



Network to Transform Teaching Cost Study

A Comprehensive Review of Site-Level Costs

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Executive Summary

National Board Certification (NBC) is an advanced teaching credential that teachers can choose to complete that is above and beyond a state’s licensure requirements. National Board–certified teachers (also known as NBCTs) have been shown to achieve better outcomes than teachers who are not Board certified (Cantrell, Fullerton, Kane, & Staiger, 2008; Clotfelter, Ladd, & Vigdor, 2007; Cowan & Goldhaber, 2015; Harris & Sass, 2009). However, the cost associated with efforts to increase the numbers of Board-certified teachers remains largely unknown or limited to budget data that does not allow for a full account of the dollar value of these investments.

The goal of this study is to capture the true cost of efforts to increase the number of Board-certified teachers as part of the Network to Transform Teaching (NT3)—an initiative that aims to improve student learning by increasing student access to Board-certified teachers. The initiative was funded in 2013 by the U.S. Department of Education’s Supporting Effective Educator Development (SEED) grant. Planning for NT3 began in the 2013–14 academic year, with the years 2014–15 and 2015–16 as the two years of implementation. These two implementation years are included in the study.

The study aims to provide information on the types and quantities of personnel and nonpersonnel resources used at the NT3 sites to (1) show what it would take to replicate their efforts in other locations; (2) help identify efficiencies that might be gained through modifying their existing resource allocation practices; and (3) evaluate long-term costs associated with increases in the numbers of Board-certified teachers. The NT3 sites included in the study consisted of four states (Arizona, Kentucky, New York, and Washington) and one district (San Francisco, California).

Data and Methods

The study employs the “ingredients” approach to cost analysis (Levin & McEwan, 2001) that involves modeling those personnel and nonpersonnel resources associated with the recruitment and support of Board certification candidates at each site. The ingredients approach is a systematic, well-tested procedure for identifying all of the comprehensive costs for implementing intervention services. This approach also includes costs that routinely are not adequately identified in budget or expenditure data such as contributed (in-kind) resources or those that are shared between the intervention and other operational activities. In incorporating the ingredients approach, the study team reviewed planning and budgeting documentation, SEED grant year-end spending reports, and more general fiscal reports used for tracking expenditures and revenues. We also conducted a series of visits and follow-up phone discussions to develop the cost structure and gather the information needed.

The study identifies specific findings for each of the five NT3 sites, which are detailed in separate site-specific case study chapters. This includes examining the overall Aim 1 costs in total and on a per-recruited and per-active candidate basis, respectively. The key efforts of recruitment and candidate support constitute the Aim 1 goal—to increase the number of Board-certified teachers, especially in high-need schools and science, technology, engineering, and mathematics subjects—and are divided into strategies. These five strategies are fairly consistent across sites: Formal Recruitment, Informal Recruitment, Financial Support (or Technology

support in the case of San Francisco), Sessions and Workshops, and Cohort Support (or Candidate Support as it is in New York, or Targeted support as is referred to in Kentucky).

Additionally, we considered more granular costs by both strategy and the activities within each strategy. The study further analyzes costs by resource type including the following five resource categories: Personnel, Facilities, Equipment, Supplies, and Other. The study also assesses factors in sustainability, including the sources of funding and induced costs that will be realized in future years.¹

Finally, the study includes a comparative review of the results of site-specific findings, and presents results that provide a high-level overview of the similarities and differences across sites. Although we believe that comparing costs across sites is helpful to understand differences in how funds were used, it is important to note that sites varied significantly in a variety of ways. We therefore suggest readers keep in mind the context provided in the site case studies when interpreting the site comparisons.

Key Findings

San Francisco

- As the only district site and the smallest in terms of the number of candidates served, San Francisco is unique. The strategy Sessions and Workshops made up the bulk of San Francisco's spending, accounting for about 46% of the approximately \$413,000 spent in 2014–15 and about 51% of the approximately \$429,000 spent in 2015–16. The overall Aim 1 per-active candidate costs in San Francisco were \$3,330 in 2014–15 and \$3,109 in 2015–16.
- The majority of costs in 2014–15 and 2015–16 were dedicated to Personnel resources, accounting for almost 92% (\$379,000) of all resources in 2014–15. Although personnel costs rose slightly in the following year (2015–16) to \$381,000, because the overall program costs were proportionately higher in this year, the share of total costs associated with personnel fell to 89%.
- The great majority of San Francisco's resources in 2014–15 and 2015–16 came from the SEED grant (81% in 2014–15 and 69% in 2015–16).

New York

- In New York, the strategy Financial Support made up the largest proportion of overall spending in both study years. It accounted for 40% of the approximately \$988,000 spent in 2014–15, and 33% of the approximately \$1.2 million spent in 2015–16. The overall Aim 1 per-active candidate costs in New York were \$2,948 in 2014–15 and \$3,222 in 2015–16.
- Among resource types, Personnel made up the majority of all spending at the New York site. In 2014–15, staff and other personnel time accounted for approximately 56% (\$553,000) of all costs, with this share increased to 59% (\$715,000) in the following year.

¹ Induced costs are those costs that result from successful completion by a candidate and incentivize participation.

- The New York State Education Department and Teacher Centers bore most of the costs in New York—66% of overall costs in 2014–15 and 54% of costs in 2015–16. Just less than half of this contribution was given in the form of the Albert Shanker Grant, which was used to provide financial support to candidates.

Arizona

- In Arizona, the strategy with the highest amount of spending changed over the two study years. In 2014–15, Financial Support made up 33% of the approximately \$814,000 in spending, whereas in the following year, the Sessions and Workshops strategy made up the largest spending share, accounting for 33% of the \$1 million in spending that year. The overall Aim 1 per-active candidate costs in Arizona were \$1,804 in 2014–15 and \$2,252 in 2015–16.
- Personnel made up the majority of the Arizona site’s costs across the five resource types. In 2014–15, Personnel accounted for approximately 45% (\$367,000) of all costs, and increased in the following year to 49% (\$523,000).
- The majority of Arizona costs in both study years were borne by the SEED grant and the AZ K-12 Center (35% and 49% in 2014–15 and 38% and 48% in 2015–16, respectively).

Kentucky

- In Kentucky, the top spending strategy also shifted over the two study years. In 2014–15, spending on the Session and Workshops strategy made up 24% of the approximate \$375,000 spent that year, whereas in the following year, the strategy Formal Recruitment was the largest accounting for 25% of the total \$369,000 that was spent. The overall Aim 1 per-active candidate costs in Kentucky were \$628 in 2014–15 and \$505 in 2015–16.
- Personnel represented a majority of the overall cost across the five resource types in Kentucky. In 2014–15, it accounted for approximately 83% of all Aim 1 costs, totaling \$312,000. In 2015–16, these costs dropped both in proportion and size accounting for approximately 74% and totaling \$272,000.
- The great majority of costs in Kentucky in both study years were borne by the SEED grant, accounting for 63% in 2014–15 and 74% in 2015–16.

Washington

- In Washington, Formal Recruitment was consistently the top spending strategy. It made up 32% of the approximately \$1.5 million spent in 2014–15 and a slightly lower proportion in 2015–16, making up 28% of the approximately \$1.9 million spent. The overall Aim 1 per-active candidate costs in Washington were \$1,935 in 2014–15 and \$1,988 in 2015–16.
- As was the case in the other four sites, Personnel made up the majority of spending by resource type. In 2014–15, it accounted for approximately 51% of costs and in 2015–16 it maintained its majority but decreased to 46%.

- Individual school districts accounted for the majority of Washington site costs in 2014–15 and 2015–16, making up 29% and 31% respectively. However, the SEED grant and other sources of funding (i.e. the catch-all category) also covered a sizable portion in both years.

All Sites

- The sites varied in size in terms of the numbers of candidates served. The smallest site was also the only district site, San Francisco. New York and Arizona were similarly sized though New York was smaller in both study years. Kentucky proved to be the next largest site, and Washington was the largest site by a substantial margin. In 2014–15 Washington had nearly 1,000 more active candidates than Kentucky, and in 2015–16 this rose to more than 1,500.
- When overall costs are compared the results suggest that the larger sites were able to take advantage of economies of scale, lowering their per-active candidate costs. These sites, Kentucky and Washington, consistently had the lowest per-active candidate costs, spending an average of \$567 and \$910, respectively. The smallest site, San Francisco, has the highest per-active candidate costs, spending close to \$3,000 in both years.
- We found that most sites spent similar amounts on recruitment per candidate, with spending differences in four out of the five sites measuring no more than \$400 in either study year. The clear outlier was New York, which consistently spent the most per candidate on recruitment, with a per-candidate cost that was \$855 to \$1,175 more than the next highest site. This per-candidate expenditure difference may be explained by the relatively high personnel costs attributed to Teacher Center directors in New York.
- In terms of support activities, Kentucky clearly spent the least and well below that of the average site in both years, with per-candidate costs of \$327 and \$273 in 2014–15 and 2015–16, respectively. However, Kentucky’s low relative spending on support strategies may be explained by the fact that, unlike other sites, it spent roughly equivalent amounts on its recruitment and support efforts. Given that Kentucky’s overall costs were low, its support costs appear *particularly* low, although its recruitment costs are more comparable with that of other sites.
- In terms of percentage of its total costs, San Francisco spent quite a bit more on Group Support and Targeted Support than other sites, exceeding 80% of their overall costs in both years. In contrast, other sites spent between 25% and 45% of funds on these strategies.
- When considering spending on personnel versus nonpersonnel resources, we might expect that Personnel resources would make up the majority of site spending. Although this was consistently true for Kentucky and San Francisco, it is not as clear cut as we might expect. Driven by higher spending in Other support, which primarily included nonpersonnel costs (e.g., financial support, technological resources), Washington and Arizona allocated large proportions of resources to nonpersonnel. New York was found to be between these two extremes.

- With respect to funding sources, Washington and New York had substantially larger proportions of their costs covered by partner organizations than the other sites, which paid for an average of 74.5% and 69.5% of the overall costs of these sites, respectively. Moreover, the amount of funding from partner organizations in Washington greatly exceeded other sites, totaling about \$1.1 million in 2014–15 and \$1.5 million in 2015–16.
- With respect to induced costs, when the estimated annual incentives were considered, Kentucky and Washington were found to be the two outliers. Both were estimated to pay out more to candidates annually in future years than the other sites. Specifically, they were expected to provide incentives of \$7,848 (Kentucky) and \$4,856 (Washington). The next largest incentive after Washington was offered by San Francisco measuring \$3,980.

1. Introduction

National Board Certification (NBC) is an advanced teaching credential teachers can choose to complete that is above and beyond a state's licensure requirements. Established in 1987 by the National Board for Professional Teaching Standards (NBPTS), the purpose of NBC is to advance the quality of teaching. Specifically, it was designed to develop, retain, and recognize accomplished teachers and to generate ongoing improvement in schools nationwide.

Certification takes the form of a peer-reviewed program that aims to maintain high standards for accomplished teachers and to retain accomplished teachers in the system. The standards for each content area and developmental level are created by teachers and represent a consensus among educators about what accomplished, effective teachers should know and be able to do to improve student learning and achievement. The certification process is voluntary, and teachers must complete four components: assessment of content knowledge, reflection on student work samples, video and analysis of teaching practice, and documentation of the impact of assessment and collaboration on student learning. In 2014–15, the NBPTS made two key changes to the process. First, they extended the duration of the certification process from two to approximately four years. Second, they reduced the period for which certification would remain valid so that renewal would be required of Board-certified teachers (also known as National Board–certified teachers, or NBCTs) every five instead of every 10 years.

A main goal of the NBPTS is to increase the number of teachers with NBC. Research has shown that teachers with this certification achieve better student learning outcomes than do teachers who are not Board certified (Cantrell, Fullerton, Kane, & Staiger, 2008; Clotfelter, Ladd, & Vigdor, 2007; Cowan & Goldhaber, 2015; Harris & Sass, 2009) and that the positive effects can be greater for minority and low-income students (Cavalluzzo, 2004; Goldhaber & Anthony, 2007). In turn, some districts and states have focused on having their teachers pursue Board certification as an effective approach to improving educational outcomes. However, the cost associated with efforts to increase the numbers of Board-certified teachers remains largely unknown or limited to budget data that do not allow for a full account of the dollar value of these investments.

Study Purpose

This study aims to overcome this limitation by capturing the true cost of efforts to increase the number of Board-certified teachers in the Network to Transform Teaching (NT3) sites across the country. It also aims to provide information on the types and quantities of personnel and nonpersonnel resources used at the NT3 sites to (a) help them identify efficiencies that might be gained through modifying their existing resource allocation practices and (b) show what it would take to replicate their efforts in other locations.

NT3 is a network of state and district sites consisting of stakeholders working together to find innovative and effective ways to make accomplished teaching the norm, especially in high-need schools. NT3 is guided by three aims:

- Aim 1: Increase the number of Board-certified teachers, especially in high-need schools and science, technology, engineering, and mathematics subjects.

- Aim 2: Increase the number of Board-certified teachers in leadership roles.
- Aim 3: Increase the number of early career educators developing into accomplished teachers.

The network was launched in 2013 with funding from the U.S. Department of Education in partnership with the following six district- and state-based sites: districts—Albuquerque, New Mexico, and San Francisco, California, and states—Arizona, Kentucky, New York, and Washington. This study investigates the resources and corresponding costs of five of these six original NT3 sites with the focus on Aim 1,² providing a unique opportunity to understand better the efforts put forth to promote NBC across the country. Moreover, because five additional sites joined the network in 2015 (district—Clark County, Nevada, and states—Alabama, Illinois, Maryland, and North Carolina), our intention is that there is much these newer sites can learn from this study.

The formal study objectives are as follows:

- to obtain reliable and accurate information about the operational costs associated with the activities that the five original NT3 sites used to recruit and support teachers in obtaining NBC3;
- to provide essential information about the types and quantities of resources involved in developing and implementing the recruitment and support efforts at each original NT3 site; and
- to cast light on the sustainability at each of the original NT3 sites by looking at the sources of funding supporting the operational recruitment and support efforts, as well as the funding necessary to cover the long-term costs induced by teachers successfully achieving NBC and the commensurate increase in compensation associated with this distinction.

For each of the five study sites, we conducted a case study of the NBC candidate recruitment and support efforts that were implemented and their associated costs. The case studies required the study team to collect information on the types, quantities, and prices of personnel and nonpersonnel resources employed at each site, which was obtained from extant sources and through interviews with site staff. These data were used to develop a cost model to calculate the dollar value of the resources used. Further detail on the methodology, data collection, and results from the case studies are contained in the chapters that follow.

NT3 Study Sites

The five NT3 sites are very different in nature in terms of number of teachers, size, and how they have organized themselves to implement their recruitment and support efforts. For example, some sites, such as San Francisco, have no external partners involved in their efforts, whereas others, such as New York, rely on more than three core partners. The incentives provided to

² The research team was not able to obtain data from Albuquerque, so it was not included in the study.

³ Recruitment and support of NBC candidates fall under what the NT3 refers to as their Aim 1 goal to increase the number of Board-certified teachers.

teachers during the certification process as well as the stipends provided to Board-certified teachers also vary across the NT3 sites. Here we provide some context for each of the NT3 sites:

- The NT3 site in San Francisco Unified School District (SFUSD) has almost 10% of its 3,292 teachers Board certified, and has worked almost exclusively without any partner organizations (in 2015–16, SFUSD had a small-scale partnership with the local teacher union, United Educators of San Francisco). It is the smallest study site in terms of the number of candidates actively pursuing NBC in the 2015–16 school year (138 teachers).
- The New York NT3 site partners with the New York State Education Department (NYSED) and the state teacher union, New York State United Teachers (NYSUT). The National Board Council of New York (NBCNY) was established as an NBPTS network affiliate in fall 2007. Less than 1% of New York’s teachers are Board certified (1,790 teachers). The site is the second smallest study site with regard to the number of candidates actively pursuing NBC in the 2015–16 school year (377 teachers).
- The Arizona NT3 site is led by the Arizona K12 Center (AZK12) and has partnered with the Arizona Department of Education (ADE) and the Arizona Education Association (AEA) to implement the initiative. About 2.47% of Arizona’s teacher population is Board certified (1,219 teachers). Arizona is the third largest of the five study sites in terms of the number of teachers who were actively pursuing NBC in 2015–16 (469 teachers).
- The Kentucky NT3 site is led by the Education Professional Standards Board (EPSB), the Kentucky Education Association (KEA), and the Kentucky Department of Education (KDE). Approximately 7.8% of the teacher population is Board certified (3,982 teachers). Kentucky is the second largest site, with 731 teacher candidates pursuing NBC in 2015–16.
- The Washington NT3 site is in a partnership with the Center for Strengthening the Teaching Profession (CSTP), the Washington Education Association (WEA), and the Office of Superintendent of Public Instruction (OSPI). Of the five study sites, it has the highest share of teachers who are Board certified at 13.2% (8,500 teachers). It is also the largest of the study sites in terms of the number of active candidates in 2015–16 (2,268 teachers).

Organization of the Report

The organization of the report is as follows. Chapter 2 provides an overview of the methodology and a description of the data used to conduct this study. Chapters 3 through 7 provide short case studies that present detailed information on the recruitment and support efforts along with the corresponding costs at each of the five NT3 study sites. Chapter 8 presents a comparative analysis of the findings across the five case studies. The final chapter discusses the limitations of the study as well as the key assumptions underlying the estimated costs.

Please note that the case study chapters are intended to serve as stand-alone cost analyses of each of the five NT3 study sites and were conducted using an identical methodology and data collection process. To this end, for readers interested in particular sites, please feel free to read through Chapter 2 to gain an understanding of the methods and data and then move on to the desired site-specific case study. Alternatively, those more interested in reading through the

selection of comparative findings across sites should jump to Chapter 8 after learning about the methodology and data.

2. Data and Methods

A key charge of this study is to develop accurate estimates of the comprehensive costs corresponding to the efforts put forth by NT3 sites to recruit and support candidates in their pursuit of NBC. The results of such an analysis are valuable in several respects. First, they can provide existing NT3 sites a comprehensive estimate of personnel and nonpersonnel resources used to implement their efforts that go beyond the basic financial data typically reported. Second, the study findings inform both existing and prospective sites in other locations of the types, quantities and costs of resources associated with efforts at existing NT3 sites. Importantly, the analysis results allow for a comparison across the five study sites to account for the variations in costs due to differences in the combinations of personnel and nonpersonnel resources used by each. Third, the analysis results provide a more comprehensive estimate on how much it takes to site efforts in the long-run by also including spending associated with the increased compensation teachers realize after achieving NBC. Finally, the cost information can be coupled with reliable data on student outcomes generated by the site efforts to better understand the cost-effectiveness of NBC.⁴

To realize the aforementioned benefits requires a clear process to gather and analyze data that allows for costs to be estimated. The following section provides an account of how the study team developed the cost estimates of the Aim 1 candidate recruitment and support efforts at each of the five study sites. We first introduce the Resource Cost Model (RCM), a method that has been used extensively by American Institutes for Research (AIR) to cost out educational programs and related interventions in a variety of settings. Next, we describe how the study team developed site-specific RCMs for the purposes of this study. This is followed by an overview of the steps taken to collect the data necessary to calculate the cost estimates for each site.

Analyzing Costs Using a Resource Cost Model

The RCM represents the gold standard in calculating the costs of a program or intervention. It is a method for performing cost analysis that involves explicitly organizing the data gathering effort around the specific activities used to implement a program or intervention. The RCM has its roots in the “ingredients” approach to cost analysis (Levin, 1983; Levin & McEwan, 2001), by modeling the structure and “ingredients” of service activities as they actually are provided by programs. The approach requires a comprehensive account of all personnel and nonpersonnel resources used in delivering services, regardless of how the resources were paid for or whether they are in the form of volunteered time or donations.⁵ In turn, the costs derived from this type of

⁴ Note that cost-effectiveness analysis was not performed as part of this study. We only point out that the availability of rigorous estimates of the impact of NBC on student outcomes would make it possible to develop measures of cost-effectiveness.

⁵ Therefore, the method explicitly acknowledges that there is an economic *opportunity cost* to using resources, even if they are not paid for (i.e., using resources for one purpose necessarily imposes a cost given the same resources cannot be used for an alternative purpose).

approach provide the best estimate of what it would take to replicate a particular program in another location.

The primary reason that cost evaluation requires a specialized model to collect and analyze data is that standard budget and expenditure reports often are ill equipped to identify spending that is dedicated solely to the program under investigation. First, organizational budgets and expenditure reports generally include less detailed information and encompass a wider range of activities than those associated with a particular program (e.g., they often include the total costs of whole groups of staff versus the costs of the actual time a staff member devotes to a particular set of program-related activities). In addition, other key resources are frequently not linked to specific program activities in program budgets or expenditure files such as nonpersonnel resource items such as office equipment, accounting services, contracted professional development and facilities. Second, contributed personnel and nonpersonnel resources (e.g., volunteered time and materials) commonly are not included in these sources. Third, the resources used may be paid for by another agency's budget (e.g., facilities paid for by a local jurisdiction budget) and therefore are often not included in available administrative budget or expenditure files. Fourth, standard budget practices may distort the true cost of inputs that are used over several years. For example, in expenditure report data the costs of capital resources are generally captured in total within the year of purchase rather than amortizing the costs over the effective life of the capital item. This has the effect of overstating the costs in the year of purchase and understating costs over the remaining useful life of the item.

The ingredients approach overcomes these challenges by delineating the quantities of all personnel and nonpersonnel resources devoted to program activities and taking into account the market value of these goods and services. Using an ingredients approach, the cost analyst simply lists the specific resources (or ingredients) utilized in the delivery of the program activities. Each resource must be described specifically so that the quantity used is known and a unit price can be attached to it. Personnel resources are identified by specific function (e.g., job titles) and the amounts of time spent by each staff member on specific program activities. Consumable nonpersonnel resources are also delineated and associated with each type of activity and the amounts utilized are recorded. The completed RCM includes a comprehensive list of resources used for each activity, with these ingredients being quantified and costed out according to the prevailing market prices (e.g., fulltime equivalent salaries and benefits for staff and unit prices for nonpersonnel items). In sum, using the approach it is possible to ascertain the individual costs for each program activity, as well the overall costs of a program.

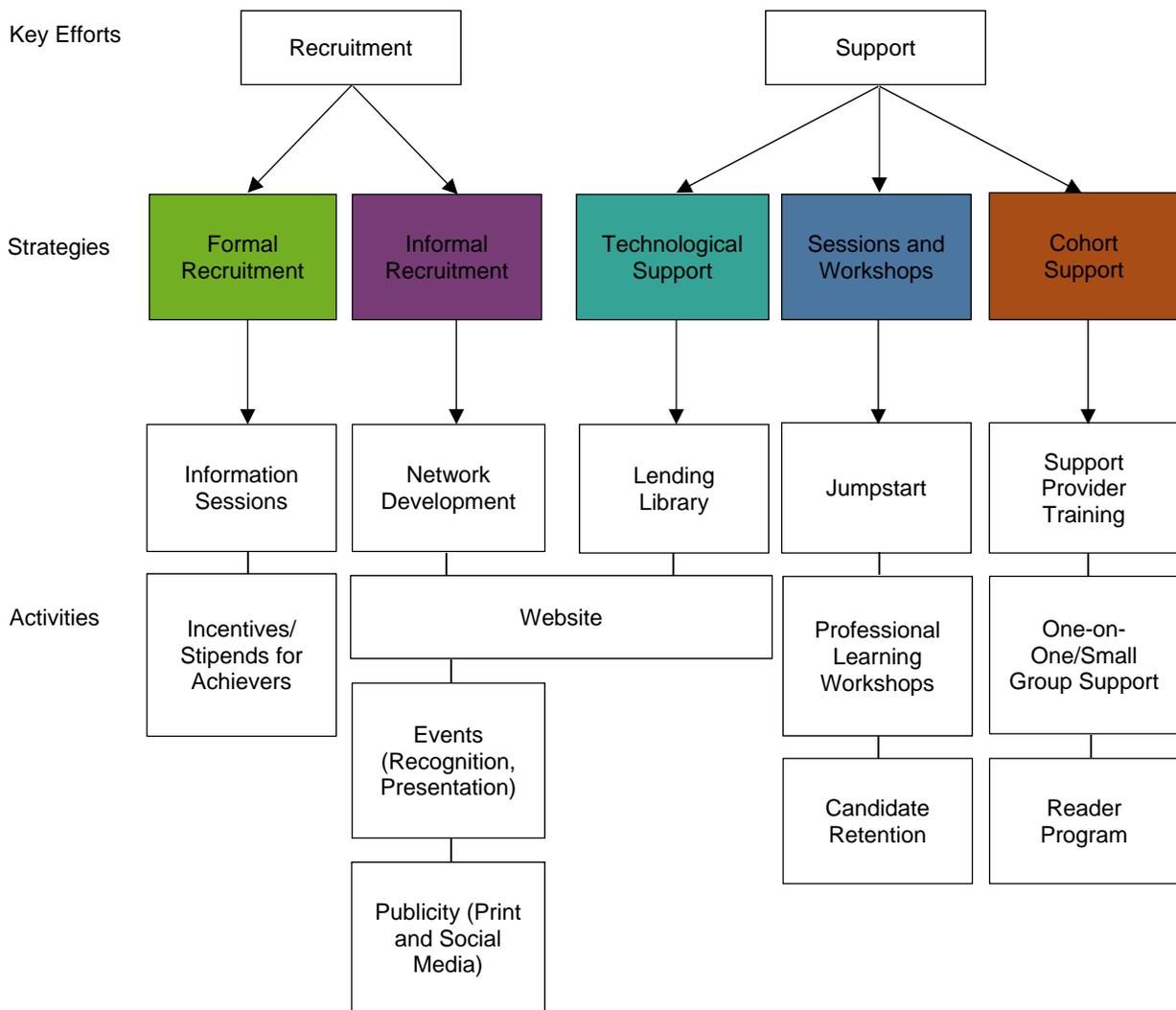
Cost Model Frameworks and RCM Development

For the current cost analysis, a separate RCM was developed for each of the five NT3 study sites, which took the form of Microsoft Excel workbooks containing the necessary information on the types, quantities and prices of personnel/nonpersonnel resources used to calculate costs. Developing an RCM for each NT3 study site required a significant effort on the part of the study team in terms of collecting and processing data on personnel and nonpersonnel resources and prices. The collection of such data required that they be organized in a usable format that could be accommodated by the RCM databases. Note that the databases were designed not only to generate basic information on overall costs, but also to permit analysis of the patterns of variation of resources and costs across the different study sites and the general activities they

support. Specifically, resources captured by the RCMs were categorized according to the specific *key efforts*, *strategies* and *activities* implemented in each study site. To this end, a first step in building the RCMs was to develop a cost model framework for each study site that laid out these three dimensions.

As an example, Exhibit 1 provides the framework developed for the San Francisco Unified School District.⁶ In the exhibit, each box at the bottom portion of the graphic represents a different activity that involves a collection of personnel and nonpersonnel resources, the costs of which had to be accounted for. These activities are nested within broader strategies that are denoted by the colored boxes in the middle of the graphic, which are in turn nested within the two Aim 1 key efforts (Recruitment and Support) at the top of the exhibit.

Exhibit 1. Example Cost Model Framework (San Francisco Unified School District)



⁶ As shown in the chapters that follow, similar frameworks were created for each of the other study sites and used to guide the development of the RCMs and data collection.

In addition to coding resources by key effort, strategy and activity, each resource in this study was also identified by type using the following categories: Personnel, Facilities, Equipment, Supplies, and Other.

- **Personnel:** Includes all staff time dedicated to NT3 Aim 1 strategies and activities on the part of salaried and hourly personnel, including that of both on-site and off-site staff working for the program office and its core partners.
- **Facilities:** Accounts for all facilities used by sites in NT3 Aim 1 strategies and activities including both permanent office space for general operations and off-site locations used to conduct dedicated program-sponsored meetings and presentations.
- **Supplies:** Covers all supplies and materials used to support general operations, as well as Aim 1 strategies and activities such as handouts/packets prepared for meetings, presentations and workshops.
- **Equipment:** Includes all equipment used for general operations and Aim 1 strategies and activities such as small consumer electronics, including computers, video cameras and projectors.
- **Other:** Includes resources not captured in the first four categories, such as funding assistance for candidate component fees, food, lodging, and transportation.

Formally, the RCM calculates the cost of each resource r as follows:

$$Cost_{r,t,a,s,k} = Quantity_{r,t,a,s,k} \times Price_{r,t,a,s,k}$$

where *Quantity* is measured in full-time equivalents (FTEs) for personnel and general units for nonpersonnel, *Price* is measured as compensation (salary plus benefits) for personnel and a general price per unit for nonpersonnel, and the subscripts t , a , s , and k denote resource type, activity, strategy, and key effort, respectively. In turn, the organization of cost data in the RCM allows for aggregation within each of these dimensions.

Data Collection and RCM Development Process

Obtaining the information to develop the site-specific frameworks, corresponding RCMs, and data on resource quantities and prices proceeded as follows:

Step 1: Request for Documents

The first step involved the development and delivery to each of the five study sites a memo that explained the cost study and included a Request for Documents (RFD). The RFD asked for the following pieces of information for the 2013-14 and 2014–15 school years: planning and budgeting documentation, SEED grant year-end spending reports, and more general fiscal reports used for tracking expenditures and revenues.⁷ In addition, the RFD asked that each site list the organizations that served as their core partners and the key services and support they provided.

⁷ Appendix B contains a copy of the cost study memo and RFD that was delivered to each site.

After the RFD was delivered, the study team engaged each site in an initial phone conversation that lasted about 30 minutes. The purpose of these talks were twofold. First, we wanted to review the cost memo and RFD with the sites to introduce the study and discuss the data we needed to collect. Second, these discussions allowed the study team to clarify any outstanding questions the sites had pertaining to the study and data request.

Step 2: Document Review and Framework Development

The second step entailed a thorough review of the documents sent by the sites, which were used to develop initial RCM frameworks and begin database development. In addition, the study team used these materials to understand the types and, in some cases, quantities of personnel and nonpersonnel resources that were used by each site. In some instances, the extant information furnished by the sites provided material that could be used to populate portions of the RCM databases.

Step 3: Previsit Discussions With Sites

The third step involved conducting previsit phone discussions with the study sites that lasted approximately 60 minutes each. The main purpose of these calls was to work with staff from the NT3 sites to review and modify the RCM frameworks and to facilitate development of the corresponding RCM databases. During the calls the study team used a semi-structured data collection protocol to review the organization of the strategies and activities in the RCM frameworks developed under Step 2. Additionally, the calls were used to identify key staff from both the sites and employed by their core partners that were involved in the various strategies and activities.

Step 4: Site Visits and Follow-Up Phone Calls

The fourth step involved conducting a series of visits and follow-up phone discussions with the study sites where the study team worked with staff from the NT3 sites to finalize the RCM frameworks and populate the RCM databases.⁸ During the site visits the study team gathered information directly from the sites and their core partners on the types, quantities and prices of personnel and nonpersonnel resources used for each Aim 1 activity listed in the frameworks. In addition, we obtained information on the revenue sources used to purchase each resource. The site visits were followed up by a series of phone discussions to fill in missing pieces of information, which varied in number and duration across sites.

