



THE FISCAL IMPACT OF CHARTER SCHOOL EXPANSION:

Calculations in Six Pennsylvania
School Districts

September 2017

David Lapp • Joshua Lin • Erik Dolson • Della Moran



RESEARCH
for ACTION

ABOUT RESEARCH FOR ACTION

Research for Action (RFA) is a Philadelphia-based nonprofit organization. We seek to use research as the basis for the improvement of educational opportunities and outcomes for traditionally underserved children and students. Our work is designed to strengthen early education, public schools and postsecondary institutions; provide research-based recommendations to policymakers, practitioners, and the public; and enrich civic and community dialogue. For more information, please visit our website at www.researchforaction.org.

ACKNOWLEDGMENTS

This report was funded with generous support from the William Penn Foundation. The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the William Penn Foundation.

Research for Action (RFA) would like to thank the Pennsylvania Coalition of Public Charter Schools (PCPCS), the Pennsylvania Association of School Administrators (PASA), and the Pennsylvania Association of School Business Officials (PASBO) for providing helpful consultation and a spirit of collaboration from the beginning to the end of this project. In particular, we are grateful for the assistance provided by Ana Meyers, Executive Director of PCPCS, and her predecessor, Bob Fayfich; Mark DiRocco, Executive Director of PASA, and his predecessor Jim Buckheit; and Jay Himes, Executive Director of PASBO.

Additional thanks to members of the stakeholder group convened by PCPCS, PASA, and PASBO, which included staff from the following districts, charters, and organizations: Bensalem Township SD, Bethlehem Area SD, Boys Latin Of Philadelphia Charter School, Canon-McMillan SD, Charter Choices, Inc., Collegium Charter School, Commonwealth Charter Academy, East Penn SD, Mechanicsburg Area SD, Northern Tioga SD, PA Distance Learning Charter School, Reading SD, School Lane Charter School, and Souderton Area SD.

We are indebted to Bob Schoch and Michael Griffith, two school finance consultants who were instrumental in informing our research design, testing our calculation tool, and ultimately providing the estimates and assumptions upon which the findings of this report are based.

Thank you to the many members of the RFA team who contributed to this project: Della Moran, Erik Dolson, Kate Shaw, Alison Murawski, Megan Morris, and Katie Carter. Particular credit is due to Joshua Lin who transformed concept into reality by developing the Charter Impact Calculation Tool.

Finally, this project would not have been possible without the cooperation of leaders and school business officials from six Pennsylvania school districts who opened their books to us and shared their real world experience to inform our findings. Particular thanks to Brian Cooney from Oxford Area, David Matyas from Central Bucks, Jack Hurst from Mahanoy Area, Jeff Mummert from South Western, Scott Antoline from Quaker Valley, and Uri Monson from Philadelphia. Your intelligence has strengthened this project, as it has your school districts.

 **David Lapp**, Director of Policy Research
September 2017

Table of Contents

Executive Summary	<i>i</i>
Charter Schools in Pennsylvania	1
Learning from Prior Studies	6
Developing a Transparent and Collaborative Research Process	10
Research Methods and Assumptions	14
Research Findings	17
Strengths and Limitations	27
Conclusion	29
Appendix A: Adaptations of the Methodology from Prior Studies	31
Appendix B: Cut-Points for Selecting Participating School Districts	33
Appendix C: Technical Appendix	34
Appendix D: Charter Impact Calculation Tool Instruction Manual	39
Appendix E: Breakdown and Explanation of Chart of Accounts	49
Appendix F: Impact Estimates for All Scenarios	55

THE FISCAL IMPACT OF CHARTER SCHOOL EXPANSION

Calculations in Six Pennsylvania School Districts

September 2017

David Lapp • Joshua Lin • Erik Dolson • Della Moran

Executive Summary

THE NEED FOR A TRANSPARENT METHOD TO CALCULATE THE FISCAL IMPACT OF CHARTER SCHOOL EXPANSION

From 2008 to 2015, charter school enrollment in Pennsylvania more than doubled, growing from under 64,000 students to nearly 135,000 students.ⁱ In Pennsylvania, as in many states, a student's transition from a traditional public or private school to a charter school creates additional costs to the district of residence, mostly in the form of new charter tuition payments and increased administrative and oversight costs. There are also savings a district can realize for each student that it no longer educates in its own schools.

The difference between the increased costs of charter expansion (charter tuition payments) and the savings a district can realize as students depart (variable costs) is considered the fiscal impact of charter expansion. While several studies have estimated the impact of charter school expansion, estimates vary widely, and the methods for calculating them have often not been transparent. Moreover, these studies did not take important district variations or the rate of charter expansion into account. To address these shortcomings, RFA designed a transparent accounting-based projection model to estimate the fiscal impact of charter school expansion. The instrument used for these calculations—the Charter Impact Calculation Tool—is also available for public use.

THE CALCULATION MODEL

The charter school projection model, the Charter Impact Calculation Tool created to implement it, and the projection estimates and assumptions it relied on were reviewed and vetted at each step by independent school finance experts and by district and charter sector stakeholders convened by the Pennsylvania Coalition of Public Charter Schools (PCPCS), the Pennsylvania Association of School Administrators (PASA), and the Pennsylvania Association of School Business Officials (PASBO).

ⁱ Pennsylvania Department of Education, "Reports, Data and Resources," *Pennsylvania Department of Education*, <http://www.education.pa.gov/K-12/Charter%20Schools/Pages/Annual-Reports,-Data-and-Resources.aspx#tab-1>

Six Pennsylvania school districts with diverse budgets, sizes, and current rates of charter enrollment agreed to participate in the study. Each district provided necessary budget, enrollment, and building capacity data. Based on estimates provided by two independent school finance experts, we ran four hypothetical charter expansion scenarios through our calculation tool for all six participating school districts. In the model, we hold total public enrollment constant so that the rate of expansion in charter enrollment equals the rate of student loss from district schools. We do not attempt to quantify the impact of past charter growth.

The four hypothetical growth scenarios, which present charter growth as a *percentage of the total public school enrollment* in each district, are presented in Table ES-1.

Table ES-1: Four Hypothetical Charter Growth Scenarios

Scenario 1	Charter expansion at 0.5% for five years (2.5% total growth)
Scenario 2	Charter expansion at 1% for five years (5% total growth)
Scenario 3	Charter expansion at 2% for five years (10% total growth)
Scenario 4	Charter expansion at 4% for five years (20% total growth)

For each of the six districts, we calculate the fiscal impact in Year 1 and Year 5 of each scenario, representing the short- and long-term impact of charter expansion, respectively. Because charter expansion in Pennsylvania currently leads to only negligible changes in revenues, we focus solely on changes in expenditures when calculating fiscal impact.

Our Charter Impact Calculation Tool includes:

- Projections of the number of teachers, administrators, and staff that each district would be expected to lose as enrollment declines due to charter expansion.
- Projections of the number of school buildings the district would need to close as enrollment declines, based on existing building capacity rates.
- Each district’s budget, disaggregated by the appropriate object and/or function.
- The primary cost driver and the percent of variability of each budget line item.

Additional details on our assumptions and calculations are included in the full report.

FINDINGS

Table ES-2 summarizes our findings from our slowest and the fastest charter growth projections (0.5% and 4% annual growth). For each participating district we calculated the following:

1. The **total annual impact**, or the total amount of additional dollars each district would require to accommodate the new costs of charter expansion, while maintaining services and staff for students in district schools at roughly the same levels and proportions.
2. The **per-charter-pupil impact**, or simply the total impact divided by the number of new charter school students
3. The **impact as a percentage of a district's charter tuition rate**, which compares the amount of per-pupil impact to the average amount each district pays in tuition for a student enrolled in a charter school. In other words, this is the percent of new charter tuition costs that a district is not able to save. This analysis controls for the varying levels of charter tuition in our six districts, which allows for better comparisons of impact across districts.

Table ES-2: Summary of District-Level Findings

		Total Impact	Per Charter Pupil Impact	Percent of Charter Tuition	Total Impact	Per Charter Pupil Impact	Percent of Charter Tuition	Total Impact	Per Charter Pupil Impact	Percent of Charter Tuition
		Philadelphia (Large district — 35% charter)			Oxford Area (Med. district — 11% charter)			Mahanoy (Small district — 5% charter)		
Scenario 1 (0.5% growth)	Year 1	\$(8,246,460)	\$(8,125)	80%	\$(222,527)	\$(10,115)	89%	\$(68,900)	\$(13,780)	95%
	Year 5	\$(22,494,582)	\$(4,433)	44%	\$(888,747)	\$(8,229)	73%	\$(174,215)	\$(6,701)	46%
Scenario 4 (4% growth)	Year 1	\$(65,718,355)	\$(8,095)	80%	\$(1,757,244)	\$(10,217)	90%	\$(559,778)	\$(13,653)	94%
	Year 5	\$(154,377,306)	\$(3,803)	37%	\$(5,097,630)	\$(5,921)	52%	\$(1,683,626)	\$(8,133)	56%
		Central Bucks (Large district — 1% charter)			South Western (Med. district — 2% charter)			Quaker Valley (Small district — 2% charter)		
Scenario 1 (0.5% growth)	Year 1	\$(871,205)	\$(9,268)	81%	\$(224,425)	\$(10,687)	93%	\$(167,645)	\$(16,764)	96%
	Year 5	\$(1,600,564)	\$(3,391)	30%	\$(324,401)	\$(3,090)	27%	\$(357,513)	\$(7,448)	42%
Scenario 4 (4% growth)	Year 1	\$(7,577,516)	\$(10,036)	88%	\$(1,607,849)	\$(9,571)	83%	\$(1,311,216)	\$(17,253)	97%
	Year 5	\$(13,633,519)	\$(3,611)	32%	\$(3,455,617)	\$(4,124)	36%	\$(3,487,830)	\$(9,154)	52%

Note: Dollar amounts in parentheses indicate a negative fiscal impact

High-level Findings:

- **The fiscal impact of charter expansion is consistently negative**, across all scenarios of our model, on both a per-pupil and total level, and in both the short- and long term.
- **The total annual fiscal impact grows each year as more students depart for charters.**
- **However, the per-pupil impact decreases in the longer term.** With a constant rate of charter growth, the per-pupil impact in year five is smaller than the per-pupil impact in year one, because districts are able to economize on teacher salaries, building costs, and other fixed costs as more students leave.
- **Yet the impact never reaches zero as charter expansion continues.** Even by year five in our fastest growth scenario, districts will only be able to recoup between 44-68% of the cost of charter tuition for each student that leaves.
- **Small districts generally show a higher per-pupil fiscal impact than large districts.** This is because smaller districts need a higher percentage of students to leave before they are able to economize on teachers or buildings.

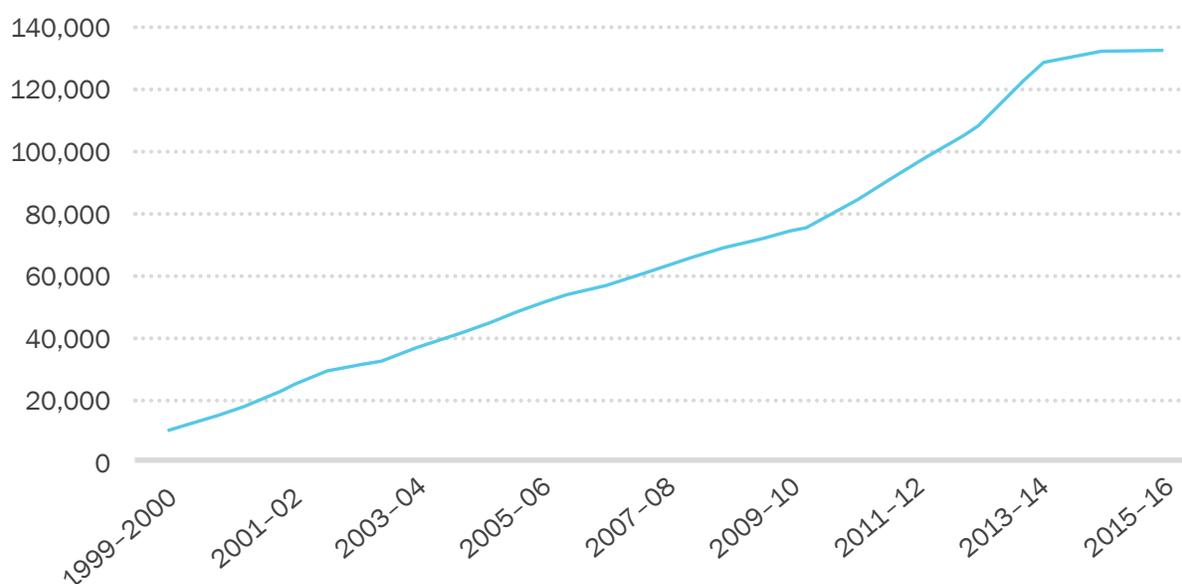
CONCLUSION

Using an accounting-based projection model of charter expansion, we estimated *a significant, negative fiscal impact of charter expansion in all six participating Pennsylvania school districts in both the short and long term*. This is true for districts of all sizes, and does not vary significantly by the rate of charter expansion. Pennsylvania can offset these costs, as it has in the past, by providing districts an additional state funding reimbursement for charter enrollment.

Charter Schools in Pennsylvania

From 2008 to 2015, charter school enrollment in Pennsylvania more than doubled, growing from under 64,000 students to nearly 135,000¹ (see Figure 1). This expansion has mirrored a national trend in which charter enrollment grew 62% in the last five years alone, approaching 3 million K-12 students in charter schools across the country.² While most Pennsylvania charter school students transition from, or would have attended, traditional district-operated schools, a significant number of students leave private schools to enroll in charter schools.³ The majority of these students attend “brick and mortar” charter schools which are most heavily concentrated in only a few dozen Pennsylvania school districts. However, nearly all 499 Pennsylvania school districts have at least one student in a cyber charter school and these students account for over 30,000 of Pennsylvania’s total charter school enrollment.

Figure 1: Charter Enrollment in Pennsylvania (1999-2016)



(Source: RFA, based on Pennsylvania Department of Education Enrollment data)

In Pennsylvania, as in many states, a student’s transition from a traditional public or private school to a charter school creates additional costs to the district of residence, mostly in the form of new charter tuition payments and increased administrative and oversight costs. There are also savings a district can realize for

each student that it no longer educates in its own schools. However, achieving meaningful savings can require difficult decisions on the part of school districts, such as teacher layoffs, reduced course offerings, and school closures. These decisions can take time and frequently face political resistance, possibly

¹ Pennsylvania Department of Education, “Reports, Data and Resources,” *Pennsylvania Department of Education*, <http://www.education.pa.gov/K-12/Charter%20Schools/Pages/Annual-Reports.-Data-and-Resources.aspx#tab-1>

² National Alliance for Public Charter Schools, “A Growing Movement: America’s Largest Charter School Communities, Tenth Annual Edition,” *National Alliance for Public Charter Schools*, November 2015, http://www.publiccharters.org/wp-content/uploads/2015/11/enrollmentsshare_web.pdf

³ The Boston Consulting Group estimated that approximately 30% of charter school enrollment in Philadelphia was comprised of students who would have attended private or other non-public schools. (The Boston Consulting Group, Inc., “Transforming Philadelphia’s Public Schools: Key Findings and Recommendations,” *School District of Philadelphia*, August 2012, http://webgui.phila.k12.pa.us/uploads/v_/IF/v_IFJYCO72CBKDPrrGAAQ/BCG-Summary-Findings-and-Recommendations_August_2012.pdf).

resulting in further fiscal challenges.⁴ All the while, a district must continue to maintain adequate staff and schools to comply with its legal mandate to “establish, equip, furnish, and maintain a sufficient number of [public schools], to educate every person, residing in such district, between the ages of six and twenty-one years, who may attend.”⁵

In school finance literature, the fiscal impact of charter expansion, also called “stranded costs,” refers to the net financial cost of students leaving district schools for charter schools. In effect, this fiscal impact is the additional revenue required to provide charter school choices to a community while also maintaining the local school district. There is general agreement that, when charter expansion is not accompanied by additional revenues, it creates additional financial costs to a school system.⁶ In other words, it is not cost-neutral when students leave district schools to attend charter schools. However, there are often disagreements about the magnitude of those costs.

Despite extensive public debate about stranded costs, there is minimal research that quantifies the cost of charter expansion or rigorously examines the conditions and policies that exacerbate or minimize these costs. In the context of Pennsylvania in particular,

“The fiscal impact of charter expansion is the additional revenue required to provide charter school choices to a community while also maintaining the local school district.”

past projections of the cost of charter expansion have focused only on the School District of Philadelphia, providing no insight into whether the effects could be different in other districts. In addition, the prior Philadelphia studies did not provide the public with any of the underlying assumptions, estimations, or mathematical calculations used to measure impacts.⁷

A Brief History of State Response to Charter School Costs

Since its adoption in 1997, the Pennsylvania Charter School Law has recognized at least the initial costs of charter expansion. The law provides, subject to state appropriations, for a “grant program to provide temporary transitional funding to a school district due to the budgetary impact relating to any student’s first-year attendance at a charter school.”⁸

By the 2010-11 school year, the state provided over \$219 million through a line item commonly referred to as the charter school “reimbursement” to partially alleviate the costs to local districts of the 90,616 students enrolled in charter schools across the Commonwealth at that time. As a result, in 2010-11 the state provided, on average, \$2,417 to districts for each of its students enrolled in a charter school. Philadelphia,

⁴Moody’s, “Charter Schools Pose Greatest Credit Challenge to School Districts in Economically Weak Urban Areas,” *Moody’s*, October 15, 2013, https://www.moody.com/research/Moodys-Charter-schools-pose-greatest-credit-challenge-to-school-districts-PR_284505

⁵ 24 P.S. § 5-501 (emphasis added).

