | 356          | 210          | 21            | 0.39           |

TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name     | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-----------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| GARFIELD ES     | 238         | Ward 8 | 2015 | 175          | 109          | 61            | 0.49           |
| GARFIELD ES     | 238         | Ward 8 | 2016 | 191          | 88           | 61            | 0.44           |
| GARFIELD ES     | 238         | Ward 8 | 2017 | 203          | 73           | 47            | 0.37           |
| GARRISON ES     | 239         | Ward 2 | 2015 | 144          | 48           | 63            | 0.44           |
| GARRISON ES     | 239         | Ward 2 | 2016 | 138          | 66           | 48            | 0.45           |
| GARRISON ES     | 239         | Ward 2 | 2017 | 153          | 60           | 51            | 0.42           |
| HARDY MS        | 246         | Ward 2 | 2015 | 259          | 114          | 87            | 0.44           |
| HARDY MS        | 246         | Ward 2 | 2016 | 263          | 108          | 97            | 0.44           |
| HARDY MS        | 246         | Ward 2 | 2017 | 265          | 127          | 92            | 0.45           |
| HART MS         | 413         | Ward 8 | 2015 | 282          | 92           | 164           | 0.48           |
| HART MS         | 413         | Ward 8 | 2016 | 247          | 101          | 160           | 0.51           |
| HART MS         | 413         | Ward 8 | 2017 | 241          | 96           | 184           | 0.54           |
| HD WOODSON HS   | 464         | Ward 7 | 2015 | 324          | 200          | 97            | 0.48           |
| HD WOODSON HS   | 464         | Ward 7 | 2016 | 369          | 213          | 143           | 0.49           |
| HD WOODSON HS   | 464         | Ward 7 | 2017 | 346          | 123          | 195           | 0.48           |
| HEARST ES       | 258         | Ward 3 | 2015 | 207          | 96           | 13            | 0.34           |
| HEARST ES       | 258         | Ward 3 | 2016 | 225          | 82           | 20            | 0.31           |
| HEARST ES       | 258         | Ward 3 | 2017 | 227          | 85           | 14            | 0.30           |
| HENDLEY ES      | 249         | Ward 8 | 2015 | 289          | 135          | 91            | 0.44           |
| HENDLEY ES      | 249         | Ward 8 | 2016 | 275          | 139          | 86            | 0.45           |
| HENDLEY ES      | 249         | Ward 8 | 2017 | 239          | 115          | 111           | 0.49           |
| HORACE MANN ES  | 273         | Ward 3 | 2015 | 237          | 118          | <10           | 0.34           |
| HORACE MANN ES  | 273         | Ward 3 | 2016 | 268          | 110          | <10           | 0.29           |
| HORACE MANN ES  | 273         | Ward 3 | 2017 | 293          | 107          | 10            | 0.29           |
| HOUSTON ES      | 251         | Ward 7 | 2015 | 184          | 62           | 36            | 0.35           |
| HOUSTON ES      | 251         | Ward 7 | 2016 | 189          | 79           | 40            | 0.39           |
| HOUSTON ES      | 251         | Ward 7 | 2017 | 182          | 56           | 51            | 0.37           |
| HYDE ADDISON ES | 252         | Ward 2 | 2015 | 207          | 91           | 17            | 0.34           |
| HYDE ADDISON ES | 252         | Ward 2 | 2016 | 212          | 100          | 24            | 0.37           |
| HYDE ADDISON ES | 252         | Ward 2 | 2017 | 142          | 162          | 54            | 0.60           |
| J O WILSON ES   | 339         | Ward 6 | 2015 | 345          | 105          | 48            | 0.31           |
| J O WILSON ES   | 339         | Ward 6 | 2016 | 339          | 99           | 67            | 0.33           |
| J O WILSON ES   | 339         | Ward 6 | 2017 | 344          | 117          | 60            | 0.34           |
| JANNEY ES       | 254         | Ward 3 | 2015 | 561          | 165          | <10           | 0.23           |
| JANNEY ES       | 254         | Ward 3 | 2016 | 584          | 134          | <10           | 0.19           |
| JANNEY ES       | 254         | Ward 3 | 2017 | 570          | 166          | <10           | 0.23           |

TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name                     | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|---------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| JEFFERSON MIDDLE SCHOOL ACADEMY | 433         | Ward 6 | 2015 | 135          | 121          | 47            | 0.55           |
| JEFFERSON MIDDLE SCHOOL ACADEMY | 433         | Ward 6 | 2016 | 182          | 113          | 91            | 0.53           |
| JEFFERSON MIDDLE SCHOOL ACADEMY | 433         | Ward 6 | 2017 | 208          | 106          | 121           | 0.52           |
| JOHNSON JOHN HAYDEN MS          | 416         | Ward 8 | 2015 | 203          | 77           | 87            | 0.45           |
| JOHNSON JOHN HAYDEN MS          | 416         | Ward 8 | 2016 | 168          | 77           | 91            | 0.50           |
| JOHNSON JOHN HAYDEN MS          | 416         | Ward 8 | 2017 | 176          | 79           | 65            | 0.45           |
| KELLY MILLER MS                 | 421         | Ward 7 | 2015 | 335          | 107          | 175           | 0.46           |
| KELLY MILLER MS                 | 421         | Ward 7 | 2016 | 343          | 106          | 157           | 0.43           |
| KELLY MILLER MS                 | 421         | Ward 7 | 2017 | 297          | 90           | 178           | 0.47           |
| KETCHAM ES                      | 257         | Ward 8 | 2015 | 192          | 80           | 50            | 0.40           |
| KETCHAM ES                      | 257         | Ward 8 | 2016 | 201          | 66           | 50            | 0.37           |
| KETCHAM ES                      | 257         | Ward 8 | 2017 | 203          | 76           | 48            | 0.38           |
| KEY ES                          | 272         | Ward 3 | 2015 | 287          | 95           | 18            | 0.28           |
| KEY ES                          | 272         | Ward 3 | 2016 | 294          | 101          | 17            | 0.29           |
| KEY ES                          | 272         | Ward 3 | 2017 | 312          | 105          | <10           | 0.26           |
| KIMBALL ES                      | 259         | Ward 7 | 2015 | 223          | 99           | 39            | 0.38           |
| KIMBALL ES                      | 259         | Ward 7 | 2016 | 239          | 102          | 35            | 0.36           |
| KIMBALL ES                      | 259         | Ward 7 | 2017 | 234          | 66           | 71            | 0.37           |
| KING M L ES                     | 344         | Ward 8 | 2015 | 249          | 105          | 56            | 0.39           |
| KING M L ES                     | 344         | Ward 8 | 2016 | 254          | 90           | 68            | 0.38           |
| KING M L ES                     | 344         | Ward 8 | 2017 | 221          | 98           | 77            | 0.44           |
| KRAMER MS                       | 417         | Ward 8 | 2015 | 177          | 65           | 224           | 0.62           |
| KRAMER MS                       | 417         | Ward 8 | 2016 | 144          | 44           | 197           | 0.63           |
| KRAMER MS                       | 417         | Ward 8 | 2017 | 135          | 59           | 182           | 0.64           |
| LAFAYETTE ES                    | 261         | Ward 4 | 2015 | 541          | 154          | <10           | 0.23           |
| LAFAYETTE ES                    | 261         | Ward 4 | 2016 | 541          | 219          | <10           | 0.29           |
| LAFAYETTE ES                    | 261         | Ward 4 | 2017 | 588          | 227          | <10           | 0.28           |
| LANGDON EC                      | 262         | Ward 5 | 2015 | 178          | 89           | 113           | 0.53           |
| LANGDON EC                      | 262         | Ward 5 | 2016 | 222          | 62           | 17            | 0.26           |
| LANGDON EC                      | 262         | Ward 5 | 2017 | 216          | 69           | 38            | 0.33           |

TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name                         | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| LANGLEY EDUCATION CAMPUS            | 370         | Ward 5 | 2015 | 170          | 73           | 44            | 0.41           |
| LANGLEY EDUCATION CAMPUS            | 370         | Ward 5 | 2016 | 189          | 69           | 40            | 0.37           |
| LANGLEY EDUCATION CAMPUS            | 370         | Ward 5 | 2017 | 164          | 70           | 62            | 0.45           |
| LASALLE-BACKUS EC                   | 264         | Ward 4 | 2015 | 233          | 87           | 35            | 0.34           |
| LASALLE-BACKUS EC                   | 264         | Ward 4 | 2016 | 230          | 121          | 35            | 0.40           |
| LASALLE-BACKUS EC                   | 264         | Ward 4 | 2017 | 244          | 96           | 32            | 0.34           |
| LECKIE ES                           | 266         | Ward 8 | 2015 | 304          | 162          | 50            | 0.41           |
| LECKIE ES                           | 266         | Ward 8 | 2016 | 320          | 188          | 59            | 0.44           |
| LECKIE ES                           | 266         | Ward 8 | 2017 | 353          | 163          | 62            | 0.39           |
| LUDLOW-TAYLOR ES                    | 271         | Ward 6 | 2015 | 235          | 72           | 29            | 0.30           |
| LUDLOW-TAYLOR ES                    | 271         | Ward 6 | 2016 | 271          | 55           | 39            | 0.26           |
| LUDLOW-TAYLOR ES                    | 271         | Ward 6 | 2017 | 291          | 76           | 28            | 0.26           |
| LUKE MOORE ALTERNATIVE HS           | 884         | Ward 5 | 2015 | 16           | 139          | <10           | 0.90           |
| LUKE MOORE ALTERNATIVE HS           | 884         | Ward 5 | 2016 | 29           | 136          | <10           | 0.83           |
| LUKE MOORE ALTERNATIVE HS           | 884         | Ward 5 | 2017 | 27           | 185          | <10           | 0.88           |
| MACFARLAND MS DUAL LANGUAGE PROGRAM | 420         | Ward 4 | 2015 | <10          | <10          | <10           |                |
| MACFARLAND MS DUAL LANGUAGE PROGRAM | 420         | Ward 4 | 2016 | <10          | 69           | <10           | 1.00           |
| MACFARLAND MS DUAL LANGUAGE PROGRAM | 420         | Ward 4 | 2017 | 61           | 71           | <10           | 0.55           |
| MALCOLM X ES AT GREEN               | 308         | Ward 8 | 2015 | 111          | 81           | 63            | 0.56           |
| MALCOLM X ES AT GREEN               | 308         | Ward 8 | 2016 | 144          | 64           | 56            | 0.45           |
| MALCOLM X ES AT GREEN               | 308         | Ward 8 | 2017 | 144          | 85           | 52            | 0.49           |
| MARIE REED ES                       | 284         | Ward 4 | 2015 | 294          | 51           | 38            | 0.23           |
| MARIE REED ES                       | 284         | Ward 4 | 2016 | 292          | 60           | 40            | 0.26           |
| MARIE REED ES                       | 284         | Ward 4 | 2017 | 297          | 82           | 19            | 0.25           |
| MAURY ES                            | 274         | Ward 6 | 2015 | 293          | 48           | 20            | 0.19           |
| MAURY ES                            | 274         | Ward 6 | 2016 | 296          | 49           | 22            | 0.19           |
| MAURY ES                            | 274         | Ward 6 | 2017 | 314          | 54           | 20            | 0.19           |
| MCKINLEY MIDDLE SCHOOL              | 435         | Ward 5 | 2015 | 122          | 101          | 35            | 0.53           |
| MCKINLEY MIDDLE SCHOOL              | 435         | Ward 5 | 2016 | 141          | 73           | 38            | 0.44           |
| MCKINLEY MIDDLE SCHOOL              | 435         | Ward 5 | 2017 | 145          | 96           | 37            | 0.48           |
| MCKINLEY TECHNOLOGY HS              | 458         | Ward 5 | 2015 | 393          | 243          | 47            | 0.42           |
| MCKINLEY TECHNOLOGY HS              | 458         | Ward 5 | 2016 | 437          | 165          | 36            | 0.32           |
| MCKINLEY TECHNOLOGY HS              | 458         | Ward 5 | 2017 | 411          | 209          | 31            | 0.37           |
| MINER ES                            | 280         | Ward 6 | 2015 | 279          | 65           | 62            | 0.31           |
| MINER ES                            | 280         | Ward 6 | 2016 | 281          | 57           | 48            | 0.27           |
| MINER ES                            | 280         | Ward 6 | 2017 | 213          | 86           | 96            | 0.46           |

TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name                                               | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-----------------------------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| MOTEN ES                                                  | 285         | Ward 8 | 2015 | 263          | 109          | 58            | 0.39           |
| MOTEN ES                                                  | 285         | Ward 8 | 2016 | 273          | 92           | 73            | 0.38           |
| MOTEN ES                                                  | 285         | Ward 8 | 2017 | 248          | 113          | 83            | 0.44           |
| MURCH ES                                                  | 287         | Ward 3 | 2015 | 438          | 185          | 17            | 0.32           |
| MURCH ES                                                  | 287         | Ward 3 | 2016 | 436          | 136          | 27            | 0.27           |
| MURCH ES                                                  | 287         | Ward 3 | 2017 | 422          | 151          | <10           | 0.27           |
| NALLE ES                                                  | 288         | Ward 7 | 2015 | 250          | 90           | 51            | 0.36           |
| NALLE ES                                                  | 288         | Ward 7 | 2016 | 257          | 77           | 60            | 0.35           |
| NALLE ES                                                  | 288         | Ward 7 | 2017 | 275          | 71           | 55            | 0.31           |
| NOYES EC                                                  | 290         | Ward 5 | 2015 | 123          | 40           | 82            | 0.50           |
| NOYES EC                                                  | 290         | Ward 5 | 2016 | 120          | 58           | 26            | 0.41           |
| NOYES EC                                                  | 290         | Ward 5 | 2017 | 117          | 60           | 42            | 0.47           |
| ORR ES                                                    | 291         | Ward 8 | 2015 | 252          | 122          | 68            | 0.43           |
| ORR ES                                                    | 291         | Ward 8 | 2016 | 277          | 85           | 62            | 0.35           |
| ORR ES                                                    | 291         | Ward 8 | 2017 | 297          | 68           | 47            | 0.28           |
| OYSTER ADAMS BILINGUAL SCHOOL                             | 292         | Ward 3 | 2015 | 516          | 144          | 24            | 0.25           |
| OYSTER ADAMS BILINGUAL SCHOOL                             | 292         | Ward 3 | 2016 | 553          | 112          | 17            | 0.19           |
| OYSTER ADAMS BILINGUAL SCHOOL                             | 292         | Ward 3 | 2017 | 549          | 124          | 13            | 0.20           |
| PATTERSON ES                                              | 294         | Ward 8 | 2015 | 244          | 118          | 74            | 0.44           |
| PATTERSON ES                                              | 294         | Ward 8 | 2016 | 272          | 86           | 62            | 0.35           |
| PATTERSON ES                                              | 294         | Ward 8 | 2017 | 255          | 89           | 67            | 0.38           |
| PAYNE ES                                                  | 295         | Ward 6 | 2015 | 198          | 74           | 28            | 0.34           |
| PAYNE ES                                                  | 295         | Ward 6 | 2016 | 205          | 66           | 35            | 0.33           |
| PAYNE ES                                                  | 295         | Ward 6 | 2017 | 185          | 92           | 53            | 0.44           |
| PEABODY ES (CAPITOL HILL CLUSTER)                         | 301         | Ward 6 | 2015 | 107          | 52           | 91            | 0.57           |
| PEABODY ES (CAPITOL HILL CLUSTER)                         | 301         | Ward 6 | 2016 | 111          | 54           | 85            | 0.56           |
| PEABODY ES (CAPITOL HILL CLUSTER)                         | 301         | Ward 6 | 2017 | 118          | 49           | 80            | 0.52           |
| PHELPS ARCHITECTURE<br>CONSTRUCTION AND ENGINEERING<br>HS | 478         | Ward 5 | 2015 | 173          | 89           | 37            | 0.42           |
| PHELPS ARCHITECTURE<br>CONSTRUCTION AND ENGINEERING<br>HS | 478         | Ward 5 | 2016 | 181          | 127          | 26            | 0.46           |
| PHELPS ARCHITECTURE<br>CONSTRUCTION AND ENGINEERING<br>HS | 478         | Ward 5 | 2017 | 177          | 83           | 35            | 0.40           |

TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name                      | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|----------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| PLUMMER ES                       | 299         | Ward 7 | 2015 | 280          | 93           | 70            | 0.37           |
| PLUMMER ES                       | 299         | Ward 7 | 2016 | 287          | 72           | 50            | 0.30           |
| PLUMMER ES                       | 299         | Ward 7 | 2017 | 260          | 87           | 56            | 0.35           |
| POWELL ES                        | 300         | Ward 4 | 2015 | 367          | 101          | 24            | 0.25           |
| POWELL ES                        | 300         | Ward 4 | 2016 | 395          | 89           | 30            | 0.23           |
| POWELL ES                        | 300         | Ward 4 | 2017 | 430          | 74           | 21            | 0.18           |
| RANDLE HIGHLANDS ES              | 316         | Ward 7 | 2015 | 225          | 73           | 58            | 0.37           |
| RANDLE HIGHLANDS ES              | 316         | Ward 7 | 2016 | 236          | 63           | 39            | 0.30           |
| RANDLE HIGHLANDS ES              | 316         | Ward 7 | 2017 | 225          | 66           | 35            | 0.31           |
| RAYMOND EC                       | 302         | Ward 4 | 2015 | 384          | 104          | 77            | 0.32           |
| RAYMOND EC                       | 302         | Ward 4 | 2016 | 422          | 129          | 52            | 0.30           |
| RAYMOND EC                       | 302         | Ward 4 | 2017 | 445          | 103          | 72            | 0.28           |
| RIVER TERRACE ES                 | 304         | Ward 7 | 2015 | <10          | 41           | <10           | 1.00           |
| RIVER TERRACE ES                 | 304         | Ward 7 | 2016 | 22           | 27           | <10           | 0.57           |
| RIVER TERRACE ES                 | 304         | Ward 7 | 2017 | 31           | 16           | <10           | 0.34           |
| RON BROWN COLLEGE PREPARATORY HS | 436         | Ward 7 | 2015 | <10          | <10          | <10           |                |
| RON BROWN COLLEGE PREPARATORY HS | 436         | Ward 7 | 2016 | <10          | 97           | <10           | 1.00           |
| RON BROWN COLLEGE PREPARATORY HS | 436         | Ward 7 | 2017 | 82           | 127          | <10           | 0.62           |
| ROOSEVELT HS                     | 459         | Ward 4 | 2015 | 142          | 220          | 66            | 0.67           |
| ROOSEVELT HS                     | 459         | Ward 4 | 2016 | 217          | 344          | 83            | 0.66           |
| ROOSEVELT HS                     | 459         | Ward 4 | 2017 | 323          | 355          | 158           | 0.61           |
| ROOSEVELT STAY                   | 456         | Ward 4 | 2015 | <10          | 173          | <10           | 1.00           |
| ROOSEVELT STAY                   | 456         | Ward 4 | 2016 | 13           | 132          | <10           | 0.91           |
| ROOSEVELT STAY                   | 456         | Ward 4 | 2017 | 26           | 262          | <10           | 0.91           |
| ROSS ES                          | 305         | Ward 2 | 2015 | 124          | 25           | 12            | 0.23           |
| ROSS ES                          | 305         | Ward 2 | 2016 | 119          | 36           | 12            | 0.29           |
| ROSS ES                          | 305         | Ward 2 | 2017 | 125          | 33           | 14            | 0.27           |
| SAVOY ES                         | 307         | Ward 8 | 2015 | 236          | 65           | 65            | 0.36           |
| SAVOY ES                         | 307         | Ward 8 | 2016 | 226          | 57           | 57            | 0.34           |
| SAVOY ES                         | 307         | Ward 8 | 2017 | 199          | 50           | 66            | 0.37           |
| SCHOOL WITHIN SCHOOL AT GODING   | 175         | Ward 6 | 2015 | 220          | 32           | <10           | 0.16           |
| SCHOOL WITHIN SCHOOL AT GODING   | 175         | Ward 6 | 2016 | 241          | 34           | 23            | 0.19           |
| SCHOOL WITHIN SCHOOL AT GODING   | 175         | Ward 6 | 2017 | 244          | 34           | 19            | 0.18           |

TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name                             | School Code | Ward   | Year | Total stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-----------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| SCHOOL WITHOUT WALLS @ FRANCIS-STEVENS  | 409         | Ward 2 | 2015 | 286          | 111          | 40            | 0.35           |
| SCHOOL WITHOUT WALLS @ FRANCIS-STEVENS  | 409         | Ward 2 | 2016 | 323          | 109          | 32            | 0.30           |
| SCHOOL WITHOUT WALLS @ FRANCIS-STEVENS  | 409         | Ward 2 | 2017 | 339          | 94           | 31            | 0.27           |
| SCHOOL WITHOUT WALLS SHS                | 466         | Ward 2 | 2015 | 385          | 198          | <10           | 0.35           |
| SCHOOL WITHOUT WALLS SHS                | 466         | Ward 2 | 2016 | 405          | 179          | <10           | 0.31           |
| SCHOOL WITHOUT WALLS SHS                | 466         | Ward 2 | 2017 | 414          | 178          | <10           | 0.31           |
| SEATON ES                               | 309         | Ward 6 | 2015 | 216          | 48           | 27            | 0.26           |
| SEATON ES                               | 309         | Ward 6 | 2016 | 235          | 63           | 32            | 0.29           |
| SEATON ES                               | 309         | Ward 6 | 2017 | 259          | 68           | 36            | 0.29           |
| SHEPHERD ES                             | 313         | Ward 4 | 2015 | 211          | 90           | 24            | 0.35           |
| SHEPHERD ES                             | 313         | Ward 4 | 2016 | 248          | 81           | 21            | 0.29           |
| SHEPHERD ES                             | 313         | Ward 4 | 2017 | 269          | 66           | 12            | 0.22           |
| SIMON ES                                | 315         | Ward 8 | 2015 | 200          | 71           | 36            | 0.35           |
| SIMON ES                                | 315         | Ward 8 | 2016 | 185          | 69           | 46            | 0.38           |
| SIMON ES                                | 315         | Ward 8 | 2017 | 179          | 75           | 37            | 0.38           |
| SMOTHERS ES                             | 322         | Ward 7 | 2015 | 166          | 70           | 63            | 0.44           |
| SMOTHERS ES                             | 322         | Ward 7 | 2016 | 161          | 60           | 52            | 0.41           |
| SMOTHERS ES                             | 322         | Ward 7 | 2017 | 148          | 72           | 55            | 0.46           |
| SOUSA MS                                | 427         | Ward 7 | 2015 | 185          | 66           | 103           | 0.48           |
| SOUSA MS                                | 427         | Ward 7 | 2016 | 195          | 57           | 108           | 0.46           |
| SOUSA MS                                | 427         | Ward 7 | 2017 | 170          | 58           | 139           | 0.54           |
| STANTON ES                              | 319         | Ward 8 | 2015 | 353          | 118          | 80            | 0.36           |
| STANTON ES                              | 319         | Ward 8 | 2016 | 362          | 117          | 55            | 0.32           |
| STANTON ES                              | 319         | Ward 8 | 2017 | 351          | 113          | 71            | 0.34           |
| STODDERT ES                             | 321         | Ward 3 | 2015 | 312          | 102          | 16            | 0.27           |
| STODDERT ES                             | 321         | Ward 3 | 2016 | 314          | 120          | <10           | 0.28           |
| STODDERT ES                             | 321         | Ward 3 | 2017 | 290          | 148          | 28            | 0.38           |
| STUART-HOBSON MS (CAPITOL HILL CLUSTER) | 428         | Ward 6 | 2015 | 292          | 132          | 32            | 0.36           |
| STUART-HOBSON MS (CAPITOL HILL CLUSTER) | 428         | Ward 6 | 2016 | 298          | 132          | 44            | 0.37           |
| STUART-HOBSON MS (CAPITOL HILL CLUSTER) | 428         | Ward 6 | 2017 | 309          | 113          | 49            | 0.34           |
| TAKOMA EC                               | 324         | Ward 4 | 2015 | 338          | 96           | 41            | 0.29           |
| TAKOMA EC                               | 324         | Ward 4 | 2016 | 334          | 101          | 45            | 0.30           |
| TAKOMA EC                               | 324         | Ward 4 | 2017 | 340          | 100          | 41            | 0.29           |

TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name                       | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-----------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| THOMAS ES                         | 325         | Ward 7 | 2015 | 272          | 107          | 75            | 0.40           |
| THOMAS ES                         | 325         | Ward 7 | 2016 | 255          | 106          | 76            | 0.42           |
| THOMAS ES                         | 325         | Ward 7 | 2017 | 252          | 98           | 89            | 0.43           |
| THOMSON ES                        | 326         | Ward 2 | 2015 | 199          | 52           | 28            | 0.29           |
| THOMSON ES                        | 326         | Ward 2 | 2016 | 218          | 61           | 20            | 0.27           |
| THOMSON ES                        | 326         | Ward 2 | 2017 | 216          | 60           | 23            | 0.28           |
| TRUESDELL EC                      | 327         | Ward 4 | 2015 | 403          | 136          | 33            | 0.30           |
| TRUESDELL EC                      | 327         | Ward 4 | 2016 | 465          | 167          | 35            | 0.30           |
| TRUESDELL EC                      | 327         | Ward 4 | 2017 | 516          | 138          | 56            | 0.27           |
| TUBMAN ES                         | 328         | Ward 1 | 2015 | 377          | 120          | 43            | 0.30           |
| TUBMAN ES                         | 328         | Ward 1 | 2016 | 385          | 104          | 62            | 0.30           |
| TUBMAN ES                         | 328         | Ward 1 | 2017 | 375          | 134          | 46            | 0.32           |
| TURNER ES                         | 329         | Ward 8 | 2015 | 265          | 156          | 44            | 0.43           |
| TURNER ES                         | 329         | Ward 8 | 2016 | 300          | 143          | 78            | 0.42           |
| TURNER ES                         | 329         | Ward 8 | 2017 | 317          | 112          | 78            | 0.37           |
| TYLER ES                          | 330         | Ward 6 | 2015 | 374          | 81           | 62            | 0.28           |
| TYLER ES                          | 330         | Ward 6 | 2016 | 369          | 82           | 67            | 0.29           |
| TYLER ES                          | 330         | Ward 6 | 2017 | 382          | 85           | 60            | 0.28           |
| VAN NESS ES                       | 331         | Ward 6 | 2015 | <10          | 55           | <10           | 1.00           |
| VAN NESS ES                       | 331         | Ward 6 | 2016 | 73           | 53           | <10           | 0.46           |
| VAN NESS ES                       | 331         | Ward 6 | 2017 | 139          | 42           | 10            | 0.27           |
| WALKER-JONES EC                   | 332         | Ward 6 | 2015 | 280          | 100          | 74            | 0.38           |
| WALKER-JONES EC                   | 332         | Ward 6 | 2016 | 290          | 112          | 85            | 0.40           |
| WALKER-JONES EC                   | 332         | Ward 6 | 2017 | 302          | 96           | 72            | 0.36           |
| WASHINGTON METROPOLITAN HS        | 474         | Ward 1 | 2015 | 31           | 52           | 12            | 0.67           |
| WASHINGTON METROPOLITAN HS        | 474         | Ward 1 | 2016 | 33           | 69           | 17            | 0.72           |
| WASHINGTON METROPOLITAN HS        | 474         | Ward 1 | 2017 | 28           | 153          | 13            | 0.86           |
| WATKINS ES (CAPITOL HILL CLUSTER) | 333         | Ward 6 | 2015 | 324          | 135          | 52            | 0.37           |
| WATKINS ES (CAPITOL HILL CLUSTER) | 333         | Ward 6 | 2016 | 297          | 140          | 42            | 0.38           |
| WATKINS ES (CAPITOL HILL CLUSTER) | 333         | Ward 6 | 2017 | 301          | 127          | 32            | 0.35           |
| WEST EC                           | 336         | Ward 4 | 2015 | 207          | 68           | 18            | 0.29           |
| WEST EC                           | 336         | Ward 4 | 2016 | 223          | 67           | 33            | 0.31           |
| WEST EC                           | 336         | Ward 4 | 2017 | 218          | 83           | 44            | 0.37           |
| WHEATLEY EC                       | 335         | Ward 5 | 2015 | 237          | 80           | 122           | 0.46           |
| WHEATLEY EC                       | 335         | Ward 5 | 2016 | 213          | 83           | 78            | 0.43           |
| WHEATLEY EC                       | 335         | Ward 5 | 2017 | 195          | 98           | 62            | 0.45           |



TABLE 6 (CONTINUED)

**Mobility Measures for DCPS Schools 2015/16 to 2017/18: By School and Year**

| School Name           | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-----------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| WHITTIER EC           | 338         | Ward 4 | 2015 | 240          | 96           | 57            | 0.39           |
| WHITTIER EC           | 338         | Ward 4 | 2016 | 243          | 64           | 66            | 0.35           |
| WHITTIER EC           | 338         | Ward 4 | 2017 | 221          | 78           | 51            | 0.37           |
| WILSON HS             | 463         | Ward 3 | 2015 | 1409         | 218          | 162           | 0.21           |
| WILSON HS             | 463         | Ward 3 | 2016 | 1446         | 205          | 190           | 0.21           |
| WILSON HS             | 463         | Ward 3 | 2017 | 1535         | 281          | 180           | 0.23           |
| YOUTH SERVICES CENTER | 861         | Ward 5 | 2015 | <10          | 23           | 10            | 1.00           |
| YOUTH SERVICES CENTER | 861         | Ward 5 | 2016 | <10          | 49           | 16            | 0.97           |
| YOUTH SERVICES CENTER | 861         | Ward 5 | 2017 | <10          | 44           | 26            | 0.97           |