Step 5: Identifying Missing Price Information

The study team identified prices as follows when information on prices could not be provided by the sites or was otherwise unavailable. For supplies and equipment resources, a market price was identified online (i.e., through Amazon or other online retailers) and assumed to be a national price for the item purchased.

⁸ In-person site visits were conducted in Arizona, Kentucky, New York, and San Francisco, each lasting about half a day. Data collection for the Washington site was performed entirely over the phone.

When Facilities prices were not available, as was often the case, the study team first determined the type of facility. This included three key types of facilities: auditorium, classroom, or office space. For whole auditoriums and classrooms, we obtained average national prices from the database maintained by the Center for Benefit-Cost Studies in Education (CBCSE) at Teachers College, Columbia University.⁹ For office space, the study team applied the national average price per square foot listed in the CBCSE database to the necessary square footage based on the number of staff using the space.¹⁰

Not all sites were able to provide information on the salary of each staff member. In these cases, a comparable job description and corresponding price were identified in the CBCSE database.

Accurate measures of personnel costs must account for the overall compensation provided to staff, inclusive of both salaries and benefits. Therefore, cases in which benefits were not reported required that we calculate these and add them to the salary costs. The study team therefore computed average benefit rates (benefits spending divided by salary spending) for each of the five states in which the sites were located using information from the U.S. Census Annual Survey of Public School Finances (F-33) data.¹¹ The benefit rates were then applied to the calculated salary costs in order to provide comprehensive measures of the personnel costs.

Adjusting for Geographic Price Differences and Putting Costs in Current (2016) Dollars

In performing a cross-site analysis of the NT3 initiative costs, a simple comparison of the raw costs generated using local prices faced by each site is not valid given significant differences in the price levels of both personnel and nonpersonnel resources across the various geographic locations (e.g., the cost of employing comparable staff in Kentucky is lower than in San Francisco). To this end, the study team made use of cost-adjusted measures of resource prices that were standardized to national averages. This was done using the 2014 Comparable Wage Index (CWI) developed for the National Center for Education Statistics (NCES) by Professor Lori Taylor of Texas A&M University (see Taylor & Glander, 2006).¹²

Values of the CWI simply represent how much more or less it costs to hire and retain similarly qualified staff across 800 different geographic labor markets across the nation.¹³ Applying the CWI geographic cost adjustments therefore “levels the playing field” when comparing resource costs between higher and lower cost-of-living areas. For example, a CWI value of 1.10 for a given district or state indicates that the prices of educational inputs are 10% higher than the

⁹ The database is part of the CBCSE tool called *CostOut*, available online at <https://www.cbcsecosttoolkit.org/>.

¹⁰ Specifically, the necessary square footage was first calculated based on the minimum expected number of people in the room using an online calculator (<https://www.meetings.com/Meeting-Room-Capacity-Calculator/>), to which the national average price was applied.

¹¹ U.S. Census, Public Elementary–Secondary Education Finance Data, 2014. Retrieved at <http://www.census.gov/govs/school/>.

¹² The data and documentation for the CWI is available online at http://bush.tamu.edu/research/faculty/Taylor_CWI/.

¹³ The geographic labor markets are defined by the U.S. Census as “place-of-work areas.”

national average.¹⁴ Throughout the study, unless otherwise specified, costs referred to are based on national average prices. Given that staff accounts for a majority of the reported costs and the fact that the price levels of personnel and nonpersonnel are closely related, we applied the CWI as a general adjustment to both personnel and nonpersonnel resources.

In addition, because the RCM we present figures for two different years (2014–15 and 2015–16), we have further adjusted all figures into *constant* 2016 dollars using the U.S. Bureau of Labor Statistics (BLS) Consumer Price Index (CPI) for All Urban Consumers.¹⁵

Calculating Costs Per Recruit and Per Candidate

In addition to reporting total overall costs and costs by key effort (recruitment and support) in terms of total dollars spent, we also calculate costs on per-recruit and per-active candidate bases for each of the two study years. As there are multiple stages of recruitment a participant must go through, the study team has defined the following three recruitment categories in order of stringency: (1) created an online account (Applicant), (2) paid the \$75 registration fee (Registrant), and (3) purchased a component (Candidate). The last of these three levels of stringency aligns with the NBPTS definition of recruited candidates.

Active candidates refer to all those who are pursuing candidacy in a given year (Candidates), including those candidates who began the certification process in the current year and those who are continuing their work from prior years. This assumes that the resources used to support newly recruited candidates is equivalent to the resources used to support candidates recruited in earlier years.

The study team obtained from the NBPTS the numbers of new Applicants, Registrants and Candidates, as well as the total number of active candidates in each of the study years. These figures were used to calculate and report out costs in terms of the numbers of recruited and active candidates.

Analyzing Induced Costs Associated With Completing NBC

Although the RCM was used to collect the information necessary to determine the operational costs of implementing the key recruitment and support (Aim 1) efforts of the NT3 sites and their core partners, there are significant costs associated with incentivizing candidates to achieve and maintain NBC. Most sites offer teachers with NBC additional compensation each year they remain certified and teaching in the form of stipends, advancement on their respective salary schedule, or other compensatory awards. These represent an induced cost associated with the NT3 program. That is, these costs are not associated with resources used in operating the program, but rather are expended only once candidates successfully achieve NBC.

These induced costs are therefore not considered part of the programmatic costs of Aim 1, as they do not directly go toward recruitment or support NBCTs. However, they do represent an

¹⁴ Note that both district and state CWIs are published that allows researchers to adjust district- and state-level prices to the national average from 1997 to 2013 for districts and extended through 2014 for states.

¹⁵ The data and documentation for the CPI is available at the following location on the BLS website:
<https://www.bls.gov/cpi/>.

integral part of the program, as the promise of these incentives may play a significant role in encouraging teachers to pursue certification. Therefore, although the personnel time required to administer the incentives systems are included in the formal recruitment strategy captured in the RCM, the induced costs of stipends themselves are not. As will be seen in the results that follow, stipends for candidates that have achieved certification represent a major cost that has a profound impact on the sustainability of Aim 1 efforts.

Each site has its own specific incentive structure. In San Francisco and Washington, each Board-certified teacher is offered an annual stipend of \$5,000 each year they remain teaching in their respective site. In Kentucky, teachers who achieve NBC are offered a \$2,000 stipend for each year they are teaching in the state with a valid NBC. In addition, Kentucky NBCTs are also advanced in their local salary schedule resulting in additional pay for each year they are teaching in the state. In Arizona and New York, NBCTs may be offered stipends, salary increases or other incentives depending on their school district's negotiated teacher contract. For each of the study sites, the study team determined an average incentive cost per NBCT.¹⁶ For purposes of comparability, these local costs were then converted to national averages using the CWI described above.

The study team next made 10-year projections (from 2016–17 to 2025–26) of the incentive costs associated with the 2014–15 cohort of candidates that achieved their NBC to show how these costs might occur over time. In addition, the annual incentives were transformed to show what their value would be in current 2016 dollars. The projections required assumptions to be made as to the rates at which Board-certified teachers renew their certification (renewal) and exit the profession (attrition). Figures used to calculate assumed certification renewal rates for each site were provided by the NBPTS, while an assumed standard attrition rate was taken from a report based on the NCEs Schools and Staffing Survey (see Goldring, Taie & Riddles, 2014). Finally, in order to put the stream of costs into 2016 dollars, an average inflation rate over the five-year period from 2011 to 2015 was used to discount the cost figures over the period.¹⁷

¹⁶ The example stipend amounts given here are in local prices, while those reported in the site chapters have been converted to average national prices to allow for comparisons. The specific details of how the average incentives were calculated are included in each site case study chapter below.

¹⁷ Specifically, the five-year average of the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) from 2011 to 2015 was used to deflate the projected costs for future years.

3. San Francisco Unified School District

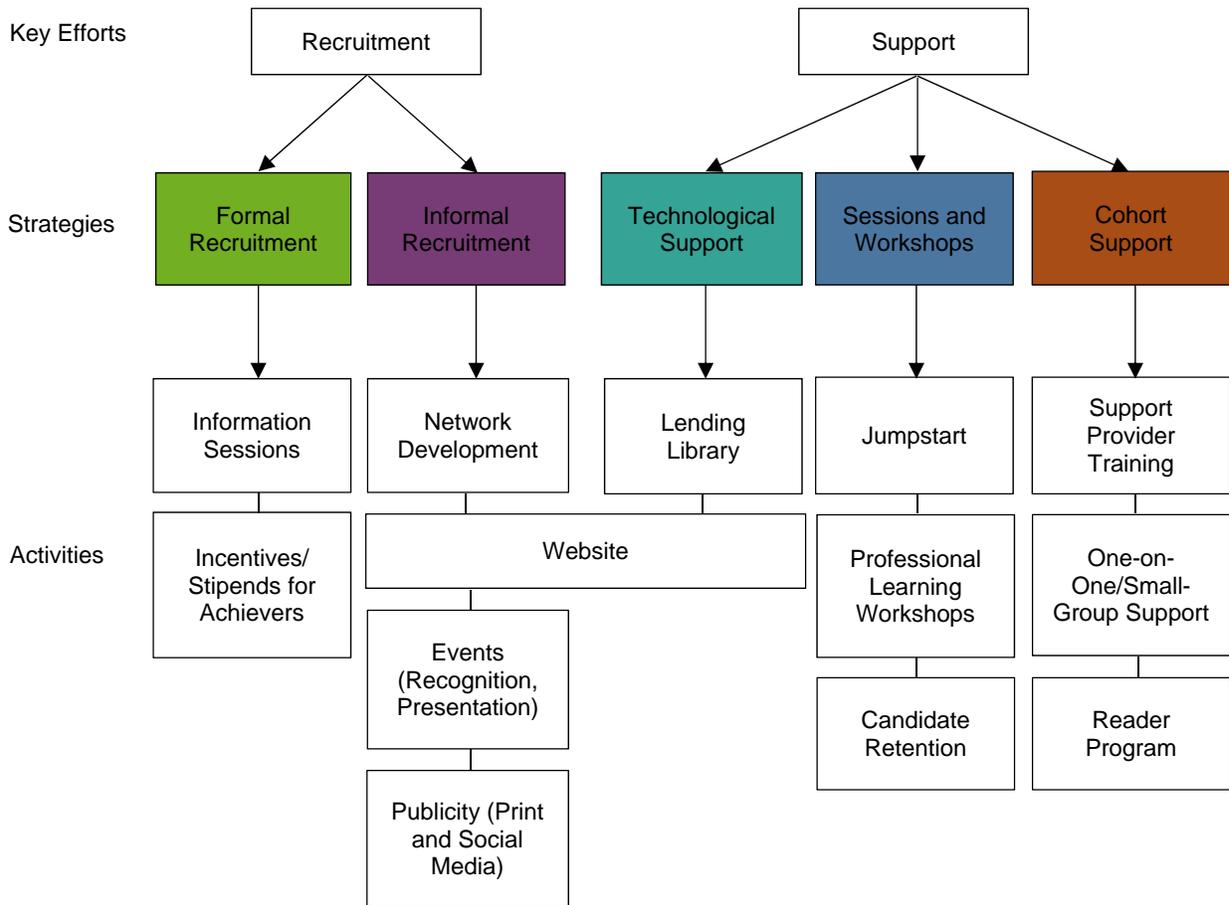
As one of five sites included in the NT3 cost study, SFUSD supports National Board candidates through its National Board Support Team. With funding from the Supporting Effective Educator Development (SEED) grant and SFUSD, the support team engages in recruitment and support activities to increase the number of NBCTs in district schools (Aim 1 activities). Of SFUSD's 3,292 teachers, 319 are currently certified, representing about 9.7% of the teacher population. However, with modifications to the certification process and funding streams, the support team hopes to increase the number of certified teachers in San Francisco by approximately 150 per year beginning in the 2016–17 school year.

As a district, the SFUSD program is considerably different from that of the four states included in this analysis. In 2014–15, the National Board Support Team in San Francisco was composed of just three people working a total of 2.5 full-time equivalents (FTEs) plus external consulting, and in 2015–16 there were five people working a total of 4 FTEs plus external consulting. Unlike other NT3 sites, this staff works almost exclusively without partner organizations, with its first partner (the local teacher union, United Educators of San Francisco) participating in NT3 work beginning in 2015–16. Although this partner is involved in some of the work, their financial contribution to Aim 1 activities is minimal, as discussed later in this case study. In addition, with a geographical region extending only 47 square miles, San Francisco is not challenged by the geographical spread of statewide programs. This allows a relatively small staff to reach teachers in all areas of the district while eliminating much of the transportation costs associated with sites serving larger areas.

The SFUSD program includes a variety of recruitment and support activities, all at no cost to participants. The San Francisco site-specific framework (see Exhibit 2) was developed by the research team and collectively reviewed with site staff. It demonstrates how activities supporting the Aim 1 goal of increasing the number of NBCTs are categorized for the purposes of this study. This case study analysis provides the estimated dollar value of resources used for San Francisco's Aim 1 activities in fiscal years 2014–15 and 2015–16. This information can be used to improve the use of resources and inform program sustainability.

Framework and Definitions

Exhibit 2. Cost Model Framework for SFUSD



Throughout this case study, we will refer to key efforts, strategies, and activities from the framework that guided the development of the Resource Cost Model (RCM) described in Chapter 2 and the collection of data used to populate the model. Consistent with all other sites, key efforts refer to recruitment and support, together constituting NT3’s Aim 1 goal. SFUSD engages in two recruitment strategies (Formal and Informal Recruitment) and three support strategies (Technological Support, Sessions and Workshops, and Cohort Support). The site’s recruitment activities are organized as follows: Formal Recruitment includes activities with the explicit goal of promoting NBC, whereas Informal Recruitment activities are either unstructured or indirectly encourage teachers to enroll in the certification process.

In San Francisco, Formal Recruitment includes Information Sessions, or presentations of the processes and benefits of NBC, and administration of the Incentives/Stipends for Achievers system.¹⁸

The site's Informal Recruitment strategy encompasses Network Development, or events that build community among current and potential NBCTs. It also includes part of the cost of maintaining the NT3 site Website with information and resources; Events that promote the certification process; and Publicity, including e-mail blasts, newsletters, and social media.

Technological support refers to technical infrastructure used to assist teachers through the certification process. This strategy includes part of the costs of maintaining the NT3 website and the Lending Library, which rents equipment, such as video cameras, to candidates to use as they work on the video component of certification. The Lending Library was first implemented in 2015–16.

Sessions and Workshops refer to meetings that offer general information and guidance and are open to all current candidates. The Sessions–and–Workshops strategy includes Jumpstart, or full-day sessions for candidates first starting the certification process; professional learning workshops; and Candidate Retention dinners. The Professional Learning Workshops include three types of sessions that are specific to one or more aspects of certification: Saturday Sessions, Content Professional Learning Workshops, and Practical Standards Workshops.

Finally, Cohort Support involves individualized assistance by Candidate Support Providers (CSPs). These CSPs are trained through full-day Support Provider Training workshops, and they then provide support through the final two activities. The first of these, One-on-One/Small-Group Support, includes meetings between CSPs and candidates, and the second, the Reader Program, focuses on the review and revision of candidate components by CSPs. Like the Lending Library, the Reader Program was added to the San Francisco program in 2015–16.

Overall Cost of Aim 1 Strategies and Activities

The overall cost of the San Francisco NT3 Aim 1 activities totaled approximately \$413,000 in 2014–15 and \$429,000 in 2015–16.¹⁹ These amounts include all personnel and nonpersonnel programmatic costs of the site's Aim 1 activities but do not include the induced cost associated with Incentives/Stipends for achievers after they have achieved certification.²⁰

Costs have been adjusted to represent national prices. Because cost of living and other market indicators associated with resource prices are high in San Francisco compared with those in much of the rest of the United States, using local San Francisco costs would artificially inflate

¹⁸ The Incentives/Stipends for Achievers activity is defined as a recruitment technique because the promise of an annual stipend on completion encourages teachers to engage in the certification process. To this end, although personnel costs associated with administering the incentives system are included under Formal Recruitment, the stipends themselves are considered induced costs and, therefore, are kept separate from programmatic costs in the framework. These induced costs are discussed in more detail in the Sustainability section of this case study.

¹⁹ All total costs reported are rounded to the nearest \$1,000.

²⁰ Induced costs are those that do not support implementation of the program itself but rather are induced as a result of participation in the program.

Aim 1 resource costs compared with those in sites in other geographic locations. In order to adjust the locally reported resource costs into national prices, we used the 2014 National Center for Education Statistics (NCES) Comparable Wage Index (CWI), an index that measures the relative cost of recruiting and retaining educational staff across 800 Census-defined place-of-work areas across the country.²¹ Throughout this case study, all costs will refer to nationally adjusted prices. In addition, because we present amounts for two different years (2014–15 and 2015–16), we have further translated all figures into constant 2016 dollars using the U.S. Bureau of Labor Statistics (BLS) Consumer Price Index (CPI) for All Urban Consumers.²²

Exhibit 3 displays overall Aim 1 costs (in 2016 dollars) for SFUSD in 2014–15 and 2015–16 per active candidate. Active candidates are all teachers who are pursuing candidacy in a given year, including candidates who began the certification process that year and those who are continuing their work to achieve certification from prior years.²³ In 2014–15, 124 active candidates were supported at a total cost of \$3,330 each. The following year, overall costs per candidate totaled \$3,109 for 138 active candidates. (For a breakdown of costs per active candidate for the recruitment and support strategies separately, see Exhibit A1 and Exhibit A2.)

Exhibit 3. Costs Overall and per Active Candidate for Recruitment and Support (Aim 1) for SFUSD

Year	Overall Program Costs	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$412,941	124	\$3,330
2015–16	\$428,979	138	\$3,109

Note. Amounts represent constant 2016 dollars. Active candidates include those who are in the process of certification in a given year plus those who are continuing on from prior years.

Costs by Strategy and Activity

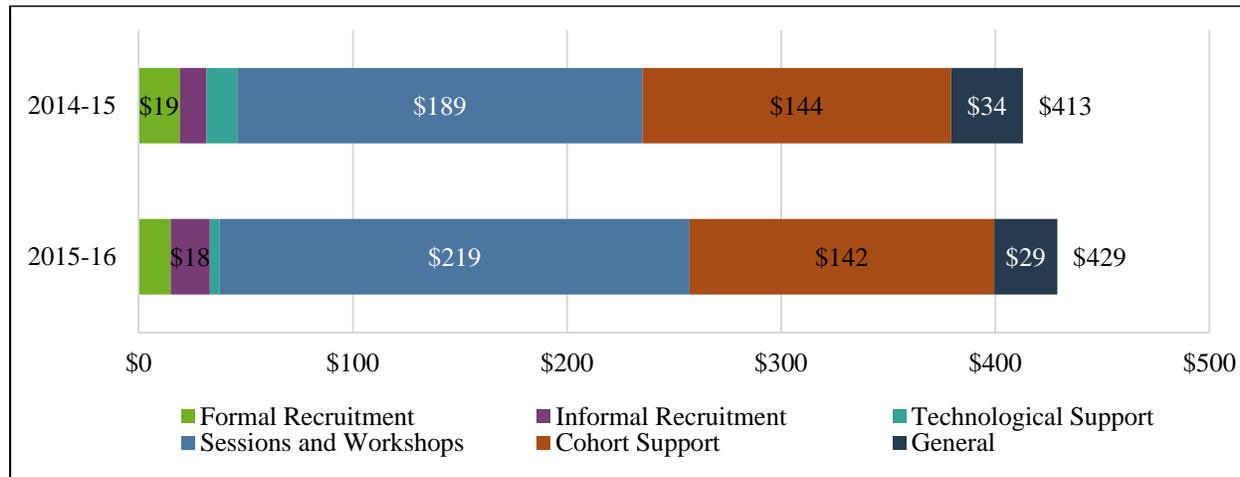
In San Francisco, the site’s recruitment and support efforts include formal recruitment, informal Recruitment, Technological Support, Sessions and Workshops, and Cohort Support. In addition, a General strategy category was included, which represents costs that are not specific to any activity or strategy. These costs include staff computers, NT3 site office space, and staff time spent on administrative tasks. Exhibit 4 displays the total Aim 1 costs (in thousands of 2016 dollars) for SFUSD in 2014–15 and 2015–16 broken out by strategy. In both years, the most costly strategies were Sessions and Workshops and Cohort Support, followed by General and Recruitment (General Recruitment in 2014–15 and Formal Recruitment in 2015–16).

²¹ The data and documentation for the CWI are available online at http://bush.tamu.edu/research/faculty/Taylor_CWI/.

²² The data and documentation for the Consumer Price Index are available at the following location on the BLS website: <https://www.bls.gov/cpi/>.

²³ The research team obtained data on the number of active candidates from the NT3 Hub.

Exhibit 4. Total Recruitment and Support (Aim 1) Costs for SFUSD by Strategy in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$15 or less are not shown.
Source. Data collected by American Institutes for Research (AIR) cost study team from SFUSD.

Recruitment

As described, the key effort of recruitment was broken down into Formal and Informal recruitment strategies, differentiating between activities designed to recruit teachers explicitly to begin the NBC process and activities that may indirectly accomplish this same goal. In both study years, recruitment costs represented only about 8% of total programmatic costs (not including General).²⁴ Altogether, in 2014–15, Formal Recruitment activities totaled \$19,000, and Informal Recruitment activities totaled \$12,000. With an additional \$3,000 for General costs, total recruitment expenditures in 2014–15 came to \$34,000. In 2015–16, Formal Recruitment totaled \$15,000, and Informal Recruitment totaled \$18,000. Including \$2,000 in General costs during this year, total recruitment equaled approximately \$36,000.²⁵

Between the 2014–15 and 2015–16 school years, San Francisco made one significant change to its formal recruitment strategy. In 2014–15, Information Sessions were held in SFUSD buildings in downtown San Francisco. For 2015–16, it was decided that some sessions would be held in school buildings at the request of school leadership. This modification was designed to encourage teachers from schools without any NBCTs to pursue certification, to increase the geographic diversity of NBCTs across the city, and to recruit more middle school teachers. Although we do not know whether this change in venue had any impact on recruitment, site leadership considered the new model of providing information sessions in schools around the city beneficial. The research team did not find any notable change in resource costs that can be attributed to this adjustment, but the resources required to provide information sessions may change if further modifications are made.

²⁴ General costs are allocated to the Aim 1 key efforts of recruitment and support on the basis of the share of total cost attributed to each key effort.

²⁵ Total recruitment equals more than the sum of the Formal Recruitment, Informal Recruitment, and associated General costs listed because of a rounding error.

One important component of the Publicity activity that was not included in this model is the video commissioned by the San Francisco site in 2013–14. Because this video was created before the two years included in this study, and because it has yet to be used explicitly for recruitment or support efforts, it would be inappropriate to include its associated costs in the RCM. However, if the video were to be used for recruitment or support in the future, it may be important to include the resource costs associated with its production for the period over which the video is used.²⁶

Support

The great majority of program costs (92%) were spent on the key effort of support. As described in the Framework and Definitions section of this case study, Technological Support, Sessions and Workshops, and Cohort Support make up the support effort.

Total costs for Technological Support fell from \$14,000 in 2014–15 to \$5,000 in 2015–16. As mentioned in previous sections, the Lending Library, although first available to candidates in 2015–16, was developed mainly during the 2014–15 year. Similarly, San Francisco reported far more personnel time dedicated to the Website development activity in 2014–15 than in 2015–16. This focus on resource development in the first year of the study is one possible explanation for the decrease in cost associated with the Technological Support strategy over the two study years.

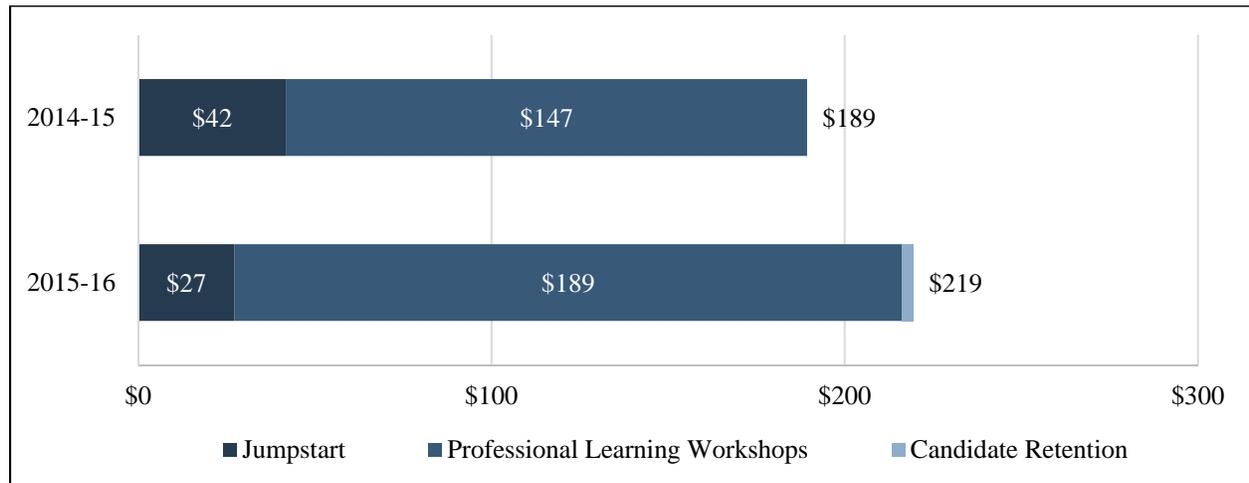
Sessions and Workshops and Cohort Support made up the bulk of the San Francisco site's program and spending in both 2014–15 and 2015–16. Sessions and Workshops (encompassing Jumpstart, Professional Learning Workshops, and Candidate Retention activities) totaled \$189,000 in 2014–15 and \$219,000 in 2015–16. Part of the increase in resources used between 2014–15 and 2015–16 may be associated with the addition of the Candidate Retention activity. However, the majority of the resources devoted to Sessions and Workshops went to the Professional Learning Workshops activity as shown in Exhibit 5. Together, the components of this activity (Saturday Sessions, Content Professional Learning Workshops, and Practical Standards Workshops) used an estimated \$147,000 worth of resources in 2014–15, increasing to \$189,000 in 2015–16.

A significant portion of the cost of both Professional Learning Workshops and Jumpstart was attributed to stipends for candidates who attend these events. In both 2014–15 and 2015–16, candidates attending these activities could choose to receive either \$35 per hour from NT3 or \$40 per hour from SFUSD.²⁷ However, this stipend program will not be offered beginning in the 2016–17 school year. If all other costs remain stable, this change will decrease Professional Learning Workshop resource costs by approximately \$83,000 and Jumpstart costs by approximately \$20,000.

²⁶ Specifically, an annual cost of the resources used to produce the video would be assessed over its useful life (the point at which use of the video would be discontinued).

²⁷ The SFUSD stipend comes from the 18 total paid professional development hours teachers are allocated by the district each year.

Exhibit 5. Total Sessions and Workshops Costs for SFUSD by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of less than \$20 are not shown. Candidate retention did not exist in 2014–15.

Source. Data collected by AIR cost study team from SFUSD.

The resources used on Cohort Support activities remained fairly constant across the two years studied, decreasing slightly from \$144,000 in 2014–15 to \$142,000 in 2015–16 as shown in Exhibit 6. The latter year saw the implementation of the Reader Program, which offers candidates the opportunity to submit their components for review by a CSP. Resource costs used to train these CSPs (Support Provider Training) also fell between 2014–15 and 2015–16, costing the San Francisco site \$36,000 in the first year and \$20,000 the second. The majority of Cohort Support resource dollars were allocated to One-on-One/Small-Group Support in both years, totaling \$108,000 in 2014–15 and \$114,000 in 2015–16.

Exhibit 6. Total Cohort Support Costs for SFUSD by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. The reader program did not exist in 2014–15.

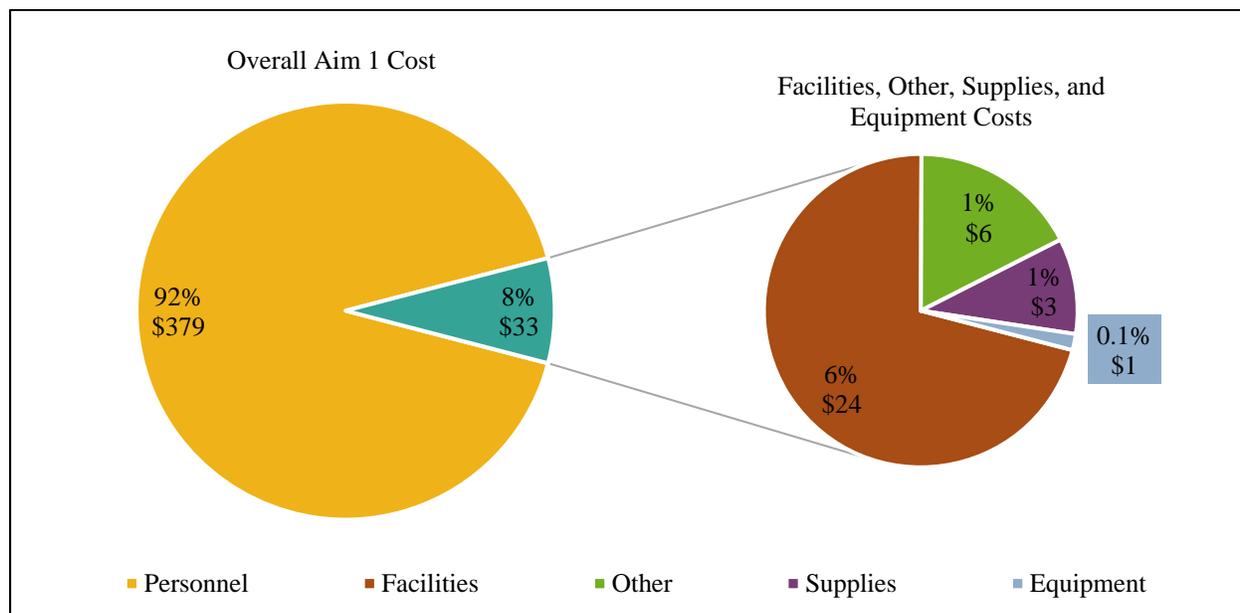
Source. Data collected by AIR cost study team from SFUSD.

Resource Type

The RCM also categorized resource costs by type into the following five resource categories: Personnel, Facilities, Equipment, Supplies, and Other. This last category includes all resource costs that do not apply to the other four categories.²⁸ Exhibit 7 and Exhibit 8 show the shares and levels of spending in SFUSD by resource type for the two study years, respectively. The majority of costs in both study years were for Personnel. In 2014–15, almost 92% of all resources used were for Personnel, totaling \$379,000. In 2015–16, the costs attributable to Personnel rose slightly to \$381,000; however, because overall program costs were higher in this year, the share of total costs associated with personnel fell to 89%.

Of the remaining resource type categories, Facilities made up the bulk of spending, as seen in Exhibit 7 and Exhibit 8. Recruitment and Support (Aim 1) Costs for SFUSD by Input Type in 2015–16 (in Shares and Thousands of Dollars). Equipment, by contrast, constituted far less than 1% of costs (less than \$1,000) in both 2014–15 and 2015–16. However, the spending on both of these resource types is dwarfed by the spending on Personnel. This difference can be attributed in part to the way that the costs of Facilities and Equipment are calculated in the RCM.²⁹ Specifically, these calculations led to costs that are far less than what it would take to purchase 100% of the resource items outright. Realization of the full costs of these resources up-front would be incorrect given that they are consumed over many years.