⁶ Robert Bifulco and Randall Reback, “Fiscal Impacts of Charter Schools: Lessons from New York,” *Columbia University*, (2011), <http://www.columbia.edu/~rr2165/pdfs/nycharterfiscal.pdf>

⁷ In addition, the statewide impact of charter school tuition is not limited to just Philadelphia and a few other urban school districts. In a recent survey by PASA and PASBO, 37% of Pennsylvania districts reported an increase in brick-and-mortar charter school tuition costs from 2015-16 to 2016-17, and 69% experienced increases in cyber charter tuition costs. Forty-one surveyed districts experienced increases in cyber charter expenses that exceeded 20%, and 30 districts had cost increases over 20% for brick-and-mortar charters. Pennsylvania Association of School Administrators and Pennsylvania Association of School Business Officials, “The PASA-PASBO Report on School District Budgets,” *Pennsylvania Association of School Business Officials*, January 2017, http://file2.pasbo.org/PASA%20PASBO%20Report%20on%20School%20Budget_2017.pdf.

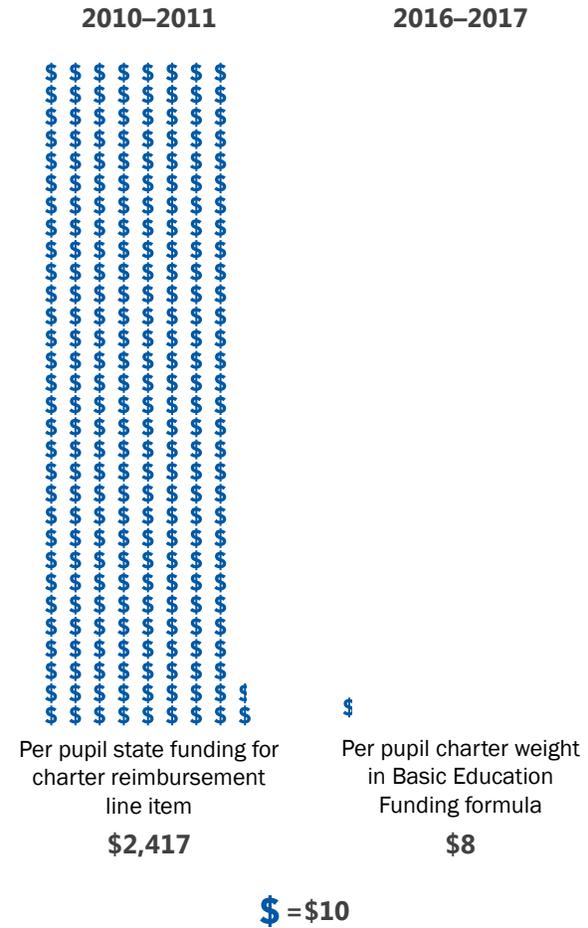
⁸ Act 22, Sess. of 1997, (Pen. 1997) <http://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=1997&sessInd=0&act=22>

with more than half the charter school population in the Commonwealth, received \$109.5 million of those revenues—about half the total amount.

However, the following year the General Assembly zeroed out that budgetary line item. This left Philadelphia and other districts with large charter school sectors and no partial reimbursement from the state. Since the charter reimbursement was eliminated, state-wide enrollment in charter schools has grown by over 42,000 students to a total of 132,860. Notably, if the state reimbursement continued at the 2010-11 rate, Pennsylvania districts would now receive over \$320 million annually in additional state revenue to offset the fiscal impact of charter school expansion.

In 2016, the state adopted a new funding formula to drive the distribution of new appropriations to the state’s Basic Education Fund. This formula includes an added weight to recognize some of the costs of charter expansion. Under the formula, each student enrolled in a charter school is counted as 1.2 students for the purpose of determining a district’s weighted average daily membership (WADM).⁹ However, the formula is only applied to the Basic Education Funding appropriated after fiscal year 2014-15, which is less than 6% of the total line item in the state budget. RFA calculated that, for the 2016-17 school year, the charter weight in the BEF formula provided Philadelphia only \$567,120 in additional revenue. Thus, to cover the 70,089 students enrolled in Philadelphia charter schools, the state provided approximately \$8 per student.¹⁰ Figure 2 displays the per-pupil resources provided by the state to Philadelphia under the two charter reimbursement policies.

Figure 2: State Revenue for Charter Expansion in Philadelphia: Old Charter Reimbursement vs. New Basic Education Funding Formula



(Source: RFA, based on Pennsylvania Department of Education enrollment and finance data)

⁹ Penn. Fiscal Code (as amended by P.L. 168, No. 25), §1722-L, 17.1.

¹⁰ Even if the new formula were applied to the entire BEF, the charter weight would still only provide Philadelphia with \$8.9 million additional dollars, approximately 8% of what it received in 2010 under the prior charter tuition reimbursement line item. Moreover, the weight in the new formula does not actually provide any additional state revenues for charter expansion. Rather, it merely distributes whatever revenues the General Assembly appropriates for all public schools. In this way, the charter school weight actually diverts state revenues away from districts without charter schools and toward districts with charter schools. This also means that if every school district experienced the same amount of charter growth, the weight would have no effect at all.

The Need for a More Transparent and Comprehensive Analysis of the Cost of Charter School Expansion

As illustrated above, as charter school enrollment has expanded, Pennsylvania has not provided consistent resources to offset the fiscal cost to Pennsylvania school districts. However, research has also fallen short of providing a clear, transparent estimate of these costs to guide the state and school districts as they consider charter school expansion and its fiscal impact. A better shared understanding about the fiscal impact of charter expansion in Pennsylvania could help inform school funding negotiations, improve public dialogue between districts and charter schools, and allow for better district financial planning. If such a shared understanding also led state policy makers to provide revenue to ameliorate the fiscal impact of charter expansion, school district authorizers may be better able to focus on substantive performance and capability issues in charter applications and renewals, rather than on the fiscal impact of expansion or new applications.

For all these reasons, RFA set out to design an accurate method to estimate the cost of charter school expansion, and to do so with transparency and in collaboration with both the charter school and school district sectors

in Pennsylvania. PCPCS, PASA, and PASBO each provided consultation. In addition, each organization helped identify and recruit charters and districts to participate in a stakeholder group to review our research and vet our methodology and estimates.

The Charter Impact Calculation Tool can be customized by districts to calculate charter expansion costs.

This research adds significantly to the literature on the fiscal impact of charter expansion, and also provides a Charter Impact Calculation Tool that can be customized by other districts to calculate the fiscal impact of charter expansion. Importantly, it does **not** attempt to answer all questions related to charter schools and their effect on district schools. As highlighted in the box below, this study did not endeavor to conduct a full “cost/benefit” analysis of charter school expansion and should not to be read as an argument to either limit or encourage charter growth. Rather, our efforts focused on providing accurate and transparent calculations of the fiscal impact of future charter expansion at varying rates, and across several types of districts.

What this research is... And what it is not

THIS STUDY PROVIDES...

- An analysis of the fiscal impact of charter expansion on the finances of six diverse school districts
- Calculations of the impact of future charter enrollment expansion under various hypothetical scenarios
- A Charter Impact Calculation Tool to help districts better understand cost drivers and consider what cost-saving measures could be taken under various scenarios

THIS STUDY IS NOT...

- An exploration of charter vs. district school performance
- A cost-benefit analysis of charter school growth
- A costing-out study or an examination of the adequacy of current state funding levels
- An inquiry into the proper distribution of funding between school districts and charter schools

Our Study in Brief

In this report, we describe the projection-based model we used to estimate the fiscal impact of charter school expansion on each of six school district budgets under four hypothetical scenarios of future charter expansion. These scenarios, which present charter growth as a percentage of the *total public school enrollment* in each district, are provided in Table 1.

Table 1: Four Hypothetical Charter Growth Scenarios

Scenario 1	Charter expansion at 0.5% for five years (2.5% total growth)
Scenario 2	Charter expansion at 1% for five years (5% total growth)
Scenario 3	Charter expansion at 2% for five years (10% total growth)
Scenario 4	Charter expansion at 4% for five years (20% total growth)

To arrive at estimates of the cost of charter expansion, we examined the difference between charter school tuition increases and the savings realized by reductions in school district expenses. Some district costs, such as teacher salaries, are highly variable, where other costs, such as facility operations, debt service and insurance, remain fixed regardless of the fact that the district's enrollment may decrease.

For each of our six districts, we held total public enrollment constant so that the rate of expansion in charter enrollment equals the rate of student loss from district schools. We did not attempt to quantify the impact of past charter growth.

For each district, we calculated the fiscal impact in Year 1 and Year 5 of each scenario, representing the short- and long-term impacts of charter expansion, respectively. Because charter expansion in Pennsylvania currently leads to only negligible changes in revenues (see Figure 2), we focused solely

on changes in expenditures when calculating fiscal impact. Thus, our fiscal impact calculations represent the savings districts are able to realize as pupils leave for charters minus the increased costs associated with charter expansion, namely increased charter tuition payments. The calculations can therefore also be considered the stranded costs of charter expansion.

We embedded our calculations of fiscal impact into an Excel-based calculation tool for ease of use and distribution and to make our calculations fully transparent. We presented and explained this tool to various stakeholders, including district and charter representatives, to obtain their feedback. A link to the Charter Impact Calculation Tool and instructions for its use can be found in Appendix D.

In the pages that follow, we first provide an overview of the literature on charter fiscal impact we considered in establishing our own research design. We explain our research methods and each stage of our research process and stakeholder engagement. We then outline the assumptions and estimations in our projections as well as the math that drives the calculation tool we developed. We explain our research findings in terms of (1) the per-charter-pupil fiscal impact, (2) the total annual fiscal impact, and (3) the fiscal impact as a percentage of each district's charter tuition. In short, we find a significant, negative fiscal impact of charter expansion in each of the six Pennsylvania school districts included in this study in both the short- and long-term. This is true for districts of all sizes, and does not vary significantly by the rate of charter expansion.

Finally, we describe limitations of our study and conclude with thoughts about how to use this research and tool. A detailed technical appendix is also provided.

Learning from Prior Studies

To inform our own methodology, RFA reviewed prior studies designed to estimate the impact of charter expansion on school districts. Our goal was to select the best methods available and to make assumptions and calculations transparent.

WHY AN ACCOUNTING ESTIMATION APPROACH IS MOST APPROPRIATE FOR THIS ANALYSIS

Prior studies used one of two basic estimation approaches. **Statistical approaches** examine multiple years of data to understand the historic impact of charter expansion compared to other financial factors. **Accounting approaches** use detailed school district financial data to understand what savings and what costs could occur as a result of continued or future charter expansion.

RFA, with input from the PCPCS, PASA, and PASBO, determined that an accounting approach would be better suited to our research objectives for several reasons:

- 1. More reliable estimates of charter-specific impact.** Statistical studies required a single historic measure of fiscal impact, e.g., fund balance or per-pupil expenditures. The high volatility of school funding during the past decade in Pennsylvania, for reasons other than charter expansion, could skew these measures and not provide a reliable standard. These measures of fiscal impact were thus determined to be inadequate and/or potentially misleading.
- 2. Capacity to project future impact.** Statistical studies are limited to estimating past impacts on districts with existing charter enrollment. Accounting studies allow researchers to examine potential differ-

ences in future impacts across districts with varying levels of charter enrollment. This approach therefore allows us to examine a wide range of districts.

3. Potential to build and improve upon past accounting approach studies.

Two widely-circulated prior studies on charter school fiscal impact in Philadelphia (Boston Consulting Group and Afton Group) utilized variations on the accounting approach. However, these studies lacked transparency with regard to the assumptions, estimations, and calculations that drove their results and therefore did little to quell disagreement about the true nature of fiscal impact or inform productive dialogue and policy-making. Our hope was to improve upon these approaches for estimating both the savings and costs that would occur as a result of future charter expansion in Philadelphia, as well as in smaller districts across the Commonwealth.

Below, we review the findings and limitations of previous studies that used the accounting approach for measuring charter fiscal impact and describe how we attempted to improve upon their methodologies.

FINDINGS AND LIMITATIONS OF PRIOR STUDIES

Past studies have estimated a negative fiscal impact of charter school expansion on school district budgets. However, the size of these estimates and the unit of analysis used to communicate them has varied widely. Some provided per-pupil estimates of impact, some provided overall district estimates, some offered both, and one focused entirely on potential district savings. These findings are summarized in Table 2, along with some key limitations of each.

Table 2: Findings and Limitations of Previous Studies

Authors & Subject of Study	Findings			Limitations
	Per-pupil impact	Annual Net Impact	Conclusions	
Bifulco & Reback (2011) Albany & Buffalo School Districts	Albany \$883— \$1,070 Buffalo \$633 - \$755	Not calculated	State transition aid (i.e. reimbursement) offsets a substantial portion of the negative impact, but still leaves both districts with continuing annual, long-term impacts.	Study did not estimate annual, short-term net impact but concluded that it is likely far more severe than long-term impact estimates. Study assumes all expenses and savings are driven by student enrollment (rather than the number of classrooms or buildings).
Boston Consulting Group [BCG] (2012) Philadelphia SD	\$7,000 ¹¹	\$158 million total in 2016-17 (assuming 21,000 new students in traditional charters, 11,000 in Renaissance charters)	In the absence of state reimbursement, immediate per-pupil impacts were very high.	Study did not provide calculations or assumptions about fixed vs. variable costs transparent, making it difficult to assess accuracy or sensitivity of findings.
Afton Group (2017) Philadelphia SD	\$4,824 ¹²	Not calculated	Study describes stranded costs as lasting “in perpetuity,” noting that some could be mitigated by additional “painful” actions such as increased layoffs, school closures, or school turnarounds.	Study did not make calculations or assumptions about fixed vs. variable costs transparent, making it difficult to assess accuracy or sensitivity of findings.
MGT of America (2014) Metropolitan Nashville Public Schools	Not Calculated	\$47 million (estimated 2015-16)	Assuming 2014 trends in enrollment, teacher salaries, and per-pupil spending continued, charter expansion would cost the district over \$300 million over the next five years.	Study includes some detail on staffing assumptions but no transparent calculations of fixed vs. variable costs. Study assumes all expenses and savings are driven by student enrollment (rather than the number of classrooms or buildings).

¹¹ BCG excluded Renaissance charters from their per-pupil estimate of charter impact because the stranded costs associated with them are significantly lower than with traditional charters. The District estimated that Renaissance schools resulted in \$800–\$1,000 in stranded costs per student due to inflated special education reimbursements, stranded central administration costs, and enrollment growth. (See BCG study, page 34.)

¹² Afton included Renaissance charters in their overall estimate and determined that Renaissance charter schools cost the district approximately \$1,800 in stranded costs per student. (See Afton study, page 16).

Zoller (2016) Los Angeles Unified School District	\$4,957	\$83 million (estimated 2015-16)	Study concludes that per-pupil estimates are conservative because they don't take into account direct and indirect costs of central office administrative time spent on charter operations. These are included in the total annual district impact estimate.	Study includes some detail on staffing assumptions but no transparent calculations of fixed vs. variable costs. Study assumes all expenses and savings are driven by student enrollment (rather than the number of classrooms or buildings). Study assumes immediate reduction of all variable costs, which is unlikely in practice.
Scafidi (2012) All 50 States	Not calculated	Not calculated	Study concludes that if charter tuition payments were less than the variable costs per student, a district should be able to make appropriate spending cuts and experience no negative fiscal impact. ¹³	Study provides no transparent calculations. Study assumes immediate reduction of all variable costs, which is unlikely in practice. Study does not attempt to estimate per-pupil or district-level impacts, assuming rather that cuts should offset all impact.

The studies summarized above provide significant evidence that, in most cases, charter school expansion creates some level of negative fiscal impact for sending school districts, as cost savings are rarely immediate or great enough to offset the increased cost of charter school tuition. However, the state and local context, particularly how charter schools are funded, heavily influences the magnitude of the fiscal impact of charter expansion. For example, New York and numerous other states provide transitional or other forms of funding to offset the cost of expansion, which significantly limits the negative fiscal impact on district schools.¹⁴

“The way that charter schools are funded at the state and local level heavily influences the magnitude of the fiscal impact of expansion.”

In addition, there are several significant limitations to these studies that our research team hoped to address. Most notably, the majority of prior accounting studies—including both prior studies commissioned by the School District of Philadelphia—have not provided enough detail about their methodologies or transparency in their calculations to allow for external validation or a thorough assessment of the quality or sensitivity of their analyses.

¹³ Scafidi estimated \$9,009 per pupil in short-run variable costs for the average PA school district in 2010-2011 (Table 6, pg. 13); RFA has calculated that charter tuition in Pennsylvania in 2010-11 averaged \$10,045.