TABLE 7

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                                   | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-----------------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| ACHIEVEMENT PREPARATORY PCS-ES                | 217         | Ward 8 | 2015 | 130          | 132          | 92            | 0.63           |
| ACHIEVEMENT PREPARATORY PCS-ES                | 217         | Ward 8 | 2016 | 132          | 257          | 108           | 0.73           |
| ACHIEVEMENT PREPARATORY PCS-ES                | 217         | Ward 8 | 2017 | 277          | 134          | 133           | 0.49           |
| ACHIEVEMENT PREPARATORY PCS-MS                | 1100        | Ward 8 | 2015 | 166          | 205          | 52            | 0.61           |
| ACHIEVEMENT PREPARATORY PCS-MS                | 1100        | Ward 8 | 2016 | 202          | 256          | 33            | 0.59           |
| ACHIEVEMENT PREPARATORY PCS-MS                | 1100        | Ward 8 | 2017 | 240          | 236          | 27            | 0.52           |
| APPLETREE EARLY LEARNING PCS- SOUTHEAST       | 3072        | Ward 8 | 2015 | 60           | 27           | 92            | 0.66           |
| APPLETREE EARLY LEARNING PCS- SOUTHEAST       | 3072        | Ward 8 | 2016 | 46           | 36           | 113           | 0.76           |
| APPLETREE EARLY LEARNING PCS- SOUTHEAST       | 3072        | Ward 8 | 2017 | 52           | 37           | 91            | 0.71           |
| APPLETREE EARLY LEARNING PCS-COLUMBIA HEIGHTS | 140         | Ward 1 | 2015 | 53           | 12           | 81            | 0.64           |
| APPLETREE EARLY LEARNING PCS-COLUMBIA HEIGHTS | 140         | Ward 1 | 2016 | 57           | 23           | 79            | 0.64           |
| APPLETREE EARLY LEARNING PCS-COLUMBIA HEIGHTS | 140         | Ward 1 | 2017 | 56           | 25           | 80            | 0.65           |
| APPLETREE EARLY LEARNING PCS-LINCOLN PARK     | 3073        | Ward 6 | 2015 | 12           | <10          | 35            | 0.76           |
| APPLETREE EARLY LEARNING PCS-LINCOLN PARK     | 3073        | Ward 6 | 2016 | 19           | 14           | 29            | 0.69           |
| APPLETREE EARLY LEARNING PCS-LINCOLN PARK     | 3073        | Ward 6 | 2017 | 18           | <10          | 29            | 0.68           |
| APPLETREE EARLY LEARNING PCS-OKLAHOMA AVENUE  | 1137        | Ward 7 | 2015 | 47           | 33           | 83            | 0.71           |
| APPLETREE EARLY LEARNING PCS-OKLAHOMA AVENUE  | 1137        | Ward 7 | 2016 | 39           | 26           | 90            | 0.75           |
| APPLETREE EARLY LEARNING PCS-OKLAHOMA AVENUE  | 1137        | Ward 7 | 2017 | 46           | 25           | 70            | 0.67           |
| APPLETREE EARLY LEARNING PCS-SOUTHWEST        | 141         | Ward 6 | 2015 | 31           | 17           | 44            | 0.66           |
| APPLETREE EARLY LEARNING PCS-SOUTHWEST        | 141         | Ward 6 | 2016 | 30           | 19           | 57            | 0.72           |
| APPLETREE EARLY LEARNING PCS-SOUTHWEST        | 141         | Ward 6 | 2017 | 39           | <10          | 55            | 0.61           |
| BASIS DC PCS                                  | 3068        | Ward 2 | 2015 | 237          | 332          | 31            | 0.61           |
| BASIS DC PCS                                  | 3068        | Ward 2 | 2016 | 283          | 300          | 36            | 0.54           |
| BASIS DC PCS                                  | 3068        | Ward 2 | 2017 | 310          | 288          | 31            | 0.51           |
| BREAKTHROUGH MONTESSORI PCS                   | 289         | Ward 4 | 2015 | <10          | <10          | <10           |                |
| BREAKTHROUGH MONTESSORI PCS                   | 289         | Ward 4 | 2016 | <10          | 39           | <10           | 1.00           |
| BREAKTHROUGH MONTESSORI PCS                   | 289         | Ward 4 | 2017 | 64           | 28           | 19            | 0.42           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                        | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| BRIDGES PCS                        | 142         | Ward 5 | 2015 | 189          | 67           | 50            | 0.38           |
| BRIDGES PCS                        | 142         | Ward 5 | 2016 | 208          | 69           | 80            | 0.42           |
| BRIDGES PCS                        | 142         | Ward 5 | 2017 | 254          | 89           | 38            | 0.33           |
| BRIYA PCS                          | 126         | Ward 1 | 2015 | <10          | <10          | 16            | 0.70           |
| BRIYA PCS                          | 126         | Ward 1 | 2016 | <10          | <10          | 15            | 0.74           |
| BRIYA PCS                          | 126         | Ward 1 | 2017 | 14           | <10          | 15            | 0.63           |
| CAPITAL CITY PCS- HS               | 1207        | Ward 4 | 2015 | 190          | 106          | <10           | 0.38           |
| CAPITAL CITY PCS- HS               | 1207        | Ward 4 | 2016 | 219          | 93           | 16            | 0.33           |
| CAPITAL CITY PCS- HS               | 1207        | Ward 4 | 2017 | 222          | 113          | 21            | 0.38           |
| CAPITAL CITY PCS-ES                | 184         | Ward 4 | 2015 | 233          | 58           | 58            | 0.33           |
| CAPITAL CITY PCS-ES                | 184         | Ward 4 | 2016 | 232          | 59           | 67            | 0.35           |
| CAPITAL CITY PCS-ES                | 184         | Ward 4 | 2017 | 241          | 51           | 61            | 0.32           |
| CAPITAL CITY PCS-MS                | 182         | Ward 4 | 2015 | 142          | 178          | <10           | 0.57           |
| CAPITAL CITY PCS-MS                | 182         | Ward 4 | 2016 | 150          | 175          | <10           | 0.55           |
| CAPITAL CITY PCS-MS                | 182         | Ward 4 | 2017 | 158          | 176          | <10           | 0.53           |
| CARLOS ROSARIO INTERNATIONAL PCS   | 1119        | Ward 1 | 2015 | <10          | <10          | <10           |                |
| CARLOS ROSARIO INTERNATIONAL PCS   | 1119        | Ward 1 | 2016 | <10          | <10          | <10           |                |
| CARLOS ROSARIO INTERNATIONAL PCS   | 1119        | Ward 1 | 2017 | <10          | <10          | <10           |                |
| CEDAR TREE ACADEMY PCS             | 188         | Ward 8 | 2015 | 182          | 62           | 114           | 0.49           |
| CEDAR TREE ACADEMY PCS             | 188         | Ward 8 | 2016 | 168          | 66           | 155           | 0.57           |
| CEDAR TREE ACADEMY PCS             | 188         | Ward 8 | 2017 | 189          | 65           | 136           | 0.52           |
| CENTER CITY PCS - BRIGHTWOOD       | 1103        | Ward 4 | 2015 | 166          | 81           | 17            | 0.37           |
| CENTER CITY PCS - BRIGHTWOOD       | 1103        | Ward 4 | 2016 | 191          | 69           | <10           | 0.29           |
| CENTER CITY PCS - BRIGHTWOOD       | 1103        | Ward 4 | 2017 | 202          | 44           | <10           | 0.20           |
| CENTER CITY PCS - CAPITOL HILL     | 1104        | Ward 6 | 2015 | 112          | 129          | 34            | 0.59           |
| CENTER CITY PCS - CAPITOL HILL     | 1104        | Ward 6 | 2016 | 117          | 114          | 50            | 0.58           |
| CENTER CITY PCS - CAPITOL HILL     | 1104        | Ward 6 | 2017 | 133          | 108          | 42            | 0.53           |
| CENTER CITY PCS - CONGRESS HEIGHTS | 1105        | Ward 8 | 2015 | 167          | 69           | 35            | 0.38           |
| CENTER CITY PCS - CONGRESS HEIGHTS | 1105        | Ward 8 | 2016 | 147          | 91           | 27            | 0.45           |
| CENTER CITY PCS - CONGRESS HEIGHTS | 1105        | Ward 8 | 2017 | 153          | 89           | 25            | 0.43           |
| CENTER CITY PCS - PETWORTH         | 1106        | Ward 4 | 2015 | 181          | 70           | 20            | 0.33           |
| CENTER CITY PCS - PETWORTH         | 1106        | Ward 4 | 2016 | 164          | 73           | 19            | 0.36           |
| CENTER CITY PCS - PETWORTH         | 1106        | Ward 4 | 2017 | 180          | 54           | 19            | 0.29           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                                       | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|---------------------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| CENTER CITY PCS - SHAW                            | 1107        | Ward 6 | 2015 | 150          | 85           | 31            | 0.44           |
| CENTER CITY PCS - SHAW                            | 1107        | Ward 6 | 2016 | 143          | 91           | 24            | 0.45           |
| CENTER CITY PCS - SHAW                            | 1107        | Ward 6 | 2017 | 163          | 73           | 15            | 0.35           |
| CENTER CITY PCS - TRINIDAD                        | 1108        | Ward 5 | 2015 | 125          | 80           | 42            | 0.49           |
| CENTER CITY PCS - TRINIDAD                        | 1108        | Ward 5 | 2016 | 96           | 86           | 53            | 0.59           |
| CENTER CITY PCS - TRINIDAD                        | 1108        | Ward 5 | 2017 | 95           | 107          | 39            | 0.61           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - CAPITOL HILL | 153         | Ward 6 | 2015 | 150          | 168          | 18            | 0.55           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - CAPITOL HILL | 153         | Ward 6 | 2016 | 205          | 104          | 40            | 0.41           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - CAPITOL HILL | 153         | Ward 6 | 2017 | 193          | 66           | 31            | 0.33           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - CHAVEZ PREP  | 127         | Ward 1 | 2015 | 159          | 161          | 41            | 0.56           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - CHAVEZ PREP  | 127         | Ward 1 | 2016 | 144          | 129          | 47            | 0.55           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - CHAVEZ PREP  | 127         | Ward 1 | 2017 | 135          | 159          | 57            | 0.62           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - PARKSIDE HS  | 109         | Ward 7 | 2015 | 212          | 132          | 18            | 0.41           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - PARKSIDE HS  | 109         | Ward 7 | 2016 | 211          | 137          | 35            | 0.45           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - PARKSIDE HS  | 109         | Ward 7 | 2017 | 234          | 133          | 37            | 0.42           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - PARKSIDE MS  | 102         | Ward 7 | 2015 | 167          | 126          | 20            | 0.47           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - PARKSIDE MS  | 102         | Ward 7 | 2016 | 152          | 117          | 28            | 0.49           |