Exhibit 7. Recruitment and Support (Aim 1) Costs for SFUSD by Input Type in 2014–15 (in Shares and Thousands of Dollars)



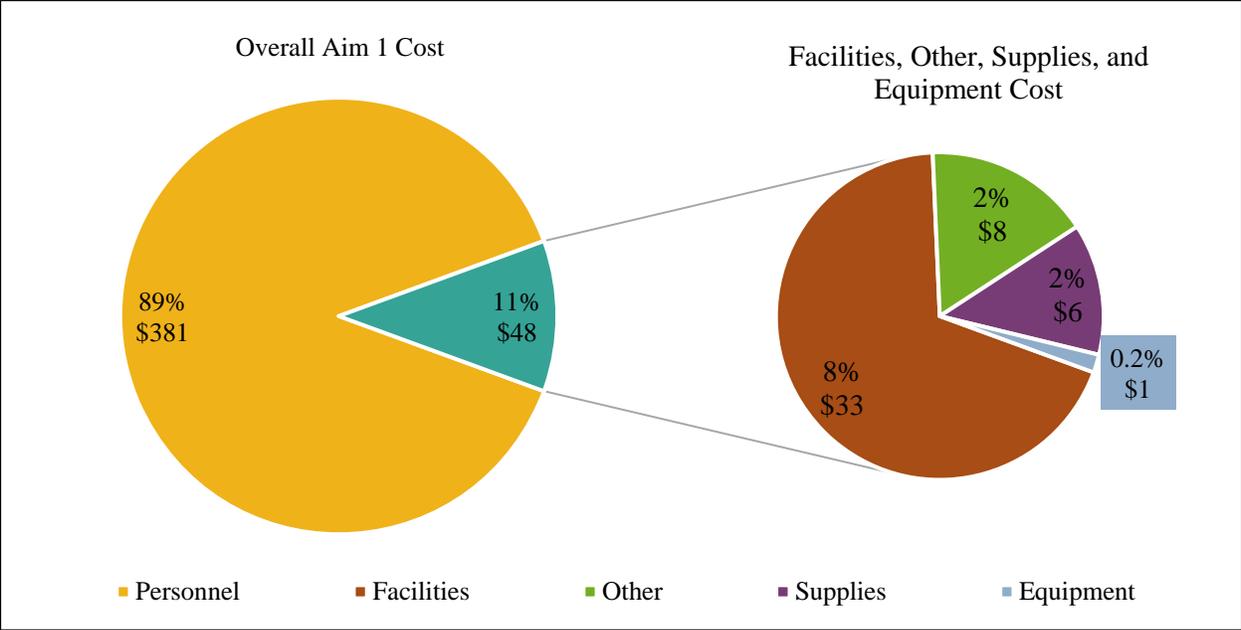
Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.

²⁸ Other costs include food, transportation, and subscriptions to online services.

²⁹ To estimate the cost of Facilities, we annualized their total replacement value, assuming a 30-year life span and a discount rate of 3.5%. A similar calculation was also made for Equipment, assuming a five-year life span and a discount rate of 3.5%. These annualized costs were then adjusted to reflect the number of days per year the Facility or piece of Equipment was used for specific Aim 1 activities.

Source. Data collected by AIR cost study team from SFUSD.

Exhibit 8. Recruitment and Support (Aim 1) Costs for SFUSD by Input Type in 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.
 Source. Data collected by AIR cost study team from SFUSD.

Sustainability

Funding Source

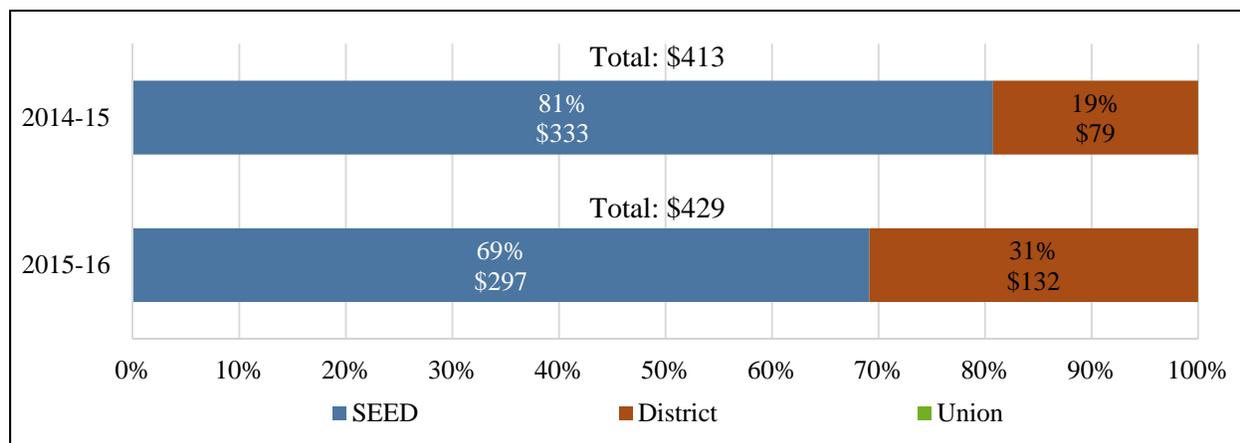
Three funding sources were identified as contributing to San Francisco’s candidate recruitment and support efforts: the SEED grant, SFUSD, and the teacher’s union. Exhibit 9 shows the shares and absolute levels of funding from the three sources. Unlike other sites, whose partners in some cases bear a large portion of program costs, the San Francisco site’s partnership with the local union did not include a significant amount of financial support. In fact, less than one half of 1% of resource costs in each of the study years was borne by the union. The great majority of resources in both years came from the SEED grant (81% in 2014–15 and 69% in 2015–16). This has serious implications for the future of the program in San Francisco because SEED grant funding may change because of policy priorities, economic climate, or other planned deviations from the current funding level. If SEED funding were to decrease, in order to sustain the same level of implementation, San Francisco would either need to find additional funds or decrease programmatic costs.

One potential source of additional income for the San Francisco NT3 program may be SFUSD. The district has contributed more over time, covering 19% of program resource costs in 2014–15 and 31% in the following year. However, because we have studied only two years, it is unclear whether this change represents a trend in district contributions. Other potential sources of income for the program may include private philanthropy; partnership with other organizations, such as

the local teacher’s union; future grants from federal, state, or local governments; or the reallocation of already awarded monies toward NT3 activities.

In addition, the San Francisco site could decide to reduce spending from current levels. As mentioned in the section Costs by Strategy and Activity, the site has already removed the hourly stipends offered to candidates to attend Professional Learning Workshops and Jumpstart activities. These types of reductions may be increasingly necessary if SEED funding levels are to decrease and other sources of revenue not secured.

Exhibit 9. Recruitment and Support (Aim 1) Costs for SFUSD by Funding Source in 2014–15 and 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of less than \$20 are not shown.
Source. Data collected by AIR cost study team from SFUSD.

Incentives/Stipends for Achievers

As mentioned earlier, SFUSD offers Board-certified teachers a stipend for each year they remain certified and teaching in SFUSD. Consequently, stipends represent an induced cost of the NT3 program—that is, these costs are not associated with resources used in operating the program, but rather are expended only once candidates successfully achieve NBC. These induced costs, therefore, are not considered part of the programmatic costs of Aim 1 because they do not directly go toward recruitment or support NBCTs. However, they do represent an integral part of the program because the promise of this annual stipend may play a significant role in encouraging teachers to pursue certification. Therefore, although the personnel time required to administer the incentives system is included in the formal recruitment strategy, the induced costs of stipends themselves are not. As will be seen later, stipends for candidates who have achieved certification represent a major cost that has a profound impact on the sustainability of Aim 1 efforts.

In the following analysis, candidates recruited in a given year are considered to belong to that year’s cohort, and induced costs are estimated based on the size of the cohort. SFUSD offers an annual stipend of \$5,000 to each NBCT. However, to allow for comparison with results from the other NT3 sites, this incentive was converted into a national price (\$3,980 per year). The following results are based on this national price, although all of the incentive calculations were

also performed for SFUSD by using local dollars (see Exhibit A11 for these incentive calculations in local dollars).

For the cohort of 94 candidates recruited in 2014–15, Exhibit 10 shows the annual cost of stipends for each of the 10 years following the two-year period it would take for the typical candidate to achieve certification. The analysis assumes that there is an annual teacher attrition rate of 11.3% (to private schools, out of the district, or out of the teaching profession altogether) and a certification renewal rate of 51% once the certification expires.

Exhibit 10. Estimation of Cost for Annual NBCT Incentives/Stipends for Achievers in SFUSD for 2014–15 Cohort

Incentive	\$3,980	Years for completion	2
Lifetime of certificate	5	Attrition rate	11.3%
NBCTs recruited in 2014	94	Renewal rate	51.0%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	94	\$374,121	\$374,121	71	\$280,590	\$280,590
2017–18	83	\$331,920	\$326,371	62	\$248,940	\$244,779
2018–19	74	\$294,479	\$284,717	56	\$220,859	\$213,537
2019–20	66	\$261,262	\$248,378	49	\$195,946	\$186,284
2020–21	58	\$231,792	\$216,678	44	\$173,844	\$162,508
2021–22 (renewal year)	30	\$118,214	\$108,658	22	\$88,660	\$81,494
2022–23	26	\$104,879	\$94,790	20	\$78,659	\$71,093
2023–24	23	\$93,049	\$82,692	18	\$69,787	\$62,019
2024–25	21	\$82,553	\$72,138	16	\$61,915	\$54,104
2025–26	18	\$73,241	\$62,931	14	\$54,931	\$47,198
Total			\$1,871,474			\$1,403,606

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from SFUSD and NT3 Hub at the National Board. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

As an example, assuming a 100% achievement rate (i.e., all recruited teachers achieve certification), after the five-year certification renewal process, approximately 30 teachers are expected to remain both certified and teaching in SFUSD. By the 2025–26 school year, about 18 teachers from the original cohort of 94 will continue to receive the annual stipend. The total 10-year expenditure for stipends was calculated in real 2016 dollars, equaling approximately

\$1,871,000. Also included are estimates using a 75% initial achievement rate, which results in a 10-year expenditure of approximately \$1,404,000 in real 2016 dollars. However, these costs are just for the 2014–15 cohort of recruited teachers. In reality, during any given year, the district will pay stipends to NBCTs from many different cohorts, and the total expenditure on stipends will be much higher than shown in this exhibit.

These calculations are meant to offer SFUSD and other potential sites an estimation of the magnitude of such stipends. They demonstrate that the induced cost of just one cohort of recruited teachers far outweighs the programmatic expenditures of one or even two years (\$413,000 in 2014–15 and \$429,000 in 2015–16). Although the stipends are undoubtedly central to the SFUSD Aim 1 efforts, it will be critical to recognize this significant expenditure when considering the sustainability of the San Francisco NT3 program.

4. New York

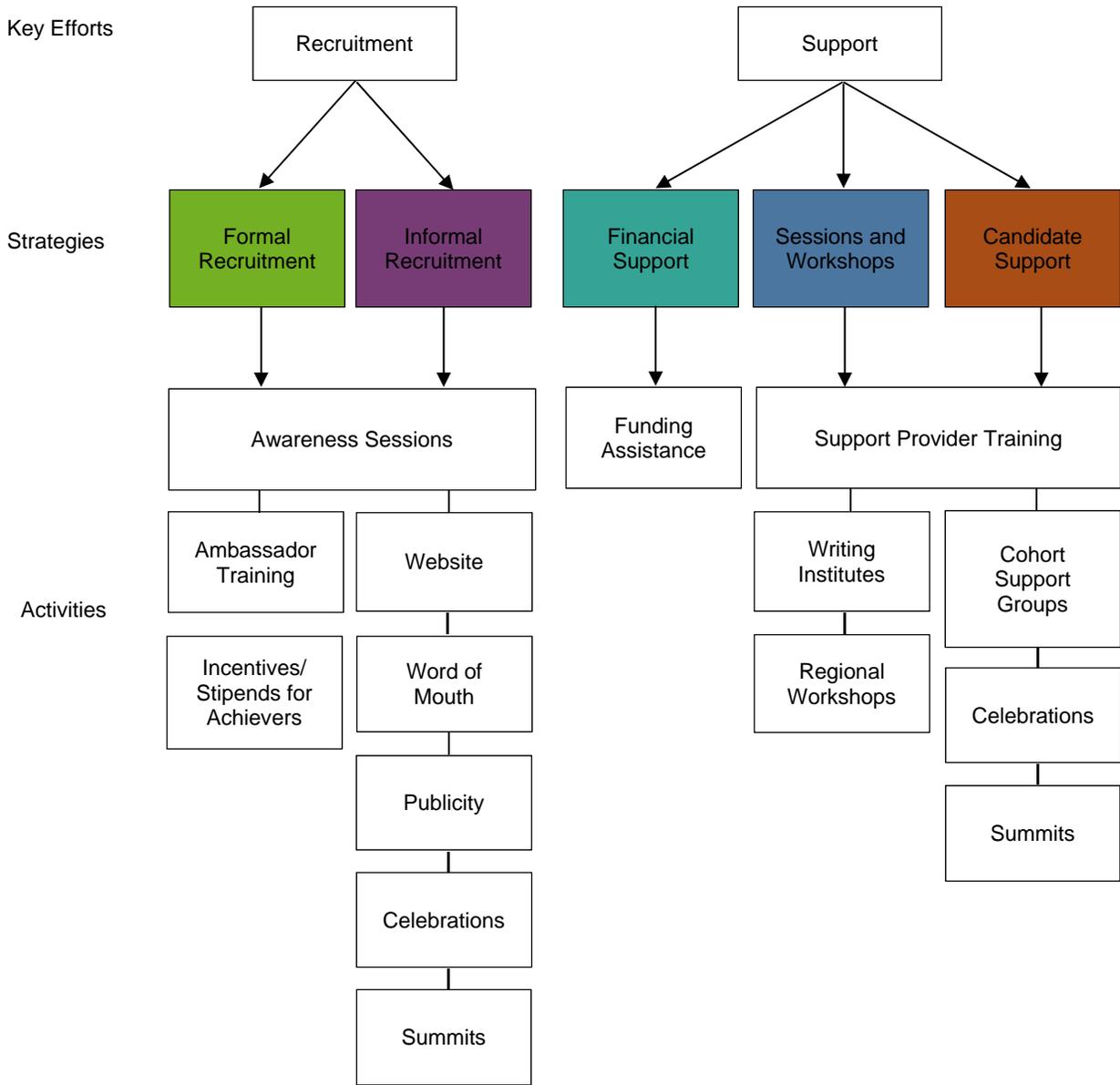
The New York NT3 site is led by the NBCNY in collaboration with affiliated partners, including the NYSED and NYSUT. Various school districts and institutes of higher education also contribute to the effort to recruit and support candidates as they work toward NBC. Of the roughly 202,000 teachers in the state of New York, 1,790 are currently Board-certified teachers. In addition, 337 more teachers are currently working toward their certification.

NBCNY, through its recruitment activities, seeks to increase awareness of the NBC process and encourage New York's teachers to pursue certification. Although NBCNY serves as centralized leadership for the state's efforts, teacher centers and regional coordinators across the state manage regional activities and develop partnerships with local school districts to provide support for candidates. The New York site actively engages stakeholders in school districts across the state by educating them about the benefits of NBC. These stakeholders, in turn, advocate for the program in their respective districts, resulting in a broad network of engaged administrators, teachers, and policy makers.

The AIR team worked with NBCNY and NYSUT staff to develop a framework of New York's main recruitment and support activities (see Exhibit 11Exhibit 11.). This framework demonstrates how activities were categorized into strategies and strategies into key efforts. Using the ingredients approach to cost analysis, the team then used all gathered information to develop an RCM in which resources (personnel and nonpersonnel) were cataloged along with their corresponding prices and situated into the framework by activities. From these prices, subsequent costs were calculated. This case study describes the efforts of NBCNY and its partner organizations and provides the estimated dollar value of resources used during these efforts in fiscal years 2014–15 and 2015–16. The analysis aims to assist site leadership in their decisions about resource allocation, inform potential sites about the New York model and its costs, and discuss the sustainability of this work.

Framework and Definitions

Exhibit 11. Cost Model Framework for New York



The following case study describes the key efforts, strategies, and activities outlined in the framework that guided the development of the RCM described in Chapter 2 and collection of data used to populate the model. The key efforts of recruitment and support constitute the New York site’s Aim 1 goal and are each divided into strategies. These five strategies are fairly consistent across sites: Formal Recruitment, Informal Recruitment, Financial Support, Sessions and Workshops, and Candidate Support. Activities are nested within these strategies on the basis of content and structure.

The Formal Recruitment strategy describes activities with the explicit goal of promoting NBC. Activities that fall under this strategy heading include Awareness Sessions, Ambassador Training, and administration of the Incentives/Stipends for Achievers system.³⁰

The Awareness Sessions activity spans Formal and Informal Recruitment because the activity encompasses presentations to two diverse audiences. Awareness Sessions delivered directly to potential NBCT candidates are considered direct or formal recruitment, whereas those delivered to stakeholders, including principals, administrators, and union leaders, are indirect or informal. The latter type of session, although potentially formal in structure, is designed to raise awareness and support of NBC. Although stakeholders who attend these Awareness Sessions may then promote certification among teachers, because the activity does not involve teachers themselves, these indirect sessions are categorized as informal recruitment. Using monthly reports, contracts, and other tracking documents maintained by the New York site, we determined the total number of Awareness Sessions (both direct and indirect) held in the state. In 2014–15, there were approximately 54 direct and 69 indirect sessions, totaling 123. In the following year, both categories of sessions increased to 92, for a total of 184 sessions.

The Ambassador Program—and Ambassador Training activity—was first instituted in the 2015–16 school year. Ambassadors in New York are NBCTs trained by regional coordinators to deliver Awareness Sessions to teachers and stakeholders. The addition of this program, and subsequent increase in the number of people trained to conduct Awareness Sessions throughout the state, may have contributed to the increase in the number of Awareness Sessions offered between 2014–15 and 2015–16. Ambassadors conducted about 28% of Awareness Sessions in the 2015–16 school year.

Other Informal Recruitment activities in New York include upkeep of various websites that deliver resources and information about the NBC process; Publicity in the form of flyers, social media, press conferences, or press releases; Celebrations, which recognize the accomplishments of certified teachers and include potential candidates; and Summits—regional convenings of CSPs and/or teacher leaders.

Under the key effort of support, New York offers financial support, sessions and workshops, and candidate support. Funding Assistance through New York State’s Albert Shanker Grant encompasses the Financial Support strategy in the state. Through this grant, candidates can receive full reimbursement for tuition costs associated with NBC. Upkeep of the online application and reimbursement system is also included in Financial Support under the Funding Assistance activity.

Sessions and Workshops, as in all other case study sites, include meetings and resources that offer general information and guidance through the certification process and that are open to all current candidates. In New York, these come in the form of Writing Institutes and Regional Workshops. These sessions are designed to support candidates working on specific components,

³⁰ The Incentives/Stipends for Achievers activity is defined as a recruitment technique because the promise of an annual stipend on completion encourages teachers to engage in the certification process. To this end, although personnel costs associated with administering the incentives system are included under Formal Recruitment, the stipends themselves are considered induced costs and, therefore, are kept separate from programmatic costs in the framework. These induced costs are discussed in more detail in the Sustainability section of this case study.

certification areas, or skills. In New York, Writing Workshops are day- or weekend-long retreats during which candidates work on the written components of their submissions and receive feedback from CSPs. Included in the Regional Workshops activity are Assessment Centers, which help candidates get ready for component one, and Summer Institutes, during which candidates begin component work before the beginning of the school year. As mentioned, these sessions and workshops are facilitated in part by CSPs, who are NBCTs trained to support candidates through the certification process. CSPs in New York are trained during two-day workshops and support candidates in a variety of ways, including during Sessions and Workshops and through direct Candidate Support, which is why their training spans both strategies in the site’s framework.

The Candidate Support strategy encompasses the collection of individualized support efforts offered by CSPs, NBCNY, partner organizations, and teacher centers. Once trained, CSPs facilitate Cohort Support Groups—monthly small-group meetings through which CSPs offer intellectual, technical, logistical, and emotional support to candidates. We determined that 48 individual cohort groups were supported in the 2014–15 school year and 45 in the 2015–16 school year. Finally, Celebrations and Summits fall under Candidate Support as well as Informal Recruitment because candidates are often in attendance.

Overall Cost of Aim 1 Strategies and Activities

The overall cost of the New York NT3 Aim 1 activities totaled approximately \$988,000 in 2014–15 and \$1,215,000 in 2015–16.³¹ These amounts include all personnel and nonpersonnel programmatic costs of the site’s Aim 1 activities but do not include the induced cost of stipends paid to candidates after they have achieved certification. Costs of stipends are discussed separately because they do not support implementation of the program itself but rather are induced as a result of participation in the program.

All costs in this section and throughout the case study have been adjusted to national prices. This step was taken to ensure that costs in the New York site were not artificially inflated in comparison with those in other sites because the cost of living and other economic indicators are relatively high in New York. In order to adjust the locally reported resource costs into national prices, we used the 2014 NCES CWI, an index that measures the relative cost of recruiting and retaining educational staff across 800 Census-defined place-of-work areas across the county.³² Throughout this case study, all costs will refer to nationally adjusted prices. In addition, because we present amounts for two different years (2014–15 and 2015–16), we have further translated all amounts into constant 2016 dollars by using the U.S. Bureau of Labor Statistics Consumer Price Index for All Urban Consumers.³³

Exhibit 12 displays overall Aim 1 costs (in 2016 dollars) for New York in 2014–15 and 2015–16 on absolute and per-active-candidate bases. For the purposes of this case study, active candidates are all teachers pursuing candidacy. This encompasses all candidates who are working toward

³¹ All total costs reported are rounded to the nearest \$1,000.

³² The data and documentation for the CWI are available online at http://bush.tamu.edu/research/faculty/Taylor_CWI/.

³³ The data and documentation for the Consumer Price Index are available at the following location on the Bureau of Labor Statistics website: <https://www.bls.gov/cpi/>.

certification in a given year, including candidates who began the certification process that year and those who began their work to achieve certification in prior years. In 2014–15, 335 active candidates were supported at a total cost of \$2,948 each. The following year, overall costs per candidate totaled \$3,222 for 377 active candidates. (For a breakdown of costs per active candidate for the recruitment and support strategies separately, see Exhibit A3 and Exhibit A4.)

Exhibit 12. Costs Overall and per Active Candidate for Recruitment and Support (Aim 1) for New York

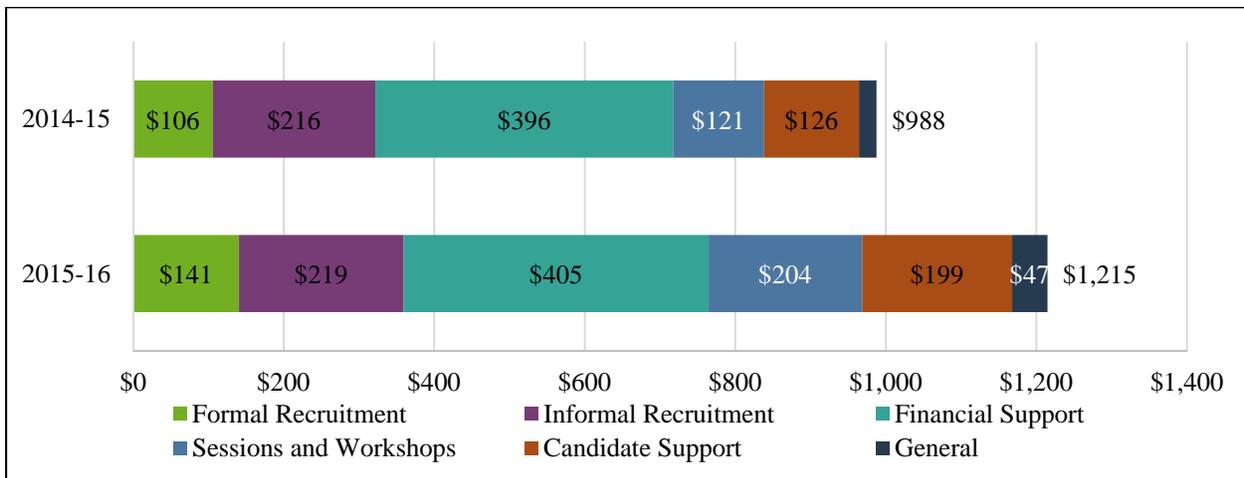
Overall (Recruitment and Support) Costs			
Year	Overall Program Costs	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$987,560	335	\$2,948
2015–16	\$1,214,684	377	\$3,222

Note. Amounts represent constant 2016 dollars. Active candidates include those who are in the process of certification in a given year plus those who are continuing on from prior years.

Costs by Strategy and Activity

Overall costs for Aim 1 in New York in the 2014–15 and 2015–16 school years are broken down by strategy in Exhibit 13. A General strategy has also been included, which represents costs that are not specific to any activity or strategy, including staff computers, NT3 site office space, and staff time spent on administrative tasks. Exhibit 13 displays the total Aim 1 costs (in thousands of 2016 dollars) for New York in 2014–15 and 2014–15 broken out by strategy. In both years, the most costly strategy was Financial Support, followed by Informal Recruitment.

Exhibit 13. Recruitment and Support (Aim 1) Costs for New York by Strategy in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$25 or less are not shown.
Source. Data collected by AIR cost study team from NBCNY.

Recruitment

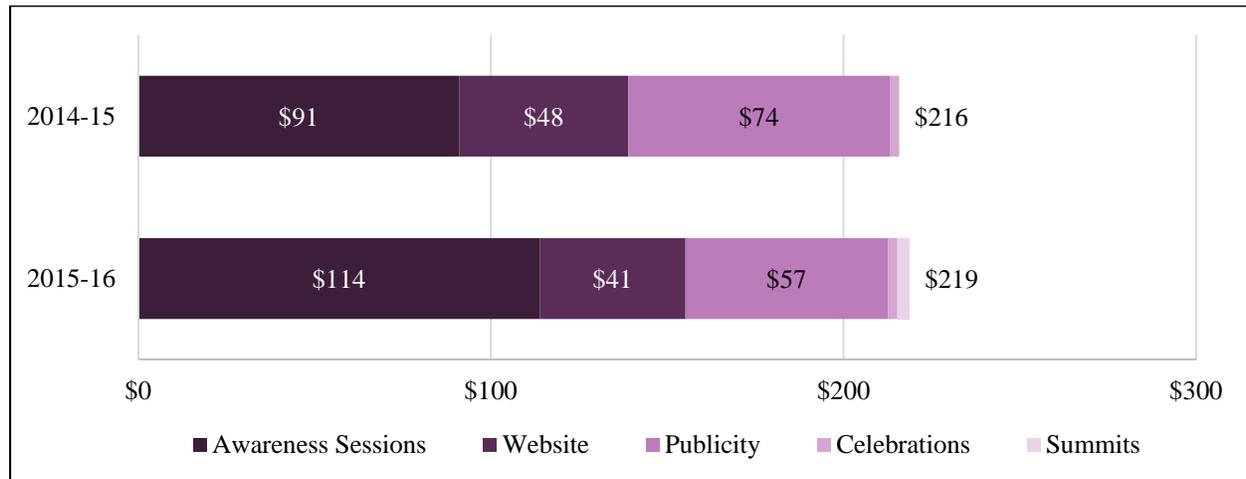
As is the case for all NT3 sites included in this case study, recruitment in New York is divided into Formal and Informal Recruitment strategies. In 2014–15, Formal Recruitment activities cost \$106,000, and Informal Recruitment activities totaled \$216,000. Altogether, the key effort of recruitment represented about 33% of total costs, or \$322,000.³⁴ When \$8,000 of General costs were added (on the basis of the proportion of recruitment costs to total costs), total Recruitment expenditure in 2014–15 equaled \$330,000. During the next year, costs for both Formal and Informal Recruitment strategies increased, the former rising to \$141,000 and the latter to \$219,000, representing 31% of Aim 1 costs. With an additional \$14,000 added for General costs, the recruitment key effort in 2015–16 totaled \$374,000.

The increase in recruitment costs between 2014–15 and 2015–16 may be explained by the implementation of the ambassador program and increased numbers of Awareness Sessions, both discussed earlier in the case study. However, even though the number of both direct and indirect Awareness Sessions increased between 2014–15 and 2015–16, resource costs associated with direct sessions decreased over this same period. This may be explained by the decreased need for preparation time on the part of site leadership as responsibility for many sessions was delegated to newly trained ambassadors.

Exhibit 14 details the resource costs used for Informal Recruitment, which constituted about 22% of overall costs in 2014–15 and 18% in 2015–16. As alluded to previously, the cost for indirect Awareness Sessions (those given to stakeholders) was higher in 2015–16 than in 2014–15. This change is due to the increased number of sessions and subsequent increased numbers of participants. A decrease in resource costs for both Publicity and Website counteracted the substantial increase in the cost of indirect Awareness Sessions, resulting in a modest increase of \$3,000 for the Informal Recruitment strategy between 2014–15 and 2015–16. Celebrations and Summits, the latter of which was first instituted in 2015–16, each represented less than \$4,000 of Informal Recruitment expenditures because their costs were divided between this strategy and that of Candidate Support.

³⁴ General costs are allocated to the key efforts of Recruitment and Support on the basis of the share of total cost attributed to each key effort.

Exhibit 14. Total Informal Recruitment Costs for New York by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$20 or less are not shown. Summits did not exist in 2014–15.
Source. Data collected by AIR cost study team from NBCNY.

Support

The majority of New York’s overall Aim 1 costs in both years were associated with the key effort of support (67% in 2014–15 and 69% in 2015–16). The strategy with the highest total cost in both years was Financial Support, which totaled \$396,000 in 2014–15 and \$405,000 in 2015–16. This strategy was composed of only one activity, Funding Assistance, which accounted for 40% of all costs in the first year described in this study and 33% of overall costs in the second. The Albert Shanker Grant covered the costs of component tuition for eligible candidates, awarding about \$325,000 total dollars in each of the years described in this study.³⁵ The remainder of the resource costs associated with the Funding Assistance activity and the Financial Support strategy were personnel costs necessary to maintain the system and associated website fees.

Financial Support for this case study was defined as money that goes to support candidates while they are pursuing NBC. Some school districts in New York offered reimbursement of component tuition costs to candidates in their district. However, because this money was awarded after a candidate achieved NBC, it was considered part of the incentives rather than under the Financial Assistance activity. Although tuition payments were the sole source of Financial Support as it has been defined for this case study, beginning in 2017, additional money will be available through the Albert Shanker Grant. Through the district reimbursement portion of the grant, each eligible teacher’s school district will be given \$500 from NYSED for costs associated with the teacher’s pursuit of NBC, including substitute teachers. These additional dollars will increase the cost of the Funding Assistance activity and Financial Support strategy.