¹⁴ Education Unit New York State Division of the Budget, “Description of 2015-16 New York State School Aid Programs,” *New York State Division of the Budget*, September 15, 2015, <https://www.budget.ny.gov/pubs/archive/fy1516archive/enacted1516/1516NYS-SchoolAidPrograms.pdf>

Other notable limitations of the studies include:

- **Presenting a single number estimating charter fiscal impact.** In reality, the impact is likely to change over time, starting quite high before a district has the time to make corresponding cuts to its budget, and gradually decreasing as the district is able to, where feasible, right-size and achieve some efficiencies by reducing staff and buildings.
- **Categorizing costs as either totally fixed or variable.** In reality, costs could be a mix of the two—partially fixed for a certain time horizon and partially variable (with the exception of Bifulco and Reback (2011) and Afton (2017)).
- **Assuming that costs can be reduced proportionately and immediately as students leave.** In practice, there is an inevitable lag between when a district loses students and when they are able to appropriately reduce costs. In fact, most costs remain fixed until a certain number of students leave and the district reaches a tipping point and is able to reduce staff, buildings, or other costs accordingly.
- **Assuming that expenditures and potential cost savings will be driven entirely by changing district enrollment.** In reality, many expenditures and potential cost savings may be driven by other factors, such as the number of classrooms or buildings a district must operate.

KEY ADAPTATIONS FROM PREVIOUS STUDIES

We used our analysis of the prior literature on charter fiscal impact to develop a methodology that builds upon previous studies. Our approach was informed by significant input from PCPCS, PASA, PASBO, and independent school finance experts. These adaptations allow us to provide a nuanced, robust, and transparent set of analyses to estimate the fiscal impact of charter expansion in a variety of scenarios. The adaptations are as follows:

- **A tool and accompanying manual were created to ensure that all assumptions and calculations are transparent.** With this, we hope to provide easily-verifiable estimates of charter impact.
- **Impacts were calculated based on multiple scenarios and at two different points in time.** Potential savings were calculated explicitly for both the one-year and five-year periods under four different hypothetical scenarios of charter expansion/enrollment loss.
- **Costs are allowed to vary with a range of different cost drivers, rather than just enrollment.** Experts could choose a cost driver that more closely aligned with each type of cost, rather than simply enrollment. We also included additional cost drivers such as teachers (as well as subgroups of teachers, by type or grade span), buildings, and specific types of enrollment (total public, district only, etc.).
- **Enrollment losses are projected by grade level based on historic trends.** The past six years of charter enrollment determine the charter sector's projected expansion by grade level. For example, we can determine the cost of charter expansion in school districts with charter schools in the elementary grades only by limiting calculations to elementary schools in our projections. This approach can more accurately capture the grade bands that could be affected by charter expansion.
- **Users can set a degree of fixedness between 0 and 100% fixed for each cost item.** Most prior studies presume that costs are fully fixed or fully variable. Our study allows variation in the degree of fixedness as determined by a variety of factors, such as the nature of a school district's contracts and terms.

The specifics of our calculations are discussed at length later in the report. For more information on our adaptations on previous studies, see Appendix A.

Developing a Transparent and Collaborative Research Process

Informed by a thorough review of the relevant literature on charter fiscal impact and input from PCPCS, PASA, and PASBO, RFA adopted a six-step collaborative research process informed by cross-sector input from both charter and district leaders. The process is depicted in Figure 3 and described below in more detail.

Figure 3: Six-Step Research Process



ANALYSIS



FEEDBACK



DISTRICTS

*Throughout the process, RFA consulted with PASA, PASBO, and PAPCS

(Source: RFA)

STEP 1. DEVELOPING A CHARTER IMPACT CALCULATION TOOL VETTED BY SCHOOL FINANCE EXPERTS

Based on concepts drawn from prior studies and with input from PCPCS, PASA, and PASBO, RFA developed a calculation tool for this study which utilizes current district budget data, along with enrollment and staffing projections, to quantify the potential new costs and cost savings to districts as charter enrollment increases. Following internal testing, RFA contracted with two independent school finance experts: Bob Schoch, an experienced consultant and former Pennsylvania school business officer, and Michael Griffith, a national school finance consultant from Denver with prior research experience on Pennsylvania's school funding. These experts helped RFA test and refine the accuracy and functionality of the Charter Impact Calculation Tool prior to data collection and use.

STEP 2. SOLICITING STAKEHOLDER FEEDBACK ON PROCESS & DRAFT TOOL

In December 2016, RFA, with help from PCPCS, PASA, and PASBO, convened 14 school leaders and school business officials from geographically diverse districts and charter schools to review the proposed study process and methodology, including the calculation tool, and to gather feedback on how they could be improved.¹⁵

This process resulted in substantial changes to the tool, including:

- Adjusting charter enrollment projections to reflect six-year grade level distribution trends;

- Calculating projected staffing cuts informed by six-year trends in historic enrollment data. This allowed us to account for districts with already-declining enrollment and allow for more immediate staff reductions; and
- Adding a two-year lag between enrollment loss and staffing cuts to acknowledge the reality that districts cannot make staffing changes based on current year enrollment, but rather need some time to right-size.

These changes were incorporated before the independent experts embarked on the estimation process (see Step 4) and helped improve the accuracy of the study's findings.

STEP 3. SELECTING A RANGE OF SCHOOL DISTRICTS

In consultation with partners from PCPCS, PASA, and PASBO, RFA identified a sample of six Pennsylvania school districts that varied by size and degree of charter penetration. Doing so allowed us to examine whether these factors affected the fiscal impact of charter expansion.

To determine cut-off points, the enrollment of Pennsylvania's 499 school districts (in 2014-15)¹⁶ were ranked in order of size and divided into three categories: large, medium, and small, each of which contained one third of the state's total school district enrollment. Districts were then classified as either low or high charter penetration comparable to school districts of similar size. The cut-off point between low and high charter penetration was set at the median charter penetration of school districts in each size category. The cut-off point between "high" or "low" charter penetration in small districts was not significantly different due to the low overall charter

¹⁵ Representatives from the following school districts, charter schools and organizations were invited to participate in the stakeholder group: Bensalem Township School District, Bethlehem Area School District, Canon-McMillan School District, East Penn School District, Mechanicsburg Area School District, Northern Tioga School District, Reading School District, Souderton Area School District, Boys Latin Of Philadelphia Charter School, Charter Choices, Inc., Collegium Charter School, Commonwealth Charter Academy, PA Distance Learning Charter School, and School Lane Charter School.

¹⁶ Bryn Athyn School District was excluded from this analysis because the Pennsylvania Department of Education did not report its October 1, 2015 enrollment disaggregated by grade.

penetration in Pennsylvania’s small school districts. More details on the cut-off point are available in Appendix B.

Based on these criteria, we solicited the participation of six school districts: Philadelphia, Central Bucks, Oxford Area, South Western, Mahanoy Area, and Quaker Valley. The characteristics of these districts are provided in Table 3.

Table 3: Participating School Districts

District	Size (District & Enrollment)	Charter Penetration
Philadelphia	Large (202,943)	High (35%)
Central Bucks	Large (18,878)	Low (1%)
Oxford Valley	Medium (4,304)	High (11%)
South Western	Medium (4,192)	Low (2%)
Mahanoy Area	Small (1,037)	High (5%)
Quaker Valley	Small (1,903)	Low (2%)

(Source: RFA, based on Pennsylvania Department of Education data)

Participating districts provided RFA with detailed baseline budget data (FY 2015-16) and information about current building capacity. These data were then used to populate the calculation tool for each district. Districts also reviewed impact estimates and provided feedback on the assumptions made by the independent experts.

STEP 4. PROJECTIONS AND ASSUMPTIONS BY INDEPENDENT EXPERTS

Because changes in expenditures are largely driven by changes in enrollment and staffing decisions are then made in accordance

with these enrollment changes, the first step for our independent experts was to project staffing and building closure decisions across different thresholds of enrollment loss in district schools. These projections were individualized for each school district by variation in enrollment, number of staff, number of school buildings, and levels of current capacity in each building.

After these projections were completed, the experts worked collaboratively to reach consensus on (1) the primary cost driver of each expenditure category, and (2) what percentage of that expenditure would be fixed in a five-year period (i.e. the level of “fixedness” of each budgetary object and function). Because the cost drivers and the factors that determine the level of “fixedness” are generally the same in each school district, these particular projections were consistent across all six districts.

While the projections and estimations in the tool were made entirely by the independent experts, RFA did provide training and technical assistance on the use of the Charter Impact Calculation Tool throughout their process. When making their projections, the experts documented the factors that influenced their estimates. For example, in determining the number of district school building closures, the experts considered current and potential building capacity. Thus in the case of Quaker Valley, experts noted that even with a reduction of 402 students in our most extreme 20% enrollment reduction scenario—five years of charter expansion at 4% per year—this loss was not enough to close the district’s second elementary school as the remaining students would exceed the capacity of one elementary school. Similarly, no schools were closed in Mahanoy, because the district currently only has one elementary, one middle, and one high school.

When the Charter Impact Calculation Tool was populated with the appropriate district data

and with the experts' assumptions, it calculated the projected charter fiscal impact in each of the six districts for Years 1 and 5 in all four hypothetical scenarios of charter expansion. These projections were calculated at both a total dollar amount and at a per-charter-school-student amount.

STEP 5. CONSULTATION WITH SCHOOL DISTRICTS

RFA then presented the estimates to each participating school district, explained the functions of the calculation tool, and gathered their feedback on the degree to which the experts' assumptions were feasible based on their district context. Districts were then provided with the calculation results and invited to use the tool to review the calculations, including the final projections for each scenario, and provide additional feedback. The feedback received from districts did not drive any changes to the final impact estimates, but it proved informative in thinking about the potential real-world implications of charter expansion and the limitations of the estimations. For more on district feedback, see the Findings and Feedback section.

STEP 6. SOLICITING STAKEHOLDER FEEDBACK ON FINAL TOOL & IMPACT ESTIMATES

In June 2017, RFA reconvened the district and charter stakeholders who helped shape the Charter Impact Calculation Tool to share impact estimates and to solicit a final round of feedback. This stakeholder meeting also served as a quality check, and several small data quality issues surfaced which were

subsequently resolved. Overall, stakeholder feedback focused on ways in which RFA and partners should communicate key limitations when disseminating the findings. A full discussion of these limitations is included in this report.

RFA assumed the primary responsibility for compiling the findings of the research and drafting this final report. PCPCS, PASA, and PASBO reviewed an advance draft and provided input before the document was finalized.

¹⁵ Representatives from the following school districts, charter schools and organizations were invited to participate in the stakeholder group: Bensalem Township School District, Bethlehem Area School District, Canon-McMillan School District, East Penn School District, Mechanicsburg Area School District, Northern Tioga School District, Reading School District, Souderton Area School District, Boys Latin Of Philadelphia Charter School, Charter Choices, Inc., Collegium Charter School, Commonwealth Charter Academy, PA Distance Learning Charter School, and School Lane Charter School.

¹⁶ Bryn Athyn School District was excluded from this analysis because the Pennsylvania Department of Education did not report its October 1, 2015 enrollment disaggregated by grade.

Research Methods & Assumptions

As noted above, the methodology of the accounting approach studies forms the foundation of the tool's basic calculations and can be expressed in the following equation:

$$\text{Fiscal Impact} = (\text{Change in Expenditures}) + (\text{Change in Revenues})^{17}$$

However, the partners and the research team agreed that, under Pennsylvania's school finance scheme, changes in school district revenues are largely unpredictable and are not driven by the number of students enrolled in charter schools. As a result, the decision was made to focus solely on **changes in expenditures**, i.e., the difference between the increased cost of charter school tuition as charter enrollment increases and the savings realized from no longer educating these students in district-operated schools.

Thus, a more accurate depiction of our fiscal impact calculation is:

$$\begin{aligned} \text{Fiscal Impact} = \text{Change in Expenditure} &= (\text{Expenditure in Year } n - \text{Expenditure in Year } 0), \text{ where} \\ \text{Expenditure in Year } 0 &= \text{Fixed Costs} + \text{Variable Costs in Year } 0 \\ \text{Expenditure in Year } n &= \text{Fixed Costs} + \text{Variable Costs in Year } n \end{aligned}$$

Fixed costs are assumed to be constant in the five-year period. These costs, therefore, cancel out of the equation, and we are left with the final equation:

$$\text{Fiscal Impact} = \text{Variable Costs in Year } n - \text{Variable Costs in Year } 0$$

Variable costs are projected by calculating a per-unit cost in Year 0 for different cost categories (i.e., cost per teacher, cost per building, etc.) and holding this per-unit cost constant throughout the five-year time frame. This per-unit variable cost is then multiplied by the projected number of units (i.e., projected number of teachers, buildings, staff, etc.) to obtain the total variable cost in each year and each scenario.

The projection calculations for enrollment, staffing (teachers, administrators, and other staff), and building closures form the basis for many of our expenditure projections, as a large number of expenditures are driven by these three factors. Below, we explain our methods for calculating each.

¹⁷ More specifically, this equation is: $FI_{t_n}^{CE} = (E_{t_n}^{CE} - E_{t_0}^{CE}) + (R_{t_n}^{CE} - R_{t_0}^{CE})$, where:

FI is the fiscal impact, CE superscript means the number is directly attributable to charter expansion and charter expansion alone, R is the revenues, E is expenditures, t_0 refers to the reference fiscal year, and t_n refers to the fiscal year for which fiscal impact is being estimated. Note that if fiscal impact is positive, this means that expenditures have increased, outpacing increases in revenues. If fiscal impact is negative, any increases in expenditures have been offset by increases in revenues.

1. Enrollment Projection Calculation

In general, charter and district enrollment are projected in the following steps:

- Charter enrollment is assumed to grow at a constant rate in each year; the rate of growth depends on the scenario, ranging from 0.5% per year (Scenario 1) to 4% per year (Scenario 4). Because total public enrollment is held constant, charter growth takes students from district schools in our model. If charters grow at 1%, the district must shrink by 1%.
- The number of students in charters is projected by multiplying the growth rate of charter enrollment by current total district enrollment and then adding this onto current charter enrollment. This gives us projected charter enrollment.
- Projected district enrollment is then calculated by subtracting projected charter enrollment from total district enrollment in each year.

2. Teacher Staffing Projections

Teacher staffing projections are calculated based on the existing student-teacher ratios for each grade band for each individual school district. We have used a two-year lag in this calculation as the experts determined that it would take school districts a minimum of two years to right size teachers according to enrollment losses. We therefore use student-teacher ratios from two years prior to Year 0 (the 2013-14 school year). This ratio is held constant for all projections. The new number of teachers for each year is calculated by dividing projected enrollment for each grade band in each year by the constant student-teacher ratio, rounded up to a whole number. This calculation is repeated for Year 1 and Year 5 in each scenario.

It is important to note that existing student-teacher ratios vary greatly for each school district, even among districts of relatively similar size. For example, Central Bucks has

an overall student-teacher ratio of 15.4, while Philadelphia's stands at 20, a difference of almost 33%. This sizable variation highlights the fact that this calculation tool, and this study in general, were not designed to assess whether particular school districts start out with adequate staff or adequate funding before projecting scenarios of charter expansion. The School District of Philadelphia in particular is generally viewed as a severely underfunded school district and lacks necessary staff in numerous areas. However, the purpose of this study was to isolate fiscal impact that would be exclusively attributable to future charter school expansion. For a more detailed explanation of enrollment and staffing projections, including the calculation for enrollment projections by grade, please refer to Appendix C.

3. Administrators and Other Staff

Unlike teacher and enrollment projections which were calculated by the tool, the experts made projections about changes in administrative and other staff. In making those determinations, the experts considered the degree to which enrollment losses would affect the workload of various categories of administrative staff.

4. Building Closure Projections

The experts were also charged with making projections about building closures. By design, these decisions were not based on analysis of individual community needs, nor did they take into account the political and practical considerations that would necessarily be a part of any actual decisions to close schools. Rather, for the sole purposes of this study, experts compared the current average building capacity in each district to projected enrollment losses to determine mathematically when a district could close a building.

5. Selection of Cost Drivers and Level of Fixedness

The experts were also tasked with selecting the appropriate cost driver for each budgetary line item in the calculation tool. They determined the percentage of fixedness (0% to 100%) for each. For example, the experts deemed general education teacher salaries to be 0% fixed because none of the cost of a teacher's salary remains after that teacher is cut. On the other hand, debt service was deemed to be 100% fixed because districts must pay down their debt regardless of how many students attend district schools or how many buildings are in operation in the district. Other costs varied between these two extremes. The cost of vocational education teacher salaries, for example, was thought to vary with high school enrollment only (with a two-year lag) and was categorized as 50% fixed, meaning that about half the cost of vocational education teachers remains as enrollment declines, rather than declining in a one-to-one proportion with enrollment.

SUMMARY

The Charter Impact Calculation Tool estimates charter fiscal impact as follows:

- Projected expenditures are calculated by computing a per-unit cost for each expenditure item, which is held constant from Year 0 to Year 5.
- This per-unit cost is then multiplied by the projected number of units (using the Enrollment and Staffing projections described above) to obtain a total variable cost for each category in each year.
- Finally, fiscal impact is calculated by subtracting expenditures in Year 0 (2015-16 school year) from projected expenditures in Year N.

Research Findings

The projections and judgments made by our independent experts and loaded into the calculation tool produced a range of impact estimates for each participating district based on four scenarios of charter growth in both Year 1 and Year 5 as described in Table 1 above. All estimates can be found in Appendix F.

However, for simplicity and because we found little variation between Scenarios 2 and 3, we limit our discussion to the estimated findings in Scenarios 1 and 4, the low and high rates of charter expansion.

Below we provides estimates of charter fiscal impact in three ways: (1) the per-pupil impact, (2) the total impact, and (3) the impact as a percentage of each district's charter tuition rate.