| CESAR CHAVEZ PCS FOR PUBLIC POLICY - PARKSIDE MS  | 102         | Ward 7 | 2017 | 136          | 121          | 25            | 0.52           |
| CITY ARTS & PREP PCS                              | 210         | Ward 5 | 2015 | 234          | 181          | 93            | 0.54           |
| CITY ARTS & PREP PCS                              | 210         | Ward 5 | 2016 | 277          | 195          | 97            | 0.51           |
| CITY ARTS & PREP PCS                              | 210         | Ward 5 | 2017 | 322          | 143          | 71            | 0.40           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                               | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-------------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| CREATIVE MINDS INTERNATIONAL PCS          | 3069        | Ward 5 | 2015 | 162          | 22           | 11            | 0.17           |
| CREATIVE MINDS INTERNATIONAL PCS          | 3069        | Ward 5 | 2016 | 208          | 77           | <10           | 0.29           |
| CREATIVE MINDS INTERNATIONAL PCS          | 3069        | Ward 5 | 2017 | 278          | 107          | 17            | 0.31           |
| DC BILINGUAL PCS                          | 199         | Ward 5 | 2015 | 232          | 108          | 60            | 0.42           |
| DC BILINGUAL PCS                          | 199         | Ward 5 | 2016 | 297          | 67           | 26            | 0.24           |
| DC BILINGUAL PCS                          | 199         | Ward 5 | 2017 | 353          | 51           | 15            | 0.16           |
| DC PREP PCS - ANACOSTIA CAMPUS            | 276         | Ward 8 | 2015 | <10          | 59           | <10           | 1.00           |
| DC PREP PCS - ANACOSTIA CAMPUS            | 276         | Ward 8 | 2016 | 96           | 42           | 30            | 0.43           |
| DC PREP PCS - ANACOSTIA CAMPUS            | 276         | Ward 8 | 2017 | 151          | 69           | 36            | 0.41           |
| DC PREP PCS- BENNING ES                   | 1110        | Ward 7 | 2015 | 315          | 45           | 95            | 0.31           |
| DC PREP PCS- BENNING ES                   | 1110        | Ward 7 | 2016 | 309          | 55           | 109           | 0.35           |
| DC PREP PCS- BENNING ES                   | 1110        | Ward 7 | 2017 | 326          | 55           | 102           | 0.33           |
| DC PREP PCS- EDGEWOOD ES                  | 130         | Ward 5 | 2015 | 299          | 49           | 103           | 0.34           |
| DC PREP PCS- EDGEWOOD ES                  | 130         | Ward 5 | 2016 | 331          | 24           | 87            | 0.25           |
| DC PREP PCS- EDGEWOOD ES                  | 130         | Ward 5 | 2017 | 313          | 56           | 100           | 0.33           |
| DC PREP PCS- EDGEWOOD MS                  | 196         | Ward 5 | 2015 | 152          | 152          | 20            | 0.53           |
| DC PREP PCS- EDGEWOOD MS                  | 196         | Ward 5 | 2016 | 175          | 152          | 13            | 0.49           |
| DC PREP PCS- EDGEWOOD MS                  | 196         | Ward 5 | 2017 | 158          | 174          | 34            | 0.57           |
| DC PREP. PCS- BENNING MS                  | 218         | Ward 7 | 2015 | 59           | 162          | 11            | 0.75           |
| DC PREP. PCS- BENNING MS                  | 218         | Ward 7 | 2016 | 126          | 154          | 19            | 0.58           |
| DC PREP. PCS- BENNING MS                  | 218         | Ward 7 | 2017 | 173          | 162          | 22            | 0.52           |
| DC SCHOLARS PCS                           | 3070        | Ward 7 | 2015 | 269          | 86           | 54            | 0.34           |
| DC SCHOLARS PCS                           | 3070        | Ward 7 | 2016 | 306          | 126          | 52            | 0.37           |
| DC SCHOLARS PCS                           | 3070        | Ward 7 | 2017 | 354          | 100          | 83            | 0.34           |
| DEMOCRACY PREP CONGRESS HEIGHTS PCS       | 234         | Ward 8 | 2015 | 234          | 283          | 217           | 0.68           |
| DEMOCRACY PREP CONGRESS HEIGHTS PCS       | 234         | Ward 8 | 2016 | 319          | 247          | 162           | 0.56           |
| DEMOCRACY PREP CONGRESS HEIGHTS PCS       | 234         | Ward 8 | 2017 | 374          | 230          | 156           | 0.51           |
| DISTRICT OF COLUMBIA INTERNATIONAL SCHOOL | 248         | Ward 1 | 2015 | 193          | 209          | <10           | 0.52           |
| DISTRICT OF COLUMBIA INTERNATIONAL SCHOOL | 248         | Ward 1 | 2016 | 274          | 240          | 10            | 0.48           |
| DISTRICT OF COLUMBIA INTERNATIONAL SCHOOL | 248         | Ward 1 | 2017 | 378          | 426          | <10           | 0.53           |
| E.L. HAYNES PCS GEORGIA AVENUE - MS       | 146         | Ward 1 | 2015 | 181          | 191          | <10           | 0.52           |
| E.L. HAYNES PCS GEORGIA AVENUE - MS       | 146         | Ward 1 | 2016 | 183          | 163          | 12            | 0.49           |
| E.L. HAYNES PCS GEORGIA AVENUE - MS       | 146         | Ward 1 | 2017 | 174          | 179          | 18            | 0.53           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                                | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|--------------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| E.L. HAYNES PCS KANSAS AVENUE - ES         | 1206        | Ward 4 | 2015 | 242          | 44           | 89            | 0.35           |
| E.L. HAYNES PCS KANSAS AVENUE - ES         | 1206        | Ward 4 | 2016 | 250          | 49           | 59            | 0.30           |
| E.L. HAYNES PCS KANSAS AVENUE - ES         | 1206        | Ward 4 | 2017 | 252          | 52           | 78            | 0.34           |
| E.L. HAYNES PCS KANSAS AVENUE - HS         | 1138        | Ward 4 | 2015 | 233          | 110          | <10           | 0.34           |
| E.L. HAYNES PCS KANSAS AVENUE - HS         | 1138        | Ward 4 | 2016 | 275          | 125          | <10           | 0.33           |
| E.L. HAYNES PCS KANSAS AVENUE - HS         | 1138        | Ward 4 | 2017 | 276          | 154          | 25            | 0.39           |
| EAGLE ACADEMY PCS - CAPITOL RIVERFRONT     | 1125        | Ward 6 | 2015 | 93           | 18           | 33            | 0.35           |
| EAGLE ACADEMY PCS - CAPITOL RIVERFRONT     | 1125        | Ward 6 | 2016 | 79           | 30           | 40            | 0.47           |
| EAGLE ACADEMY PCS - CAPITOL RIVERFRONT     | 1125        | Ward 6 | 2017 | 96           | 30           | 37            | 0.41           |
| EAGLE ACADEMY PCS - CONGRESS HEIGHTS       | 195         | Ward 8 | 2015 | 530          | 99           | 170           | 0.34           |
| EAGLE ACADEMY PCS - CONGRESS HEIGHTS       | 195         | Ward 8 | 2016 | 506          | 103          | 199           | 0.37           |
| EAGLE ACADEMY PCS - CONGRESS HEIGHTS       | 195         | Ward 8 | 2017 | 506          | 157          | 159           | 0.38           |
| EARLY CHILDHOOD ACADEMY PCS                | 138         | Ward 8 | 2015 | 157          | 52           | 59            | 0.41           |
| EARLY CHILDHOOD ACADEMY PCS                | 138         | Ward 8 | 2016 | 145          | 41           | 74            | 0.44           |
| EARLY CHILDHOOD ACADEMY PCS                | 138         | Ward 8 | 2017 | 143          | 52           | 62            | 0.44           |
| ELSIE WHITLOW STOKES COMMUNITY FREEDOM PCS | 159         | Ward 5 | 2015 | 287          | 15           | <10           | 0.07           |
| ELSIE WHITLOW STOKES COMMUNITY FREEDOM PCS | 159         | Ward 5 | 2016 | 289          | 30           | <10           | 0.11           |
| ELSIE WHITLOW STOKES COMMUNITY FREEDOM PCS | 159         | Ward 5 | 2017 | 290          | 29           | <10           | 0.10           |
| EXCEL ACADEMY PCS                          | 1113        | Ward 8 | 2015 | 408          | 243          | 100           | 0.46           |
| EXCEL ACADEMY PCS                          | 1113        | Ward 8 | 2016 | 463          | 186          | 145           | 0.42           |
| EXCEL ACADEMY PCS                          | 1113        | Ward 8 | 2017 | 409          | 172          | 137           | 0.43           |
| FRIENDSHIP PCS - ARMSTRONG                 | 269         | Ward 5 | 2015 | <10          | 357          | <10           | 1.00           |
| FRIENDSHIP PCS - ARMSTRONG                 | 269         | Ward 5 | 2016 | 279          | 92           | 83            | 0.39           |
| FRIENDSHIP PCS - ARMSTRONG                 | 269         | Ward 5 | 2017 | 269          | 65           | 84            | 0.36           |
| FRIENDSHIP PCS - BLOW PIERCE ES            | 361         | Ward 7 | 2015 | 254          | 72           | 82            | 0.38           |
| FRIENDSHIP PCS - BLOW PIERCE ES            | 361         | Ward 7 | 2016 | 242          | 68           | 116           | 0.43           |
| FRIENDSHIP PCS - BLOW PIERCE ES            | 361         | Ward 7 | 2017 | 241          | 83           | 112           | 0.45           |
| FRIENDSHIP PCS - BLOW-PIERCE MS            | 362         | Ward 7 | 2015 | 85           | 71           | 16            | 0.51           |
| FRIENDSHIP PCS - BLOW-PIERCE MS            | 362         | Ward 7 | 2016 | 79           | 130          | 11            | 0.64           |