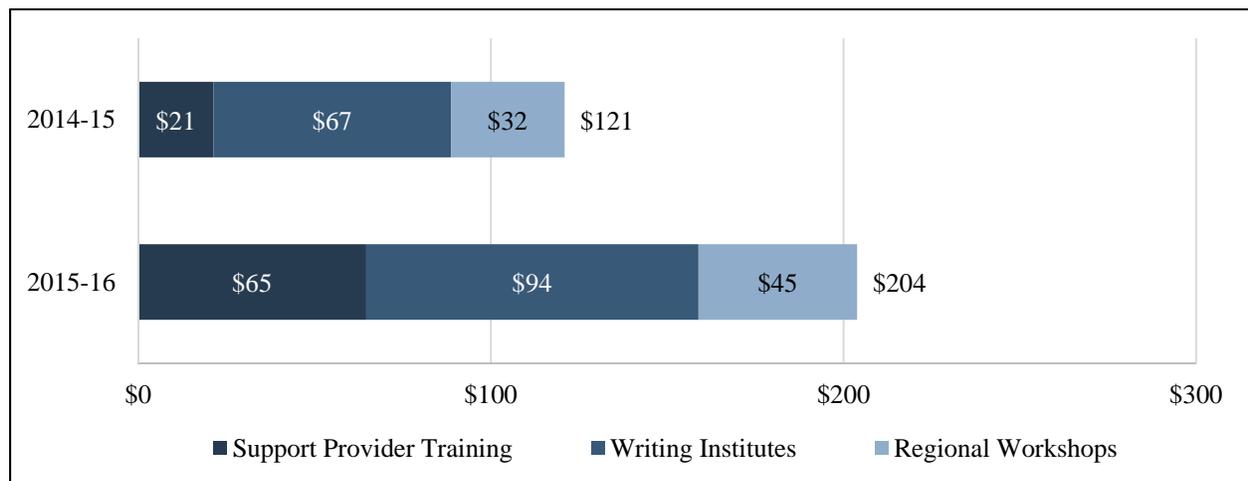
³⁵ The actual payout for the Albert Shanker Grant in each year is \$368,000. For purposes of this analysis, however, all costs have been calculated in real 2016 dollars, dropping the annual payout to \$326,000 in 2014–15 and \$325,000 in 2015–16.

Sessions and Workshops and Candidate Support also ranked among the most expensive strategies in the New York site. Exhibit 15 shows the breakdown of costs by activity in 2014–15 and 2015–16 for sessions and workshops, totaling \$121,000 in 2014–15 and \$204,000 in 2015–16. The most expensive workshop activity in both years was the Writing Institutes at \$67,000 and \$94,000 in 2014–15 and 2015–16, respectively. The increase in cost can be attributed to the number of institutes offered in each year. In 2014–15, there were five total writing institutes, whereas the next year saw a total of seven.

The substantial increase in cost associated with Support Provider Training from \$21,000 in 2014–15 to \$65,000 in 2015–16 is explained by the number of trainings held. Although in the first year studied there was only one training, there were a total of five trainings held in 2015–16. Both amounts are artificially low, however, because costs for this activity were divided between Sessions and Workshops and Candidate Support to account for the fact that CSPs used their training to support candidates in both group session and individual contexts.³⁶

Costs for Regional Workshops also increased from 2014–15 to 2015–16 because a new type of workshop (Summer Institutes) was introduced in the second year. Beginning in the 2016–17 school year, the New York site will offer a JumpStart model workshop instead of the Summer Institutes, which may affect the costs associated with Regional Workshops.

Exhibit 15. Total Sessions and Workshops Costs for New York by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



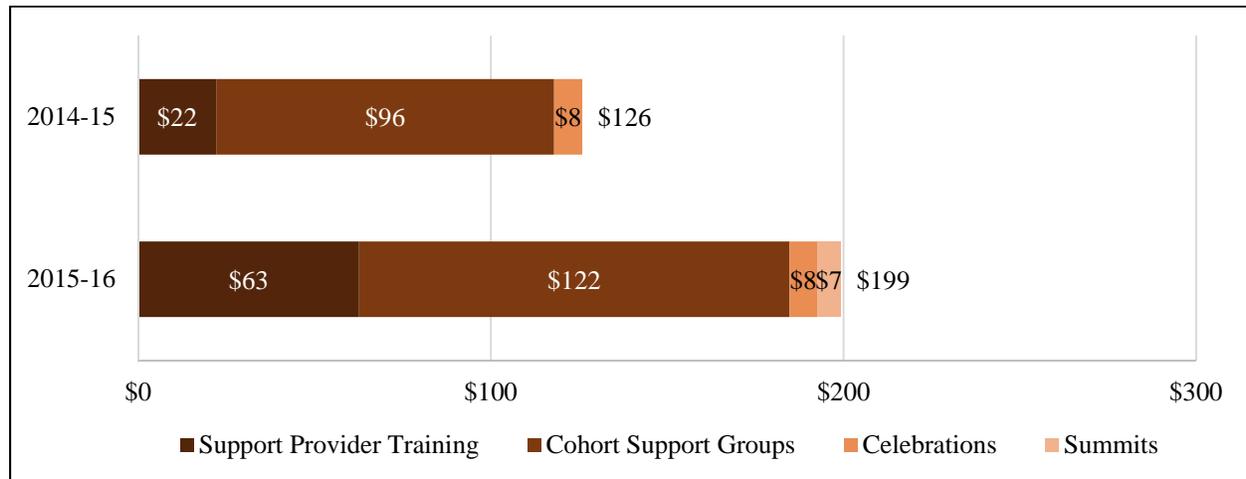
Note. Amounts represent constant 2016 dollars.
Source. Data collected by AIR cost study team from NBCNY.

As shown in Exhibit 16, costs associated with Candidate Support activities totaled \$126,000 in 2014–15 and \$199,000 in 2015–16. Of these activities, Cohort Support Groups accounted for the highest costs, totaling \$96,000 and \$122,000 in the two years studied. The main reason for this change is the 50% increase in the number of active CSPs from the 2014–15 school year to the

³⁶ Costs for Support Provider Training are not evenly distributed between Sessions and Workshops and Candidate Support because New York staff were able to allocate to one strategy or the other their time spent on CSP training. Costs for all nonpersonnel resource categories were evenly divided between strategies.

2015–16 school year. During both years, each active CSP (those working with a cohort group) conducted nine three-hour meetings over the course of each year. In 2014–15, 40 active CSPs worked these 27 hours, but in 2015–16, 60 active CSPs did so.³⁷

Exhibit 16. Total Candidate Support Costs for New York by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.
Source. Data collected by AIR cost study team from NBCNY.

Resource Type

The RCM was also used to organize all resources into five input categories: Personnel, Facilities, Equipment, Supplies, and Other). Exhibit 17 and Exhibit 18 show the shares and levels of spending in New York by resource type for the two study years. Of the five categories, Personnel represented a majority of all costs. In 2014–15, staff and other Personnel time accounted for approximately 56% of all Aim 1 costs (see Exhibit 17). In the following year, the share of Personnel costs increased to 59% (see Exhibit 18). The next largest resource category in the New York site was the Other category. The Albert Shanker Grant tuition reimbursements constituted a large majority of these costs: 96% in 2014–15 and 85% in 2015–16.³⁸

In contrast, Equipment made up less than 1% of all costs and Facilities less than 4% in both years. This can be attributed in part to the way that the costs of Facilities and Equipment are calculated in the RCM.³⁹ These calculations led to costs that are far less than what it would take to purchase 100% of the resource items outright. Realization of the full costs of these resources up-front would be incorrect given that they are consumed over many years. Specifically, these calculations led to an estimated total Equipment expenditure of slightly more than \$6,000 in both

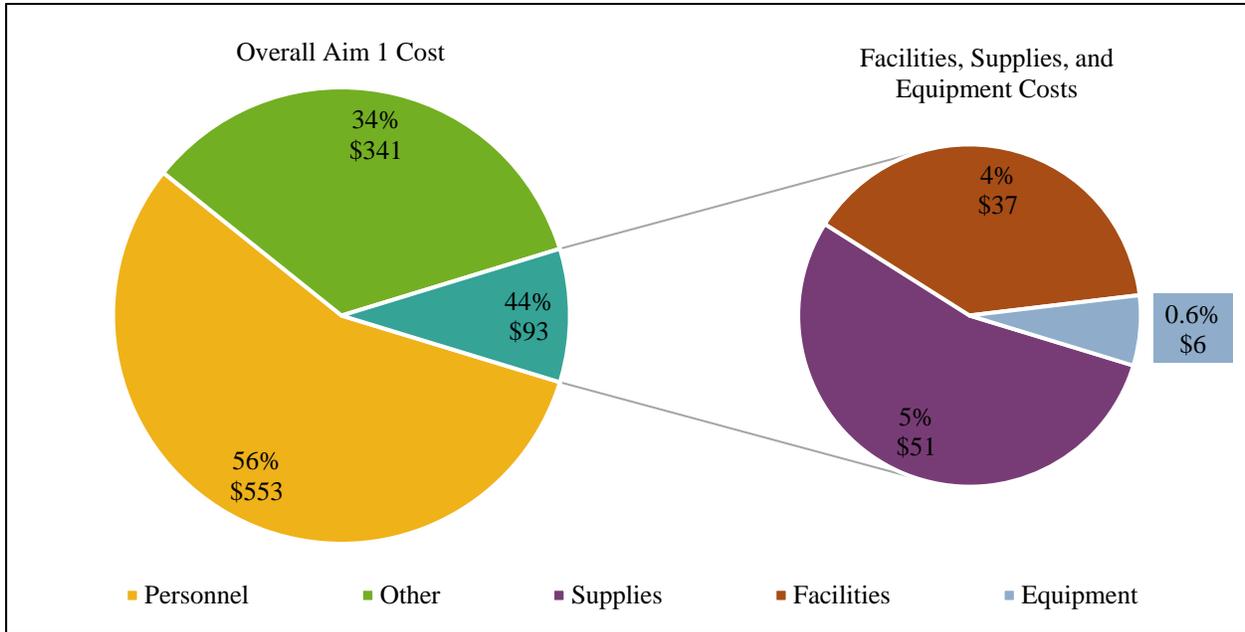
³⁷ Costs for Support Provider Training, Celebrations, and Summits were described earlier in this case study.

³⁸ Other costs include food, transportation, lodging, and subscription to online services.

³⁹ To estimate the cost of Facilities, we annualized their total replacement value, assuming a 30-year life span and a discount rate of 3.5%. A similar calculation was also made for Equipment, assuming a five-year life span and a discount rate of 3.5%. These annualized costs were then adjusted to reflect the number of days per year the Facility or piece of Equipment was used for specific Aim 1 activities.

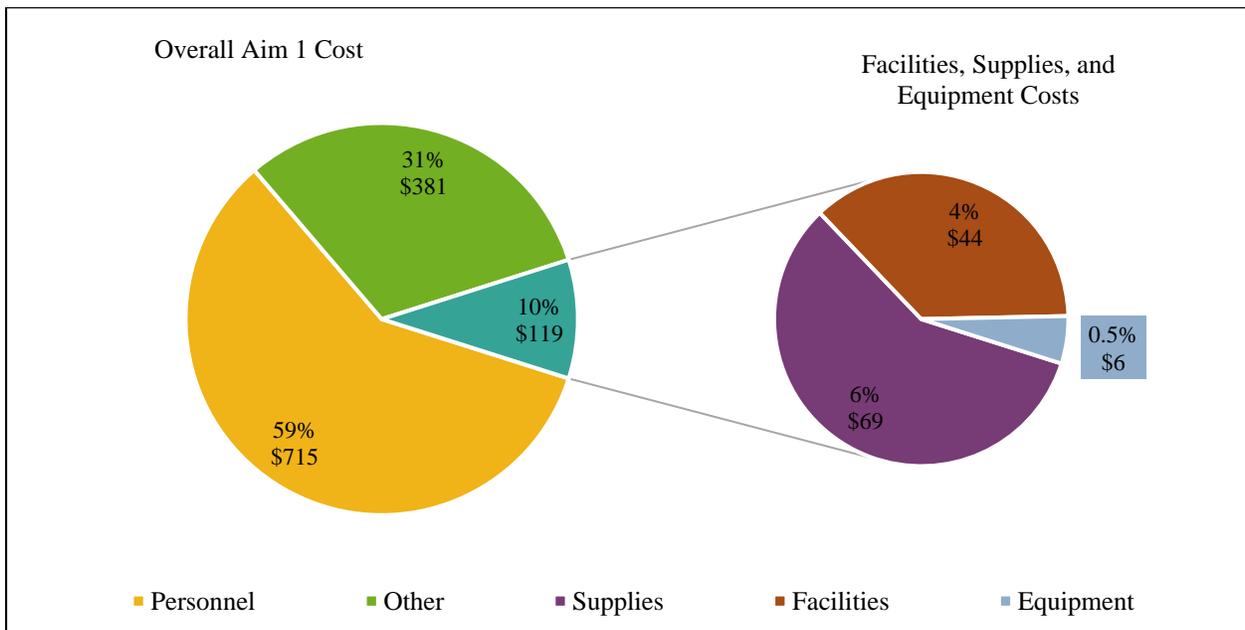
2014–15 and 2015–16, which is far less than the cost of purchasing Equipment resource items outright. Similarly, Facilities costs total \$37,000 in 2014–15 and \$44,000 in 2015–16.

Exhibit 17. Recruitment and Support (Aim 1) Costs for New York by Input Type in 2014–15 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.
Source. Data collected by AIR cost study team from NBCNY.

Exhibit 18. Recruitment and Support (Aim 1) Costs for New York by Input Type in 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.
Source. Data collected by AIR cost study team from NBCNY.

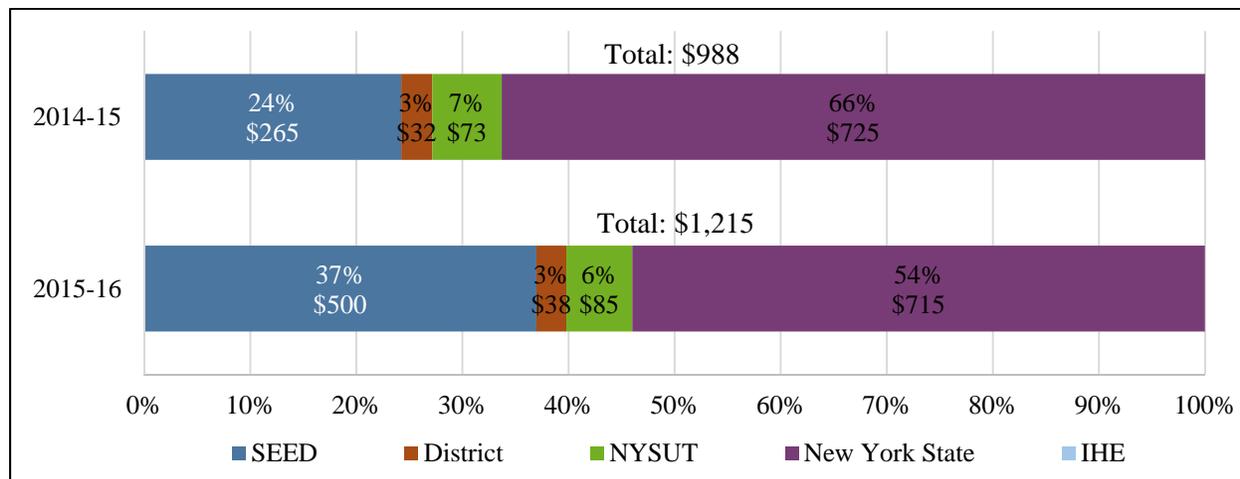
Sustainability

Funding Source

As shown in Exhibit 19, five funding sources were identified as contributing to New York’s recruitment and support activities: the SEED grant, NYSED and Teacher Centers (New York State), NYSUT, individual school districts, and various institutes of higher education. The great majority of costs in both years were borne by New York State—66% of overall costs in 2014–15 and 54% of costs in 2015–16. Just less than half of this contribution was given in the form of the Albert Shanker Grant discussed earlier in the case study. The SEED grant contributed a significant portion of funding as well, constituting 24% and 37% of overall costs in 2014–15 and 2015–16, respectively. NYSUT contributed the next largest amount toward Aim 1 activities, with remaining costs covered by individual school districts and institutes of higher education.

It is important to consider sources of funding when planning for future Aim 1 activities because some of these funding sources, especially the SEED grant, may be subject to change. Should this funding source diminish or disappear, NBCNY would need to secure funding from other sources, reallocate current funds, or decrease the cost of current Aim 1 efforts. In this scenario, the New York site could look to its current partners for additional funding, seek out private philanthropy, establish partnerships with additional organizations, or apply for grants from state or federal governments.

Exhibit 19. Recruitment and Support (Aim 1) Costs for New York by Funding Source in 2014–15 and 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$20 or less are not shown. IHE indicates institutes of higher education.

Source. Data collected by AIR cost study team from NBCNY.

Incentives/Stipends for Achievers

In New York, teachers who achieve NBC may be offered stipends, salary increases, professional development time, or other incentives, depending on their school district's negotiated teacher contract. As of 2013, of the 950 school districts in New York State, 210 had negotiated incentives for NBCTs, which represented induced costs—that is, these costs are not associated with resources used in operating the program but rather are expended only once candidates successfully achieve NBC. Therefore, although the personnel time required to administer the incentives system is included in the Formal Recruitment strategy, the induced costs of the stipends themselves are not. As will be seen later, stipends for candidates who have achieved certification represent a major cost that has a profound impact on the sustainability of Aim 1 efforts. In the following analysis, candidates recruited in a given year (defined as having purchased a component) were considered to be that year's cohort, and total induced costs are calculated based on the size of this cohort.

In order to calculate the estimated magnitude of these incentives, contract language was collected from the 2013–14 school year for 188 of the school districts with negotiated incentives.⁴⁰ A weighted average across districts was then calculated using the current distribution of NBCTs across New York State. This assumes that for any new cohort, candidates will be distributed across the state in the same way as are current NBCTs. Using the observed distribution of NBCTs to weight incentives in this way takes into account any difference in likelihood of pursuit of certification among teachers from different districts. The weighted average calculated equals \$1,974 per NBCT per year, meaning the typical Board-certified teacher will draw an incentive of \$1,974 per year. However, to allow for comparison with results from the other NT3 sites, the team has translated this incentive amount into a national price by using the CWI conversion discussed earlier. The average incentive used in subsequent calculations equals \$1,742. (See Exhibit A12 for incentive calculations in local dollars.)

For the cohort of 206 candidates recruited in 2014–15, Exhibit 20 shows the annual cost of stipends for each of the 10 years following the two-year period it would take for the typical candidate to achieve certification. The analysis assumed that there is an annual teacher attrition rate of 8.2% (to private schools or out of the teaching profession altogether) and a certification renewal rate of 27%.

⁴⁰ Incentives for 22 of the 210 districts were not included for the following reasons: the incentive was set to expire before 2016, the incentive was unquantifiable as in the case of professional development credit hours, or contract language could not be acquired.

Exhibit 20. Estimation of Annual Cost of NBCT Incentives/Stipends for Achievers in New York for 2014–15 Cohort

Incentive	\$1,742	Years for Completion	2
Lifetime of Certificate	5	Attrition Rate	8.2%
NBCTs Recruited in 2014	206	Renewal Rate	27%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	206	\$358,946	\$358,946	155	\$269,210	\$269,210
2017–18	189	\$329,369	\$323,863	142	\$247,027	\$242,897
2018–19	173	\$302,229	\$292,209	130	\$226,672	\$219,157
2019–20	159	\$277,325	\$263,649	119	\$207,994	\$197,737
2020–21	146	\$254,474	\$237,881	110	\$190,855	\$178,410
2021–22 (renewal year)	39	\$68,708	\$63,154	30	\$51,531	\$47,366
2022–23	36	\$63,046	\$56,982	27	\$47,285	\$42,736
2023–24	33	\$57,851	\$51,412	25	\$43,388	\$38,559
2024–25	30	\$53,084	\$46,387	23	\$39,813	\$34,790
2025–26	28	\$48,710	\$41,853	21	\$36,533	\$31,390
Total			\$1,736,337			\$1,302,253

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from NBCNY and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

As an example, assuming a 100% achievement rate (i.e., all recruited teachers achieve certification), after the five-year certification renewal process, approximately 39 teachers will remain both certified and teaching in New York state. By the 2025–26 school year, only 28 teachers from the original cohort of 206 will still be certified and teaching. If 75% of the original recruited cohort achieves certification, approximately 30 teachers will remain certified and teaching in New York State after five years and 21 after 10 years.

The figures in the exhibit outline the cost of incentives across the state, assuming the annual calculated weighted average of \$1,742 per Board-certified teacher. Using a 1.7% discount rate, the total 10-year expenditure for incentives was calculated in real 2016 dollars.⁴¹ Assuming an initial 100% achievement rate, total expenditure equals approximately \$1,736,000. If only 75%

⁴¹ Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

of the original cohort of candidates achieves certification, incentives will total approximately \$1,302,000 in real 2016 dollars. This cost will be borne by school districts that have negotiated NBCT incentives in their teacher contracts.

Notably, this payout is an estimate only for the cohort of candidates recruited in 2014. In reality, New York school districts offered these incentives to teachers from many cohorts at once. However, even the total expected expenditure of this one cohort far exceeded the Aim 1 programmatic costs in any given year. Therefore, it is very important to recognize the magnitude of these stipends when considering the sustainability of any program such as the NT3 Aim 1 program in New York.

5. Arizona

The Arizona NT3 site is led by the AZK12 in collaboration with the ADE and the AEA. Of Arizona’s roughly 60,000 teachers, 1,219 are Board-certified teachers, and 469 are National Board candidates (as of the 2015–16 school year).⁴² In order to increase the number of certified teachers and support those currently progressing through candidacy, the AZK12 and their partners have implemented various recruitment and support activities in addition to the programmatic work that has been occurring in Arizona for more than a decade.⁴³ The SEED grant and the AZK12 have been the main funders of this work, although their partners, districts, and candidates also contribute.

Even though the ADE and the AEA support this Aim 1 work, the AZK12 leads the majority of the work, and partners often refer teachers and leaders to the AZK12 for resources. This clear leadership of the AZK12 enables them to build on their previous experiences and their base of knowledge about how best to recruit and support Arizona teachers. They have become a centralized hub of resources for all candidates and NBCTs in Arizona, and this centralized leadership is somewhat unique to the Arizona site. By overseeing all of the support and recruitment work in Arizona, the AZK12 has gained perspective and noted the differences in access and support among districts in Arizona. They aim to prioritize equity among Arizona teachers in the future in order to ensure more teachers in rural districts or districts with fewer NBCTs are informed about the certification process and have access to supports. Working toward this goal of increased equity, the AZK12 has modified several of their programs and are planning further programmatic changes in Arizona, which are discussed later. Throughout this case study, we will consider ways in which this leadership works to the advantage of candidates in Arizona and ways the AZK12 is trying to address limitations of this centralized structure.

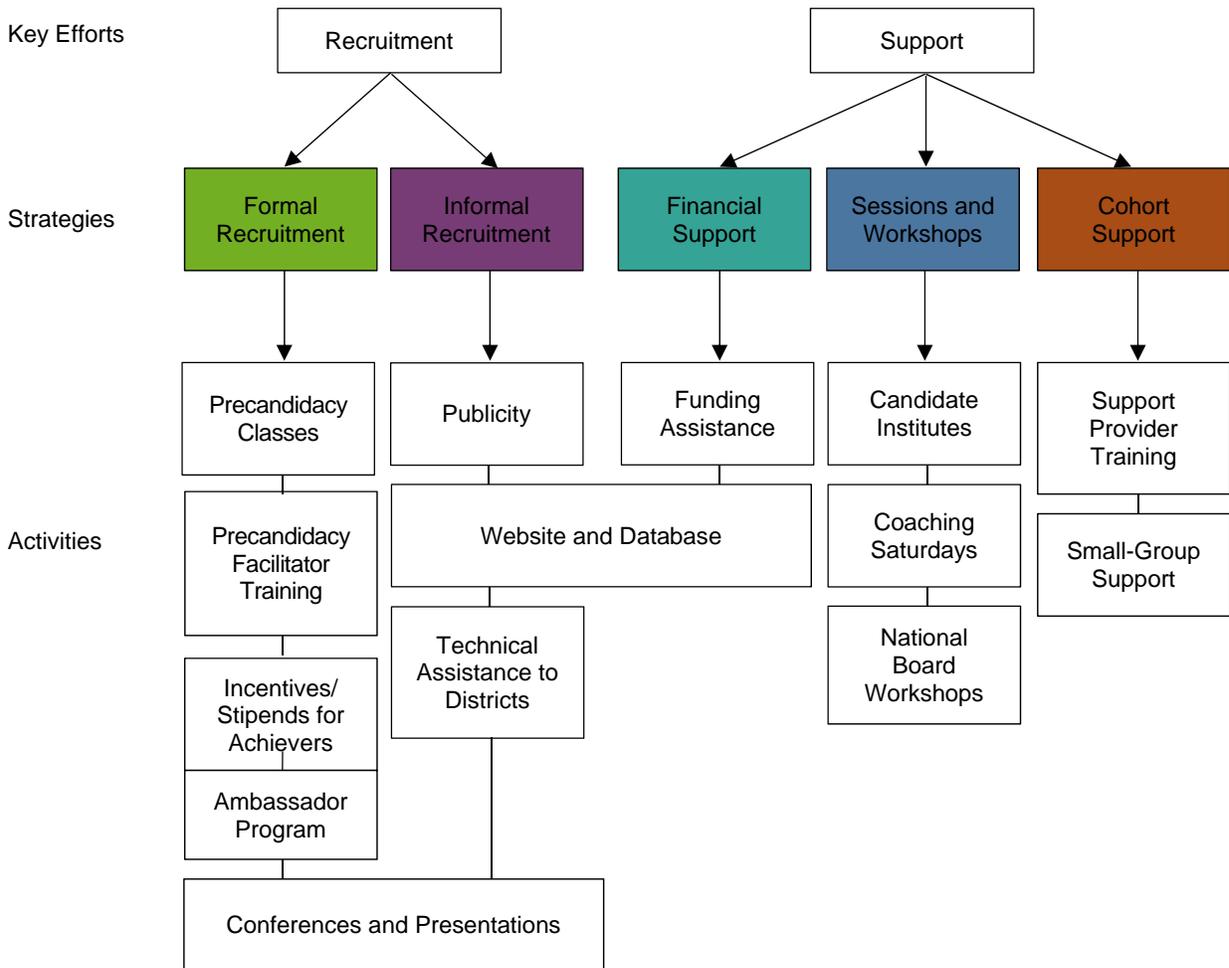
The Arizona model of recruitment and support involves a mixture of activities that are free to candidates and those that require fees. For the most part, recruitment activities are free for potential candidates, whereas the supports offered to candidates require fees (specifically all the sessions and workshops that will be discussed later). The research team worked with AZK12 staff to develop a framework of their main recruitment and support activities (see Exhibit 21). This framework illustrates the way the research team categorized the site’s activities under Aim 1’s two key efforts (recruitment and support). As discussed later, activities are also categorized into strategies, which group activities with similar goals or formats. This case study describes the efforts of the AZK12 and their partners and provides the estimated dollar value of resources used during these efforts in fiscal years 2014–15 and 2015–16. As with other sites, this analysis aims to assist site leadership in their decisions about resource allocation, inform potential sites about the Arizona model and its costs, and discuss the sustainability of this work.

⁴² According to the most recent National Board data and data from the ADE (<http://www.azed.gov/about-ade/>).

⁴³ The Arizona legislature approved and funded the AZK12 in 1999, and the AZK12 has specifically supported National Board Certification for at least the last 10 years.

Framework and Definitions

Exhibit 21. Cost Model Framework for Arizona



As with all other sites, the recruitment and support work in Arizona fit within five main strategies under Aim 1’s key efforts of Recruitment and Support. As shown in Exhibit 21, Formal and Informal Recruitment are the recruitment strategies, and Financial Support, Sessions and Workshops, and Cohort Support are the support strategies. Although many of these strategies are similar to those of other sites, the way the activities are organized under these strategies are unique to Arizona.

The activities categorized as formal Recruitment have the explicit goal of promoting NBC. In Arizona, Formal Recruitment includes five activities, each aimed at recruiting eligible teachers into NBC. Precandidacy classes are courses offered to teachers across the state in order to inform them about the certification process and what it means to be a National Board candidate in Arizona. Each precandidacy course consists of eight three-hour sessions held after school, and attendance at a precandidacy course is a requirement for the funding assistance offered by the AZK12. In both 2014–15 and 2015–16, 15 districts offered precandidacy courses. In addition to the courses offered in school districts, the AZK12 holds a hybrid course with two in-person sessions and an online component for candidates from districts that may not offer the course.

This AZK12-led course is one of their efforts to ensure that any teacher can attend a precandidacy course (even those from a small rural district). The precandidacy facilitator training, a half-day training preparing facilitators to lead these courses, is also included under this strategy. The staff time related to the maintenance of the Incentives/Stipends for Achievers is also included within this strategy; however, this only includes staff time of the main partner organizations (data on how much time was spent within each district on these stipends was unavailable during data collection).⁴⁴

The Ambassador Program was another main Formal Recruitment activity within Arizona. NBCT ambassadors were hired both years (17 in 2014–15 and 20 in 2015–16) to make presentations to teachers, school leaders, and district leaders to share basic information about NBC. The Ambassador Program was not continued after 2015–16 because the AZK12 was planning on hiring NBCTs to target certain geographic areas specifically (once again in an effort to prioritize equity) as opposed to having ambassadors cover larger regions. Conferences and Presentations attended or organized by the AZK12 or its partners are considered both a formal and informal recruitment method. These presentations may be targeted and clearly recruiting teachers (formally); however, there are also costs associated with attending conferences simply to set up a booth and speak with teachers (a more informal method, as discussed later). The breakdown of these costs between the two strategies is approximately one third within formal and two thirds within informal.⁴⁵

Informal Recruitment activities are more unstructured and/or indirectly encourage teachers to begin the certification process. This strategy includes Publicity, which includes handouts created and distributed by the AZK12 and several videos and podcasts created to promote certification. In addition, Publicity includes a certification recognition event that promotes certification by highlighting the certification of a teacher as an accomplishment and goal for other teachers. Informal Recruitment also includes the website and AZK12 database. The website of the AZK12 and its partners offers teachers information about the process and supports offered in Arizona, which is why the activity is included in both recruitment and support. Similarly, the database created and updated by the AZK12 includes information about teachers from recruitment to achievement, which enables the AZK12 to track the candidates and offer the most appropriate supports. Staff members at the AZK12 and its partners also offer Technical Assistance to Districts as they respond to teacher and school leader inquiries and connect them to the appropriate resources. As described earlier, two thirds of the costs associated with Conferences and Presentations is also included in Informal Recruitment because some of the participation in these conferences is aimed at sharing information and having conversations with teachers and school leaders more informally.

The first support strategy listed is Financial Support, which refers to monetary assistance for teachers to begin or progress through the certification process. This strategy includes Funding

⁴⁴ The Incentives/Stipends for Achievers activity is defined as a recruitment technique because the promise of an annual stipend on completion encourages teachers to engage in the certification process. To this end, although personnel costs associated with administering the incentives system are included under formal Recruitment, the stipends themselves are considered induced costs and, therefore, are kept separate from programmatic costs in the framework. These induced costs are discussed in more detail in the Sustainability section of this case study.

⁴⁵ Site leadership advised the research team on the best way to prorate costs appropriately between strategies when an activity spanned more than one strategy.