1. Per-Charter-Pupil Impact

Most prior studies describe the fiscal impact of charter expansion, or stranded costs, on a per-charter-pupil basis. In Figure 4, we present our estimates on a per-charter-pupil basis for each of our six districts for low growth (0.5% growth per year) and high growth (4% growth per year) for Year 1 and Year 5.

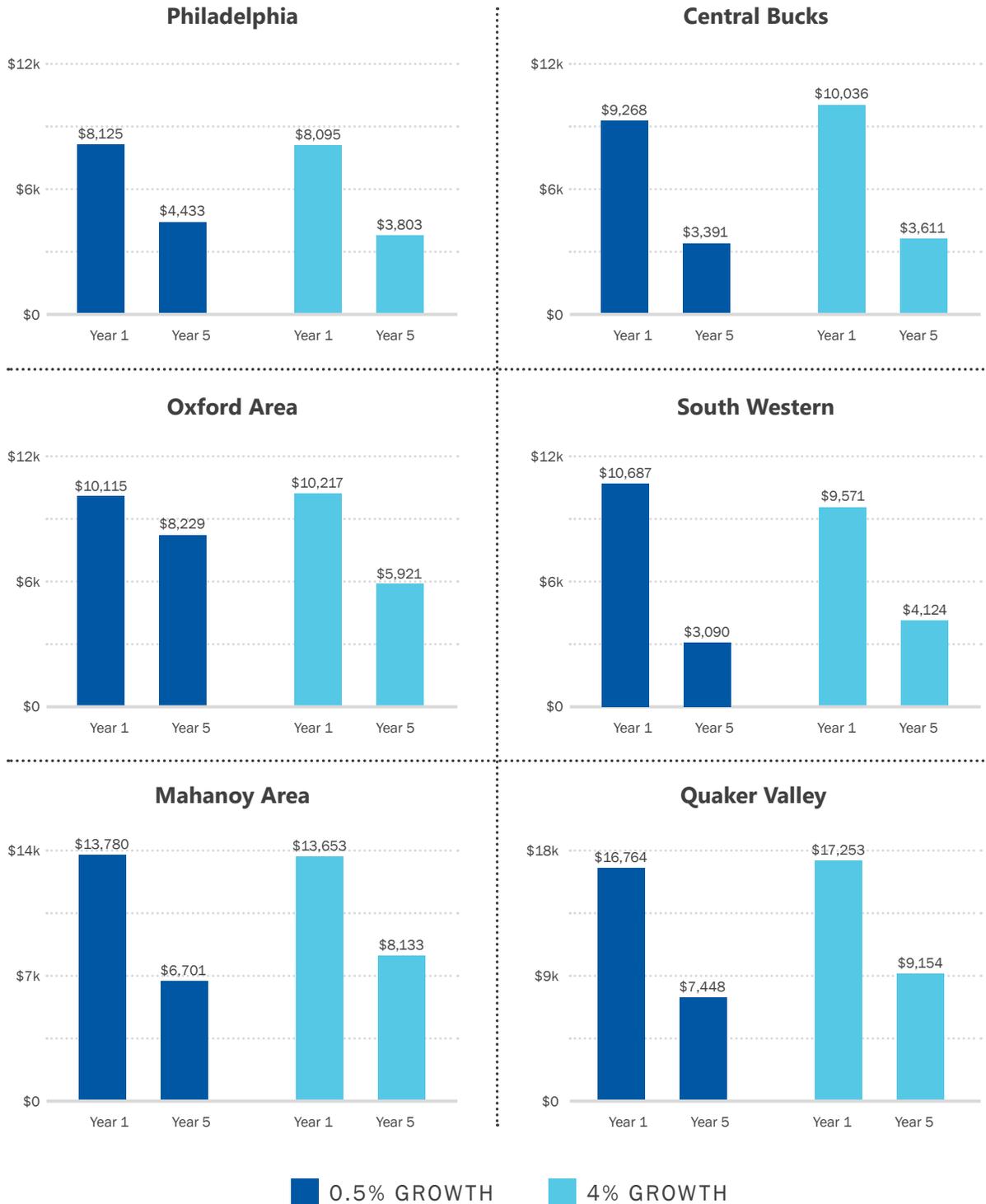
We note the following key trends from the per-pupil impact findings:

- **The per-pupil impact decreases in all Scenarios between Year 1 and Year 5.** Year 1 estimates range from \$8,125 (Philadelphia, 0.5% charter growth) to \$17,253 (Quaker Valley, 1% charter growth). Year 5 estimates range from \$3,090 (South Western) to \$10,722 (Quaker Valley). These estimates indicate that more savings per pupil can be realized as enrollment losses become large enough to close buildings and reduce staff. However, Year 5 per-pupil impact estimates represent the average per-pupil impact of all charter school students who left the district between Year 0 and Year 5, rather than the additional impact of a student leaving in Year 5. The relationship between the Year 1 and Year 5 impact, therefore, is not linear and depends on when building closures and staff reductions were realized.
- **Projecting these estimates forward, we cannot assume that fiscal impacts will continue to decrease.** In fact, as long as expansion continues at the same rate, fiscal impact would also continue because districts experience a lag in their ability to right-size staff and spending based on enrollment loses. Therefore, our estimates do not suggest that districts could ever fully reduce cost to the point of breaking even, unless charter expansion stagnated.

These results do not necessarily suggest that, just because the per-pupil estimates vary, the impacts are felt proportionately in each school district. For example, we estimated that the per-pupil impact of charter expansion in Quaker Valley is much higher than in Philadelphia. However, Quaker Valley receives significantly more per pupil total revenue than Philadelphia. Thus, a \$4,000 per-pupil fiscal impact may be equally, or even more, difficult to absorb in Philadelphia than a \$9,000 per-pupil fiscal impact would be in Quaker Valley.

Figure 4: Per-Pupil Impact of Charter Expansion

Per Pupil Impact



(Source: RFA's calculations based on data provided by our school districts)

NOTE: Due to the significant differences in the total dollar amounts between districts, the individual graphs are not to scale.

2. Impact as a Total Dollar Amount

Figure 5 shows the total impact of charter expansion. This estimate represents the total annual impact of expansion at Year 1 and Year 5 of charter growth, respectively, for both the low growth (0.5% per year) and high growth (4% per year) scenarios. Note that due to the significant differences in the total dollar amounts between districts, the individual graphs are not to scale.

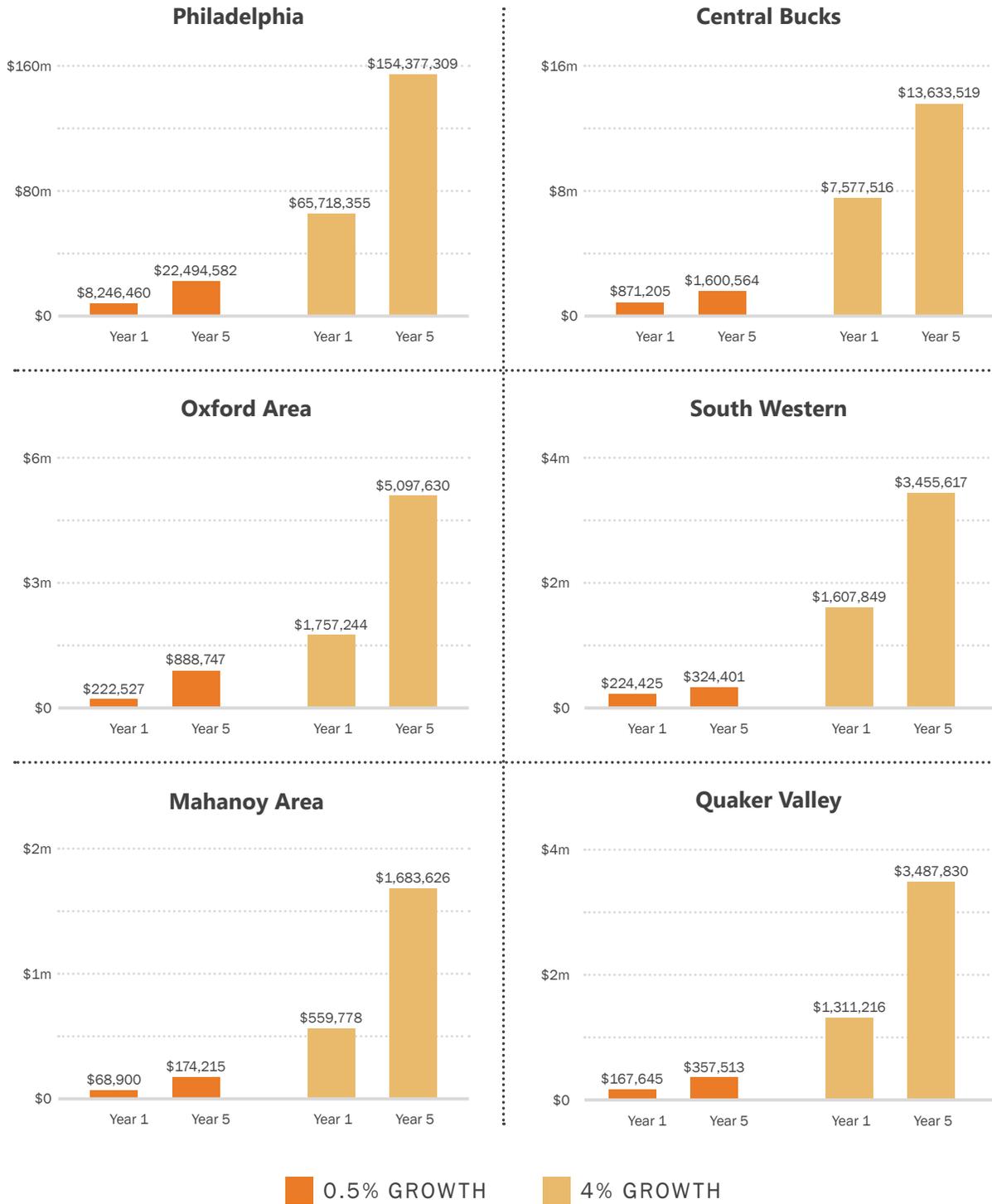
Based on this analysis, we see the following trends:

- **In each district, the total fiscal impact from the baseline was negative and increased in each year and each scenario.** In other words, as charter expansion continues at a consistent pace, school districts require more revenue each year to maintain current classroom sizes even with ambitious building closures and administrative/support staff reductions.
- **The rate of charter expansion significantly affects the total fiscal impact.** Although the rate of charter expansion has less of an effect in the per-pupil calculations, when it comes to total impact, more rapid expansion leads to greater total negative fiscal impact.

By comparing the two sets of findings summarized above, it is clear that the differences in the size of each district's *per-pupil* impact are most significantly determined by the size of their respective charter school tuition rates. In contrast, the differences in *total impact* are mostly a reflection of the size of the district as a whole and the rate of expansion. For example, Quaker Valley and Mahanoy have high charter tuition rates but are small school districts. Thus, in each scenario the districts' per-pupil impacts are generally high, but their total impact is small relative to large school districts. Of course, a small total impact can still have large effect in a small school district.

Figure 5: Total Dollar Impact of Charter Expansion

Total Impact



(Source: RFA's calculations based on data provided by our school districts)

NOTE: Due to the significant differences in the total dollar amounts between districts, the individual graphs are not to scale.

3. Impact as a Percentage of Charter Tuition

Figure 6 illustrates the fiscal impact of charter expansion as a percentage of each district's charter tuition rate in Year 1 and Year 5 of our slowest (0.5% annual growth) and fastest (4% annual growth) charter growth scenarios. These estimates are calculated by dividing the per-pupil impact by the average charter tuition rate in each school district.

For example, in Philadelphia, the average charter tuition expenditure (regular and special education combined) was \$10,148 per student. The per-pupil impact in Year 1 with 0.5% growth was estimated at \$8,125. Thus, the impact of charter expansion for Philadelphia was 80% of charter tuition (\$8,125 divided by \$10,148). This impact decreases to 44% of charter tuition (\$4,433 divided by \$10,148) in Year 5. In other words, by Year 5, the school district is able to save approximately 56% of the cost of charter tuition for students who leave the district and enter a charter school. Forty-four percent of the cost, however, is left with the school district, thereby becoming a stranded cost.

This analysis allows us to control for the varying levels of charter tuition in our six districts.

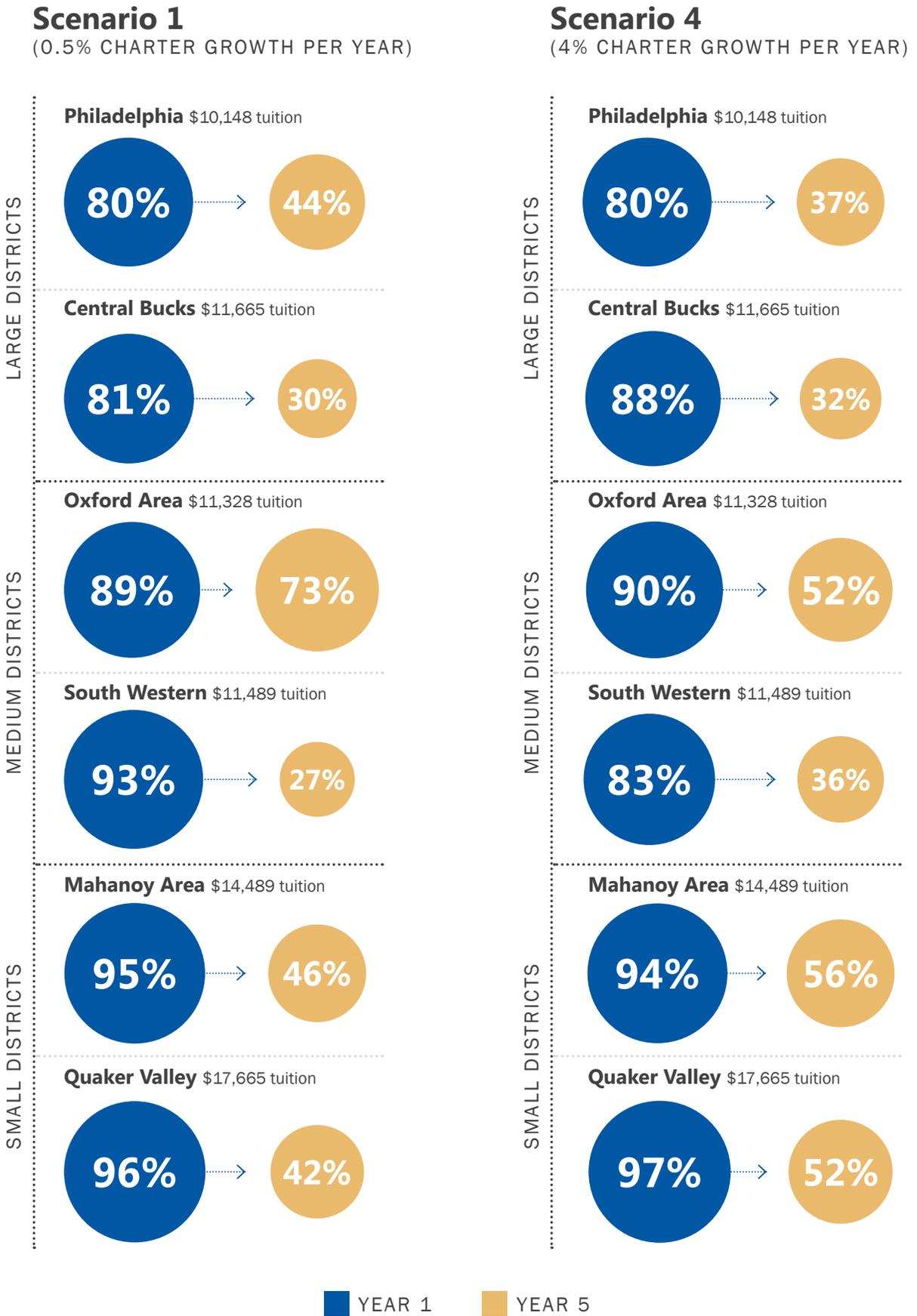
Several key findings emerge from this analysis:

- **Impacts as a percent of charter tuition are lower after five years.** In all districts and scenarios, the per-pupil impact as a percent of charter tuition decreases between Year 1 and Year 5, regardless of district size or rate of charter expansion.
 - There is a notable difference between large and small districts in the rate of decrease, however. For large districts, the decrease in impact between Year 1 and Year 5 is more significant under the rapid charter expansion scenario (Scenario 4, 4% growth), decreasing from 80-88% to 32-37% of charter tuition.
 - The opposite is true for small districts. In small districts, the impact decreases more in the low-growth scenario (Scenario 1, 0.5% growth), dropping from 95% to 42-46%.

This variation likely reflects the fact that large districts have the capacity to make significant cuts in the high-growth scenario, while smaller districts cannot make such cuts due to their small size. As a result, the rapid expansion of charters has a stronger negative impact on small districts because the loss of students is high, but not high enough to make any significant cuts.

- **The per-pupil impact as a percentage of charter tuition is largely the same regardless of the rate of charter expansion.** Impacts are similar across all four scenarios for Years 1 and 5.
- **Impacts as a percent of charter tuition were typically higher in smaller school districts than in larger ones.** Quaker Valley (small district, low charter penetration) and Mahanoy Area (small district, high charter penetration) had the highest fiscal impact estimates in both Year 1 and Year 5 as a percentage of charter tuition (and in absolute terms, as we discuss in the next section). This is likely because smaller school districts require a larger percentage enrollment loss than larger districts before they can cut teaching staff. For example, a 1% loss is only 10 students in Mahanoy Area, but is over 1,300 students in Philadelphia. In addition, these districts have so few buildings that it is exceedingly difficult to close any of them under any of our scenarios.