| FRIENDSHIP PCS - BLOW-PIERCE MS            | 362         | Ward 7 | 2017 | 107          | 135          | 26            | 0.60           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                                    | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|------------------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| FRIENDSHIP PCS - CHAMBERLAIN ES                | 363         | Ward 6 | 2015 | 229          | 69           | 107           | 0.43           |
| FRIENDSHIP PCS - CHAMBERLAIN ES                | 363         | Ward 6 | 2016 | 223          | 92           | 101           | 0.46           |
| FRIENDSHIP PCS - CHAMBERLAIN ES                | 363         | Ward 6 | 2017 | 261          | 59           | 92            | 0.37           |
| FRIENDSHIP PCS - CHAMBERLAIN MS                | 364         | Ward 6 | 2015 | 161          | 150          | 24            | 0.52           |
| FRIENDSHIP PCS - CHAMBERLAIN MS                | 364         | Ward 6 | 2016 | 159          | 158          | 18            | 0.53           |
| FRIENDSHIP PCS - CHAMBERLAIN MS                | 364         | Ward 6 | 2017 | 173          | 150          | 14            | 0.49           |
| FRIENDSHIP PCS - COLLEGIATE ACADEMY            | 186         | Ward 7 | 2015 | 535          | 225          | 31            | 0.32           |
| FRIENDSHIP PCS - COLLEGIATE ACADEMY            | 186         | Ward 7 | 2016 | 471          | 230          | 45            | 0.37           |
| FRIENDSHIP PCS - COLLEGIATE ACADEMY            | 186         | Ward 7 | 2017 | 441          | 241          | 57            | 0.40           |
| FRIENDSHIP PCS - ONLINE                        | 268         | Ward 4 | 2015 | <10          | 123          | <10           | 1.00           |
| FRIENDSHIP PCS - ONLINE                        | 268         | Ward 4 | 2016 | 51           | 93           | 20            | 0.69           |
| FRIENDSHIP PCS - ONLINE                        | 268         | Ward 4 | 2017 | 62           | 117          | 15            | 0.68           |
| FRIENDSHIP PCS - SOUTHEAST ACADEMY             | 113         | Ward 8 | 2015 | 413          | 51           | 46            | 0.19           |
| FRIENDSHIP PCS - SOUTHEAST ACADEMY             | 113         | Ward 8 | 2016 | 376          | 104          | 61            | 0.30           |
| FRIENDSHIP PCS - SOUTHEAST ACADEMY             | 113         | Ward 8 | 2017 | 418          | 84           | 40            | 0.23           |
| FRIENDSHIP PCS - TECHNOLOGY PREPARATORY HIGH   | 1164        | Ward 8 | 2015 | <10          | <10          | <10           |                |
| FRIENDSHIP PCS - TECHNOLOGY PREPARATORY HIGH   | 1164        | Ward 8 | 2016 | <10          | 222          | <10           | 1.00           |
| FRIENDSHIP PCS - TECHNOLOGY PREPARATORY HIGH   | 1164        | Ward 8 | 2017 | 150          | 103          | 17            | 0.44           |
| FRIENDSHIP PCS - TECHNOLOGY PREPARATORY MIDDLE | 1124        | Ward 8 | 2015 | 329          | 202          | 25            | 0.41           |
| FRIENDSHIP PCS - TECHNOLOGY PREPARATORY MIDDLE | 1124        | Ward 8 | 2016 | 173          | 83           | 187           | 0.61           |
| FRIENDSHIP PCS - TECHNOLOGY PREPARATORY MIDDLE | 1124        | Ward 8 | 2017 | 146          | 109          | 31            | 0.49           |
| FRIENDSHIP PCS - WOODRIDGE ES                  | 365         | Ward 5 | 2015 | 198          | 40           | 55            | 0.32           |
| FRIENDSHIP PCS - WOODRIDGE ES                  | 365         | Ward 5 | 2016 | 197          | 64           | 59            | 0.38           |
| FRIENDSHIP PCS - WOODRIDGE ES                  | 365         | Ward 5 | 2017 | 201          | 47           | 69            | 0.37           |
| FRIENDSHIP PCS - WOODRIDGE MS                  | 366         | Ward 5 | 2015 | 80           | 96           | <10           | 0.56           |
| FRIENDSHIP PCS - WOODRIDGE MS                  | 366         | Ward 5 | 2016 | 91           | 107          | <10           | 0.56           |
| FRIENDSHIP PCS - WOODRIDGE MS                  | 366         | Ward 5 | 2017 | 106          | 112          | <10           | 0.53           |
| GOODWILL EXCEL CENTER PCS                      | 297         | Ward 2 | 2015 | <10          | <10          | <10           | 1.00           |
| GOODWILL EXCEL CENTER PCS                      | 297         | Ward 2 | 2016 | <10          | 282          | <10           | 1.00           |
| GOODWILL EXCEL CENTER PCS                      | 297         | Ward 2 | 2017 | <10          | 330          | <10           | 1.00           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                                                       | School Code | Ward   | Year | Total<br>Stayer | Total<br>Inflow | Total<br>Outflow | Mobility<br>Ratio |
|-------------------------------------------------------------------|-------------|--------|------|-----------------|-----------------|------------------|-------------------|
| HARMONY DC PCS-SCHOOL OF EXCELLENCE                               | 245         | Ward 5 | 2015 | 36              | 66              | 16               | 0.69              |
| HARMONY DC PCS-SCHOOL OF EXCELLENCE                               | 245         | Ward 5 | 2016 | 57              | 39              | 29               | 0.54              |
| HARMONY DC PCS-SCHOOL OF EXCELLENCE                               | 245         | Ward 5 | 2017 | 40              | 54              | 33               | 0.69              |
| HOPE COMMUNITY PCS - LAMOND                                       | 131         | Ward 4 | 2015 | 188             | 82              | 83               | 0.47              |
| HOPE COMMUNITY PCS - LAMOND                                       | 131         | Ward 4 | 2016 | 205             | 59              | 59               | 0.37              |
| HOPE COMMUNITY PCS - LAMOND                                       | 131         | Ward 4 | 2017 | 187             | 61              | 58               | 0.39              |
| HOPE COMMUNITY PCS - TOLSON                                       | 114         | Ward 5 | 2015 | 352             | 125             | 28               | 0.30              |
| HOPE COMMUNITY PCS - TOLSON                                       | 114         | Ward 5 | 2016 | 367             | 122             | 36               | 0.30              |
| HOPE COMMUNITY PCS - TOLSON                                       | 114         | Ward 5 | 2017 | 340             | 101             | 88               | 0.36              |
| HOWARD UNIVERSITY MIDDLE SCHOOL OF<br>MATHEMATICS AND SCIENCE PCS | 115         | Ward 1 | 2015 | 114             | 139             | 47               | 0.62              |
| HOWARD UNIVERSITY MIDDLE SCHOOL OF<br>MATHEMATICS AND SCIENCE PCS | 115         | Ward 1 | 2016 | 149             | 128             | 19               | 0.50              |
| HOWARD UNIVERSITY MIDDLE SCHOOL OF<br>MATHEMATICS AND SCIENCE PCS | 115         | Ward 1 | 2017 | 166             | 112             | 30               | 0.46              |
| IDEA PCS                                                          | 163         | Ward 7 | 2015 | 98              | 114             | 10               | 0.56              |
| IDEA PCS                                                          | 163         | Ward 7 | 2016 | 121             | 105             | 25               | 0.52              |
| IDEA PCS                                                          | 163         | Ward 7 | 2017 | 151             | 155             | 12               | 0.53              |
| IDEAL ACADEMY PCS                                                 | 134         | Ward 4 | 2015 | 160             | 88              | 44               | 0.45              |
| IDEAL ACADEMY PCS                                                 | 134         | Ward 4 | 2016 | 122             | 150             | 52               | 0.62              |
| IDEAL ACADEMY PCS                                                 | 134         | Ward 4 | 2017 | 149             | 118             | 35               | 0.51              |
| INGENUITY PREP PCS                                                | 200         | Ward 8 | 2015 | 132             | 76              | 23               | 0.43              |
| INGENUITY PREP PCS                                                | 200         | Ward 8 | 2016 | 209             | 100             | 37               | 0.40              |
| INGENUITY PREP PCS                                                | 200         | Ward 8 | 2017 | 284             | 137             | 51               | 0.40              |
| INSPIRED TEACHING DEMONSTRATION PCS                               | 3064        | Ward 5 | 2015 | 242             | 76              | 26               | 0.30              |
| INSPIRED TEACHING DEMONSTRATION PCS                               | 3064        | Ward 5 | 2016 | 304             | 66              | 21               | 0.22              |
| INSPIRED TEACHING DEMONSTRATION PCS                               | 3064        | Ward 5 | 2017 | 336             | 67              | 23               | 0.21              |
| KINGSMAN ACADEMY PCS                                              | 267         | Ward 6 | 2015 | <10             | 163             | <10              | 0.99              |
| KINGSMAN ACADEMY PCS                                              | 267         | Ward 6 | 2016 | 68              | 77              | 13               | 0.57              |
| KINGSMAN ACADEMY PCS                                              | 267         | Ward 6 | 2017 | 82              | 152             | 18               | 0.67              |
| KIPP DC PCS AIM ACADEMY                                           | 116         | Ward 8 | 2015 | 139             | 193             | 22               | 0.61              |
| KIPP DC PCS AIM ACADEMY                                           | 116         | Ward 8 | 2016 | 137             | 235             | 14               | 0.65              |
| KIPP DC PCS AIM ACADEMY                                           | 116         | Ward 8 | 2017 | 149             | 229             | 21               | 0.63              |
| KIPP DC PCS ARTS & TECHNOLOGY ACADEMY                             | 236         | Ward 7 | 2015 | 106             | 39              | 84               | 0.54              |
| KIPP DC PCS ARTS & TECHNOLOGY ACADEMY                             | 236         | Ward 7 | 2016 | 119             | 49              | 95               | 0.55              |
| KIPP DC PCS ARTS & TECHNOLOGY ACADEMY                             | 236         | Ward 7 | 2017 | 163             | 55              | 98               | 0.48              |



TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                      | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|----------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| KIPP DC PCS COLLEGE PREP ACADEMY | 1123        | Ward 5 | 2015 | 254          | 174          | 17            | 0.43           |
| KIPP DC PCS COLLEGE PREP ACADEMY | 1123        | Ward 5 | 2016 | 321          | 251          | 27            | 0.46           |
| KIPP DC PCS COLLEGE PREP ACADEMY | 1123        | Ward 5 | 2017 | 430          | 283          | 43            | 0.43           |
| KIPP DC PCS CONNECT ACADEMY      | 209         | Ward 5 | 2015 | 173          | 34           | 112           | 0.46           |
| KIPP DC PCS CONNECT ACADEMY      | 209         | Ward 5 | 2016 | 183          | 31           | 115           | 0.44           |
| KIPP DC PCS CONNECT ACADEMY      | 209         | Ward 5 | 2017 | 183          | 32           | 125           | 0.46           |
| KIPP DC PCS DISCOVER ACADEMY     | 1122        | Ward 8 | 2015 | 182          | 57           | 130           | 0.51           |
| KIPP DC PCS DISCOVER ACADEMY     | 1122        | Ward 8 | 2016 | 192          | 50           | 130           | 0.48           |
| KIPP DC PCS DISCOVER ACADEMY     | 1122        | Ward 8 | 2017 | 195          | 49           | 152           | 0.51           |
| KIPP DC PCS GROW ACADEMY         | 1129        | Ward 6 | 2015 | 175          | 30           | 115           | 0.45           |
| KIPP DC PCS GROW ACADEMY         | 1129        | Ward 6 | 2016 | 193          | 27           | 112           | 0.42           |
| KIPP DC PCS GROW ACADEMY         | 1129        | Ward 6 | 2017 | 165          | 48           | 147           | 0.54           |
| KIPP DC PCS HEIGHTS ACADEMY      | 3071        | Ward 8 | 2015 | 281          | 132          | 102           | 0.45           |
| KIPP DC PCS HEIGHTS ACADEMY      | 3071        | Ward 8 | 2016 | 289          | 147          | 116           | 0.48           |
| KIPP DC PCS HEIGHTS ACADEMY      | 3071        | Ward 8 | 2017 | 304          | 157          | 121           | 0.48           |
| KIPP DC PCS KEY ACADEMY          | 189         | Ward 7 | 2015 | 141          | 195          | 17            | 0.60           |
| KIPP DC PCS KEY ACADEMY          | 189         | Ward 7 | 2016 | 157          | 174          | <10           | 0.53           |
| KIPP DC PCS KEY ACADEMY          | 189         | Ward 7 | 2017 | 140          | 198          | 14            | 0.60           |
| KIPP DC PCS LEAD ACADEMY         | 190         | Ward 6 | 2015 | 268          | 153          | 18            | 0.39           |
| KIPP DC PCS LEAD ACADEMY         | 190         | Ward 6 | 2016 | 283          | 134          | 125           | 0.48           |
| KIPP DC PCS LEAD ACADEMY         | 190         | Ward 6 | 2017 | 269          | 136          | 122           | 0.49           |
| KIPP DC PCS LEAP ACADEMY         | 132         | Ward 7 | 2015 | 89           | <10          | 181           | 0.68           |
| KIPP DC PCS LEAP ACADEMY         | 132         | Ward 7 | 2016 | 93           | <10          | 111           | 0.55           |
| KIPP DC PCS LEAP ACADEMY         | 132         | Ward 7 | 2017 | 95           | <10          | 92            | 0.50           |
| KIPP DC PCS NORTHEAST ACADEMY    | 242         | Ward 5 | 2015 | 57           | 172          | <10           | 0.76           |
| KIPP DC PCS NORTHEAST ACADEMY    | 242         | Ward 5 | 2016 | 149          | 177          | 11            | 0.56           |
| KIPP DC PCS NORTHEAST ACADEMY    | 242         | Ward 5 | 2017 | 154          | 176          | <10           | 0.55           |
| KIPP DC PCS PROMISE ACADEMY      | 1121        | Ward 7 | 2015 | 273          | 232          | 106           | 0.55           |
| KIPP DC PCS PROMISE ACADEMY      | 1121        | Ward 7 | 2016 | 365          | 155          | 124           | 0.43           |
| KIPP DC PCS PROMISE ACADEMY      | 1121        | Ward 7 | 2017 | 373          | 147          | 121           | 0.42           |
| KIPP DC PCS QUEST ACADEMY        | 237         | Ward 7 | 2015 | 150          | 168          | 73            | 0.62           |
| KIPP DC PCS QUEST ACADEMY        | 237         | Ward 7 | 2016 | 195          | 169          | 97            | 0.58           |
| KIPP DC PCS QUEST ACADEMY        | 237         | Ward 7 | 2017 | 216          | 175          | 127           | 0.58           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                             | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|-----------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| KIPP DC PCS SPRING ACADEMY              | 214         | Ward 5 | 2015 | 89           | 119          | <10           | 0.58           |
| KIPP DC PCS SPRING ACADEMY              | 214         | Ward 5 | 2016 | 184          | 146          | 15            | 0.47           |
| KIPP DC PCS SPRING ACADEMY              | 214         | Ward 5 | 2017 | 262          | 148          | <10           | 0.43           |
| KIPP DC PCS VALOR ACADEMY               | 243         | Ward 7 | 2015 | <10          | 119          | <10           | 1.00           |
| KIPP DC PCS VALOR ACADEMY               | 243         | Ward 7 | 2016 | 38           | 184          | <10           | 0.83           |
| KIPP DC PCS VALOR ACADEMY               | 243         | Ward 7 | 2017 | 99           | 208          | 20            | 0.70           |
| KIPP DC PCS WILL ACADEMY                | 121         | Ward 6 | 2015 | 169          | 129          | 19            | 0.47           |
| KIPP DC PCS WILL ACADEMY                | 121         | Ward 6 | 2016 | 139          | 208          | 14            | 0.61           |
| KIPP DC PCS WILL ACADEMY                | 121         | Ward 6 | 2017 | 124          | 197          | 30            | 0.65           |
| LATIN AMERICAN MONTESSORI BILINGUAL PCS | 193         | Ward 4 | 2015 | 298          | 11           | 12            | 0.07           |
| LATIN AMERICAN MONTESSORI BILINGUAL PCS | 193         | Ward 4 | 2016 | 316          | 29           | <10           | 0.10           |
| LATIN AMERICAN MONTESSORI BILINGUAL PCS | 193         | Ward 4 | 2017 | 368          | 11           | 12            | 0.06           |
| LAYC CAREER ACADEMY PCS                 | 104         | Ward 1 | 2015 | <10          | 68           | <10           | 1.00           |
| LAYC CAREER ACADEMY PCS                 | 104         | Ward 1 | 2016 | 14           | 59           | <10           | 0.81           |
| LAYC CAREER ACADEMY PCS                 | 104         | Ward 1 | 2017 | <10          | <10          | <10           | 1.00           |
| LEE MONTESSORI PCS                      | 228         | Ward 5 | 2015 | 46           | 16           | 11            | 0.37           |
| LEE MONTESSORI PCS                      | 228         | Ward 5 | 2016 | 74           | 20           | 15            | 0.32           |
| LEE MONTESSORI PCS                      | 228         | Ward 5 | 2017 | 115          | 18           | 17            | 0.23           |
| MARY MCLEOD BETHUNE PCS                 | 135         | Ward 5 | 2015 | 250          | 100          | 43            | 0.36           |
| MARY MCLEOD BETHUNE PCS                 | 135         | Ward 5 | 2016 | 261          | 79           | 52            | 0.33           |
| MARY MCLEOD BETHUNE PCS                 | 135         | Ward 5 | 2017 | 272          | 101          | 36            | 0.33           |
| MAYA ANGELOU PCS - HS                   | 101         | Ward 7 | 2015 | 50           | 24           | 10            | 0.40           |
| MAYA ANGELOU PCS - HS                   | 101         | Ward 7 | 2016 | 55           | 92           | 10            | 0.65           |
| MAYA ANGELOU PCS - HS                   | 101         | Ward 7 | 2017 | 54           | 107          | 14            | 0.69           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                                      | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|--------------------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| MERIDIAN PCS                                     | 165         | Ward 1 | 2015 | 425          | 205          | 69            | 0.39           |
| MERIDIAN PCS                                     | 165         | Ward 1 | 2016 | 464          | 151          | 96            | 0.35           |
| MERIDIAN PCS                                     | 165         | Ward 1 | 2017 | 432          | 145          | 93            | 0.36           |
| MONUMENT ACADEMY PCS                             | 260         | Ward 6 | 2015 | <10          | 34           | <10           | 1.00           |
| MONUMENT ACADEMY PCS                             | 260         | Ward 6 | 2016 | <10          | 70           | <10           | 1.00           |
| MONUMENT ACADEMY PCS                             | 260         | Ward 6 | 2017 | 46           | 70           | <10           | 0.62           |
| MUNDO VERDE BILINGUAL PCS                        | 3065        | Ward 5 | 2015 | 366          | 115          | 10            | 0.25           |
| MUNDO VERDE BILINGUAL PCS                        | 3065        | Ward 5 | 2016 | 486          | 39           | 31            | 0.13           |
| MUNDO VERDE BILINGUAL PCS                        | 3065        | Ward 5 | 2017 | 445          | 98           | 25            | 0.22           |
| NATIONAL COLLEGIATE PREPARATORY PCHS             | 1120        | Ward 8 | 2015 | 161          | 90           | 18            | 0.40           |
| NATIONAL COLLEGIATE PREPARATORY PCHS             | 1120        | Ward 8 | 2016 | 124          | 115          | 34            | 0.55           |
| NATIONAL COLLEGIATE PREPARATORY PCHS             | 1120        | Ward 8 | 2017 | 146          | 131          | 25            | 0.52           |
| PAUL PCS - INTERNATIONAL HS                      | 222         | Ward 4 | 2015 | 234          | 150          | 18            | 0.42           |
| PAUL PCS - INTERNATIONAL HS                      | 222         | Ward 4 | 2016 | 258          | 193          | 26            | 0.46           |
| PAUL PCS - INTERNATIONAL HS                      | 222         | Ward 4 | 2017 | 301          | 179          | 37            | 0.42           |
| PAUL PCS - MS                                    | 170         | Ward 4 | 2015 | 139          | 80           | 28            | 0.44           |
| PAUL PCS - MS                                    | 170         | Ward 4 | 2016 | 105          | 130          | <10           | 0.57           |
| PAUL PCS - MS                                    | 170         | Ward 4 | 2017 | 107          | 121          | 20            | 0.57           |
| PERRY STREET PREPARATORY PCS                     | 161         | Ward 5 | 2015 | 177          | 102          | 160           | 0.60           |
| PERRY STREET PREPARATORY PCS                     | 161         | Ward 5 | 2016 | 161          | 120          | 61            | 0.53           |
| PERRY STREET PREPARATORY PCS                     | 161         | Ward 5 | 2017 | 220          | 80           | 37            | 0.35           |
| RICHARD WRIGHT PCS FOR JOURNALISM AND MEDIA ARTS | 3067        | Ward 6 | 2015 | 151          | 103          | <10           | 0.43           |
| RICHARD WRIGHT PCS FOR JOURNALISM AND MEDIA ARTS | 3067        | Ward 6 | 2016 | 156          | 115          | 21            | 0.47           |
| RICHARD WRIGHT PCS FOR JOURNALISM AND MEDIA ARTS | 3067        | Ward 6 | 2017 | 182          | 100          | 16            | 0.39           |
| ROCKETSHIP DC PCS                                | 286         | Ward 8 | 2015 | <10          | <10          | <10           |                |
| ROCKETSHIP DC PCS                                | 286         | Ward 8 | 2016 | <10          | 343          | <10           | 1.00           |
| ROCKETSHIP DC PCS                                | 286         | Ward 8 | 2017 | 297          | 145          | 85            | 0.44           |
| ROOTS PCS                                        | 173         | Ward 4 | 2015 | 42           | 37           | 13            | 0.54           |
| ROOTS PCS                                        | 173         | Ward 4 | 2016 | 45           | 43           | 23            | 0.59           |
| ROOTS PCS                                        | 173         | Ward 4 | 2017 | 83           | 16           | 11            | 0.25           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                          | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|--------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| SEED PCS                             | 174         | Ward 7 | 2015 | 220          | 118          | 21            | 0.39           |
| SEED PCS                             | 174         | Ward 7 | 2016 | 205          | 142          | 21            | 0.44           |
| SEED PCS                             | 174         | Ward 7 | 2017 | 209          | 154          | 44            | 0.49           |
| SELA PCS                             | 197         | Ward 4 | 2015 | 52           | 43           | 18            | 0.54           |
| SELA PCS                             | 197         | Ward 4 | 2016 | 98           | 38           | 16            | 0.36           |
| SELA PCS                             | 197         | Ward 4 | 2017 | 135          | 28           | 15            | 0.24           |
| SHINING STARS MONTESSORI ACADEMY PCS | 3066        | Ward 5 | 2015 | 48           | 56           | 12            | 0.59           |
| SHINING STARS MONTESSORI ACADEMY PCS | 3066        | Ward 5 | 2016 | 106          | 50           | 34            | 0.44           |
| SHINING STARS MONTESSORI ACADEMY PCS | 3066        | Ward 5 | 2017 | 148          | 61           | 30            | 0.38           |
| SOMERSET PREPARATORY ACADEMY PCS     | 187         | Ward 8 | 2015 | 108          | 157          | 37            | 0.64           |
| SOMERSET PREPARATORY ACADEMY PCS     | 187         | Ward 8 | 2016 | 158          | 155          | 22            | 0.53           |
| SOMERSET PREPARATORY ACADEMY PCS     | 187         | Ward 8 | 2017 | 196          | 179          | 32            | 0.52           |
| ST. COLETTA SPECIAL EDUCATION PCS    | 1047        | Ward 7 | 2015 | <10          | 248          | <10           | 1.00           |
| ST. COLETTA SPECIAL EDUCATION PCS    | 1047        | Ward 7 | 2016 | 130          | 45           | <10           | 0.26           |
| ST. COLETTA SPECIAL EDUCATION PCS    | 1047        | Ward 7 | 2017 | 123          | 52           | <10           | 0.32           |
| THE CHILDREN'S GUILD DC PCS          | 255         | Ward 5 | 2015 | <10          | 313          | <10           | 1.00           |
| THE CHILDREN'S GUILD DC PCS          | 255         | Ward 5 | 2016 | 122          | 215          | 89            | 0.71           |
| THE CHILDREN'S GUILD DC PCS          | 255         | Ward 5 | 2017 | 203          | 172          | 59            | 0.53           |
| THE NEXT STEP EL PROXIMO PASO PCS    | 168         | Ward 1 | 2015 | <10          | <10          | <10           |                |
| THE NEXT STEP EL PROXIMO PASO PCS    | 168         | Ward 1 | 2016 | <10          | <10          | <10           |                |
| THE NEXT STEP EL PROXIMO PASO PCS    | 168         | Ward 1 | 2017 | <10          | <10          | <10           |                |
| THURGOOD MARSHALL ACADEMY PCS        | 191         | Ward 8 | 2015 | 189          | 123          | 18            | 0.43           |
| THURGOOD MARSHALL ACADEMY PCS        | 191         | Ward 8 | 2016 | 211          | 125          | 26            | 0.42           |
| THURGOOD MARSHALL ACADEMY PCS        | 191         | Ward 8 | 2017 | 218          | 165          | 29            | 0.47           |
| TWO RIVERS PCS-4TH STREET            | 198         | Ward 6 | 2015 | 383          | 102          | 23            | 0.25           |
| TWO RIVERS PCS-4TH STREET            | 198         | Ward 6 | 2016 | 368          | 118          | 34            | 0.29           |
| TWO RIVERS PCS-4TH STREET            | 198         | Ward 6 | 2017 | 378          | 114          | 32            | 0.28           |
| TWO RIVERS PCS-YOUNG                 | 270         | Ward 5 | 2015 | <10          | 128          | <10           | 1.00           |
| TWO RIVERS PCS-YOUNG                 | 270         | Ward 5 | 2016 | 141          | 44           | 15            | 0.30           |
| TWO RIVERS PCS-YOUNG                 | 270         | Ward 5 | 2017 | 192          | 54           | 17            | 0.27           |