Assistance, which includes the funding assistance programs offered by the AZK12 and AEA. For teachers who applied for the AZK12's funding assistance program in 2014–15, the AZK12 covered fees for all four components of NBC. Candidates beginning the process in 2015–16 had to pay for the first component, and then, if they attended a candidate institute, the AZK12 would pay the fees associated with their final three components. If they did not attend an institute, candidates could receive funding for only 50% of the fees for the final three components. The AEA set aside approximately \$12,000 each year to help candidates pay their fees, to be issued on an as-needed basis. Financial Support also includes some of the website costs because teachers can learn about and apply for funding assistance online.

The Sessions and Workshops strategy contains support activities that are formatted as meetings open to all current candidates. The Sessions and Workshops strategy includes Candidate Institutes, which are two-day sessions held three times annually (in the summer, fall, and winter). During these two-day sessions, candidates (who are usually in their first year of candidacy) learn about the National Board standards, the certification process, and common mistakes to avoid. Sessions and Workshops also includes Coaching Saturdays, which are day-long sessions during which trained NBCT coaches work with candidates in small groups to coach them through the certification process and offer support for their creation of portfolio components. National Board workshops, which are longer weekend retreats during which candidates have time away to work on their components, were so popular among candidates that they were the inspiration for the shorter Coaching Saturdays. In both years, the AZK12 held one National Board workshop.

Cohort Support includes the support offered by CSPs and the training required to prepare these CSPs. Support Provider Training includes four sessions held by the AZK12 (two in person and two virtual), and this training also includes the costs associated with offering cognitive coaching for these CSPs. Cohort Support also includes the small-Group Support offered by these CSPs. CSPs meet with their cohorts (which typically consists of about seven candidates) about twice a month in schools. The stipends paid to these CSPs by the AZK12 and the district space donated for these cohort meetings are the main costs included in the Small-Group Support activity.

These activities shown within the Arizona framework capture the vast majority of recruitment and support efforts of the AZK12 and their partners. However, a few recruitment and support efforts were not quantifiable within this project's scope. Most notably, the efforts of NBCTs throughout the state of Arizona to spread the word about NBC by speaking with their fellow teachers could not be quantified. Because we did not estimate the school leader and NBCT time spent on recruiting teachers through these informal conversations, the informal recruitment costs presented here most likely underestimate informal recruitment costs. Arizona NT3 leadership emphasized that this word-of-mouth recruitment has been the main method of recruitment up to this point. Although these informal conversations have recruited teachers, NT3 leadership noted that the gains were localized, and districts without many NBCTs or resources would not be affected by this sort of word-of-mouth recruitment. Therefore, the AZK12's Formal Recruitment activities are aimed at supplementing this recruitment by focusing on those unreached districts.

Similarly, there are also district-level costs related to maintenance of the Incentives/Stipends for Achievers system that were unavailable and, therefore, are not included in the cost estimates shared here. Because the stipends for NBCTs are established at the district level, district leadership and staff members presumably spend time on maintaining the stipend system and

paying out the stipends. However, the personnel costs associated with district personnel working to maintain the stipend system were unavailable. Therefore, the Formal Recruitment costs (where personnel time dedicated to the stipend system is located) are most likely a lower bound of those actual costs.

Overall Cost of Aim 1 Strategies and Activities

The overall cost of the Arizona NT3 Aim 1 (recruitment and support) activities totaled approximately \$814,000 in 2014–15 and \$1,056,000 in 2015–16. Although these totals include all personnel and nonpersonnel programmatic costs of the site’s Aim 1 activities, they do not include the induced cost of the stipends paid to candidates after they achieve certification.⁴⁶

All costs presented here have been adjusted to represent national prices. Because cost of living and other market indicators are somewhat lower in Arizona than in the rest of the country, these costs are lower when presented in local Arizona dollars. In order to adjust the locally reported resource costs into national prices, we used the 2014 NCES CWI, an index that measures the relative cost of recruiting and retaining educational staff across 800 Census-defined place-of-work areas across the country. Throughout this case study, all costs will refer to nationally adjusted prices. In addition, because we present amounts for two different years (2014–15 and 2015–16), we have further translated all amounts into constant 2016 dollars by using the U.S. Bureau of Labor Statistics Consumer Price Index for All Urban Consumers.⁴⁷

Exhibit 22 displays overall Aim 1 costs in 2014–15 and 2015–16 on a per-active-candidate basis. Active candidate numbers include all individuals who are pursuing candidacy in a given year, including candidates who began the certification process that year and those who are continuing their work from prior years. In 2014–15, 451 active candidates were supported at a total cost of \$1,804 each. The following year, overall costs per candidate totaled \$2,252 for 469 active candidates. (See Exhibit A5 and Exhibit A6 for the detailed breakdown of costs per candidate for recruitment and support separately.)

Exhibit 22. Costs Overall and per Active Candidate for Recruitment and Support (Aim 1) for Arizona

Overall (Recruitment and Support) Costs			
Year	Overall Program Costs	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$813,732	451	\$1,804
2015–16	\$1,056,299	469	\$2,252

Note. Amounts represent constant 2016 dollars. Active candidates include those who are in the process of certification in a given year plus those who are continuing on from prior years.

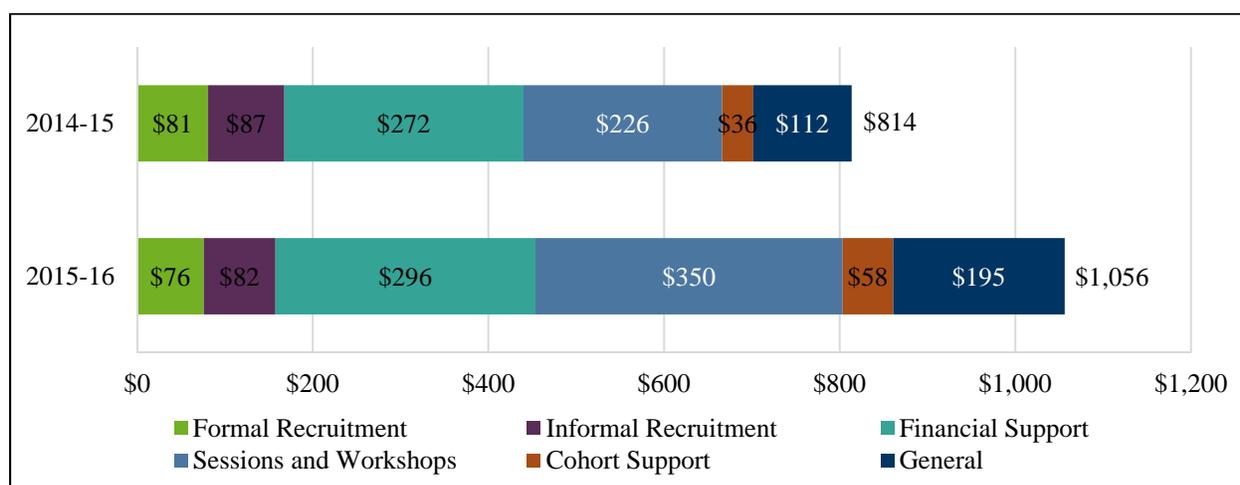
⁴⁶ This includes costs that do not support implementation of the program itself but rather are induced as a result of participation in the program.

⁴⁷ The data and documentation for the CWI are available online at http://bush.tamu.edu/research/faculty/Taylor_CWI/.

Costs by Strategy and Activity

In Arizona, as in all five sites, five major strategies encompass the entirety of the site’s recruitment and support activities (see Exhibit 23). As with other sites, a General strategy category that represents costs that are not specific to any activity has been included. In Arizona, the vast majority (62% of General costs in both years) were personnel costs associated with the general administration work necessary to support Aim 1 work. The remainder of these general costs was facilities (office space used to support the entire initiative) and equipment (staff member computers). The strategies with the largest associated costs in both years were Financial Support and Sessions and Workshops.

Exhibit 23. Total Recruitment and Support (Aim 1) Costs for Arizona by Strategy in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from the AZK12 and partners.

Recruitment

The costs associated with both the Formal and Informal Recruitment strategies were relatively consistent for both years. In 2014–15, Formal Recruitment costs totaled about \$81,000, and Informal Recruitment costs totaled about \$87,000. In 2015–16, recruitment costs decreased slightly: Formal Recruitment totaled \$76,000, and Informal Recruitment costs totaled \$82,000. Because overall costs increased in 2015–16, the percentage of programmatic costs related to recruitment decreased more dramatically—from 24% in 2014–15 to 18% in 2015–16 (not including general costs).⁴⁸

Once General costs were prorated among recruitment and support on the basis of the percentage of costs, overall recruitment costs totaled \$194,000 in 2014–15 and \$193,000 in 2015–16.⁴⁹

⁴⁸ General costs are allocated to the key efforts of Recruitment and Support on the basis of the share of total cost attributed to each key effort.

⁴⁹ In 2014–15, about \$26,800 of the General costs were added to the Informal and Formal Recruitment totals to equal all recruitment costs. In 2015–16, about \$35,700 of the General costs were added to the Informal and Formal recruitment totals to equal the overall recruitment sum.

A decrease in the costs associated with Conferences and Presentations, along with the shrinking Ambassador Program, accounted for the overall decrease in recruitment costs. The costs associated with Conferences and Presentations decreased by more than \$15,000 between the two years (simply because fewer conferences were attended in 2015–16). However, an increase in the costs associated with the Precandidacy classes and Facilitator Training counteracted this large decrease. Because the Ambassador Program ended after 2015–16, we may expect this breakdown of costs to be different in the future. However, the costs associated with the additional plans for reaching rural districts may counteract this decrease in ambassador-related costs.

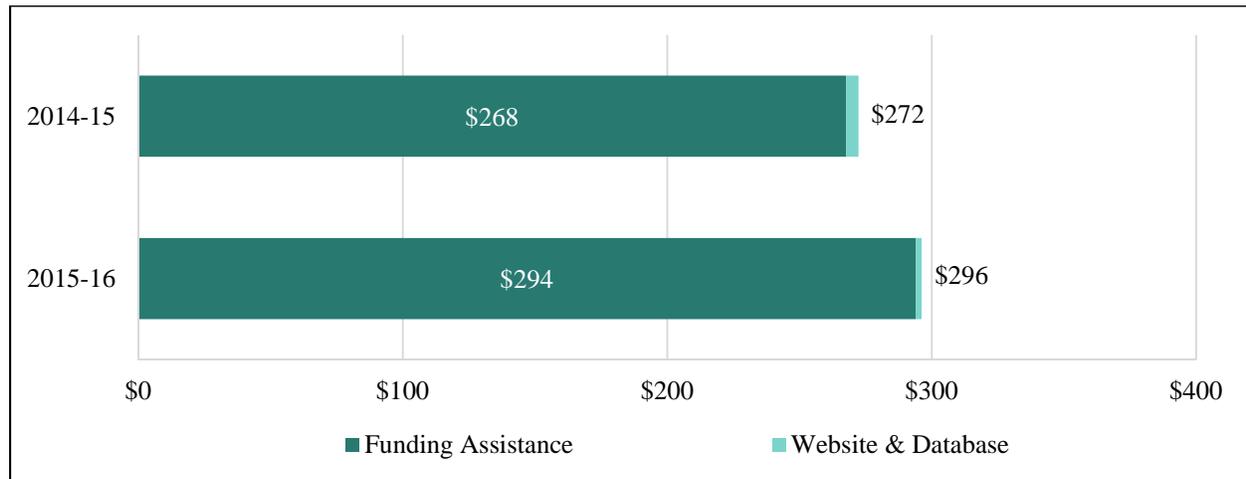
Overall, Recruitment costs were a very small portion of overall costs in both years, which may have to do with the unquantified teacher and school leader time dedicated to recruitment. As mentioned earlier, the cost amounts shown here are the recruitment costs incurred by the NT3 site and do not include all of the teacher and school leader time related to recruitment. Although a statewide teacher time allocation survey (sent to a sample of teachers) could have provided this cost information, the research team determined that this type of survey (which would have to be implemented here and in other sites) was beyond the scope of this research project. Site leadership emphasized that this word-of-mouth recruitment was a very important aspect of National Board recruitment, so these recruitment costs would probably be much higher if all of this personnel time were included.

Support

As mentioned earlier, the majority of program costs were spent on the key effort of support. The two strategies with the highest total costs in both years were Financial Support and Sessions and Workshops. Costs for these two strategies totaled approximately \$272,000 and \$226,000, respectively, in 2014–15. In 2015–16, costs increased for both strategies to \$296,000 for Financial Support and \$350,000 for Sessions and Workshops. For a more detailed picture, these strategies have been broken out by activity in Exhibit 24 and Exhibit 25.

Financial Support included two activities: Funding Assistance and part of the costs associated with the Website and Database. The activity with the highest associated cost in both years was Funding Assistance, which included the funding support programs by both the AZK12 and AEA. As described in the Framework and Definitions section, the AZK12 offered support to candidates by paying certain component fees if they fulfilled the specified criteria. The AEA also offered scholarships to cover component costs, and the criteria were similar (i.e., candidates must have paid the registration fee and be enrolled in an AZK12 support program). Funding Assistance accounted for \$268,000 in 2014–15 and \$294,000 in 2015–16, which accounts for about 38% and 34% of the site’s total Aim 1 resource costs, respectively. In both years, the vast majority of the funding assistance was given by the AZK12, and only about \$12,000 of the funding assistance costs were associated with the AEA’s funding assistance program. Comparatively, the cost of the Website and Database activity (which supports the funding assistance work) was very small (about \$5,000 in 2014–15 and \$2,000 in 2015–16).

Exhibit 24. Total Financial Support Costs for Arizona by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



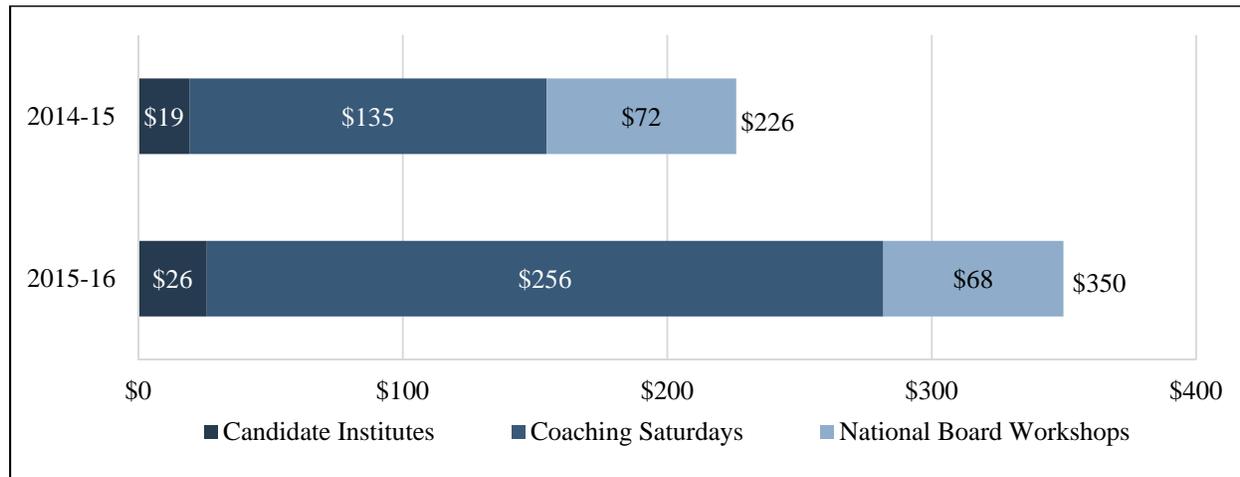
Note. Amounts represent constant 2016 dollars. Values of \$20 or less are not shown.

Source. Data collected by AIR cost study team from the AZK12 and partners.

As shown in Exhibit 25, the costs associated with Sessions and Workshops totaled \$226,000 in 2014–15 and \$350,000 in 2015–16. The Coaching Saturdays activity accounted for the majority of these costs in each year: about \$135,000 in 2014–15 and \$256,000 in 2015–16. Coaching Saturdays also accounted for the greatest increase in costs from 2014–15 to 2015–16 out of all the activities. These costs increased by 90%, which is explained by an increase in the number of coaching Saturdays sessions held, the increased attendance at each session, and the additional personnel costs needed for planning and facilitation. Coaching Saturdays were restructured for the 2015–16 year, which explains some of these changes. As a result of this restructuring, there were more coaching Saturdays held, and more of the sessions included technical support, which involved additional equipment and additional personnel costs of having technical support at the sessions.

National Board workshops also accounted for a sizable portion of the Sessions and Workshops costs. The AZK12 held one workshop in both 2014–15 and 2015–16, and the costs totaled about \$72,000 and \$68,000 respectively. Lastly, Candidate Institutes accounted for the smallest portion of the overall cost of Sessions and Workshops. These Candidate Institutes were less frequent than Coaching Saturdays and were held in less expensive venues (and were of shorter duration) than were the National Board workshops, which explains the comparative cost.

Exhibit 25. Total Sessions and Workshops Costs for Arizona by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from the AZK12 and partners.

The Cohort Support activities had a relatively low total cost in both years: only 5% of programmatic costs in 2014–15 and 7% in 2015–16 (not including General costs). The cost of Cohort Support increased slightly from \$36,000 in 2014–15 to \$58,000 in 2015–16 as shown in Exhibit 23. The majority of Cohort Support costs were Small-Group Support costs, which were calculated by assuming 95% of candidates are supported (as reported by NT3 site leadership) in cohorts of seven candidates. AZK12 reported the cost of the stipends paid out to CSPs, and the increase in these stipends from 2014–15 to 2015–16 explains the increase in Small-Group Support costs.

Resource Type

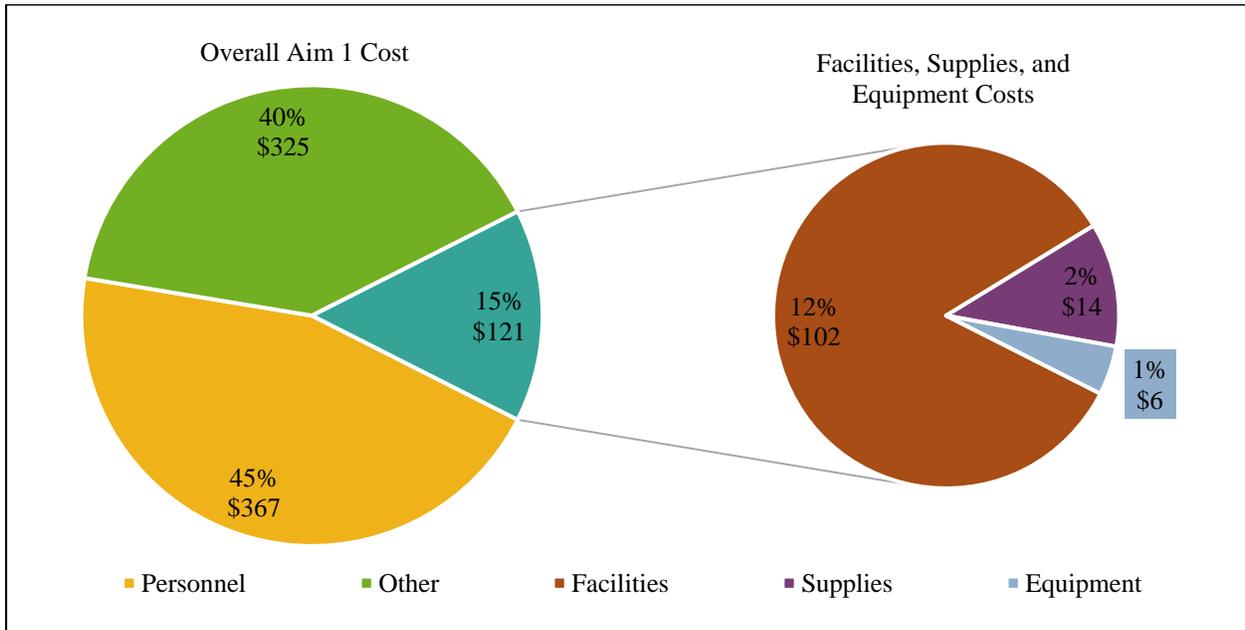
Using the ingredients approach, we divided resource costs into one of five resource categories: Personnel, Facilities, Equipment, Supplies, and Other. In 2014–15, staff and other personnel time accounted for approximately 45% of all Aim 1 costs (see Exhibit 26). In the following year, the share of Personnel costs increased to 49% (see Exhibit 27). The Other category also represented a large portion of costs in both years: 40% in 2014–15 and 35% in 2015–16. Funding Assistance (the payment of component fees by the AZK12 and AEA) accounted for the vast majority of Other costs in both years; however, the Other category also included food costs, transportation costs, and lodging costs.

Equipment, by contrast, represented the smallest portion of costs in both years (only about 1% in both years). This can be attributed in part to the way that the costs of Facilities and Equipment are calculated in the RCM.⁵⁰ Specifically, these calculations led to costs that are far less than what it would take to purchase 100% of the resource items outright. Realization of the full costs

⁵⁰ To estimate the cost of facilities, we annualized their total replacement value, assuming a 30-year life span and a discount rate of 3.5%. A similar calculation was also made for equipment, assuming a five-year life span and a discount rate of 3.5%. These annualized costs were then adjusted to reflect the number of days per year the facility or piece of equipment was used for specific Aim 1 activities.

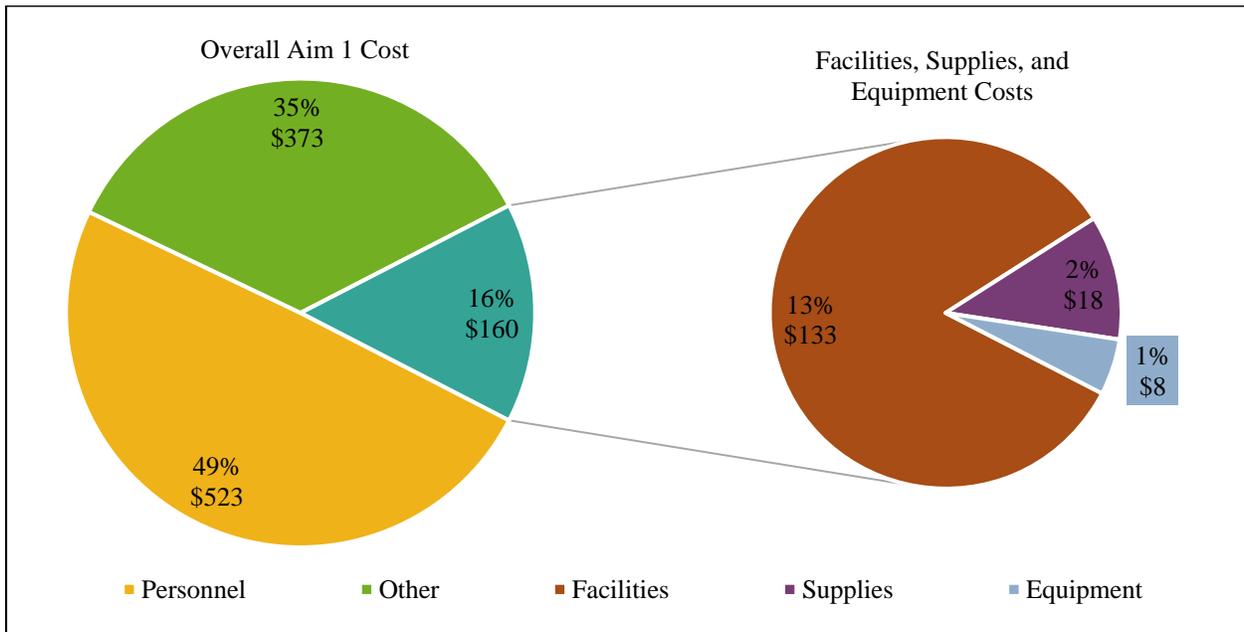
of these resources up front would be incorrect given that they are consumed over many years. These calculations greatly reduced the cost of each piece of equipment, leading to an estimated total Equipment expenditure of less than \$10,000 in both 2014–15 and 2015–16. If a new site were required to purchase new equipment to begin an NT3 program, Equipment costs would likely be far higher than calculated here.

Exhibit 26. Recruitment and Support (Aim 1) Costs for Arizona by Input Type in 2014–15 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.
Source. Data collected by AIR cost study team from the AZK12 and partners.

Exhibit 27. Recruitment and Support (Aim 1) Costs for Arizona by Input Type in 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.
Source. Data collected by AIR cost study team from the AZK12 and partners.

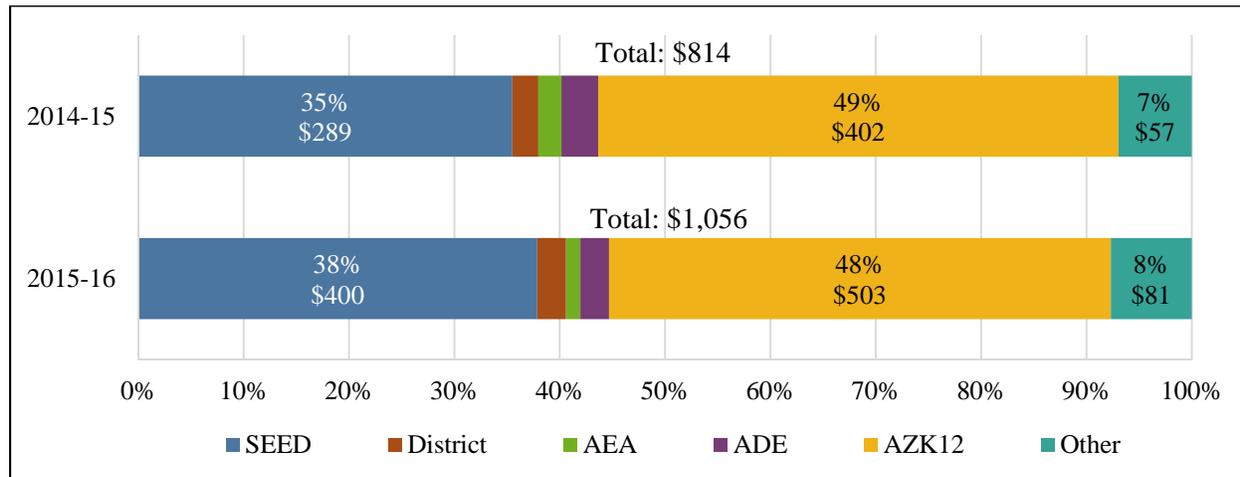
Sustainability

Funding Source

Six funding sources were identified as contributing to Arizona’s candidate recruitment and support efforts: the SEED grant, the AZK12, the AEA, the ADE, individual school districts, and a few other funding sources. The great majority of costs in both years were borne by the SEED grant and the AZK12 (35% and 49% in 2014–15 and 38% and 48% in 2015–16, respectively) as shown in Exhibit 28. The remaining share of costs was funded by the ADE, school districts, AEA, and other sources. The next largest source of funding is the other category, which largely consisted of candidate fees. Candidates paid for all activities under the sessions and workshops strategy, and these fees covered 7% and 8% of costs in 2014–15 and 2015–16, respectively.

This distribution of funding sources is important to consider as the site plans for how to finance programs in the upcoming years when temporary funding sources (such as the SEED grant) may no longer be available. As discussed earlier, the centralized leadership of the AZK12 has benefited the NT3 program because the AZK12 has experience and a statewide perspective on candidate recruitment and support; it is understandable that the largest portion of funding comes from the AZK12. In the future, especially if SEED funding decreases, this funding structure may not be sustainable for the AZK12. Greater partner involvement, or perhaps increasing fees, may be necessary to fund these activities if programmatic costs remain at their current levels and the AZK12 is not able to cover all the activities that the SEED grant currently covers.

Exhibit 28. Recruitment and Support (Aim 1) Costs for Arizona by Funding Source in 2014–15 and 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$30 or less are not shown.
Source. Data collected by AIR cost study team from the AZK12 and partners.

Incentives/Stipends for Achievers

In Arizona, teachers who achieve NBC may be offered stipends, salary increases, professional development time, or other incentives, depending on their school district’s policy. As of 2015, of the 230 school districts in Arizona, 29 had incentives for NBCTs that were documented in the district’s salary schedule. These various incentives represented induced costs, which are incurred only once a candidate completes the program rather than as part of the program delivery itself—that is, these costs are not associated with resources used in operating the program but rather are expended only once candidates successfully achieve NBC. For the purposes of the cost study, candidates recruited in a year (according to the National Board definition) are considered to belong to that year’s cohort, and total induced costs are calculated based on the size of the cohort.

In order to calculate the estimated magnitude of these incentives, the AEA provided incentive information from the 2014–15 year for all school districts with salary schedules available. A weighted average across districts was then calculated using the district shares of the statewide population of NBCTs as weights. This assumes that for any new cohort, candidates will be distributed across the state in the same way as current NBCTs are. Using the observed distribution of NBCTs to weight incentives in this way takes into account any difference in the incidence of NBC among teachers from different districts. In local Arizona dollars, the weighted average calculated equals \$798 per NBCT per year, meaning the typical NBCT will draw an incentive of \$798 per year. To allow for comparison with results from the other NT3 sites, this incentive was converted into a national price (\$861 per year). The following results are based on this national price, although all of these incentive calculations were also performed for Arizona using local dollars (see Exhibit A13 for these incentive calculations in local dollars). As will be seen later, stipends for candidates who have achieved certification represent a major cost that has a profound impact on the sustainability of Aim 1 efforts.

For the cohort of 261 candidates recruited in 2014–15, Exhibit 29 shows the annual cost of stipends for each of the 10 years following the two-year period it would take for the typical candidate to achieve certification. This model assumes an annual teacher attrition rate of 8.2% (to private schools or out of the teaching profession altogether) and a certification renewal rate of 36.1%. Assuming a 100% achievement rate (i.e., all recruited teachers achieve certification), after the five-year certification renewal process, approximately 67 teachers will remain both certified and teaching in Arizona. By the 2025–26 school year, only 48 teachers from the original cohort of 261 are still expected to be certified and teaching in the public sector. If 75% of the original recruited cohort achieves certification, approximately 50 teachers will remain certified and teaching in the public sector in Arizona after five years and 36 after 10 years.

Exhibit 29 outlines the cost of incentives across the state assuming the annual calculated weighted average of \$861 per NBCT (in national, 2016 dollars). Assuming an initial 100% achievement rate, total expenditure equals approximately \$1,143,000 in real 2016 dollars. If only 75% of the original cohort of candidates achieves certification, incentives will total approximately \$857,000 in real 2016 dollars. This cost will be borne by school districts that have included NBCT incentives in their teacher salary schedules.

These total expenditures are only for the cohort of NBCTs recruited in 2014–15. In reality, school districts will pay all NBCTs in their district the stipend outlined in their salary schedule, which will include many more teachers recruited and certified before 2014–15; therefore, total expenditures for all stipends will be much higher than shown here. These incentives, if considered a form of recruitment, cost more than the entire programmatic costs related to Aim 1 in 2014–15. They are, therefore, an important factor to take into account when considering the sustainability of this program. If the program successfully recruits more teachers, especially if the number of recruited teachers increases at a higher rate, then the expenditures related to the stipends will increase substantially in the future.