Figure 6: Fiscal Impact as a Percentage of Charter Tuition: Year 1 and Year 5



FINDINGS AND FEEDBACK FROM PARTICIPATING SCHOOL DISTRICTS

The estimates summarized above, as well as the assumptions which we discuss here, were reviewed with each participating school district for their feedback. These district responses did not drive any changes to the tool or final impact estimates, because the purpose of our study was to demonstrate how our model, applied consistently to different districts, would reveal variation based on district size and levels of charter penetration. However, this feedback did point to other factors not considered by our model that could change the impact estimates if the Charter Impact Calculation Tool were customized to particular districts. We summarize this feedback below because it is informative to consider the unique context in which each school district would, in practice, make its budgeting decisions.

First, we summarize the feedback from Philadelphia, as the district is distinct in a number of ways. We then provide feedback from the other five participating districts collectively.

A. Findings and Feedback: School District of Philadelphia

The School District of Philadelphia is distinct in ways that limit the generalizability of our analyses of the impact of charter growth. It is by far the largest district in the state, the eighth-largest school district in the nation, and over ten times larger than Central Bucks, the next largest district we examined.

As shown in Figure 4, the per-pupil fiscal impact estimates in Philadelphia start off relatively high (but lower than for smaller districts or districts that have higher charter tuition rates) and drop over time. In all scenarios, the impact in Year 1 is about \$8,100 per student

and reduces by roughly half in Year 5, from \$3,800 to \$4,400 per student. The size of the decrease between Year 1 and Year 5 estimates in Philadelphia is likely attributable to its large scale. Compared to smaller districts with fewer buildings, Philadelphia has more capacity to make cuts, close buildings, and reduce staff in response to substantial enrollment declines.

At the same time, a number of distinct circumstances in Philadelphia may indicate that the overall impact estimates are conservatively low. The district's feedback on our study and on the Charter Impact Calculation Tool is summarized below.

Lean central office

Philadelphia's 20-year history of charter expansion and the notable volatility in the level of state funding it has received over time make it unique in our sample. These factors have resulted in significant cuts to administrative and support staff in recent years, as evidenced by its high support staff/student ratios in the baseline year. (For example, the district's 1367:1 student-counselor ratio is over three times larger than any other district in our study). After significant cuts in recent years, the school district's central office spends \$796 less per pupil on administrative costs than charter schools in the district.¹⁸ Yet the experts predicted further cuts to administrative and support staff in response to the hypothetical future charter expansion in our model. District representatives expressed concern that there was very little room to make further cuts in central office administration, even in the case of future enrollment declines. They therefore felt the fiscal impact estimates for Philadelphia were low.

Building closures and access to neighborhood schools

The School District of Philadelphia also provided important feedback related to the projections our experts made about school

¹⁸ Afton Group, School District of Philadelphia Financial Impact Analysis: Funding, Purchasing Power, and Stranded Cost Analyses Outcomes, 2017, https://webapps.philasd.org/news-files/pr-files/20170306_SDP_Summary_Outcomes.pdf

closings. The experts assumed that no buildings would be closed in Year 1 in any scenario, because implementing building closure decisions based on enrollment loss cannot be done immediately. However, experts made aggressive assumptions about the number of school buildings that Philadelphia would close by Year 5 of each scenario. Specifically, they assumed that 5% of buildings would be closed in Scenario 2 (1% charter growth per year), 10% in Scenario 3 (2% charter growth per year), and 20% in Scenario 4 (4% charter growth per year). This translates to the closure of 47 total buildings by Year 5 in the rapid expansion scenario (4% growth per year): 26 elementary schools, 11 middle schools, and 10 high schools. Even in Scenario 1, our least aggressive charter expansion scenario, the experts assumed that 22 schools would be closed by Year 5.

These projections were based entirely on district enrollment and not on any sort of feasibility or needs assessment study. The experts did not attempt to determine how these closures could or should be spread geographically, nor did they assess the impact of the closures on the availability of public school options by neighborhood. District representatives noted that the scale of closures predicted in the higher enrollment loss scenarios would likely leave “education deserts” and force many students to travel outside their neighborhoods for an in-district option. The district also noted that even though numerous school buildings are currently under capacity, other school buildings are actually significantly over capacity, which additionally limits their ability to close buildings.

Taking into account these issues, it is likely the district would be unable to realize the level of savings our experts anticipated. Because

building costs are a significant cost driver in our model, the negative fiscal impact would therefore be greater than projected.

Aging facilities

Related to the question of school closures is the challenge of aging facilities in Philadelphia, where the average age of school buildings is around 60 years. This presents significant additional costs to the district, as older buildings cost a great deal more to maintain. While this is a challenge in many other Pennsylvania school districts, a study commissioned by the School District of Philadelphia estimated the costs of simply repairing existing facilities at almost \$5 billion, a level of magnitude unmatched by any other school district. This does not include the cost of upgrading facilities or any capital improvements.¹⁹ We have not accounted for this unique district challenge in our analysis, which could again make our fiscal impact estimates too conservative.

Cuts to teachers and other staff

As mentioned previously, teacher cuts were projected using a simple mathematical equation based on student-teacher ratios with a two year lag. The equation projected a loss of about 250 teachers in Year 5 under the slow growth scenario (Scenario 1, 0.5% growth), but over 1,200 teachers in Year 5 under the rapid growth scenario (Scenario 4, 4% growth)—a substantial reduction even for a school district as large as Philadelphia. For other non-instructional staff, including administrators and in-school personnel, the experts projected cuts of almost 500 administrators in Year 5 of the rapid growth scenario, including cuts to principals (as buildings are shut down), assistant principals, and “other school-based” administrators.²⁰ Experts predicted over 1,600 cuts to other in-school personnel, such as instructional aides, health/welfare professionals, and other support staff in Scenario 4, Year

¹⁹ Parsons, “School District of Philadelphia: Facility Condition Assessment,” *School District of Philadelphia*, January 23, 2017, http://webgui.phila.k12.pa.us/uploads/Zm/-y/Zm-yHV4m8Rc_1Hy0FReBMw/2015-FCA-Final-Report-1.pdf

²⁰Most of the 500 cut staff are to “other school-based” administrators, which under the Chart of Accounts includes special education coordinators, athletic directors, academic department chairs, and cafeteria directors. For more information about staffing data see Appendix D.

5. The School District of Philadelphia indicated that, because they have already undergone substantial staff cuts in recent years due to reductions in state funding, the cuts projected at these aggressive rates would harm the district's quality of instruction and other operations, even with the projected corresponding enrollment loss.

Transportation of charter students

Philadelphia is also unusual in terms of the costs of student transportation. Most Pennsylvania districts are responsible for the cost of transporting all public students, both in-district and charter. Thus, increasing charter populations only affects the cost of transportation services insofar as it affects the busing routes and distance students must be transported to their schools. However, in Philadelphia, the cost of transporting charter students is the main driver of cost in this category. This is because most district students are not bused to school, while charter students typically are. This means that the cost of student transportation—particularly in Philadelphia—actually increases significantly with charter school enrollment. District officials indicated that our model does not accurately reflect this phenomenon.

Renaissance schools

Finally, Philadelphia is the only district in our sample with Renaissance, or conversion, charter schools—i.e. district schools whose operation has been turned over to a charter school but remain in a district building. Research by the Boston Consulting Group and the Afton Group concluded that the negative fiscal impact of Renaissance or conversion charter schools on the district is substantially smaller than that of traditional brick-and-mortar or cyber charters.²¹ This is because a conversion charter removes all the students from one particular school, permitting the

district to shed virtually all the costs associated with operating that particular school building itself. In contrast, the opening of a traditional charter school takes students from multiple schools, a fact that often prevents districts from realizing substantial savings. Because our study is not Philadelphia-specific, we opted to restrict our impact estimates to the “traditional” charter sector which has relevance for districts across the Commonwealth. However, if future charter growth was split between traditional and Renaissance charter schools, the total fiscal impacts on the district would likely be lower than projected.

For example, over the past five years, total charter school enrollment (Renaissance and traditional charter combined) in Philadelphia has grown on average by about 3.5% of total public school enrollment a year. However, without Renaissance charter schools, charter enrollment has grown at about half that rate. If traditional charter schools continue to grow at the rate of the past five years, it would place the district closer to our Scenario 3 model of two percent annual growth. The per-pupil and percentage of charter tuition impacts are nearly identical between Scenario 3 and 4, but the annual total impact amount by year 5 in Scenario 3 (\$77 million) for Philadelphia is only half of the Scenario 4 annual total impact (\$154 million). These estimates do not include any additional stranded costs that may be associated with Renaissance charter expansion. See Table F1 in Appendix F for Scenario 2 and 3 fiscal impact results.

B. Findings and Feedback: Mahanoy Area, Quaker Valley, South Western, Oxford Area & Central Bucks

Our conversations with district representatives outside of Philadelphia shed light on several other generalized, as well as district-specific,

²¹The Boston Consulting Group, Inc., “Transforming Philadelphia’s Public Schools: Key Findings and Recommendations,” *School District of Philadelphia*, August 2012, http://webgui.phila.k12.pa.us/uploads/v_/IF/v_IFJYCO72CBKDPrrGAAQ/BCG-Summary-Findings-and-Recommendations_August_2012.pdf; Afton Group, *School District of Philadelphia Financial Impact Analysis: Funding, Purchasing Power, and Stranded Cost Analyses Outcomes*, 2017, https://webapps.philasd.org/news-files/pr-files/20170306_SDP_Summary_Outcomes.pdf

factors that may impact their ability to realize cost savings as charter enrollment expands. We have taken care to note these factors, but we did not alter our analysis based on district feedback, because our model was designed to be applied consistently to all districts.

Special education cost

Districts noted that, historically, when charter schools expand a disproportionate concentration of the highest need special education students remain in district schools. This, in turn, raises a district's per-pupil expenditures for providing special education, due to the higher cost of educating the highest-need students. Under Pennsylvania's charter school law, a district's own special education expenditures form the basis of the charter tuition rate that the district pays for any students with disabilities who enroll in a charter school, regardless of the severity of particular students' disabilities or cost of their education. In this way, in some Pennsylvania districts, charter expansion has led to an increase in the charter school tuition rate paid by districts for students with disabilities. RFA and others have previously studied this issue;²² however, we did not factor it into our model as it adds significant complexity to the analysis. As a result, several districts felt that our fiscal impact predictions were low.

Student transportation cost

Unlike Philadelphia, most districts in our sample experienced cost savings on transportation when students enrolled in charters. South Western, in particular, transports very few charter students, as most of their charter enrollment is concentrated in cyber charters. As a result, they agreed that it may be possible to realize transportation savings with growing charter enrollment. On the other hand, Quaker Valley noted that their charter students are, on average, more costly to transport because they typically have to be bussed longer distances and there are few other students

on these routes. Our analysis was unable to take into account the geographic spread of charter school students and the ways in which cost savings would vary depending on population by bus route. As a result, some districts felt our impact estimates overestimated their cost savings on transportation, while others felt they were underestimated.

Debt service and building closure

Various districts noted that their debt service obligations could change if they would be able to sell off buildings once they were closed. This would minimize the impact of charter expansion as districts could recoup some costs in this way. At our second stakeholder meeting, however, attendees indicated that it often takes several years to sell a closed school building and that it could be difficult to reduce debt service within a five-year time frame. However, this is an important caveat to keep in mind when analyzing our bottom-line impact numbers.

Additional feedback

District representatives often pointed to district-specific factors that could affect our impact calculations. For example, Mahanoy Area administrators noted that it would be difficult to reduce their teaching force, because their contracts do not have a furlough clause. This factor would increase the fixed cost of teachers to an estimated 90%. Quaker Valley also noted that their fixed cost for teachers would be higher than the experts predicted due to various contract obligations.

Both Quaker Valley and South Western noted that they do not expect charter enrollment to go up or down at all within the next five years. This highlights the fact that our scenarios are only hypothetical and are not meant to definitively represent the actual change in charter enrollment in each district. Our scenarios show what would happen given a certain rate of expansion.

²² David Lapp and Joshua Lin, "Charter School Special Education Funding in Pennsylvania," Research for Action, April, 2017, <https://www.researchforaction.org/publications/charter-school-special-education-funding-pennsylvania/>

Strengths and Limitations

Our process for estimating charter fiscal impact provides a new lens for considering the impact of charter school expansion. Specifically, it:

- Analyzes the impact of charter expansion on the finances of six Pennsylvania school districts of diverse size, location, and existing charter school enrollment—highlighting differences in impact driven by local context;
- Quantifies the impact under various hypothetical scenarios of future charter enrollment expansion and in the short (one-year) and longer (five-year) term; and
- Transparently presents assumptions and estimation calculations to allow for external validation and more informed dialogue.

However, as with any research study, ours includes several limitations, each of which is discussed below.

No projection of future revenue or per-unit cost changes

Like many prior studies, our study does not account for potential future changes in revenue or per-unit costs. This is a significant limitation, because any changes in revenue related to charter expansion will certainly affect the bottom line impact of charter schools. However, due to the political nature of Pennsylvania's budgetary process, it is difficult to predict with any accuracy the change in revenue over time. Our study presents the impact of charter expansion, assuming school districts will find ways to increase revenues or spend down fund balances to maintain the same level of services within the district. In other words, we can assume that per-unit costs remain constant, because we also assume school districts will be able to afford the same per-unit costs. In reality, in the absence of new funding of equal or greater value than our impact estimates, districts would be required to make cuts

beyond the scope of those already projected by our experts. In other words, the total fiscal impact estimates can be understood as the total new revenue a district would need to realize in order to maintain current levels of services (e.g., student-teacher ratios). Most other studies on charter impact have made a similar assumption.

Our study also assumes that expenditures are held constant over the five-year period, which is unlikely in practice. In particular, district stakeholders pointed to mandated expenses, such as the line item for the Pennsylvania Public School Employees' Retirement System (PSERS), which are projected to rise year after year, driving up district spending. Similarly, the per-pupil charter school tuition that districts pay changes annually depending on a complex state formula. While it is possible that a district's tuition payments could go down based on that formula, most school districts in our sample reported steadily rising charter tuition line items. Thus, if projected increases in PSERS and charter school tuition payments were included in our calculations, it is possible that impact estimates would be higher.

Holds total public enrollment constant

Our study holds total public enrollment constant for the five-year duration of the projections. In reality, total public enrollment may either be declining, increasing, or erratic. This could affect the analysis to the extent that declining or increasing total public enrollment either helps or hurts the district's ability to right-size as charter schools expand. For example, if total public enrollment in a district is already declining, the impact of charter expansion becomes less severe because districts are already making significant cuts to deal with decreased enrollment. In addition, a significant proportion of state funding is grandfathered in at a set amount for each district; therefore, districts with

declining student populations would not lose funding proportionate to their number of lost students, resulting in net positive impact per pupil. Conversely, when total public enrollment is growing, districts have a difficult time making any cuts as students leave for charters because their own enrollment is also growing. In addition, their state funding largely remains constant and, thus, per-pupil funding declines. Increased charter enrollment is, therefore, more costly to districts with growing student populations.

Does not account for private-to-charter transfers

We do not account for students who transfer from private schools to charter schools. These students have not been previously educated in the public system, meaning their departure for the charter sector creates no district savings relative to the prior year. However, the district must still pay for that student's charter tuition, creating a purely added cost.²³ These students were excluded from our analysis because of the difficulty of accurately predicting future levels of private-to-charter transfer in our diverse school district sample. However, by excluding private school students from the analysis, we almost assuredly underestimate the real-world impact of charter expansion on school districts with substantial private school populations. For example, if we assume that private-to-charter transfer represents around 10% of charter enrollment in Philadelphia, then including these students in the calculation of fiscal impact would increase the impact of charter expansion by around \$1,000 per pupil in both Year 1 and Year 5 of Scenario 1.

Does not capture other district considerations around school closures

As previously mentioned, projected building closures drove a substantial portion of the district cost savings assumed by our experts,

but these closure decisions were based largely on math. In practice, school districts must contend with a number of other logistical, ethical, and political considerations when deciding to close or consolidate schools. For this reason, our estimates of impact may overestimate the savings school districts will realize as students depart to charters and underestimate fiscal impact.

Does not account for existing impact from previous charter school expansion

Finally, our study assumes that charter expansion begins in Year 1. We do not take into account the effect of previous charter expansion on district finances. Yet in many districts, charter expansion has been prevalent for almost two decades. We did not include impact from previous charter school expansion to ensure a cleaner analysis of charter impact, focusing only on the impact in our four hypothetical scenarios. This simplifies the calculation and provides a more easily interpreted fiscal impact estimate. Despite this limitation, our estimates are informative about past and present impact. In particular, the fiscal impact as a percentage of charter tuition is likely to remain relatively consistent over time if charter expansion continues.