TABLE 7 (CONTINUED)

**Mobility Measures for PCS Schools 2015/16 to 2017/18: By School and Year**

| School Name                                    | School Code | Ward   | Year | Total Stayer | Total Inflow | Total Outflow | Mobility Ratio |
|------------------------------------------------|-------------|--------|------|--------------|--------------|---------------|----------------|
| WASHINGTON GLOBAL PCS                          | 263         | Ward 6 | 2015 | <10          | 97           | <10           | 1.00           |
| WASHINGTON GLOBAL PCS                          | 263         | Ward 6 | 2016 | 82           | 90           | 12            | 0.55           |
| WASHINGTON GLOBAL PCS                          | 263         | Ward 6 | 2017 | 84           | 112          | 24            | 0.62           |
| WASHINGTON LATIN PCS - HIGH SCHOOL             | 1118        | Ward 4 | 2015 | 221          | 84           | <10           | 0.28           |
| WASHINGTON LATIN PCS - HIGH SCHOOL             | 1118        | Ward 4 | 2016 | 237          | 93           | <10           | 0.29           |
| WASHINGTON LATIN PCS - HIGH SCHOOL             | 1118        | Ward 4 | 2017 | 239          | 92           | <10           | 0.29           |
| WASHINGTON LATIN PCS - MS                      | 125         | Ward 4 | 2015 | 168          | 186          | <10           | 0.53           |
| WASHINGTON LATIN PCS - MS                      | 125         | Ward 4 | 2016 | 171          | 188          | <10           | 0.53           |
| WASHINGTON LATIN PCS - MS                      | 125         | Ward 4 | 2017 | 177          | 190          | <10           | 0.52           |
| WASHINGTON LEADERSHIP ACADEMY                  | 283         | Ward 5 | 2015 | <10          | <10          | <10           |                |
| WASHINGTON LEADERSHIP ACADEMY                  | 283         | Ward 5 | 2016 | <10          | 100          | <10           | 1.00           |
| WASHINGTON LEADERSHIP ACADEMY                  | 283         | Ward 5 | 2017 | 89           | 115          | <10           | 0.57           |
| WASHINGTON MATHEMATICS SCIENCE TECHNOLOGY PCHS | 178         | Ward 5 | 2015 | 163          | 113          | 17            | 0.44           |
| WASHINGTON MATHEMATICS SCIENCE TECHNOLOGY PCHS | 178         | Ward 5 | 2016 | 165          | 115          | 26            | 0.46           |
| WASHINGTON MATHEMATICS SCIENCE TECHNOLOGY PCHS | 178         | Ward 5 | 2017 | 147          | 81           | 38            | 0.45           |
| WASHINGTON YU YING PCS                         | 1117        | Ward 5 | 2015 | 442          | 52           | <10           | 0.12           |
| WASHINGTON YU YING PCS                         | 1117        | Ward 5 | 2016 | 484          | 35           | <10           | 0.08           |
| WASHINGTON YU YING PCS                         | 1117        | Ward 5 | 2017 | 502          | 29           | <10           | 0.06           |

## About ODCA

The mission of the Office of the District of Columbia Auditor (ODCA) is to support the Council of the District of Columbia by making sound recommendations that improve the effectiveness, efficiency, and accountability of the District government.

To fulfill our mission, we conduct performance audits, non-audit reviews, and revenue certifications. The residents of the District of Columbia are one of our primary customers and we strive to keep the residents of the District of Columbia informed on how their government is operating and how their tax money is being spent.

**Office of the District of Columbia Auditor**  
**717 14th Street N.W.**  
**Suite 900**  
**Washington, DC 20005**

**Call us:** 202-727-3600

**Email us:** [odca.mail@dc.gov](mailto:odca.mail@dc.gov)

**Tweet us:** [https://twitter.com/ODCA\\_DC](https://twitter.com/ODCA_DC)

**Visit us:** [www.dcauditor.org](http://www.dcauditor.org)



Information presented here is the intellectual property of the Office of the District of Columbia Auditor and is copyright protected. We invite the sharing of this report, but ask that you credit ODCA with authorship when any information, findings, or recommendations are used.

Thank you.