Exhibit 29. Estimation of Cost of Annual NBCT Incentives/Stipends for Achievers in Arizona for 2014–15 Cohort

Incentive	\$861	Years for Completion	2
Lifetime of Certificate	5 years	Attrition Rate	8.2%
NBCTs Recruited in 2014	261	Renewal Rate	36.1%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	261	\$224,687	\$224,687	196	\$168,515	\$168,515
2017–18	240	\$206,262	\$202,814	180	\$154,697	\$152,111
2018–19	220	\$189,349	\$183,071	165	\$142,012	\$137,304
2019–20	202	\$173,822	\$165,250	151	\$130,367	\$123,938
2020–21	185	\$159,569	\$149,164	139	\$119,677	\$111,873
2021–22 (renewal year)	67	\$57,636	\$52,977	50	\$43,227	\$39,733
2022–23	61	\$52,910	\$47,820	46	\$39,683	\$35,865
2023–24	56	\$48,571	\$43,165	42	\$36,429	\$32,374
2024–25	52	\$44,589	\$38,963	39	\$33,441	\$29,222
2025–26	48	\$40,932	\$35,170	36	\$30,699	\$26,378
Total			\$1,143,083			\$857,312

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from the AZK12, partners, and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

6. Kentucky

Another site included in the NT3 cost study is the Kentucky NT3, which is a statewide site and partnership between the EPSB, the KEA, and the KDE that supports National Board candidates through its Kentucky NT3 team. With major funding from the SEED grant and supplemental support from the partner organizations, the NT3 team engages in recruitment and support activities to increase the number of Board-certified teachers in Kentucky's schools. Of Kentucky's 41,588 public school teachers, 3,275 are currently National Board certified, representing about 7.8% of the teacher population.⁵¹ One of Kentucky's key goals in recent years has been to increase the spread of NCBTs. Specifically, they hope by winter 2017 to increase the number of NCBTs to 10% of the teacher population and ensure that every school in the state has at least one Board-certified teacher.

There were a number of contracted employees working in various capacities to support Aim 1 and achieve this goal. This includes a small team at the EPSB, including a full-time site director in both years, and a full-time data science and improvement coach in 2015–16. Other part-time staff served in management and information technology roles. Two KEA employees supported Aim 1 activities part time. This included overseeing Sessions and Workshops and cohort support conducted in the field, Outreach to System Leaders, and management of SEED grant funds. KDE staff also provided minimal support to the effort, with two employees dedicating a combined 0.102 FTEs each year.

However, much of the work to recruit and support candidates was conducted by people serving in part-time positions compensated through a fixed stipend and/or hourly pay. This includes two statewide coordinators who worked closely with field staff to train and support their work with candidates. Field staff including ambassadors and CSPs, conducted the majority of the direct candidate support activities. There were about 150 such staff in 2014–15 working approximately 3,000 hours and about 130 staff working approximately 2,000 hours in 2015–16. Some of these individuals also supported recruitment efforts at the certification area (i.e., subject or content area) convenings through presentations and shifts at a conference booth. This also included a Hope Street Group consultant who contributed to the development of materials to recruit and support candidates, including, for example, supporting a statewide coordinator to develop new Jump Start session materials.

Finally, an advisory council was engaged throughout the site's work to support Informal Recruitment and provide advice on program activities. The council is mostly composed of superintendents and other senior staff across the state.

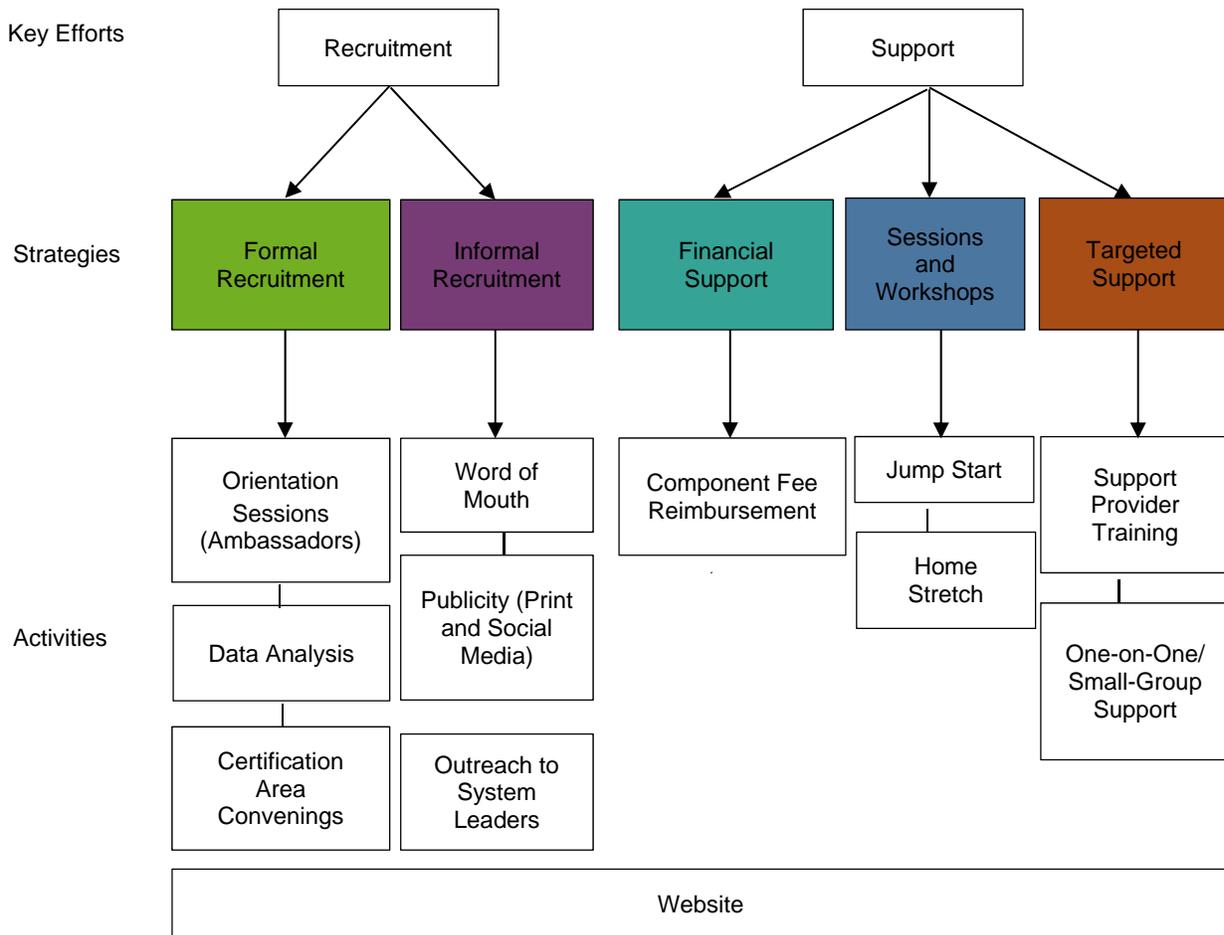
The Kentucky NT3 program includes a variety of recruitment and support activities. The Kentucky site-specific framework (see Exhibit 30) was developed and collectively reviewed with site staff and demonstrates how Aim 1 activities were categorized for the purposes of this study. The following case study analysis aims to provide an accurate reflection of the dollar value of the resources used in the specific activities undertaken by the Kentucky site in fiscal years 2014–15

⁵¹ According to the most recent National Board data and data reported by the KDE, found here: <http://education.ky.gov/comm/edfacts/Pages/default.aspx>.

and 2015–16, which will be used to inform the sustainability of the program and allow for meaningful collaboration across case study sites.

Framework and Definitions

Exhibit 30. Cost Model Framework for Kentucky



As at other sites, Kentucky’s recruitment activities are organized according to their structure. Formal Recruitment includes activities with the explicit goal of promoting NBC, whereas Informal Recruitment activities are either unstructured or indirectly encourage teachers to enroll in the certification process. In Kentucky, the Formal Recruitment strategy includes orientation Sessions (provided by ambassadors) which inform interested districts and teachers of the benefits of NBC. It also includes Data Analysis conducted primarily by the data science and improvement coach, with support from the site director and a KEA executive director. This includes analysis of current NBCTs and identification of schools without any such teachers. The final Formal Recruitment activity, Certification Area Convenings, includes attendance at conferences and meetings with the goal of recruiting candidates from high-need certification areas.

Kentucky’s Informal Recruitment activities include Publicity through print materials and engagement on social media to raise awareness and disseminate information about NT3 in

Kentucky and Outreach to System Leaders primarily through the advisory council. Informal Recruitment activities also include Word of Mouth, which is perhaps the most difficult activity to quantify. Ultimately included in the activity were efforts by the site director and a KEA executive director to raise awareness about the NT3 program.

Unlike recruitment strategies, support strategies may differ across sites, although for all sites they fall into three broad categories: large-group support, small-group support, and other support (typically technological or financial). In Kentucky, this includes Sessions and Workshops (large group), Targeted Support (small group), and Financial Support (other). The first of these, Sessions and Workshops, includes meetings open to all current candidates and offers general information and guidance about the certification process and its components. Specifically, this includes Jump Start and Home Stretch sessions, which focus on certification components, with Jump Start sessions provided to candidates at the beginning of the annual cycle and Home Stretch sessions provided closer to the end of the school year.

The second support strategy, Targeted Support, includes preparation for and delivery of ongoing direct support to candidates. The first activity is Support Provider Training to prepare CSPs to help candidates prepare and complete each National Board component and achieve certification. The second activity, One-on-One/Small-Group Support, includes support through small-group cohorts of candidates throughout the state. This support includes, for example, reviewing candidate draft portfolio components and providing feedback.

The final support strategy is Financial Support, or Component Fee Reimbursement. This reimbursement is offered to candidates in red schools, or schools in which no teacher was currently National Board certified. Of the two study years, this was offered only in 2015–16.

There are two activities that contribute to both Recruitment and Support strategies, including costs associated with website maintenance and web-based tools such as Basecamp (Website) and general costs such as office space and general equipment (General). These activities are assumed to be nonactivity specific and, therefore, are considered separately.

Lastly, the activity Incentives/Stipends for Achievers is not included in the framework because it captures nonprogrammatic costs and, therefore, was not included in the RCM.⁵²

Overall Cost of Aim 1 Strategies and Activities

The overall cost of the Kentucky NT3 Aim 1 (recruitment and support) activities totaled approximately \$375,000 in 2014–15 and \$369,000 in 2015–16.⁵³ These amounts include all personnel and nonpersonnel programmatic costs of the site’s Aim 1 activities but do not include the induced cost of stipends and salary increases paid to candidates after certification is achieved.

⁵² The Incentives/Stipends for Achievers activity is defined as a recruitment technique because the promise of an annual stipend on completion encourages teachers to engage in the certification process. However, the stipends themselves are considered induced costs and, therefore, are kept separate from programmatic costs in the framework. These induced costs are discussed in more detail in the Sustainability section of this case study.

⁵³ All total costs are rounded to the nearest \$1,000.

Costs have been adjusted to represent national prices. Because cost of living and other market indicators are low in Kentucky compared with those in much of the rest of the United States, using local Kentucky costs would artificially deflate Aim 1 resource costs compared with those of sites in other geographic locations. In order to adjust the locally reported resource costs into national prices, we used the 2014 NCES CWI, an index that measures the relative cost of recruiting and retaining educational staff across 800 Census-defined place-of-work areas across the county. Throughout this case study, all costs will refer to nationally adjusted prices. In addition, because we present amounts for two different years (2014–15 and 2015–16), we have further translated all amounts into constant 2016 dollars by using the U.S. Bureau of Labor Statistics Consumer Price Index for All Urban Consumers.⁵⁴

To contextualize the cost of recruitment and support activities in the Kentucky setting, Exhibit 31 displays overall Aim 1 costs per active candidate in 2014–15 and 2015–16. Active candidates include all those who are pursuing candidacy in a given year, including candidates who began the certification process that year and those who are continuing their work from prior years. In the 2014–15 year, 597 active candidates were supported at a total cost of \$628 each. The following year, overall costs per candidate totaled \$505 for 731 active candidates. (For a breakdown of costs per candidate for Recruitment and Support separately, see Exhibit A7 and Exhibit A8.)

Exhibit 31. Costs Overall and per Active Candidate for Recruitment and Support (Aim 1) for Kentucky

Year	Overall Program Costs	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$374,769	597	\$628
2015–16	\$369,480	731	\$505

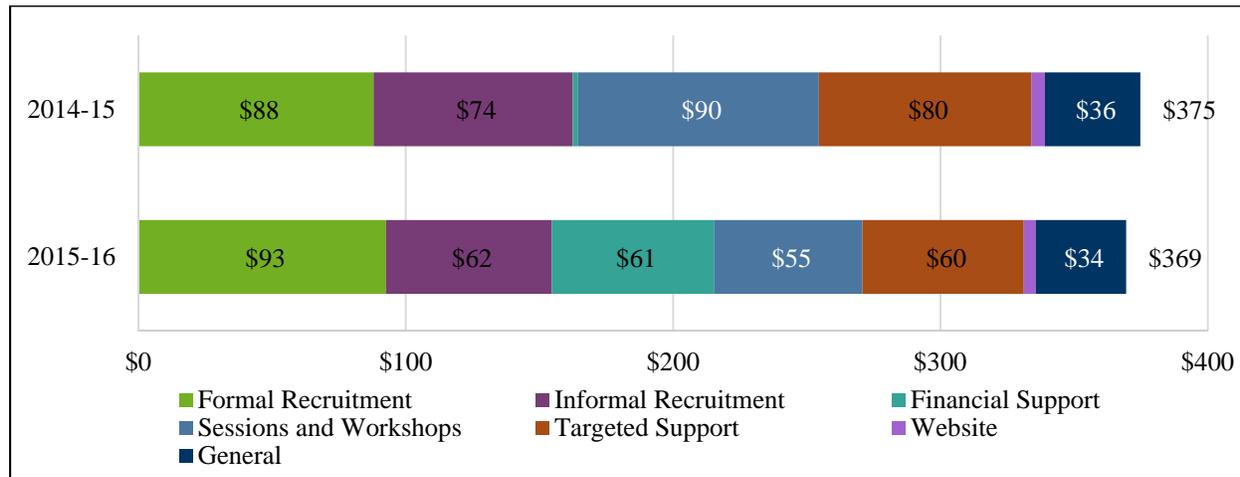
Note. Amounts represent constant 2016 dollars. Active candidates include those who are in the process of certification in a given year plus those who are continuing on from prior years.

Costs by Strategy and Activity

In Kentucky, as in all five sites, five major strategies encompassed the entirety of the site’s recruitment and support activities (see Exhibit 32). In addition, Website and General strategies have been included and represent costs that are not specific to any activity. These costs included website maintenance, web-based tools, staff computers, NT3 site office space, and staff time spent on administrative tasks. The strategy with the largest associated costs in 2014–15 was Sessions and Workshops and in 2015–16 was Formal Recruitment.

⁵⁴ The CWI allowed the research team to take local Arizona prices and adjust them into national averages by multiplying overall costs by 1.079 (the national coefficient divided by the Arizona coefficient). From http://bush.tamu.edu/research/faculty/Taylor_CWI/.

Exhibit 32. Total Recruitment and Support (Aim 1) Costs for Kentucky by Strategy in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of less than \$15 are not shown.
Source. Data collected by AIR cost study team from the Kentucky EPSB and partners.

Recruitment

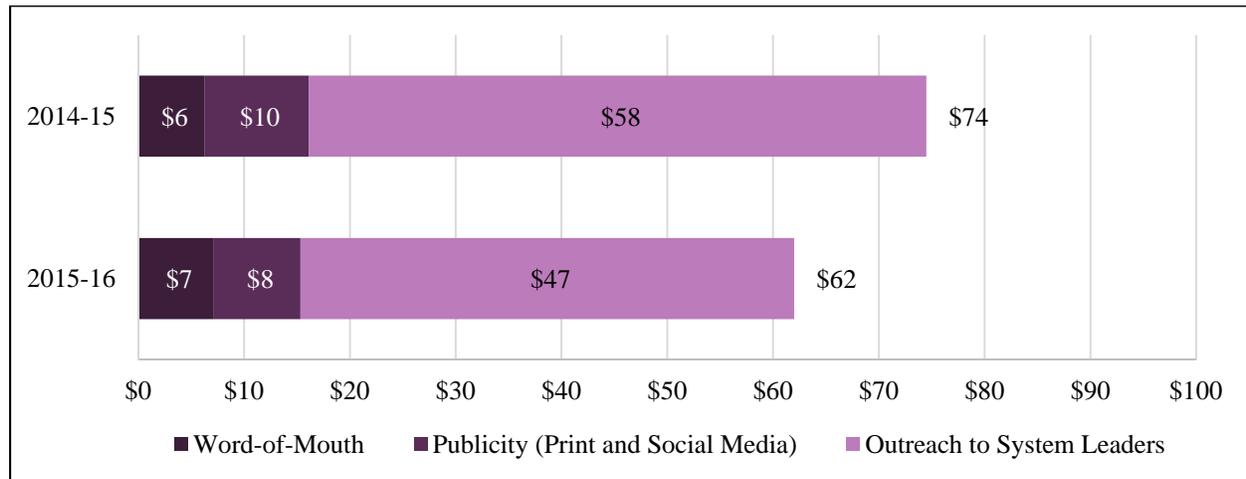
As described, the key effort of recruitment is broken down into Formal and Informal Recruitment strategies, differentiating between activities designed to recruit teachers explicitly to begin the NBC process and those activities that may indirectly accomplish this same goal.⁵⁵ In both years, recruitment costs accounted for slightly less than half of all costs. Formal Recruitment activities, such as orientation sessions, totaled about \$88,000 in 2014–15 and \$93,000 in 2015–16, and Informal Recruitment activities, such as Outreach to System Leaders, totaled about \$74,000 and \$62,000 in 2014–15 and 2015–16, respectively (not including General and Website).⁵⁶ When General and Website costs are added in, the total recruitment costs were \$182,000 and \$172,000 in 2014–15 and 2015–16, respectively. The General and Website costs totaled \$20,000 in 2014–15 and \$18,000 in 2015–16 rounded to the nearest thousand dollars, making up about 11% and 10% of costs, respectively.

The slight drop in Informal Recruitment costs is noteworthy and likely explained by an apparent reduction in resources dedicated to the Outreach to System Leaders activity (see Exhibit 33). This reduction may be due to fewer outreach events paid for by the site, resulting in an observed reduction in personnel, supply, and transportation costs.

⁵⁵ Recruitment strategies (Formal and Informal) are consistent across all sites.

⁵⁶ General and Website costs are allocated to the key efforts of recruitment and support on the basis of the share of total cost attributed to each key effort.

Exhibit 33. Total Informal Recruitment Costs for Kentucky by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)

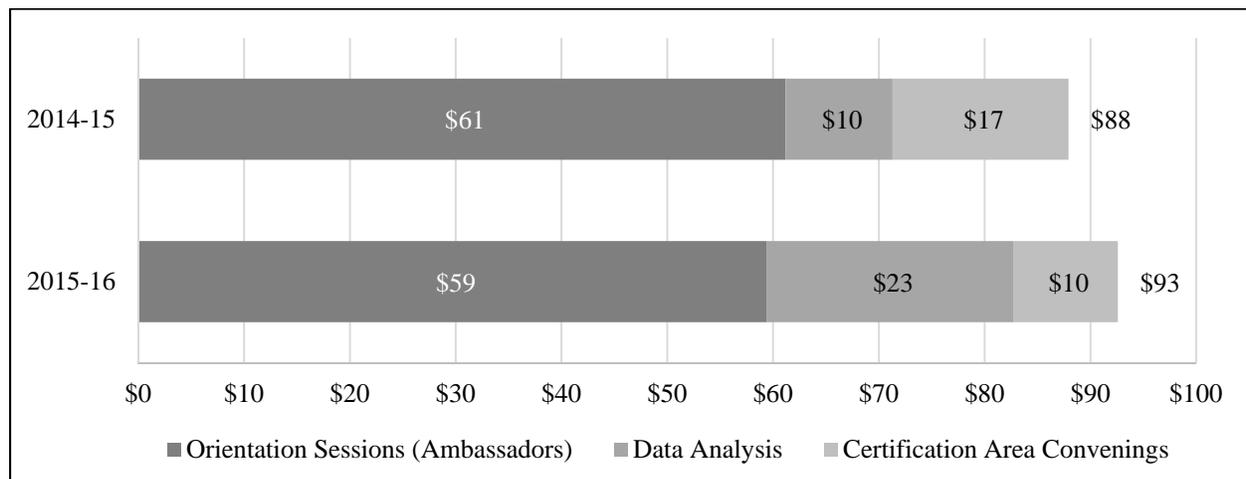


Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from the Kentucky EPSB and partners.

There is also a slight increase in Formal Recruitment costs, but this masks a more complex set of underlying programmatic changes (see Exhibit 34). The first important change made from 2014–15 to 2015–16 was the decision to no longer pay ambassadors an additional \$100 per orientation session. This may explain the slight reduction in costs for the Orientation Session (ambassadors) activity. In addition, there was a reported decision to decrease investment in Certification Area Convenings because they were judged to be an inefficient way to recruit candidates, also lowering costs. However, a new program led to a 130% increase in the Data Analysis activity costs. This resulted from site staff time spent identifying red schools that currently had no NBCTs. New candidates in these schools were offered reimbursement for component fees to support their efforts to achieve certification. This increase in Data Analysis costs more than made up for decreases in the other two activities.

Exhibit 34. Total Formal Recruitment Costs for Kentucky by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from the Kentucky EPSB and partners.

Support

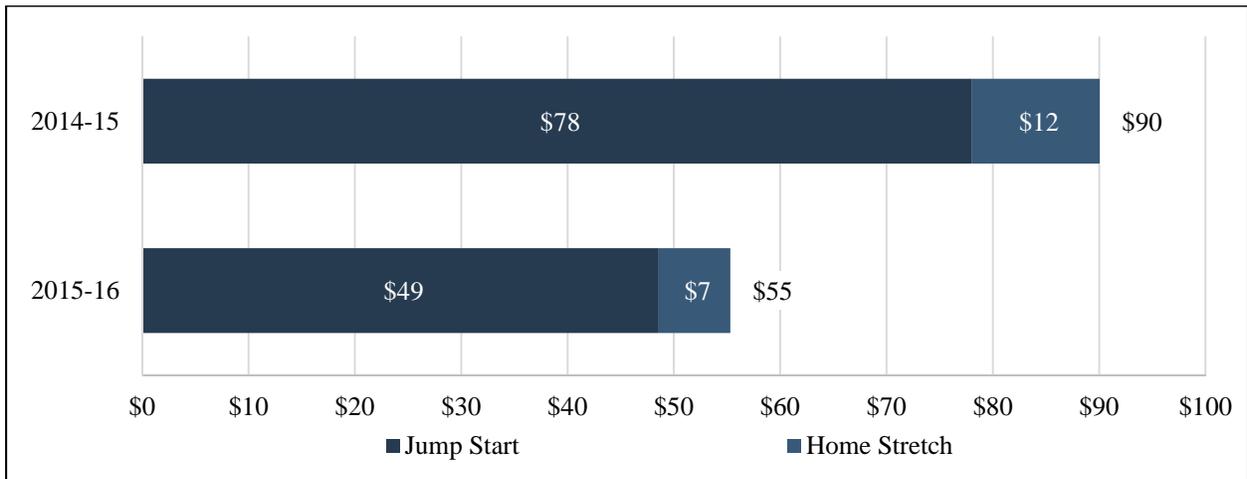
The key effort of Support is made up of three strategies: Sessions and Workshops, Targeted Support, and Financial Support. Taken together, these strategies and their associated activities accounted for slightly more than half of all Aim 1 spending. Sessions and Workshops costs, which included activities such as Jump Start, came to about \$90,000 in 2014–15 and \$55,000 in 2015–16. Targeted Support activities, such as One-on-One/Small Group Support, totaled about \$80,000 in 2014–15 and \$60,000 in 2015–16. Finally, Financial Support, including the Component Fee Reimbursement activity, came to less than \$15,000 in 2014–15 and grew to \$61,000 in 2015–16. When General and Website costs are added in, the total support costs were \$193,000 and \$197,000 in 2014–15 and 2015–16, respectively. These costs totaled \$21,000 in 2014–15 and \$20,000 in 2015–16 rounded to the nearest thousand dollars, making up about 11% and 10% of costs, respectively.

The most noteworthy change in spending is the dramatic growth in Financial Support spending, from about \$2,000 to \$61,000, or more than 30 times as much. However, this is almost entirely explained by the fact that reimbursements under the Component Fee Reimbursement activity were offered only in 2015–16. These reimbursements made up about 82% of 2015–16 Financial Support costs or almost \$50,000. In addition, personnel resources in 2015–16 went into processing applications for such reimbursements, and these costs made up the remaining 18% of the costs at about \$11,000.

As the spending for Financial Support grew, the costs for the other two strategies, Sessions and Workshops and Targeted Support, declined. Sessions and Workshops dropped slightly more than one third (or \$35,000), whereas Targeted Support saw a decline of about 25% (or \$20,000). Digging deeper into the underlying activities, we found Jump Start and Home Stretch costs had similar proportional declines—38% (\$29,000) and 44% (\$5,000), respectively (see Exhibit 35). In part, this may be due to the fact that in 2015–16 the Jump Start sessions were split into components rather than given all at once. This move ended up reportedly receiving negative feedback and led to a reduction in session attendance. This may partially explain the observed drop in personnel costs (and thus total costs) for these activities.

With respect to Targeted Support, there was a significantly larger proportional drop in Support Provider Training costs of 65% (or \$8,000) compared with a drop in One-on-One/Small Group Support costs of only 17% (or \$11,000) (see Exhibit 36). This appears to be driven primarily by a drop in Support Provider Training personnel costs, which decreased by about 67% (or \$7,000), making up almost all of the decline in total Support Provider Training costs. The proportionally smaller reductions in One-on-One/Small Group Support costs also appear to be driven by personnel costs, which dropped about 15% (or \$10,000).

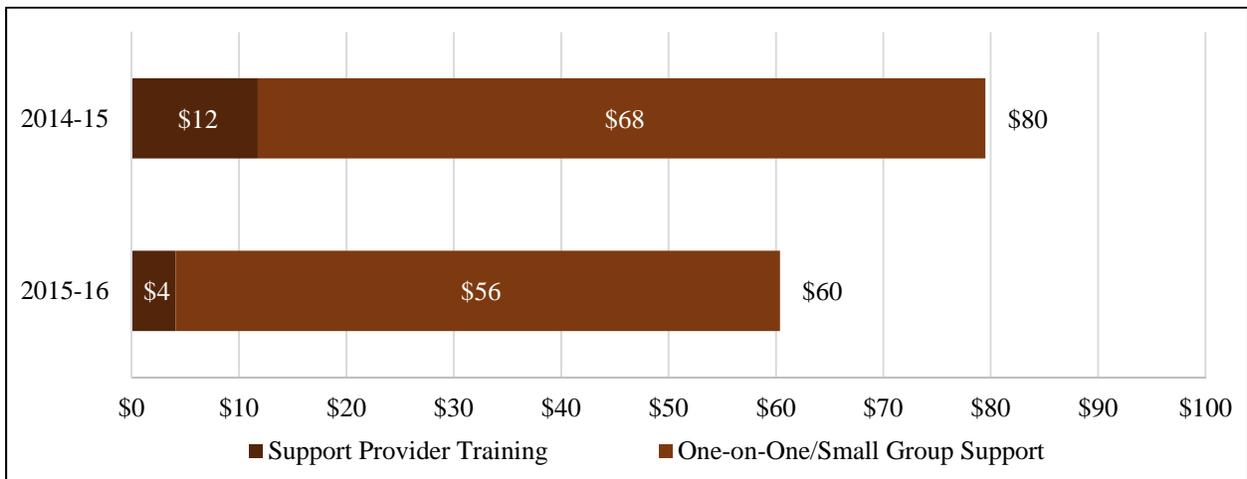
Exhibit 35. Total Sessions and Workshops Costs for Kentucky by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from the Kentucky EPSB and partners.

Exhibit 36. Total Targeted Support Costs for Kentucky by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from the Kentucky EPSB and partners.

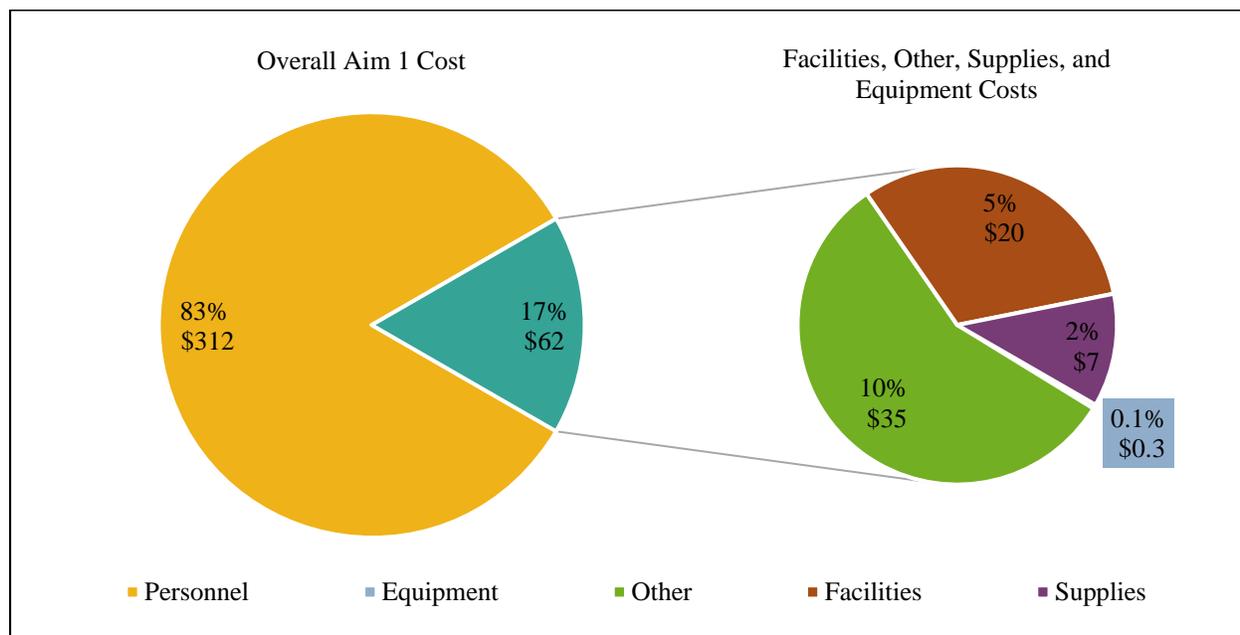
Resource Type

Because resource costs are collected using the ingredients approach, they are categorized into one of five resource categories: Personnel, Facilities, Equipment, Supplies, and Other. This last category includes all resource costs that do not apply to the other four categories.⁵⁷

Of these five input categories, Personnel represented a large majority of overall costs. In 2014–15, personnel time accounted for approximately 83% of all Aim 1 costs, totaling \$312,000 (see Exhibit 37). In 2015–16, Personnel dropped both in proportion and size, accounting for approximately 74% and totaling \$272,000 (see Exhibit 38).