²³ In the charter stranded costs study conducted by the Boston Consulting Group, they estimated that, based on historical trends, private school students would account for 30% of future charter school expansion. (The Boston Consulting Group, Inc., "Transforming Philadelphia's Public Schools: Key Findings and Recommendations," *School District of Philadelphia*, August 2012, http://webgui.phila.k12.pa.us/uploads/v_/IF/v_IFJYCO72CBKDPrrGAAQ/BCG-Summary-Findings-and-Recommendations_August_2012.pdf)

Conclusion

Our calculations of the fiscal impact of charter school expansion in multiple school districts demonstrates that Pennsylvania school districts with growing charter enrollments require substantial additional revenues in order to continue providing roughly the same level of services to their remaining students. This is the case even if districts cut teachers and other staff proportionate with enrollment loss and aggressively close school buildings in response to low capacity. On average, the size of the fiscal impact of charter expansion equals 89% of the district's charter school tuition payments during the first year of charter expansion and 44% of the district's charter tuition payments during the fifth year of charter expansion. Although the impact per pupil and as a percentage of tuition are reduced by Year 5, the total impact continues to rise in each scenario and in each school district as the overall number of charter students increases.

These fiscal pressures can stifle collaboration between sectors. Decisions about charter authorization, renewals, and enrollment caps can become clouded by fiscal scarcity, unhealthy competition for students, and inadequate state funding, rather than by pedagogy, curriculum, or educational opportunities for vulnerable children.

Other states provide significant funding to support charter expansion. And for the first 14 years after the passage of Pennsylvania's charter law, the General Assembly appropriated funds for the charter reimbursement line-item contemplated by Pennsylvania's charter school law. These significant annual revenues offset much of the fiscal impact of charter expansion. Yet during the last six years, policymakers removed that line item and stopped providing financial support, even as charter expansion continued. In comparison to the prior reimbursement, the "charter

school weight" in the state's new Basic Education Funding formula provides a small fraction of the cost of charter expansion.

This study, conducted in consultation with district and charter representatives as well as independent school finance experts, provides transparent calculations of the fiscal impact of hypothetical charter expansion scenarios in six different Pennsylvania school districts. Moreover, the Charter Impact Calculation Tool can be used by other school districts to estimate savings and the fiscal impact of charter school expansion under their own specific circumstances. The results of these analyses can launch a new shared understanding about the additional resources required to offset the fiscal impact of increasing charter school choices in Pennsylvania.

Appendix A: Adaptations of the Methodology from Prior Studies

Table A1 presents the adaptations of our methodology based on prior accounting studies.

Table A1: Summary of Our Adaptation of the Methodology from Previous Studies

Common Methodology Among Prior Studies	Adaptations of the Methodology
<p>Single point in time approach.</p> <p>Lack of clarity about the degree of charter expansion envisioned by their projections.</p>	<p>Impacts were calculated based on multiple scenarios and two different points in time. Potential savings were calculated explicitly for both the one-year and five-year periods under four different hypothetical scenarios of charter expansion/enrollment loss.</p>
<p>Current enrollment as the sole cost driver. Current enrollment was the only possible cost driver for all expenditure items. In one study, teachers were included, but were not disaggregated by grade assignments.</p>	<p>Multiple potential cost drivers can be selected. Experts could choose a cost driver that more closely aligned with each expenditure item, rather than simply enrollment. Additional cost drivers added include:</p> <ul style="list-style-type: none"> • Teachers, as well as subgroups of teachers and other staff, i.e., regular education only, special education only, by grade span assignments, or administrators or other staff. • Buildings. Disaggregated by elementary, middle, and secondary buildings. • Enrollment by total public, only district, only charter, or by particular grade bands (e.g. only high school). <p>Enrollment with a two-year lag was added as a potential cost driver. This allows costs that are variable over a five year period, but not immediately variable in Year 1 of enrollment loss, to be more accurately projected.</p>
<p>Enrollment loss distribution by grade level not factored into potential savings from closing classrooms.</p>	<p>Enrollment losses are projected by grade level based on historical trends. The past six years of charter enrollment determine the charter sector's projected pull by grade level. For example, school districts with only charter schools in the elementary grades will continue to have only elementary charter schools in our projections. This would allow for more elementary teacher reductions and elementary school closings than if charter expansion were evenly distributed.</p>

<p>Costs are either entirely variable or entirely fixed. Most studies categorized expenditures as either entirely fixed (i.e., they do not vary at all over the projected time frame or do not vary according to enrollment) or entirely variable (i.e., they vary directly with enrollment year-to-year).</p>	<p>Users can set a degree of fixedness between 0% and 100% fixed. This degree of fixedness is determined by a variety of factors, such as the nature of a school district's contracts and terms.</p>
<p>Costs are analyzed at major object or function levels. For example, in several studies all personnel salaries were analyzed as a single expenditure item; however, not all classifications of staff receive the same salaries, nor can they be reduced at the same rates.</p>	<p>Costs are disaggregated to selected sub-object and sub-function levels. However, costs that were consistently considered fixed—by stakeholders, experts, and the literature—were left aggregated to the major object/function (e.g., debt service).</p>
<p>All the assumptions underlying the calculations were inaccessible. Not all prior studies published the basic calculations used to estimate their final fiscal impacts. In studies that have, it was unknown if more detailed analysis was performed at the minor object or function level.</p>	<p>A tool and accompanying manual were created to ensure that all assumptions and calculations are transparent.</p>

Appendix B: Cut-Points for Selecting Participating School Districts

To determine cut-off points, the enrollment of Pennsylvania’s 499 school districts (in 2014-15)²⁴ were ranked in order of size and divided into three categories: large, medium, and small, each of which contained one third of the state’s total school district enrollment. Districts were then classified as having either a low or high charter penetration comparable to school districts of similar size. The cut-off point between low and high charter penetration was set at the median charter penetration of school districts in each size category. The cut-off point between “high” or “low” charter penetration in small districts was not significantly different due to the low overall charter penetration in Pennsylvania’s small school districts. Details of these categories are provided in Table B1.

Table B1: Range for Potential School Districts

Size, Type and Range		Charter Penetration, Type and Range	
Large	7,551 to 203,402	Low	0.4% to 3.6%
		High	3.7% to 34.5%
Medium	3,331 to 7,550	Low	0.3% to 2.1%
		High	2.2% to 53.5%
Small	10 to 3,330	Low	0.0% to 2.75%
		High	2.76% to 30.2%

(Source: RFA’s calculation based on Pennsylvania Department of Education data)

²⁴Bryn Athyn School District was excluded from this analysis because the Pennsylvania Department of Education did not report its October 1, 2015 enrollment disaggregated by grade.

Appendix C: Technical Appendix

To determine cut-off points, the enrollment of Pennsylvania's 499 school districts (in 2014-15) were In this Appendix, we detail the calculations used in the tool to derive our impact estimates. We discuss three calculations, 1) the calculation for projecting changes in enrollment, 2) the projection for calculating staffing, and 3) the projection for estimating changes in expenditure. Below is a glossary of commonly-used terms.

GLOSSARY AND ACRONYMS

Administration (Admin)

Average Daily Membership (ADM): metric for a district's resident student population for which the district is financially responsible. ADM is determined by dividing the total daily attendance of students on active rolls by the district's total number of school days.

Brick and Mortar (B&M): charter schools based in a building in which students attend classes in person.

Charter School (CS)

Education Personnel (EP)

English Language Learner (ELL)

English as a Second Language (ESL)

Full-Time Equivalent (FTE): equivalent to one person working full-time. For example, 0.5 FTEs equals 20 hours.

Local Education Agency (LEA): an entity which operates local public primary and secondary schools, a common synonym for district.

Other Personnel (OP)

Regular Education (Reg Ed)

School-to-Building Ratio (S:B Ratio)

Special Education (SpEd)

Total Public Enrollment (TPE): the sum of all students enrolled in public schools – charter or district.

ENROLLMENT AND TEACHER PROJECTION MODELS

Enrollment numbers are predicted by grade level for each year 1 through 5 and for each grade level K through 12 according to the following series of equations. Overall, the model takes two general steps: (1) a district and charter total enrollment target is set, (2) baseline grade level enrollments are predicted based on standard enrollment projection models and also reconciled with the target enrollment to generate the projected grade level enrollments. Figure C1 summarizes the basic steps of the enrollment and teacher projection models.

Figure C1: Enrollment and Teacher Staff Projection Calculations

ENROLLMENT PROJECTION CALCULATIONS				ASSUMPTIONS	
CALCULATION					
Projected Charter School Enrollment Growth	=	Current Total District Enrollment	X	% Projected Growth	<ul style="list-style-type: none"> Enrollment losses are due to charter expansion and not overall population decline. Projected total charter enrollment does not include additional students who transfer from private schools. Enrollment losses are due to charter expansion and not overall population decline.
Projected Total Charter Enrollment	=	Current Total Charter Enrollment	+	Projected CS Enrollment Growth	
Projected Total District Enrollment	=	Current Total District Enrollment	-	Projected CS Enrollment Growth	
For each GRADE:					
Grade X's Charter School Enrollment Growth <small>(Rounded to the Nearest Whole Student)</small>	=	Projected CS Enrollment Growth	X	Grade X's Current % of Charter Enrollment	<ul style="list-style-type: none"> Each grades' current % of charter enrollment will be the same in each projected year.
For each STUDENT SUBGROUP:					
Student Subgroup Charter School Enrollment Growth <small>(Rounded to the Nearest Whole Student)</small>	=	Projected Total Charter Enrollment	X	Subgroup's Current % of Charter Enrollment	<ul style="list-style-type: none"> Each subgroups' current % of charter enrollment will be the same in each projected year.
For TEACHERS & COUNSELORS					
Current Student-to-Teacher Ratio	=	Current District Enrollment	÷	Current # of Teachers/Counselors	<ul style="list-style-type: none"> While student-to-teacher ratios will vary by grade span, they do not account for differences in ratios across school buildings. Current student-to-teacher ratios will be maintained in each projected year. Assumes that current student-to-teacher ratios are adequate.
Projected # of Teachers/Counselors <small>(Rounded to the Nearest Whole Teacher)</small>	=	Projected District Enrollment	÷	Current Student-to-Teacher Ratio	

(Source: RFA)

Enrollment Target Setting

- 1. Predicting total public enrollment (TPE).** TPE is predicted according to one of two basic models, which the user selects:
 - a. Constant TPE enrollment:* The TPE in Years 1 through 5 is assumed to be equal to the TPE in Year 0.
 - b. Six-year trend TPE enrollment:* Both a linear and a logarithmic function are fit through the Year -6 through Year 0 TPE enrollment data. The R-squared value is calculated for both the linear and logarithmic function. The model selects the function with the highest R-squared value and projects TPE enrollment from Year 1 through Year 5 using that function.
- 2. Charter penetration is calculated.** In the baseline projections, charter penetration is assumed to be constant. In scenario one, charter penetration increases by 0.5% each year, 1.0% in scenario two, 2.0% in scenario three, and 4.0% in scenario four.
- 3. Total district enrollment is calculated.** The target district enrollment is equal to the predicted TPE multiplied by one minus the target charter penetration.
- 4. Total charter enrollment is calculated.** The target charter enrollment is equal to the predicted TPE multiplied by the target charter penetration.

Baseline Projections

- 5. Charter enrollment growth type is selected.** The user selects either “B&M” (brick and mortar) or “Cyber” as the charter growth type. The two methods of enrollment projection differ slightly. Note that the district grade enrollments are always projected according to the methods used for “B&M” charter growth because district schools closely resemble brick and mortar charters in terms of cohort progression.
- 6. If brick and mortar (or district):**
 - a. Kindergarten enrollment is projected.** In the absence of birth rate data, a standard growth projection model was fit to the six years of enrollment data. First, both a linear and a logarithmic function are fit through the Year -6 through Year 0 of kindergarten enrollment data. The R-squared value is calculated for both the linear and logarithmic function. The model selects the function with the highest R-squared value and projects kindergarten enrollment from Year 1 through Year 5 using that function.
 - b. Grade 1 through 12 enrollment is projected.** Grade 1 through 12 enrollment is projected using a cohort survival method.²⁵ First, a *persistence ratio* is calculated for each grade-to-grade transition by finding the percent difference between the Grade *n* enrollment in Year *k* and the Grade *n-1* enrollment in Year *k-1*. For example, the grade 8 to 9 persistence ratio is found by calculating the percent difference between the grade 2 enrollment in 2011 and the grade 1 enrollment in 2010. This tells us the percentage of eighth graders who persisted to ninth grade between 2010 and 2011. With six years of data, we were able to calculate five persistence ratios for each grade-to-grade transition. These five persistence ratios are then averaged to equal a

²⁵ John H. Schuh, “Enrollment Projections,” in *Encyclopedia of Educational Leadership and Administration* (ed. Fenwick W. English, 2006, New York, NY: SAGE Publications, Inc.).

five-year *average persistence ratio*. Year 1 through 5 grade-level baseline enrollments are then projected by multiplying the average ratio by the previous year's and previous grade's predicted enrollment.

7. If Cyber:

- a. **Kindergarten through Grade 12 enrollment is projected.** Because grade-to-grade persistence tends to be less consistent in cyber charters, the cyber model uses a simple six-year average grade concentration model to project enrollment. For each grade, an *annual grade concentration* is calculated by taking that grade's enrollment in Year *n* and dividing it by its sector's (either district or charter) total enrollment in Year *n*. This generates six annual grade concentrations, which are then averaged. The six-year average grade concentration is then multiplied by the target sector enrollment to produce the baseline and scenario grade-level projections. Note that cyber charter enrollment projections still need to undergo the reconciliation process outlined below in order to account for rounding.

Teacher Staffing Projection Model

Teacher staffing projections in the tool are calculated based on the student-teacher ratios for each grade band two years prior to Year 0 (2013-14 school year). A two-year lag is used because the experts estimated it would take districts a minimum of two years to right-size the number of teachers to match student enrollment. The lagged student-teacher ratio is held constant for all projections. The new number of teachers for each year/scenario is calculated by dividing projected enrollment for each grade band in each year/scenario by the constant student-teacher ratio, rounded up to a whole number. This calculation is repeated for Year 1 and Year 5 in each scenario.

PROJECTED EXPENDITURE CALCULATIONS

We use a very straightforward method for calculating projected expenditure. The basic formula is to multiply current expenditure per unit for each line item by the projected number of units for that line item. For each item, a "cost driver" is selected that represents the major driver of cost for the line item in question. The projections are calculated based on changes in whatever cost driver is selected for that line item. If "district enrollment" is selected as the cost driver, then the expenditure will vary in proportion with district enrollment, while if "all buildings" is selected, then expenditure will vary in proportion to the number of buildings.

Expenditure projections are then calculated in three basic steps:

1. Current expenditure is multiplied by (1 – fixed percentage selected) to obtain the variable portion of each expenditure item,
2. The variable portion of the expenditure is divided by the number of whatever cost driver is selected to calculate a per-unit variable cost,
3. This per-unit variable cost is held constant through the rest of the projections and is multiplied by the projected number for the selected cost driver to determine the new variable cost for each line item.

Figure C2 summarizes our basic calculations for projected expenditures.

Figure C2: Expenditure Projection Calculations

EXPENDITURE CALCULATIONS				ASSUMPTIONS	
CALCULATION				ASSUMPTIONS	
For each LINE ITEM:					
Fixed Cost (\$)	=	Actual Current Year Expenditure (\$)	X	% Fixed	<ul style="list-style-type: none"> • Non-partisan school finance experts and our school district partners will set the % fixed for each line item. • The variable cost per unit remains the same from year 0 to year 5.
Current Variable Cost (\$)	=	Actual Current Year Expenditure (\$)	-	Fixed Cost (\$)	
Variable Cost (\$) per Unit	=	Current Variable Cost (\$)	÷	Current # of Cost Driver Units	
For YEAR 1 and YEAR 5 of each scenario:					
Projected Variable Cost (\$)	=	Variable Cost (\$ per Unit)	X	Projected # of Cost Driver Units	<ul style="list-style-type: none"> • The cost of the line item varies according to the cost driver selected. • No savings will be realized from the fixed part of district expenditures.
Savings Estimate	=	Current Variable Cost (\$)	-	Projected Variable Cost (\$)	
Per Pupil Impact Estimate of Charter Expansion	=	Savings Estimate	÷	Projected Charter School Enrollment Growth	

(Source: RFA)

Appendix D: Charter Impact Calculation Tool Instruction Manual

In this Appendix, we provide detail on the various sheets and data entry fields within the Charter Impact Calculation Tool to guide users in correctly adapting it to their districts. We describe how to 1) enter data into the tool, 2) document and enter assumptions into the tool, and 3) interpret and analyze the results of the tool's calculations. For background and information on the Chart of Accounts, which details the various costs included in each Object and Function, please refer to Appendix E.

OVERVIEW

The Charter Impact Calculation Tool, which is available for download [here](#),²⁶ allows Pennsylvania school districts to estimate the fiscal impact of charter school expansion under four different scenarios of future charter growth. Each scenario represents a different rate of growth in charter school enrollment above the current level of penetration:

- Scenario 1: The charter share of total public enrollment (charter penetration) grows 0.5% per year, increasing 2.5% by the end of year 5.
- Scenario 2: Charter penetration grows 1.0% per year, increasing 5.0% by the end of year 5.
- Scenario 3: Charter penetration grows 2.0% per year, increasing 10.0% by the end of year 5.
- Scenario 4: Charter penetration grows 4.0% per year, increasing 20.0% by the end of year 5.

The tool allows the user to adjust **assumptions** about the district, which include:

- The number of school and administrative buildings that can be closed under the various enrollment scenarios,
- The number of administrative and non-educational professional staff that can be let go under the various enrollment scenarios,
- The primary cost driver for each category of expenditures, and
- The percent of these expenditures that is fixed in a five-year period according to the cost driver selected.