Among the nonpersonnel resource categories, Other costs were consistently the highest, at 10% in 2014–15 and rising to 22% in 2015–16. This rise is almost entirely due to the component fee reimbursements provided to red school candidates in 2015–16, which totaled close to \$43,000. At the other end, Equipment costs consistently made up less than 1% of site costs. This can be attributed in part to the way that the costs of facilities and equipment are calculated in the RCM.⁵⁸ Specifically, these calculations led to costs that are far less than what it would take to purchase 100% of the resource items outright.

Exhibit 37. Recruitment and Support (Aim 1) Costs for Kentucky by Input Type in 2014–15 (in Shares and Thousands of Dollars)



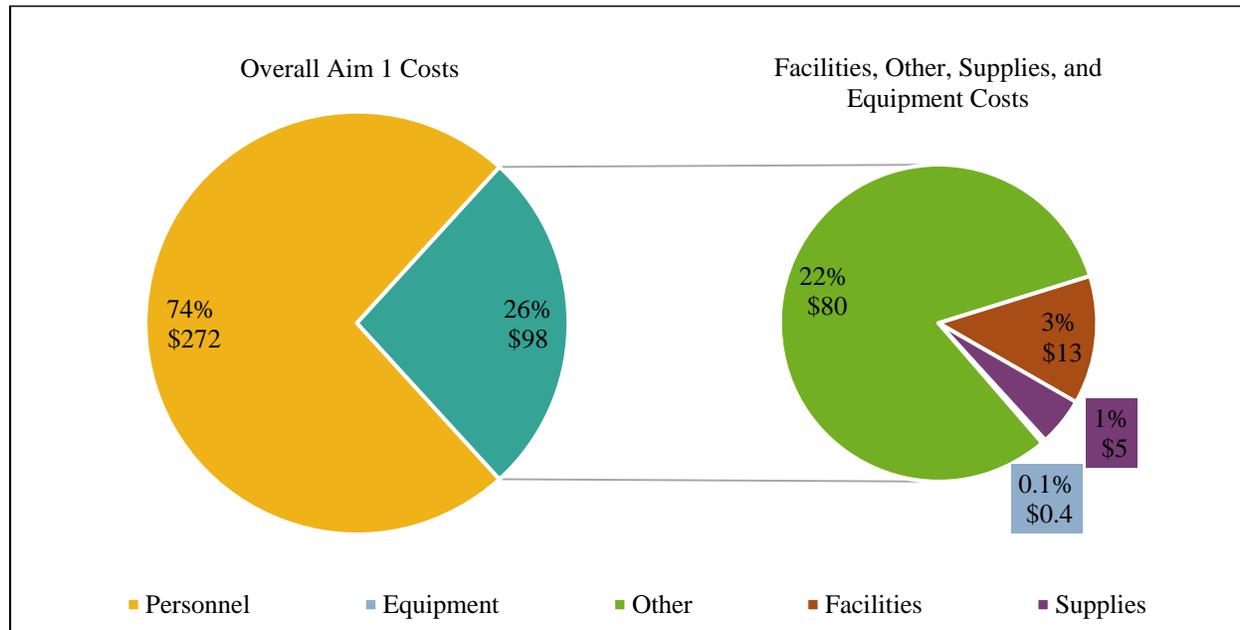
Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.

Source. Data collected by AIR cost study team from the Kentucky EPSB and partners.

⁵⁷ Other costs usually include food, transportation, and subscriptions to online services.

⁵⁸ To estimate the cost of facilities, we annualized their total replacement value, assuming a 30-year life span and a discount rate of 3.5%. A similar calculation was also made for equipment, assuming a five-year life span and a discount rate of 3.5%. These annualized costs were then adjusted to reflect the number of days per year the facility or piece of equipment was used for specific Aim 1 activities.

Exhibit 38. Recruitment and Support (Aim 1) Costs for Kentucky by Input Type in 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.
Source. Data collected by AIR cost study team from the Kentucky EPSB and partners.

Sustainability

Funding Source

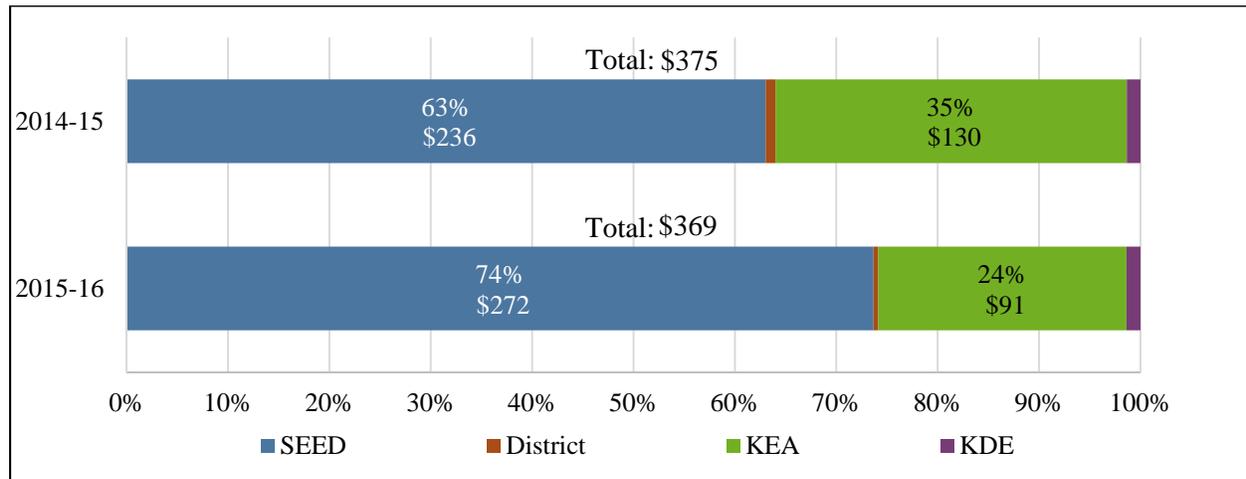
Four funding sources were identified as contributing to Kentucky’s recruitment and support activities: the SEED grant, districts throughout the state, the KEA, and the KDE.

The great majority of costs in both years were borne by the SEED grant (65% in 2014–15 and 75% in 2015–16) and KEA (35% in 2014–15 and 25% in 2015–16). Districts and the KDE each bore around 1% of the costs in both years and are not labeled in Exhibit 39.

When considering the sources of funding for Kentucky’s NT3 site, it is important to bear in mind that some of the Aim 1 activities existed prior to the SEED grant. In particular, the site staff reported that Jump Start and Home Stretch activities were offered previously. Moreover, these activities in particular were administered primarily by the KEA, even after the SEED grant award; therefore, it seems likely that at least these activities could continue without SEED grant funding. However, if new activities under the Targeted Support or recruitment strategies are to continue, they likely will require additional funds should the SEED grant funding diminish or disappear.

KEA funds dropped by 30% from 2014–15 to 2015–16, although because we have only considered two years for this study it is unclear whether this trend will continue. Nonetheless, if KEA were to continue to reduce its support for these activities, it may also be necessary to engage additional partner organizations.

Exhibit 39. Recruitment and Support (Aim 1) Costs for Kentucky by Funding Source in 2014–15 and 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of less than \$20 are not shown.
Source. Data collected by AIR cost study team from the Kentucky EPSB and partners.

Incentives/Stipends for Achievers and Salary Increases

In Kentucky, teachers who achieve NBC are offered a \$2,000 stipend for each year they are teaching in the state with a valid certification. Therefore, stipends represent an induced cost—that is, these costs are not associated with resources used in operating the program but rather are expended only once candidates successfully achieve NBC. Therefore, although the personnel time required to administer the incentives system is included in the formal recruitment strategy, the induced costs of stipends themselves are not. As will be seen later, stipends for candidates who have achieved certification represent a major cost that has a profound impact on the sustainability of Aim 1 efforts. In the following analysis, candidates recruited in a given year are considered to be that year’s cohort, and induced costs are calculated based on the size of this cohort.

In addition, teachers in Kentucky who achieve NBC are also advanced to Rank I in their local salary schedule, resulting in additional pay for each year they are teaching in the state with a valid certification. Therefore, this salary increase represents a second induced cost. As with stipends, candidates recruited in a given year are that year’s cohort, and induced costs are based on its size.

To determine what amount of additional pay the typical NBCT would receive as a result of advancement to Rank I, we reviewed all local salary schedules as of August 2016. First, the district-level Step I salaries at Ranks I and II were averaged across years of experience.⁵⁹ The difference between these average salaries then was calculated for each district. Finally, a weighted average across districts was calculated using the current distribution of Board-certified teachers across Kentucky. This assumed that for any new cohort, candidates will be distributed

⁵⁹ We assumed that NBCT candidates would have at least five years of teaching experience because candidates must begin the certification process with at least three years of teaching experience and it takes, on average, two years to certify. For this reason, salaries at four or fewer years of experience were excluded.

across the state in the same way as are current NBCTs. This resulted in an average additional salary of \$4,810, which was assumed to be realized by each qualifying candidate annually over the forecasted period.

Therefore, the total average incentive provided in Kentucky is \$6,810. However, in order to be consistent with other results cited in this case study, this has been converted to national dollars by using the CWI, resulting in an annual incentive of \$7,848. (See Exhibit A14 for incentive calculations in local dollars.)

For the recruited cohort of 432 candidates in 2014–15, Exhibit 40 shows the cost of stipends and salary increases by year for the 10 years following certification of the cohort of teachers. As with programmatic costs, all induced costs have been adjusted to national prices. For this model, it is assumed that teachers achieve certification in two years, that there is an annual attrition rate of 8.2% (to private schools or out of the teaching profession altogether) and a certification renewal rate of 42.7%.

Assuming a 100% achievement rate (i.e., all recruited teachers achieve certification), after the five-year certification renewal process, approximately 131 teachers will remain both certified and teaching in Kentucky. By the 2025–26 school year, about 93 teachers from the original cohort of 432 will continue to receive the annual additional payment. Using a 1.7% discount rate, the total 10-year expenditure for stipends and salary increases was calculated in real 2016 dollars, equaling approximately \$17,842,000.⁶⁰ Also calculated are estimates using a 75% achievement rate, which results in a 10-year expenditure of approximately \$13,383,000 in real 2016 dollars. The costs of the stipends are shared between the state and the local districts, with the state providing a portion of the costs and the districts making up the difference. The salary increase incentive is entirely provided by the local school district.

⁶⁰ Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Exhibit 40. Estimation of Annual Cost of NBCT Incentives/Stipends for Achievers in Kentucky for 2014–15 Cohort

Incentive	\$7,848	Years for Completion	2
Lifetime of Certificate	5 years	Attrition Rate	8.2%
NBCTs Recruited in 2014	432	Renewal Rate	42.7%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	432	\$3,390,188	\$3,390,188	324	\$2,542,641	\$2,542,641
2017–18	397	\$3,115,520	\$3,063,441	297	\$2,330,754	\$2,291,793
2018–19	364	\$2,856,547	\$2,761,846	273	\$2,142,410	\$2,071,385
2019–20	334	\$2,621,117	\$2,491,860	251	\$1,969,762	\$1,872,625
2020–21	307	\$2,409,231	\$2,252,136	230	\$1,804,961	\$1,687,268
2021–22 (renewal year)	131	\$1,028,043	\$944,945	98	\$769,070	\$706,905
2022–23	120	\$941,719	\$851,129	90	\$706,289	\$638,347
2023–34	110	\$863,242	\$767,160	83	\$651,355	\$578,857
2024–25	101	\$792,613	\$692,618	76	\$596,422	\$521,178
2025–26	93	\$729,832	\$627,096	70	\$549,336	\$472,008
Total			\$17,842,419			\$13,383,007

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from the Kentucky EPSB and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

7. Washington

With 8,500 Board-certified teachers, the state of Washington has the fourth most NBCTs of all states. In addition, during the years of interest for this study, Washington had the largest number of candidates going through the certification process of all six sites. The sheer scope of the recruitment and support activities makes Washington a uniquely complex site.

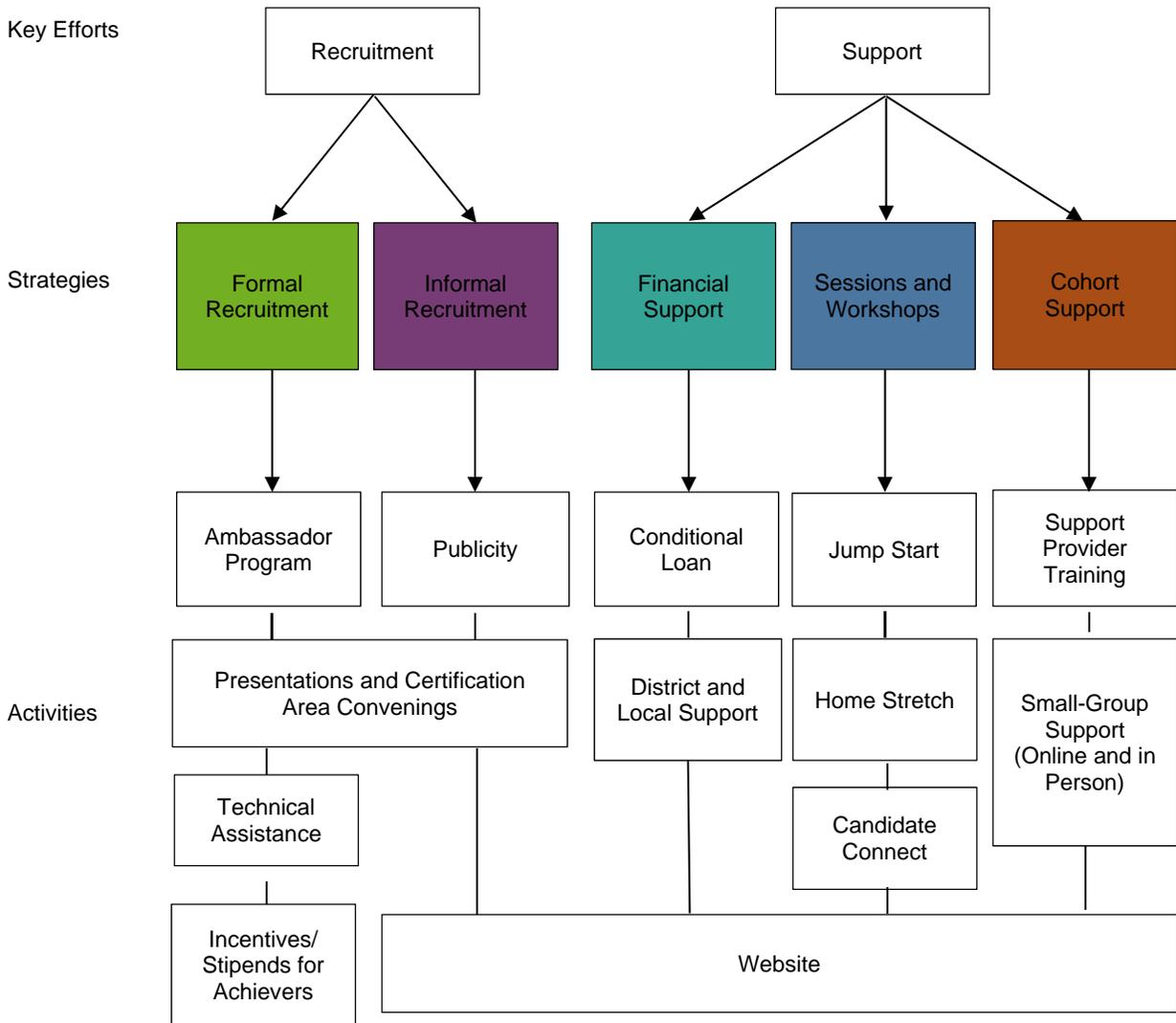
The Washington site is a collaboration among the CSTP, the WEA, and the OSPI. All three partner agencies, along with the support of local districts, have implemented numerous activities to recruit and support National Board candidates. For the most part, each organization has ownership over certain recruitment and support activities; however, there are many points of collaboration between them. Also, when one agency organizes a specific activity for candidates, the other partners are aware of that work and are able to give information and direct candidates to the support they need. In this way, the collaboration in Washington is integrated enough to facilitate substantial information sharing and support among the partners. However, the collaboration is also loose enough to allow for each partner's own organizational and creative liberties.

There are several funders of the work in Washington, with the largest portions of funding coming from districts, the SEED grant, candidate fees, and the WEA. Although this will be discussed further, the numerous funding sources again reflect the overall division of labor and responsibilities of the organizations within the site.

The Washington model of support is largely fee based because candidates pay both to attend group sessions for support and to receive support within a cohort. As at many of the other sites, recruitment activities are almost always free to potential candidates, which enables them to learn about the certification process without making any significant financial commitments. In order to organize the recruitment and support work occurring in Washington, the research team worked with site leadership to develop the framework shown in Exhibit 41. This case study describes the activities shown in Exhibit 41 and their corresponding costs. As with the other sites, this case study will also analyze costs at the strategy level, which groups activities that have similar goals and/or are formatted similarly. This case study describes the Aim 1 activities during fiscal years 2014–15 and 2015–16; however, because these years were years of transition and change within Washington State and the overall National Board process, some context will be discussed as well. As with the other sites, this analysis aims to assist site leadership in their decisions about resource allocation, inform potential sites about the Washington model and its costs, and discuss the sustainability of this work.

Framework and Definitions

Exhibit 41. Cost Model Framework for Washington



As with the other sites, Aim 1 work within Washington is divided into two key efforts: Recruitment and Support. The framework of Aim 1 activities (see Exhibit 41) organizes this work into five main strategies: Formal Recruitment, Informal Recruitment, Financial Support, Sessions and Workshops, and Cohort Support.

As with the other sites, there are several activities that have the explicit goal of promoting NBC, and these have been grouped under Formal Recruitment. In Washington, Formal Recruitment includes the Ambassador Program, Presentations and Certification Convenings, Technical Assistance, and the personnel costs of the Incentives/ Stipends for Achievers. Through the Ambassador Program, NBCTs are trained as ambassadors in order to give presentations in schools about the NBC process.⁶¹ The WEA organizes the Ambassador Program by training

⁶¹ Ambassadors do significant Aim 2 work as well (specifically related to advocacy about National Board certification). However, the only costs included here were related to their recruitment work.

ambassadors, providing them with materials, and offering a structure of support (an ambassador coordinator oversees the program, and several ambassador leads organize the ambassadors within their regions). In total, the ambassadors gave approximately 1,760 presentations in 2014–15 and 2,390 presentations in 2015–16.

As another method of Formal Recruitment, staff members of each of the partner organizations attend conferences or organize events and work to share information related to NBC and the revised certification process. The Presentations and Certification Area Convenings activity include the costs associated with several staff members (from each of the partner organizations) attending the Washington Association for Career and Technical Education conference to share information about the National Board. This activity also includes the costs related to WEA’s certification area convenings, which may offer sessions about NBC and/or provide space for informal conversations about the certification process. Lastly, the Presentations and Certification Area Convenings activity also includes the presentations made by the regional coordinators. These 10 coordinators, trained by OSPI, offer presentations to districts on request. These presentations provide information about the National Board and the certification process. Although the costs associated with all of these Presentations and Certification Area Convenings are divided among Formal and Informal Recruitment, the majority of these costs are categorized as Formal Recruitment (site leadership shared that the majority of this work is formally, and explicitly, recruiting teachers into the certification process).

As another form of Formal Recruitment, Technical Assistance includes several types work provided by the partners. Primarily, this activity includes the staff time associated with staff members in each of the organizations offering information to potential candidates and directing them to the appropriate resources or another partner organization. The work done by regional coordinators to share information with districts and leaders (outside of their presentations) is also included. In addition, the training of the regional coordinators (which enables them to provide technical assistance) is included within this activity. Lastly, the personnel costs associated with maintaining the Incentives/ Stipends for Achievers system at the state level is included in Formal Recruitment.⁶²

Similar to other sites, Washington has Informal Recruitment activities that are more unstructured and/or indirectly recruit teachers into the certification process. This strategy includes Publicity, which mainly consists of personnel time to create e-mail newsletters and the costs associated with WEA’s hard-copy newsletter that is sent out to teachers. Informal recruitment also includes the Website activity, which encapsulates all staff time to update each partner’s website with information regarding the National Board and the certification process. As shown in the framework, the costs associated with the website are spread across several strategies, although 50% of these costs fall under Informal Recruitment. Lastly, as mentioned earlier, a small portion of the Presentations and Certification Area Convenings costs are also included within this

⁶² The Incentives/Stipends for Achievers activity is defined as a recruitment technique because the promise of an annual stipend on completion encourages teachers to engage in the certification process. To this end, although personnel costs associated with administering the incentives system are included under Formal Recruitment, the stipends themselves are considered induced costs and, therefore, are kept separate from programmatic costs in the framework. These induced costs are discussed in more detail in the Sustainability section of this case study.

strategy because some of the efforts associated with these presentations and conferences are more informal and include casual conversations with potential candidates.

Financial Support refers to monetary assistance to help teachers begin or progress through the certification process. The first activity within this strategy is OSPI's Conditional Loan. OSPI offers an interest-free conditional loan that covers the fees associated with three of the four certification components (\$1,425) if candidates fulfill the specified criteria (i.e., they must attend a foundations course and attend cohort support meetings). Although these loans are paid back by the vast majority of candidates, there are some personnel costs associated with processing loan applicants, along with the opportunity cost of loaning this money out (considering other investment opportunities).⁶³ Financial Support also includes District and Local Support that is offered to candidates. This activity includes the costs associated with the support districts offer to their candidates (often the reimbursement of component fees), which was estimated by using a list of district supports compiled by OSPI.⁶⁴

The Sessions and Workshops strategy contains the support activities that are formatted as meetings open to all current candidates. This includes Jump Start, Home Stretch, and Candidate Connect. Both Jump Start and Home Stretch are organized and implemented by WEA; however, they support candidates at different stages in their candidacy. Jump Start is a four-day seminar that offers candidates information on the National Board, the certification process, and an overview of the four components and provides time for candidates to speak to an NBCT in their certification area. There are two Jump Start sessions each year in the summer. Home Stretch is targeted to candidates at the end of their candidacy. These one-day seminars help candidates make final revisions before turning in their portfolios. Grouped within certification areas (with NBCTs from those certification areas), candidates offer and receive peer feedback on a component and have time for component preparation. These two sessions and workshops are both candidate fee based, although WEA funds aspects of the programs (the personnel costs associated with planning the events and/or other costs not covered by fees).

The final activity within Sessions and Workshops is Candidate Connect, which involves half-day discussions held within schools and led by NBCTs. These began in January 2016 and provide space for candidates to come together with other candidates in their certification area in order to talk about their experiences and receive guidance. During the 2015–16 year, three were held in different regions throughout Washington, and they were all offered to candidates without any fee. OSPI leads the organization of these sessions, and, because of the great feedback they received from candidates, they plan to continue these in the future.

⁶³ In order to calculate this opportunity cost, we calculated the net present value of the loans given out. Henry M. Levin and Patrick J. McEwan explain this discounting process in their book *Cost-Effectiveness Analysis: Methods and Applications* (2001): "We must also adjust costs for their time value, a procedure that is referred to as 'discounting.' The basic idea is that costs occurring in the future are less of a burden than costs occurring in the present. Thus, we need to discount future costs to properly compare them with present costs" (p.91). In the context of OSPI's conditional loan, we needed to account for the fact that although OSPI will receive the loan amount back from the candidate after certification, the fact that this is in the future means the payment is worth less (they lost the opportunity to invest that money in other ways).

⁶⁴ In order to estimate the amount spent by districts, we assumed that 100% of candidates in a district use the supports offered. We used National Board data to calculate the distribution of candidates across districts and assumed this distribution remained constant across both years.

Cohort Support in Washington includes the training of cohort facilitators and the small-group support offered by these facilitators. The Support Provider Training in Washington is organized and facilitated by OSPI's regional coordinators. These cohort facilitators (sometimes called CSPs at other sites) are able to lead groups of candidates through their candidacy by providing Small-Group Support.

Although all of the sites studied have a sort of cohort or targeted support offered to candidates, Washington's system is truly unique, both in its overall structure and in the type of support offered at the cohort level. The overall Small-Group Support system is based on support providers, which are institutions (for example, school districts, universities, or educational service districts) that act as a fiscal agent between candidates and their cohort facilitators. These support providers set the price for receiving the support of a cohort facilitator in their area (these areas are not formally established, but often support providers are spread out geographically and serve proximal teachers who can easily drive to cohort meetings). In this way, candidates in different areas will have access to different support providers that may set different prices for this cohort support. Although OSPI offers statewide suggested prices for this support, site leadership acknowledged the wide range of prices for this support across the state of Washington (which may call into question the equity of the system). Because this support is organized at the support provider level, estimating the associated costs with this support was very difficult (there is no state-level data available).

The fact that these years of interest were during the overall National Board transition also adds complexity to understanding the content of cohort support within Washington during this time. Within a cohort of candidates led by a cohort facilitator, the candidates may receive support throughout an entire year related to the entire certification process. This was the typical structure of cohort support under the old NBC process. Throughout the somewhat tumultuous transition to the new NBC process (which will be discussed later), some cohorts began to offer support that was component based (meaning one cohort would simply support candidates for one component and only for the time needed for them to complete that one component). However, in 2015–16, when some cohorts were switching over to this type of support, there is little to no information at the state-level on how many of the cohorts were functioning under the old type of support versus the new component-based support. These complexities within the estimation process will be discussed later. Lastly, OSPI also organizes online support for candidates who cannot access cohort support for some reason (perhaps because of their location and a lack of support providers in their area).

As mentioned earlier, half of the Website costs are divided among the support activities because each organization's website offers information and resources related to these support activities.

The research team worked with site leadership and staff at each organization in order to include all main recruitment and support work within the framework. However, a few recruitment and support efforts were not quantifiable within this project's scope. As with other sites, the efforts of NBCTs throughout Washington to share with coworkers about NBC were not estimated. This is especially important to note in Washington, where these costs are most likely higher than in any other site. Because of the sheer number of NBCTs (more than 15% of all teachers are National Board certified in Washington), the dissemination of information about National Board

certification by current NBCTs is a very common recruitment activity in Washington.⁶⁵ Site leadership emphasized the success of this type of word-of-mouth recruitment; however, estimating teacher and school leader time on these informal conversations was outside of the scope of this work. Therefore, the recruitment costs shared here are most likely a lower bound of the actual costs throughout the state of Washington.

Similarly, there are also local-level costs associated with District and Local Support and the Cohort Support system that were unavailable at the state level and, therefore, were unquantified. Although the costs of the actual support offered by the district could be estimated, the personnel costs within each district in order to maintain the support were unavailable. Similarly, although many of the costs associated with Cohort Support were estimated, the personnel time within the support providers was also unavailable and is not included in the costs. Therefore, the Support costs (where these personnel costs would have been included) are also most likely a lower bound of those actual costs.

Overall Cost of Aim 1 Strategies and Activities

In Washington, the cost of Aim 1 (recruitment and support) work was approximately \$1,533,452 in 2014–15 and \$1,933,554 in 2015–16. As mentioned earlier, these totals include all personnel and nonpersonnel programmatic costs of the site’s Aim 1 activities (where data was available), but these totals do not include the induced cost of the stipends paid to candidates after they achieve certification.⁶⁶

As with the other case studies, these costs have been adjusted to represent national prices. Because cost of living and other market indicators are somewhat higher in Washington than in the rest of the country, these costs are higher when presented in local Washington dollars. In order to adjust the locally reported resource costs into national prices, we used the 2014 NCES CWI, an index that measures the relative cost of recruiting and retaining educational staff across 800 Census-defined place-of-work areas across the country. Throughout this case study, all costs will refer to nationally adjusted prices. In addition, because we present amounts for two different years (2014–15 and 2015–16), we have further translated all amounts into constant 2016 dollars by using the U.S. Bureau of Labor Statistics Consumer Price Index for All Urban Consumers.⁶⁷

Exhibit 42 displays overall Aim 1 costs in 2014–15 and 2015–16, and these costs on a per-active-candidate basis. Active candidates are all individuals who are pursuing candidacy in a given year, including candidates who began the certification process that year and those who are continuing their work from prior years (whether they began under the old or new system of certification). In the 2014–15 year, 1,586 active candidates were supported at a total cost of \$967 each. The following year, overall costs per candidate totaled \$853 for 2,268 active candidates.

⁶⁵ According to 2015 National Board data:

http://www.nbpts.org/sites/default/files/certification_2015/2015_staterankings_all_nbcts_percent_of_teaching_population.pdf.

⁶⁶ This includes costs that do not support implementation of the program itself but rather are induced as a result of participation in the program.

⁶⁷ The data and documentation for the CWI is available online at http://bush.tamu.edu/research/faculty/Taylor_CWI/.

(See Exhibit A9 and Exhibit A10 for the detailed breakdown of costs per candidate for recruitment and support separately.)

Exhibit 42. Costs Overall and per Active Candidate for Recruitment and Support (Aim 1) for Washington

Overall (Recruitment and Support) Costs			
Year	Overall Program Costs	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$1,533,452	1,586	\$967
2015–16	\$1,933,554	2,268	\$853

Note. Amounts represent constant 2016 dollars. Active candidates include those who are in the process of certification in a given year plus those who are continuing on from prior years.

Costs by Strategy and Activity

Exhibit 43 shows overall Aim 1 costs by year and strategy in 2016 dollars. The strategy with the largest associated cost in both years was Formal Recruitment, followed by the Financial Support strategy. Overall, the support strategies represented the majority of costs both years. As at the other sites, a General strategy category was included, which represents costs that are not specific to any activity. In Washington, the vast majority (more than 60% of General costs in both years) were facilities costs associated with the general office space needed by WEA and OSPI (CSTP staff work from home). The remainder of the General costs was related to the general equipment (staff computers and cell phones) and general administration personnel costs needed to support this Aim 1 work.

Exhibit 43. Total Recruitment and Support (Aim 1) Costs for Washington by Strategy in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of less than \$30 are not shown.

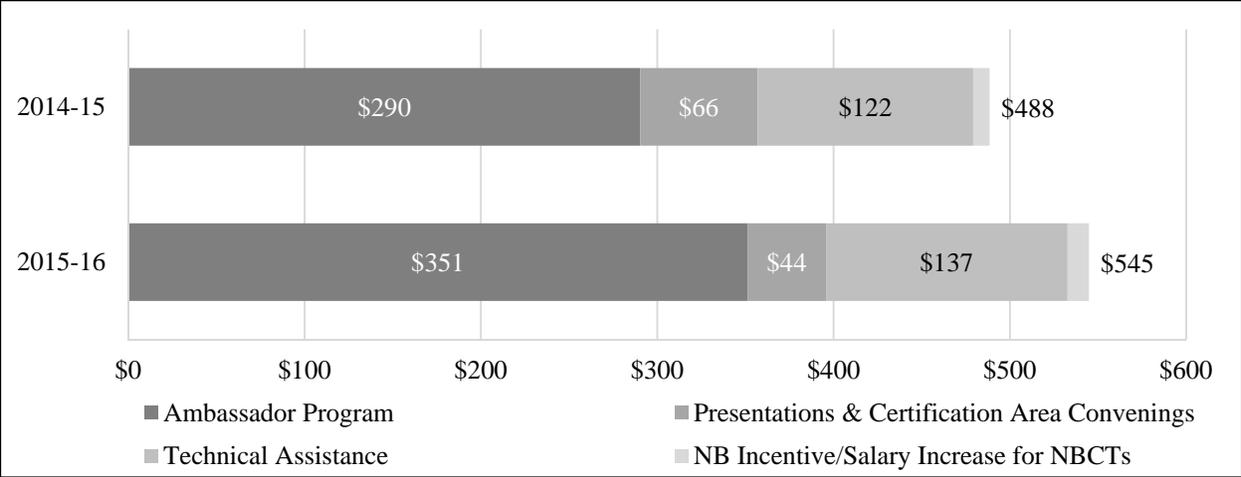
Source. Data collected by AIR cost study team from the Washington NT3 leadership and partners.