KEY USES: WHAT THE TOOL CAN DO

The tool can:

- Guide school districts in their discussions around the potential fiscal impact of new charter authorizations,

²⁶ This version of the Charter Impact Calculation Tool is loaded with the average enrollment and expenditure data from our six districts to demonstrate how the tool's calculations function. This provides the assumptions and estimates that drive much of the tool's operation, including projections for staff reductions and building closures and the experts' choices of cost drivers and the level of "fixedness" in each budgetary item. However, the impacts estimated in this version are not the same as the "average" that would be calculated by averaging the impacts calculated in each district individually, either with or without weighting to reflect each district's size. This is because, when using average enrollment across six districts, the timing of cuts to staff and buildings are different than if the numbers were disaggregated by individual district. In addition, certain inputs are necessarily rounded to the nearest whole number (e.g. building closures) which also result in different overall impact estimates. As such, the data is provided only for demonstration purposes, to review assumptions and estimates, and to permit additional school districts to input their own district data.

- Help school districts assess the relative importance of different cost drivers in determining the district’s finances, and
- Calculate the expenditure necessary to maintain the current level of services in the school district while accommodating charter expansion.

KEY LIMITATIONS: WHAT THE TOOL CANNOT DO

The tool cannot:

- Determine changes in revenues caused by enrollment changes;
- Accurately predict expenditures not driven primarily by enrollment, infrastructure, or staffing (e.g., transportation services expenditures that are largely driven by the number of routes or number of miles traveled, for which we did not collect data);
- Indicate the combined impact of natural changes in enrollment (population increases or decreases) and charter expansion—total public enrollment is assumed to remain constant; or
- Predict future charter enrollment—the tool is based solely on four hypothetical enrollment increase scenarios; these are not based on the current trend in charter enrollment and are purely hypothetical.

DATA COLLECTION AND ENTRY

Data are entered in the orange-colored cells on the four orange-colored tabs: “Projection Setting,” “Building List,” “Enrollment & Staffing,” and “Expenditure.”

District and charter enrollment data came from the Pennsylvania Department of Education, while data on expenditure, buildings, building capacity, and staffing came directly from each district in our study.

Table D1: Projection Setting

Cell Ref #	Required Data	Adaptations of the Methodology
SHEET: Projection Setting		
J1	Total public enrollment (TPE) model selection	<ol style="list-style-type: none"> 1. “Six-year trend”: This model projects the TPE based on the six-year historic trend. For example, if the TPE has been decreasing by 10 students each year from Year -6 to Year 0, the TPE in Year 1 will decrease by 10 students. By Year 5, the TPE will have decreased 50 students since Year 0. 2. “Constant”: This model assumes that TPE will remain constant into the future. This is the most appropriate model for school districts that observe inconsistent trends in their TPE.
D9 : J21	District enrollment by grade level from Year -6 to Year 0	The model requires at least six years of consecutive, actual enrollment data. Either headcount snapshots OR Average Daily Membership (ADM) units can be used across all years and with all of the other enrollment data figures listed below, as long as a consistent unit is used.

D22	Charter growth type	There are two charter growth projection models based on the most dominant charter type in your district. Select "B&M" if most of your charter school enrollment is in brick-and-mortar charters
D28 : J40	Charter enrollment by grade level from Year -6 to Year 0	The model requires at least six years of consecutive, actual enrollment data. Either headcount snapshots OR ADM units can be used, as long as a consistent unit is used (see D9:J21, above).
I55 & AB55	Economic disadvantage percent and CS count (optional)	These fields can be left blank if desired. However, if these fields are left blank, "Enrollment – At Risk" may NOT be selected as a cost driver in the "Expenditure" sheet. You will see zeros in rows 26 and 49 of the "Enrollment and Staffing" sheet, but these have no bearing on the projections or final calculations.
I58 : I60	Total public special education enrollment by cost category²⁷	These three fields are for school district AND charter school special education enrollment. Ensure that the units (either headcount or ADM) are consistent with the enrollment units used in fields above.
I62 : I64	Charter school special education enrollment by cost category	These three fields are for charter school special education enrollment ONLY. Ensure that the units (either headcount or ADM) are consistent with the enrollment units used in fields above.
J72	Total public English learner enrollment count	This field is for school district AND charter school English learner enrollment. Ensure that the units (either headcount or ADM) are consistent with the enrollment units used in the fields above.
I73	School district English learner percentage	This field is the school district English Language Learner (ELL) enrollment as a percentage of the total school district enrollment. Ensure that the units you use to calculate this percentage are consistent with the enrollment units used in the fields above.

SHEET: Building List

Column B	Building ID number (optional)	This column contains building ID numbers that your district may use to identify school buildings uniquely. This column is only for your reference and has no impact on the calculations. Currently, this sheet can accommodate up to 250 unique buildings.
Column C	School name	The name of the school building, one line per building. If a school building is a subsection or wing of a larger campus, but could be closed independently of other campus buildings, it can be listed here as a unique building.
Column D	Lowest grade served	Lowest grade served at this building. Enter "0" for kindergarten. Do not include pre-kindergarten.

²⁷ For the purposes of special education funding, the Pennsylvania Department of Education created three cost categories for special education students corresponding to the cost per student:

- Category 1: special education students costing \$24,999 or less,
- Category 2: students costing between \$25,000 and \$49,999,
- Category 3: students costing \$50,000 or more.

See Pat Browne and Bernie O’Neill, “Special Education Funding Commission Report” (December 11, 2013), 4, accessed June 14, 2017, <http://www.senatorbrowne.com/wp-content/uploads/sites/37/2015/05/Special-Education-Funding-Commission-Report-121113.pdf>.

Column E	Highest grade served	Highest grade served at this building. Enter "0" for kindergarten. This tool assumes that each building serves consecutive grades with no gaps (i.e., if the lowest grade served is 0 and the highest 5, the school serves grades 0, 1, 2, 3, 4 and 5).
----------	-----------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Column I	Maximum capacity	This is the maximum number of students the building could currently hold without improvements or renovations.
----------	-------------------------	---------------------------------------------------------------------------------------------------------------

SHEET: Enrollment & Staffing

D59	Number of administrative buildings in Year 0	The building list sheet only includes school buildings. In this field, enter in the number of administrative buildings owned or operated by the school district in Year 0, or the current reference year.
-----	-----------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

		This group of cells disaggregates the number of administrators in FTE units whose salaries are reported in object code 110 (OB-110) and whose positions are classified under job classification code 100 (JC-100) in the Pennsylvania Chart of Accounts for Local Educational Agencies (LEAs). The exact classifications of personnel are at the user's discretion.
--	--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

D68 : D72	Administrator FTE staffing in Year 0	<ul style="list-style-type: none"> • C-Level includes essential executive personnel at the highest levels of management, including, but not limited to: Superintendent (JC-108) and Board of Education members (JC-105). In large school districts, assistant superintendents (JC-103) may also be included in this category. • Other LEA-based includes administrative personnel assigned to perform, execute, or manage system-wide activities. This category may include administrative assistants (JC-101); foremen (JC-106); and supervisors, managers, and directors (JC-109) not included in "C-Level" above. Office or clerical personnel are NOT considered administrators and are coded in JC-500. • Principals include personnel assigned to perform the highest level of executive management in an individual school or group of schools (JC-107). • Assistant Principals include personnel assigned to perform high-level executive management functions in an individual school or group of schools (JC-104). • Other School-Based include administrative personnel assigned to an individual school or group of schools. This includes supervisors, managers, and directors (JC-109) of school-based programs (e.g. special education coordinators, athletics directors, academic department chairs, and cafeteria directors).
--------------	---------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

D76 : D85	Educational professional FTE staffing in Year 0	<p>This group of cells disaggregates the number of educational professionals in FTE units whose salaries are reported in object code 120 (OB-120) and whose positions are classified under job classification code 200 (JC-200) in the Pennsylvania Chart of Accounts for LEAs. These fields should be mutually exclusive, meaning that no FTE should be counted twice.</p> <ul style="list-style-type: none"> • K through G12 Teachers includes professionals assigned to instruct students (JC-205) in regular education only. • Special Education Teachers includes professionals assigned to instruct students (JC-205) in graded or ungraded special education classrooms. This includes teachers who engage in pull-out supports only. • ESL Teachers includes professionals assigned to instruct students (JC-205) in English as a second language. • Other Instructional Specialists includes curriculum specialists (JC-201), and remedial specialists (JC-204) not assigned to special education. • Librarian/IT Specialists includes librarians and media specialists who plan and manage the use of teaching and learning resources (JC-203). • Counselors includes staff assigned to assisting students, parents, and teachers in helping students make personal plans and decisions (JC-202).
D89 : D94	Other personnel FTE staffing in Year 0	<p>This group of cells disaggregates the number of other personnel in FTE units whose salaries are reported in object codes 130 through 190 (OB-130 to 190) and whose positions are coded under job classification codes 300 through 900 (JC-300 to 900) in the Pennsylvania Chart of Accounts for LEAs. These fields should be mutually exclusive, meaning that no FTE should be counted twice.</p> <ul style="list-style-type: none"> • Health/Welfare Professionals includes professionals whose assignments require a high level of knowledge or skills in the areas of pupil health or welfare acquired through at least a baccalaureate degree, but not necessarily in the field of education. This includes JC-304, 306, 307, 312, 315, 317, 318, 320, 323, and 325. • Instruction Aides includes professionals who perform activities associated with teaching. This includes all codes under JC-900. • School Admin Support Staff includes professionals assigned to office or clerical activities (JC-500) or to the other professional JC-300 codes not mentioned above at one school or a group of schools. • Library/Media Support Staff includes professionals assigned to office or clerical activities (JC-500) or technology coordinators (JC-328) related to the management of teaching and learning resources, including equipment, content material, and services.

- **LEA Support Staff** include professionals assigned to office or clerical activities (JC-500) or in the other professional JC-300 codes not mentioned above at the LEA central office.
- **All Other Support Staff** include all staff not included in any of the categories mentioned above.

SHEET: Expenditure

Column G	Actual expenditures in Year 0 by selected objects and functions	<p>In this column, you should enter actual expenditures disaggregated by the selected object and function codes. These codes correspond to the Pennsylvania Chart of Accounts for LEAs maintained by the PA Office of the Budget. You may enter in cent values, however the displayed value rounds to the nearest whole dollar.</p> <p>Subtotals and totals sum automatically and can be used as a data entry quality check.</p> <p>Note that object "300-500*" excludes object 562, tuition to charter schools, which is reported separately.</p>
-------------	------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

(Source: RFA)

ENTERING AND DOCUMENTING ASSUMPTIONS

Assumptions are entered in the "Enrollment and Staffing" and "Expenditures" sheets in the teal-colored cells. We have also created an "Assumption Worksheet" that summarizes the key assumptions made and provides space for you to document your reasoning.

Table D2: Enrollment and Staffing

Cell Ref #	Required Assumption	Factors to consider as you make your assumptions
SHEET: Enrollment and Staffing		
L59 : AH63	Building closures	<ul style="list-style-type: none"> • Building capacity. Average capacities for each building type are listed next to the label in Column B. Use these average capacities in comparison with the school-to-building ratios ("S:B Ratio") to help guide your decision-making. • Geographic distribution and facilities' conditions. Avoid closing school buildings that would require students to travel unreasonable distances to their nearest neighborhood school, or that would require grade levels to be combined into a single building in an unrealistic or unfeasible way (e.g., moving upper elementary grades into a middle school with no space for playground equipment). • Amount of time required to schedule building for closure. Closing a school building is typically a multi-year process that requires feedback from the Board, school leadership, and community stakeholders. Unless your district is currently in the advanced stages of scheduling buildings for closure, you will most likely be unable to close any buildings in Year 1 of any scenario.

L68 : AH72	Administrator staffing	<ul style="list-style-type: none"> • Current administrator staffing adequacy. Especially when considering reductions in other LEA-based administrators, current staffing adequacy may be a significant factor. • Number of LEA-based administrators per pupil and per teacher. In addition to the student-to-administrator ratios provided next to each teal box, consider the number of administrators you might need based on the number of educational professionals projected below in rows 75 through 85. For example, if you are projected to cut 20 counselor positions, could you eliminate an LEA-based psychological services administrative assistant position? • Number of school-based administrators per school building. Typically school buildings have one or two principals, depending on the grades served and size of the school. If a school building is closed, ensure that a principal and any associated assistant principals are also reduced. Also consider the type of school buildings that have been assumed closed above—high schools typically require a larger number of school-based administrators than elementary schools.
------------	-------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

L89 : AH 94	Other personnel staffing	<ul style="list-style-type: none"> • Current staffing adequacy. If you feel that your current other personnel staffing is inadequate, you may choose to assume no reductions in staffing levels. This may be the case, for example, for health and welfare professionals who already have large caseloads split across several school buildings. • Number of personnel per teacher or per building. Instruction aides in particular will likely vary closely with the number of teachers since this roughly corresponds to the number of classrooms. On the other hand, other support staff, which includes crafts and trades, service work, and operative and labor personnel, may vary more closely with the number of buildings assumed to be in operation.
-------------	---------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

SHEET: Expenditure

Column H	Cost driver	<p>For each line item, consider what the primary cost driver of that expenditure is. The exact cost driver may not be available from the drop-down list or may be unclear for certain line items. In these cases, you must use your best judgment to determine what primarily drives this expenditure up or down or which selectable cost driver approximates the true cost driver.</p> <p>The following are the possible cost driver options:</p> <ul style="list-style-type: none"> • Enrollment with a two-year lag or no lag disaggregated by: <ul style="list-style-type: none"> • Total public enrollment (TPE); • District enrollment only, disaggregated by grade spans; • District at-risk (economic disadvantage) or ELL enrollment; • District or charter regular education (Reg Ed) enrollment; and; • District or charter special education (SpEd) enrollment.
----------	--------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

		<ul style="list-style-type: none"> • Buildings disaggregated by: <ul style="list-style-type: none"> • Administrative buildings; and • School buildings disaggregated by elementary, middle, or secondary. • Administrators (“Admin”) disaggregated by: <ul style="list-style-type: none"> • Central-office or school-based; and • Administrator assignment type (see Table 1, cell references D68:D72). • Educational personnel (EP) disaggregated by: <ul style="list-style-type: none"> • Assignment type (see Table 1, cell references D76:D85); and • Regular education or special education only. • Other personnel (OP) disaggregated by position type (see Table 1, cell references D89:D94).
Column I	Fixed percentage	<p>What percentage of this expenditure is fixed in the five-year term? “0” means that this expense is entirely variable; theoretically, if the primary cost driver decreased all the way to zero, so would the expenditure. “100” means that the expense is entirely fixed; this expenditure either has no cost driver or changes unpredictably, irrespective to any changes in enrollment, infrastructure, or staffing.</p> <p>The factors to consider for each line item differ based on the terms and conditions underlying your district’s expenditures. The following is a list of common factors affecting the variability of Pennsylvania school districts’ expenditures. An up (↑) arrow indicates that this factor typically increases the fixed percentage, whereas a down (↓) arrow indicates that this factor typically decreases the fixed percentage. A double-headed (↕) arrow indicates that the effect could go either way:</p> <ul style="list-style-type: none"> • Salaries (OB-110, 120, and 130-190): <ul style="list-style-type: none"> • Contracted salary increases ↑ • Higher percentage of less-experienced staff entering the district (thus decreasing the average salary) ↓ • Employee Benefits (OB-200): <ul style="list-style-type: none"> • The number of involuntary layoffs (thus requiring paying out unemployment benefits) ↑ • The number of reductions by attrition ↓ • Purchased Services (OB-300-500*): <ul style="list-style-type: none"> • The number of long-term contracts ↑ • Supplies (OB-600) <ul style="list-style-type: none"> • Share of energy and electricity costs within this object ↑ • Share of classroom materials costs within this object ↓ • Property (OB-700) <ul style="list-style-type: none"> • Share of capital expenditures within this object ↑ • Other Objects (OB-800) <ul style="list-style-type: none"> • Varies • Other Uses of Funds (OB-900) <ul style="list-style-type: none"> • Share of debt service within this object ↑

(Source: RFA)

INTERPRETING AND ANALYZING RESULTS

The “Results Summary” sheet shows the bottom-line fiscal impact for districts in a variety of ways. Each column offers a different interpretation of the bottom-line numbers. Below, we briefly describe each column, and the table below summarizes this.

Total Expenditure

The total expenditure column indicates the total expenditure that would be required in each year and scenario to keep the quality of district education (i.e., staffing ratios) constant *while accommodating charter expansion*.

Savings Attributable to CS Expansion Estimate

This column displays the estimated savings yielded through charter expansion.

Fiscal Impact (after CS Tuition)

This column shows the total impact of charter school expansion after factoring out charter school tuition. It represents the savings attributable to charter expansion minus the increased costs of charter expansion (charter tuition).

Per New CS Pupil Impact

This column takes the total fiscal impact from column F and divides it by the number of new charter students to obtain an estimate of the fiscal impact per charter pupil.

Percent of CS Tuition

This column divides the per-pupil impact number by charter school tuition to determine the per-pupil impact as a percentage of charter tuition. This allows us to compare impact across districts with different charter tuition costs.

The last three columns show public, district-only, and charter-only per pupil expenditure for the different years and scenarios. These numbers show the changes in the overall cost of educating students as charters expand.

Table D3: An Overview of Results

Cell Ref #	Column Title	Interpretation
SHEET: Results Summary		
D5:D13	Total Expenditure	<ul style="list-style-type: none"> Total expenditure that would be required to maintain current quality of district education while accommodating charter expansion
E5:E13	Savings attributable to CS Expansion Estimate	<ul style="list-style-type: none"> Calculates estimated savings from charter school expansion

F5:F13	Fiscal Impact (after CS Tuition)	<ul style="list-style-type: none"> Calculates total impact of charter school expansion Calculation is [savings attributable to charter expansion – increased costs associated with charter expansion (charter tuition)]
G5:G13	Per New CS Pupil Impact	<ul style="list-style-type: none"> Average fiscal impact per new charter pupil Divides Fiscal Impact from Column F by the number of new charter pupils
H5:H13	% of CS Tuition	<ul style="list-style-type: none"> Average fiscal impact per pupil as a percentage of the cost of charter school tuition Divides the CS per-pupil impact by charter school tuition
I5:K13	Per-Pupil Expenditure	<ul style="list-style-type: none"> Indicates overall cost for educating students in district vs. charter schools, as well as the public education average

(Source: RFA)

Appendix E: Breakdown and Explanation of Chart of Accounts

In the Calculation Tool, each school districts' budget is organized under the Chart of Accounts. As explained here, each line item, or "account," in the Chart of Accounts is broken down into two main components: an object (what was the nature of the item purchased?) and a function (what was the purpose of the item?). Personnel-related expenses are further broken down into a series of job classifications. While the official chart of accounts provides codes that allow for a very specific classification of expenses, we chose to use the broader account codes for simplicity.

Object codes all have three digits and range from 100 to 999. The hundreds digit denotes the major object category and the tens and ones digits are used to create various subcategories. For example, all expenses with object code 100 through 199 are salaries, however expenses under object code 120 are specifically salaries paid to educational professional staff and object code 150 are salaries paid to office clerical staff. Function codes are organized similarly, but according to a four-digit code.

In order to understand what types of expenses are included in each account, one needs to consider the object and function together. Below, each object is described generally, and then examples of these objects are applied to each of the functions listed in the tool. Some object and function combinations are extremely rare or not possible, so have not been detailed here.

OBJECTS

110, 120 and 130-190 - Salaries

- Salaries includes gross salaries and wages (i.e., before taxes and deductions) paid directly to employees. Salaries do NOT include employee benefits like health insurance, unemployment compensation, or pension payments (see object 200, Employee Benefits).
- **100 - 1100 / Salaries - Instruction of Regular Programs:** Salaries spent on employees whose primary job function is instruction (i.e., the direct interaction between teachers and students) in regular education K-12 programs. Official/Administrative jobs in this function

Job Classifications

As one of the largest expense objects for a school district, salaries were further divided into three different job classifications:

110 - Official/Administrative: This classification includes ONLY employees who perform management functions at the district or its schools. Example administrative assignments include: superintendents, principals, assistant principals. This does NOT include secretaries or other clerical positions.

120 - Educational Professionals: This classification includes professionals who have received at least a bachelor's degree in order to educate or counsel pupils. This includes teachers, counselors, librarians, curriculum specialists and remedial specialists (e.g., reading coaches). This does not include professionals with advanced degrees not related to the instruction or education of pupils, like school nurses and school psychologists, although these professionals may be included in the same collective bargaining agreements.

130-190 - Other staff: This classification is a broad category that encompasses all employees not included in the classifications above.

are rare in small school districts and do NOT include principals or assistant principals (who are included in the support services - administration function, code 2300). Educational professional jobs include regular education classroom teachers, substitutes, and reading coaches. Teaching aides and classroom assistants make up the majority of staff in the Other category.

- **100 - 1200** / Salaries - Special Programs: Salaries spent on employees whose primary job function is instruction in special education K-12 programs. Officials include special education administrators at all LEA levels. Educational professionals include only special education classroom teachers. Other staff could include classroom aides and health professionals who work exclusively with special education students.
- **100 - 1300** / Salaries - Vocational Education: Salaries spent on employees whose primary job function is instruction in Pennsylvania Department of Education-approved vocational education programs. Note that the salaries object only includes salaries paid directly to district employees, and not payments to other organizations or districts to carry out vocational education programs for district students.
- **100 - 1400-1800** / Salaries - Other Instructional Programs: Salaries spent on employees whose primary job functions are in the district's other instructional programs not included in regular, special, or vocational education. This could include summer school, driver's education, alternative education, adult education, community college sponsorship, dual enrollment programs, and pre-kindergarten.
- **100 - 2100** / Salaries - Support Services - Students: Salaries spent on employees whose activities assess and improve the wellbeing of students to supplement the teaching process. This includes guidance, attendance, psychological, speech pathology, and social work services.
- **100 - 2200** / Salaries - Support Services - Instructional Staff: Salaries spent on employees whose activities focus on assisting instructional staff, including professional development, school library services, curriculum development, and education technology.
- **100 - 2300** / Salaries - Support Services - Administration: Salaries spent on employees who administer policy on behalf of the LEA. Officials in this function include school principals, assistant principals, superintendents and community relations administrators (e.g., family and community engagement administrators). Educational professional jobs in this function are rare. Other staff in this function include secretarial and clerical staff for this administrative activities.
- **100 - 2400** / Salaries - Support Services - Pupil Health: Salaries spent on employees whose activities are primarily providing physical and mental health services to students, but not direct instruction. This includes school nurses.
- **100 - 2500** / Salaries - Support Services - Business: Salaries spent on employees whose activities deal with the financial and business operations of the LEA. Officials in this function include business officers and chief financial officers. Other staff would include accountants and comptrollers.
- **100 - 2600** / Salaries - Operation and Maintenance of Plant Services: Salaries spent on employees who keep the district's buildings open, comfortable, and safe for use. Officials

in this function include any supervisors, directors, or managers of building maintenance or services, and school safety supervisors. Other staff would include any of the non-supervisory staff working in building maintenance, operations or safety.

- **100 - 2700** / Salaries - Student Transportation Services: Official salaries in this function would include supervisors and managers who manage transportation services. Other staff would include the drivers who operate the buses and school crossing/traffic guards.
- **100 - 2800** / Salaries - Support Services - Central: Salaries of employees whose job functions are not general administration and are not included in the above functions, including activities like planning, research, evaluation, information, staff, and data processing services.
- **100 - 2900** / Salaries - Other Support Services: Salaries in this function are rare and include all other support services not classified elsewhere. This mainly includes general operating support payments to the local Intermediate Unit (IU).
- **100 - 3100** / Salaries - Food Services: Officials in this function include managers of district food service programs. Other staff include food service and cafeteria workers. Districts may have no expenses in these salaries objects if they fully contract out their food services to external vendors.
- **100 - 3200** / Salaries - Student Activities: Student activities include school-sponsored athletics programs, extracurricular clubs, and events (e.g., prom). Officials in this function would include school athletic program directors, band directors, and student government directors (either at the LEA or school level).
- **100 - 3300** / Salaries - Community Services: Examples of community services include operating a community swimming pool, sponsoring a public library, or operating a child-care center. The exact purpose of this function and the staff included within it will vary according to the community services offered by the district.
- **100 - 3400** / Salaries - Scholarships and Awards: Rarely used function with the salaries object.
- **100 - 4000** / Salaries - Capital Expenditures: These salaries would include employees whose activities relate to the acquisition, construction, and improvement of land, buildings, service systems and large equipment of the district. In most school districts, these services are contracted out to third-party vendors and use of these account codes is rare.
- **100 - 5000** / Salaries - Debt Service and Other Expenditures: Salary expenses in this function are rare. The majority of expenses in this function relate to debt service; districts may have salary expenses reported in this function for transfers between funds.

200 - Employee Benefits

- Employee benefits include payments to group insurance policies, social security contributions, contributions to the Public School Employee's Retirement Board (PSERS), unemployment compensation, worker's compensation, and tuition reimbursements.
- The application of the 200 object to each function is the same as the application of the 100

object, Salaries, detailed above. Note that the 200 object includes the employee benefits for all employees within that function: Officials, Education Professionals, and Other staff.

300-500* - Purchased Services

- Purchased services costs are what districts pay to contract or hire persons or firms with specialized skills and knowledge. We have collapsed the three broad account codes typically used to categorize these expenses into one large bucket for simplicity:
 - 300 - Purchased Professional and Technical Services: Includes payment for services of architects, engineers, auditors, doctors, lawyers, consultants, accountants, etc. that are not related to plant maintenance or operations.
 - 400 - Purchased Property Services: Includes payment for cleaning services, utility services, and other repair and maintenance services.
 - 500 - Other Purchased Services: A catch-all bucket for all other purchased services including student transportation, property and liability insurance, communications and public relations, printing, food service, and travel. Charter tuition is typically included in this object (562), but we have separated it out from this bucket.
- **300-500* - 1000** / Purchased Services - Instruction: The majority of expenses in the 1000 functions in purchased services are tuition costs to external schools (i.e., private schools or neighboring district schools) or contractors who provide instructional programs to students.
- **300-500* - 2000** / Purchased Services - Support Services: The nature of the purchased services expenses in the various 2000 functions depends on what support services the district must outsource. For example, in function 2200, Support Services - Instructional Staff, a larger district might have a central office team responsible for developing and implementing staff professional development, whereas a smaller district might rely on a firm or the local Intermediate Unit for the majority of these professional development resources. For most school districts, the largest purchased services expenses in this function are 2600, Operation and Maintenance of Plant Services, and 2700, Student Transportation Services. Plant Services purchased services include contracted maintenance, repair, custodial and building safety/security firms. Student transportation services would include contracts with transportation companies that manage the busing of students to and from school
- **300-500* - 3000** / Non-Instructional Services: Food services (code 3100) would include the cost of hiring a firm to provide and prepare student meals and snacks. Examples of expenses in code 3200, Student Activities, would be hiring photographer for school pictures, yearbook printing, catering for school events, transportation of student athletes and band to non-local events, and contracts with travel agencies for overnight school-sponsored trips. Community services, code 3300, would include activities like hiring a company to provide English classes for parents, or contracting with a public relations firm to advertise district initiatives or policies.
- **300-500* - 4000** / Purchased Services - Capital Expenditures: Purchased services in this function would include the cost of hiring architects, engineers, surveyors, and realtors involved with the acquisition, development, or sale of district property.

- **300-500* - 5000** / Purchased Services - Debt Service and Other: Expenses in this object and function combination are rare.

562 - Tuition to Charter Schools

- This is the amount paid to charter schools in tuition. Charter schools bill school districts on a monthly basis for every district student that was enrolled in their school the previous month (in ADM units). There are only two possible function codes used in tandem with this object code:
- **562 - 1100** / Tuition to Charter Schools - Regular Programs - E/S: The tuition spent on regular education students in charter schools.
- **562 - 1200** / Tuition to Charter Schools - Special Programs - E/S: The tuition spent on special education students in charter schools.

600 - Supplies

- Supplies differ from purchased services in that they are specifically material items that are consumed, worn out, or deteriorate in use. As a result, items like curriculum, textbooks, postage, energy, and food are included in supplies. Software licensing fees are also included in supplies since licenses are typically time-limited.
- **600 - 1000** / Supplies - Instruction: This includes the costs of all classroom materials (paper, pencils, books, iPads, etc.) that are of a relatively low unit cost and that have short useful lives. Larger, more expensive items that could be liquidated (e.g., computers, projectors, furniture) are generally reported in object 700, Property, however every LEA has different accounting rules.
- **600 - 2000** / Supplies - Support Services: Includes the costs of supplies used to carry out the various support service activities detailed above. While supplies expenses vary from district to district, a major expense in this function for most districts is the electricity and energy costs of operating school buildings and fuel for transportation services.
- **600 - 3000** / Supplies - Non-Instructional Services: The majority of supplies costs in this function are the costs of food and energy required to operate food services.
- **600 - 4000** / Supplies - Capital Expenditures: Expenses in this function would be the supplies used in the acquisition, development, or sale of district property. However, expenses will be relatively low since the majority of these costs are included in the contracts accounted for in purchased services.
- **600 - 5000** / Supplies - Debt Service: Expenses in this object and function combination are rare.

700 - Property

- Property expenses include the costs of acquiring and improving (i.e., activities that increase

the value of) land, buildings, and equipment owned by the district. Property is distinct from supplies in that they represent fixed or capital assets for the district.

- **700 - 1000** / Property - Instruction: The majority of expenses in this category are the costs of purchasing equipment for vocational education programs (e.g., wood shop tools).
- **700 - 2000** / Property - Support Services: Typically this function makes up the largest portion of property expenses because it includes function 2600, Operation and Maintenance of Plant Services. Example costs would be the cost of the equipment for wiring school buildings for wireless internet, buying new school buses, or buying new computers or printers for central office and school staff.
- **700 - 3000** / Property - Non-Instructional Services: Expenses in this category could include items like AV equipment for a school theater, purchasing new gym equipment, or kitchen appliances for food services.
- **700 - 4000** / Property - Capital Expenditures: Included in this category are only the costs of buying or improving land, equipment, or buildings. Example costs would be trimming or landscaping an existing landholding or repaving a parking lot on a school campus.
- **700 - 5000** / Property - Debt Service: Expenses in this category are rare.

800 - Other Objects

- Other objects include items like dues and fees for membership in professional organizations, penalties against the LEA (for failure to pay bills, for example), interest on bonds, student fees for instruction-related events (e.g., the Science Fair, AP Testing) and other miscellaneous expenditures for goods or services.

900 - Other Uses of Funds

- Other uses of funds classifies transactions that are financial in nature and do not result in the acquisition of a good or service. The largest expense in this object is in debt service (function code 5100), or the expenses incurred by a school district to pay down debt obligations and interest. Other possible expenses in this object are transfers between and within the district's various funds, or accounts used to track the source or designated purpose of money (e.g., transferring from the General Fund to a Capital Reserve Fund in order to finance a building project).

Appendix F: Impact Estimates for All Scenarios

Table F1: Summary of District-Level Findings

		Total Impact	Per Charter Pupil Impact	Percent of Charter Tuition	Total Impact	Per Charter Pupil Impact	Percent of Charter Tuition	Total Impact	Per Charter Pupil Impact	Percent of Charter Tuition
		Philadelphia (Large district — 35% charter)			Oxford Area (Med. district — 11% charter)			Mahanoy (Small district — 5% charter)		
Scenario 1 (0.5% growth)	Year 1	\$(8,246,460)	\$(8,125)	80%	\$(222,527)	\$(10,115)	89%	\$(68,900)	\$(13,780)	95%
	Year 5	\$(22,494,582)	\$(4,433)	44%	\$(888,747)	\$(8,229)	73%	\$(174,215)	\$(6,701)	46%
Scenario 2 (1% growth)	Year 1	\$(16,448,649)	\$(8,107)	80%	\$(448,661)	\$(10,434)	92%	\$(137,481)	\$(13,748)	95%
	Year 5	\$(38,964,360)	\$(3,840)	38%	\$(1,390,446)	\$(6,467)	57%	\$(519,258)	\$(9,986)	69%
Scenario 3 (2% growth)	Year 1	\$(32,864,408)	\$(8,097)	80%	\$(894,478)	\$(10,401)	92%	\$(284,179)	\$(13,532)	94%
	Year 5	\$(77,184,012)	\$(3,803)	37%	\$(2,591,513)	\$(6,027)	53%	\$(930,175)	\$(8,944)	62%
Scenario 4 (4% growth)	Year 1	\$(65,718,355)	\$(8,095)	80%	\$(1,757,244)	\$(10,217)	90%	\$(559,778)	\$(13,653)	94%
	Year 5	\$(154,377,306)	\$(3,803)	37%	\$(5,097,630)	\$(5,921)	52%	\$(1,683,626)	\$(8,133)	56%
		Central Bucks (Large district — 1% charter)			South Western (Med. district — 2% charter)			Quaker Valley (Small district — 2% charter)		
Scenario 1 (0.5% growth)	Year 1	\$(871,205)	\$(9,268)	81%	\$(224,425)	\$(10,687)	93%	\$(167,645)	\$(16,764)	96%
	Year 5	\$(1,600,564)	\$(3,391)	30%	\$(324,401)	\$(3,090)	27%	\$(357,513)	\$(7,448)	42%
Scenario 2 (1% growth)	Year 1	\$(1,835,041)	\$(9,709)	85%	\$(461,158)	\$(10,980)	95%	\$(334,304)	\$(17,595)	99%
	Year 5	\$(3,655,447)	\$(3,872)	34%	\$(1,016,658)	\$(4,841)	42%	\$(1,018,582)	\$(10,722)	61%
Scenario 3 (2% growth)	Year 1	\$(3,752,438)	\$(9,927)	87%	\$(843,910)	\$(10,047)	88%	\$(655,534)	\$(17,251)	98%
	Year 5	\$(6,805,851)	\$(3,605)	32%	\$(1,773,065)	\$(4,232)	37%	\$(1,477,122)	\$(7,774)	44%
Scenario 4 (4% growth)	Year 1	\$(7,577,516)	\$(10,036)	88%	\$(1,607,849)	\$(9,571)	83%	\$(1,311,216)	\$(17,253)	97%
	Year 5	\$(13,633,519)	\$(3,611)	32%	\$(3,455,617)	\$(4,124)	36%	\$(3,487,830)	\$(9,154)	52%



Land Title Building • 100 South Broad Street, Suite 700 • Philadelphia, PA 19110

267-295-7760 •  www.researchforaction.org •  www.twitter.com/Research4Action