Recruitment

The costs associated with both the Formal and Informal Recruitment strategies were relatively consistent for both years, with slight increases in 2015–16. In 2014–15, formal recruitment costs totaled about \$488,000, and informal recruitment costs totaled about \$91,000. In 2015–16, recruitment costs increased slightly: Formal recruitment costs totaled \$545,000, and informal recruitment costs totaled \$100,000. Because overall costs increased in 2015–16, the percentage of programmatic costs related to recruitment decreased—from 39% in 2014–15 to 34% in 2015–16 (not including general costs).⁶⁸

The strategy with the highest associated costs in both years was Formal Recruitment, which totaled \$488,000 in 2014–15 and increased to \$545,000 in 2015–16 (see Exhibit 44). The Ambassador Program accounted for the majority of these costs in each year—about \$290,000 in 2014–15 and \$351,000 in 2015–16. The large increase in presentations given by ambassadors accounted for this increase. In addition, Technical Assistance accounted for a sizable portion of the Formal Recruitment costs. This technical assistance offered by each partner’s staff members and the regional coordinators totaled about \$122,000 in 2014–15 and \$137,000 in 2015–16.

Exhibit 44. Total Formal Recruitment Costs for Washington by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$20 or less are not shown. NB = National Board.
Source. Data collected by AIR cost study team from the Washington NT3 leadership and partners.

Once General costs were prorated among recruitment and support on the basis of the percentage of costs, overall recruitment costs totaled about \$591,000 in 2014–15 and \$653,000 in 2015–16.⁶⁹

⁶⁸ General costs are allocated to the key efforts of recruitment and support on the basis of the share of total cost attributed to each key effort.

⁶⁹ In 2014–15, about \$11,192 of the General costs were added to the Informal and Formal recruitment totals to equal all recruitment costs. In 2015–16, about \$8,241 of General costs were added to the Informal and Formal recruitment totals to equal the overall recruitment costs.

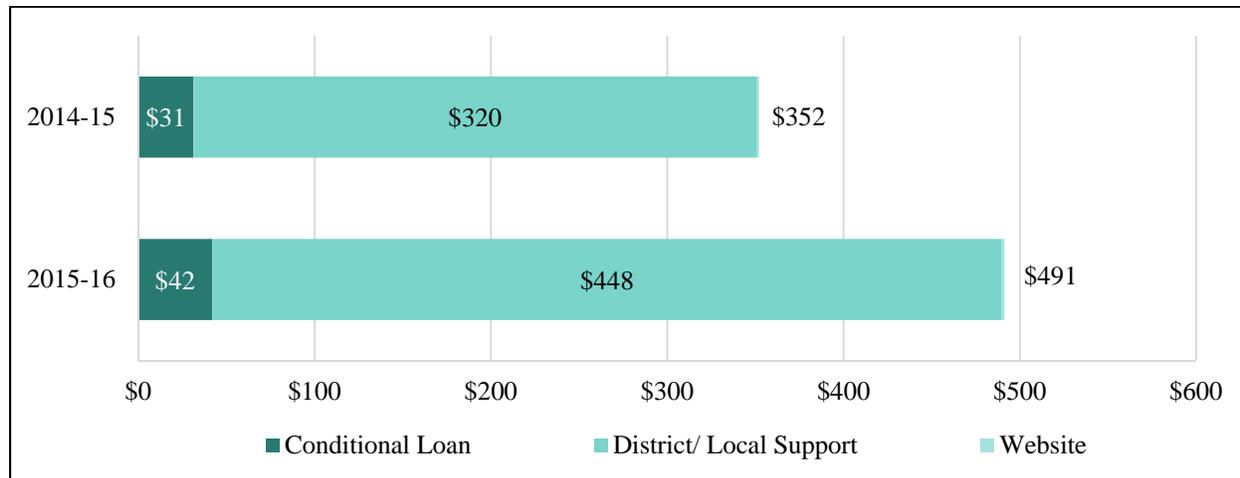
Overall, recruitment costs were about one third of overall costs in both years, which (as mentioned earlier) may be smaller than the actual costs because of unquantified teacher and school leader time dedicated to word-of-mouth recruitment.

Support

As mentioned earlier (and similar to costs at other sites), the majority of program costs were spent on the key effort of support. Support strategies made up more than 60% of programmatic costs in both years (excluding general costs). Including general costs, overall support costs totaled about \$942,000 in 2014–15 and \$1,280,000 in 2015–16.⁷⁰

The support strategy with the highest total costs in both years was Financial Support. As shown in Exhibit 45, costs associated with Financial Support totaled about \$352,000 in 2014–15 and \$491,000 in 2015–16 (which is about 23% and 26% of overall programmatic costs, respectively). Financial Support included costs associated with both the Conditional Loan offered by OSPI and the support offered by individual districts. Both years, the vast majority of Financial Support costs were associated with the local support offered by districts, often in the form of fee reimbursements. Although a few more districts began to offer support in 2015–16, the increase in these costs was mostly due to the overall increase in the number of candidates in Washington (from 1,586 in 2014–15 to 2,268 in 2015–16). The cost of the website and database activity (which supports the funding assistance work) was very small (about \$1,000 each year).

Exhibit 45. Total Financial Support Costs for Washington by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$20 or less are not shown.

Source. Data collected by AIR cost study team from the Washington NT3 leadership and partners.

The costs associated with sessions and workshops totaled \$300,000 in 2014–15 and \$335,000 in 2015–16, which accounted for about 20% of programmatic costs in 2014–15 and about 18% of costs in 2015–16. The vast majority of these costs were associated with Jump Start (more than

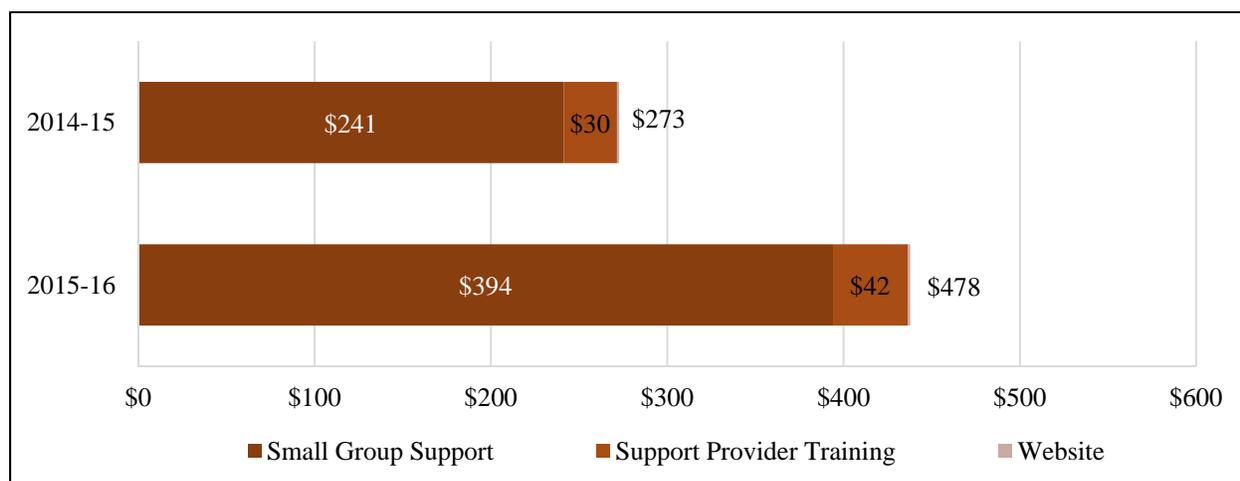
⁷⁰ For the calculation of support costs, in 2014–15, about \$17,847 of the general costs were added to the support strategy totals to equal all support costs. In 2015–16, about \$16,145 of general costs were added to the support strategy totals to equal the overall support costs.

60% of Sessions and Workshops costs in both years). The small increase in these costs was associated with the beginning of the Candidate Connect activity (which did not exist in 2014–15) and a small increase in Jump Start costs because of the larger number of candidates in 2015–16.

The final support strategy, Cohort Support, underwent the largest increase in costs between the two years. As shown in Exhibit 46, the costs associated with Cohort Support rose from about \$273,000 in 2014–15 to \$478,000 in 2015–16 (a 60% increase in costs). Because the number of cohorts meeting and the amount that cohort facilitators were paid was unavailable (tracked only at the support provider level), the costs of this support was estimated using the number of candidates, the percentage supported in cohorts (approximated by site leadership), and the price of support recommended by OSPI. The increase in the costs associated with Small-Group Support was a result of two of those variables increasing: the number of candidates in Washington and the estimated proportion of candidates who participate in cohorts.

Leaders in Washington estimate that participation in cohort support, which used to include about 75% of candidates under the old National Board system, most likely dropped to around 40% in 2014–15. As previously mentioned, these two years (2014–15 and 2015–16) were the transition years from the old to the new NBC system. This transition was very difficult for the Small-Group Support system because both support providers and cohort facilitators scrambled to figure out how best to support candidates in the new system. The way in which the new National Board system was introduced offered little guidance to help support services acclimate, and this resulted in both fewer candidates partaking in cohort support during these transition years and fewer facilitators offering support. As support providers and cohort facilitators learned more about the system and adjusted their support, it was estimated that more candidates participated in a cohort in 2015–16 (about 50%). However, this participation in both years was much lower than what Washington site leadership would expect in the future; they expect it again to rise to 75% or more once support providers feel reassured the system is not changing and feel more confident support will be used. These Cohort Support costs during these transition years most likely do not reflect costs expected in the future.

Exhibit 46. Total Cohort Support Costs for Washington by Activity in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$20 or less are not shown.

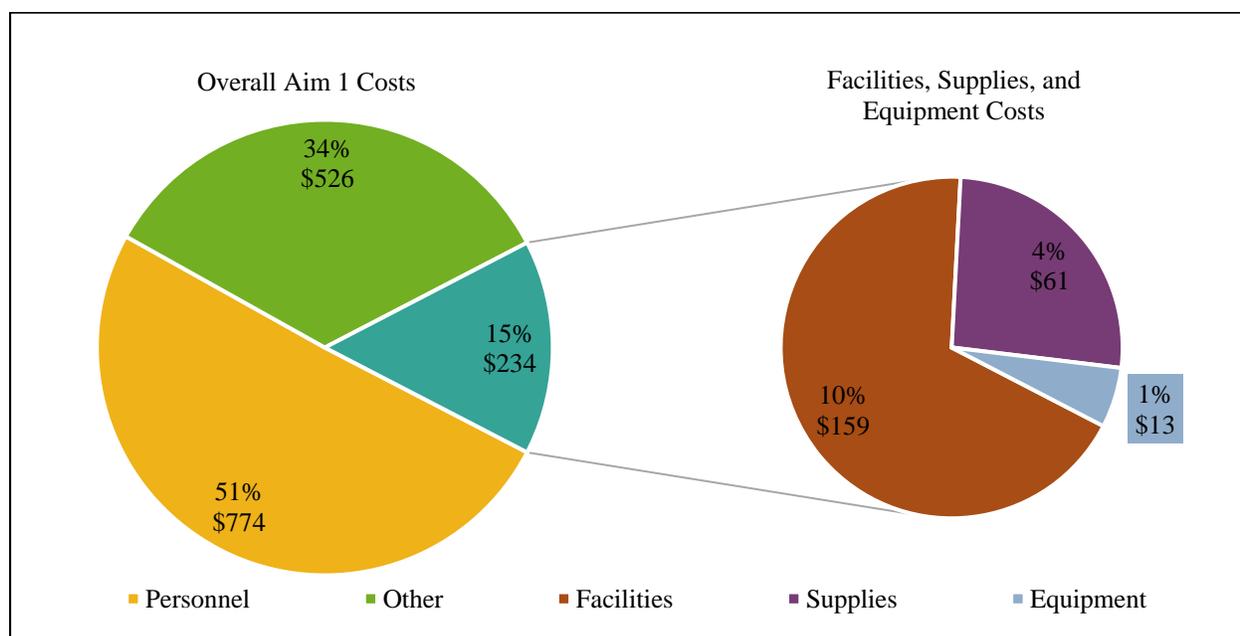
Source. Data collected by AIR cost study team from the Washington NT3 leadership and partners.

Resource Type

As mentioned in previous case studies, the ingredients approach divides resource costs among five resource categories: Personnel, Facilities, Equipment, Supplies, and Other. In 2014–15, staff and other personnel time accounted for approximately 51% of all Aim 1 costs (see Exhibit 47). In the following year, the share of Personnel costs decreased to 46% (see Exhibit 48). The other category also represented a large portion of costs in both years: 34% in 2014–15 and 39% in 2015–16. District and Local Support (the payment of component fees by local districts) accounted for the vast majority of other costs in both years; however, the Other category also included food costs, transportation costs, and lodging costs.

As at the other sites, equipment represented the smallest portion of costs in both years (only about 1% in both years). Once again, this can be attributed in part to the way that facilities and equipment are calculated in the RCM.⁷¹ These calculations led to costs that are far less than what it would take to purchase 100% of the equipment outright. The estimated total equipment cost was approximately \$13,000 in 2014–15 and \$16,000 in 2015–16.

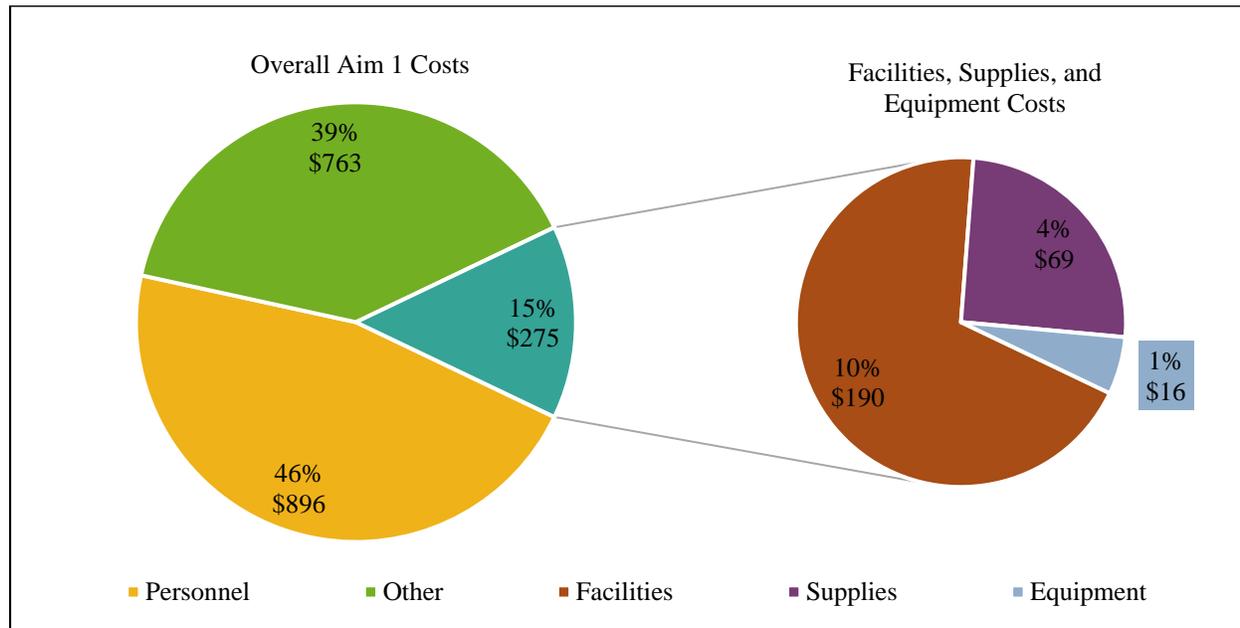
Exhibit 47. Recruitment and Support (Aim 1) Costs for Washington by Input Type in 2014–15 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.
Source. Data collected by AIR cost study team from the Washington NT3 leadership and partners.

⁷¹ To estimate the cost of facilities, we annualized their total replacement value, assuming a 30-year life span and a discount rate of 3.5%. A similar calculation was also made for equipment, assuming a five-year life span and a discount rate of 3.5%. These annualized costs were then adjusted to reflect the number of days per year the facility or piece of equipment was used for specific Aim 1 activities.

Exhibit 48. Recruitment and Support (Aim 1) Costs for Washington by Input Type in 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Percentages might not sum 100 due to rounding.
Source. Data collected by AIR cost study team from the Washington NT3 leadership and partners.

Sustainability

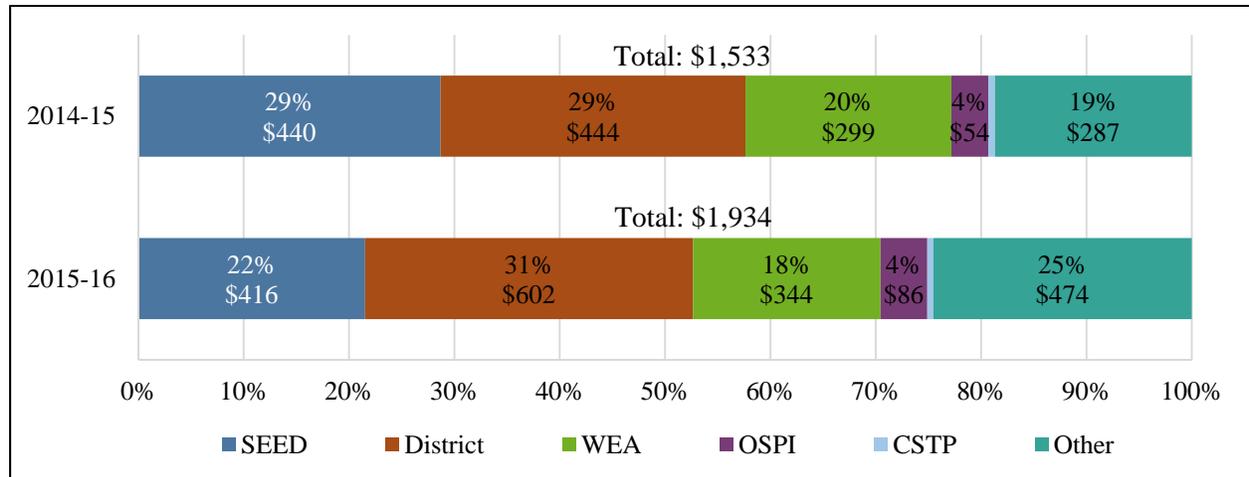
Funding Source

Six funding sources were identified as contributing to Washington’s candidate recruitment and support efforts: the SEED grant, the OSPI, the WEA, the CSTP, individual school districts, and a few other funding sources. The SEED grant, district funding, and other funding covered the majority of costs in both years (although WEA also covers a sizable portion in both years). Districts covered the largest portion of costs in both years: 28% and 27%, respectively. The great majority of this district funding was dedicated to financial supports offered to candidates. The other funding source, which covered about 19% of costs in 2014–15 and 25% of costs in 2015–16, is almost entirely candidate fees, given that several activities (most notably Jump Start and Home Stretch) are funded by fees.

As shown in Exhibit 49, the costs associated with this Aim 1 work were borne by numerous sources, with no source covering more than 31% of costs in either year. This was unique to the Washington model and makes sense considering the tight network of partners and their ownership over various aspects of this Aim 1 work. In the future, this distribution of funding sources is important to consider as the site plans how to finance programs when temporary funding sources (such as the SEED grant) may no longer be available. Because of this network of multiple partners, the state has numerous options for funding in the future. It may be possible for the state to continue to finance these activities and perhaps distribute additional costs among the three main partners if the SEED funding is decreased. Increased funding from these partners,

increased support from districts, and/or increased candidate fees could all cover the costs that are currently funded by SEED if that funding decreases in the future.

Exhibit 49. Recruitment and Support (Aim 1) Costs for Washington by Funding Source in 2014–15 and 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of \$20 or less are not shown.

Source. Data collected by AIR cost study team from the Washington NT3 leadership and partners.

Incentives/Stipends for Achievers

In Washington, teachers who achieve NBC are offered a \$5,000 stipend every year they teach with an active certification (\$5,000 in Washington dollars). This annual stipend represents induced costs, which are incurred only once a candidate is certified, rather than as part of the program delivery itself. For the purposes of the cost study, candidates recruited in a year (according to the National Board definition) are considered to belong to that year’s cohort, and total induced costs are calculated based on the size of the cohort. To allow for comparison with results from the other NT3 sites, this incentive was converted into a national price (\$4,856 per year). The following results are based on this national price, although all of these incentive calculations were also performed for Washington by using local dollars. (See Exhibit A15 for these incentive calculations in local dollars).

For the cohort of 1,009 candidates recruited in 2014–15, Exhibit 50 shows the annual cost of stipends for each of the 10 years following the two-year period it would take for the typical candidate to achieve certification. This model assumes an annual teacher attrition rate of 8.2% (to private schools or out of the teaching profession altogether) and a certification renewal rate of 57.3%. This renewal rate was derived by taking a weighted average of historic renewal rates in National Board data. This renewal rate was, therefore, for the old NBC process, and site leadership expects this renewal rate to be much higher in the future (meaning the cost of paying out these stipends may be higher than shown here). Assuming a 100% achievement rate (i.e., all recruited teachers achieve certification), after the five-year certification renewal process, approximately 411 teachers will remain both certified and teaching in Washington. By the 2025–26 school year, only 292 teachers from the original cohort of 1,009 is still expected to be certified and teaching in the public sector. If 75% of the original recruited cohort achieves

certification, approximately 308 teachers will remain certified and teaching in the public sector in Washington after five years and 219 after 10 years.

Error! Reference source not found. outlines the cost of incentives across the state, assuming the annual calculated weighted average of \$4,856 per NBCT. In Washington, there is an additional stipend offered to NBCTs teaching within a challenging school, as defined by the percentage of students eligible for free or reduced-price lunch within a school. This challenging school stipend is up to \$5,000 (paid annually) and is prorated based on the teacher's FTE. This additional stipend is not included in these estimations because we do not have access to data on the distribution of NBCTs within specific Washington schools. Therefore, these estimations are the lowest bound for the induced costs incurred. Assuming an initial 100% achievement rate, total expenditure equals approximately \$27,700,000 in real 2016 dollars. If only 75% of the original cohort of candidates achieves certification, incentives will total approximately \$20,800,000 in real 2016 dollars. This cost will be borne by the state of Washington.

These total expenditures are only for the cohort of NBCTs recruited in 2014–15. In reality, the state will pay all NBCTs this stipend (and the challenging school stipend), which will include many more teachers recruited and certified before 2014–15 (therefore, total expenditures for all stipends will be much higher than shown here). Also, these incentives, if considered a form of recruitment, cost more than the entire programmatic costs related to Aim 1 in 2014–15. They are, therefore, an important factor to consider for the sustainability of this program. If the program successfully recruits more teachers and more NBCTs renew (as site leadership expects), then these stipends will likewise increase dramatically in the future.

Exhibit 50. Estimation of Annual Cost of NBCT Incentives/Stipends for Achievers in Washington for 2014–15 Cohort

Incentive	\$4,856	Years for Completion	2
Lifetime of Certificate	5 years	Attrition Rate	8.2%
NBCTs Recruited in 2014	1,009	Renewal Rate	57.3%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	1,009	\$4,899,459	\$4,899,459	757	\$3,674,594	\$3,674,594
2017–18	926	\$4,497,703	\$4,422,521	695	\$3,373,278	\$3,316,890
2018–19	850	\$4,128,892	\$3,992,010	638	\$3,096,669	\$2,994,007
2019–20	781	\$3,790,323	\$3,603,407	585	\$2,842,742	\$2,702,555
2020–21	717	\$3,479,516	\$3,252,633	537	\$2,609,637	\$2,439,475
2021–22 (renewal year)	411	\$1,993,763	\$1,832,604	308	\$1,495,322	\$1,374,453
2022–23	377	\$1,830,274	\$1,654,209	283	\$1,372,706	\$1,240,657
2023–24	346	\$1,680,192	\$1,493,180	260	\$1,260,144	\$1,119,885
2024–25	318	\$1,542,416	\$1,347,826	238	\$1,156,812	\$1,010,870
2025–26	292	\$1,415,938	\$1,216,622	219	\$1,061,953	\$912,466
Total			\$27,714,471			\$20,785,853

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from the Washington NT3 leadership, partners, and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

8. Comparisons Across Sites

To understand resource use across the five sites included in our study better, we have conducted a comparative analysis of some key aspects of the gathered data. This includes considering the overall costs at each site both in absolute and relative (i.e., per-candidate) terms. Similarly, we divided overall costs into the two key efforts, recruitment and support, and analyzed these in both absolute and relative terms. These analyses provide a high-level overview of the similarities and differences across sites.

Digging deeper into the data, we considered spending by strategy across all sites, including proportional allocation of overall costs. By consolidating strategies into five distinct categories, we are able to understand better how site allocation to particular types of activities may have differed. Similarly, we compared spending on personnel as opposed to nonpersonnel resources.

With respect to sustainability, we compared spending by funding sources, including the level of effort of each site's partner organizations. The extent to which site activities were supported by funding other than the SEED grant may indicate the extent to which its program could be sustained beyond the life of the grant. Moreover, we examined the estimated future induced costs resulting from incentive payments to candidates achieving and maintaining National Board Certification. Although these estimates are not precise, they are useful as a barometer for the extent to which a site will need to identify long-term funding for current candidates, further contributing to an understanding of program sustainability.

Although we believe that comparing costs across sites is helpful to understand differences in allocation of funds, sites varied significantly in a variety of ways. For example, there was variation in the extent to which we were able to capture costs with precision. This was primarily due to the data available, to what extent costs had to be estimated, and the precision with which we were able to make these estimates.

Another important difference is the size of each site program, perhaps best illustrated by the number of candidates recruited and supported (see

Exhibit 51). For example, the Washington site served significantly more candidates than did the other sites. In fact, Washington recruited and supported more candidates than all of the other sites combined in both years.

These are just some examples of why we suggest readers keep the context provided in the site cases studies in mind when interpreting any site comparison.

Exhibit 51. Number of Recruited and Active Candidates by Site and Year

Year	Type of Candidate	San Francisco	New York	Arizona	Kentucky	Washington
2014–15	Recruited	94	206	261	432	1,009
	Active	124	335	451	597	1,586
2015–16	Recruited	63	181	217	333	1,223
	Active	138	377	469	731	2,268

Note. Recruited candidates are individuals who have created an online account, paid the \$75 registration fee, and purchased a component. Active candidates are all those who are pursuing candidacy in a given year, including those who began the certification process in the current year and those who are continuing their work from prior years.

Source. Data provided by NBPTS staff

Overall Cost of Aim 1 Strategies and Activities

With respect to overall costs, the five sites in our study spent an average of \$825,000 in 2014–15 and \$1,001,000 in 2015–16 (see Exhibit 52). However, there was significant variation across sites, with 2015–16 overall costs ranging from \$369,000 in Kentucky to about \$1.9 million in Washington. Washington was consistently the top spender, outspending all other sites by close to half a million in both years. Kentucky consistently spent the least, with San Francisco a close second.

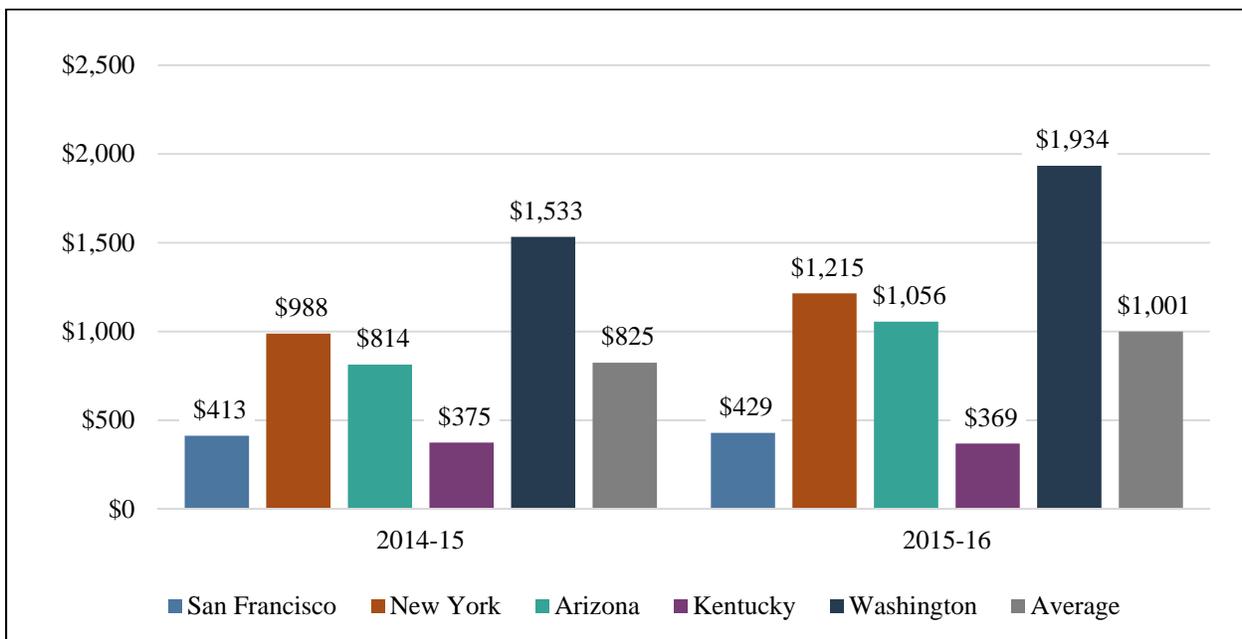
However, when you consider cost per candidate, which is a better relative measure of site spending, the results shift. In costs per candidate, San Francisco and New York state share the top spot, each consistently spending close to \$3,000 per candidate (see Exhibit 53). This relatively high expenditure per candidate in San Francisco may be explained by the small size of the program. Because San Francisco (the only district case study) had many fewer candidates than did statewide programs, this site could not take advantage of economies of scale (i.e., lower spending per candidate because of higher numbers of candidates). In New York, the high per-candidate costs may have been due to the expenditure of the Albert Shanker Grant or to relatively high expenditure on website development and other forms of publicity.

In contrast, Kentucky and Washington consistently had the lowest costs per candidate, spending less than \$1,000 per candidate. Because Kentucky and Washington were the two largest programs, in terms of candidates served, it stands to reason that, in contrast to San Francisco, they were able to take advantage of economies of scale, lowering their costs per candidate. However, this could also have been the result of uncaptured costs. For example, in Washington, as discussed in its case study, there were uncaptured costs of the personnel time of support providers and NBCT time spent on word-of-mouth recruitment.

Changes in costs per candidate over time were mixed. Arizona and New York increased costs per candidate, whereas the other sites all lowered such costs over time.

Comparing overall costs in this way can help gain a high-level understanding of site spending. However, without digging deeper to examine spending on particular strategies or types of resources, it is hard to understand what underlies the observed differences. The next three parts of this section focus on more detailed aspects of site spending to address this better.

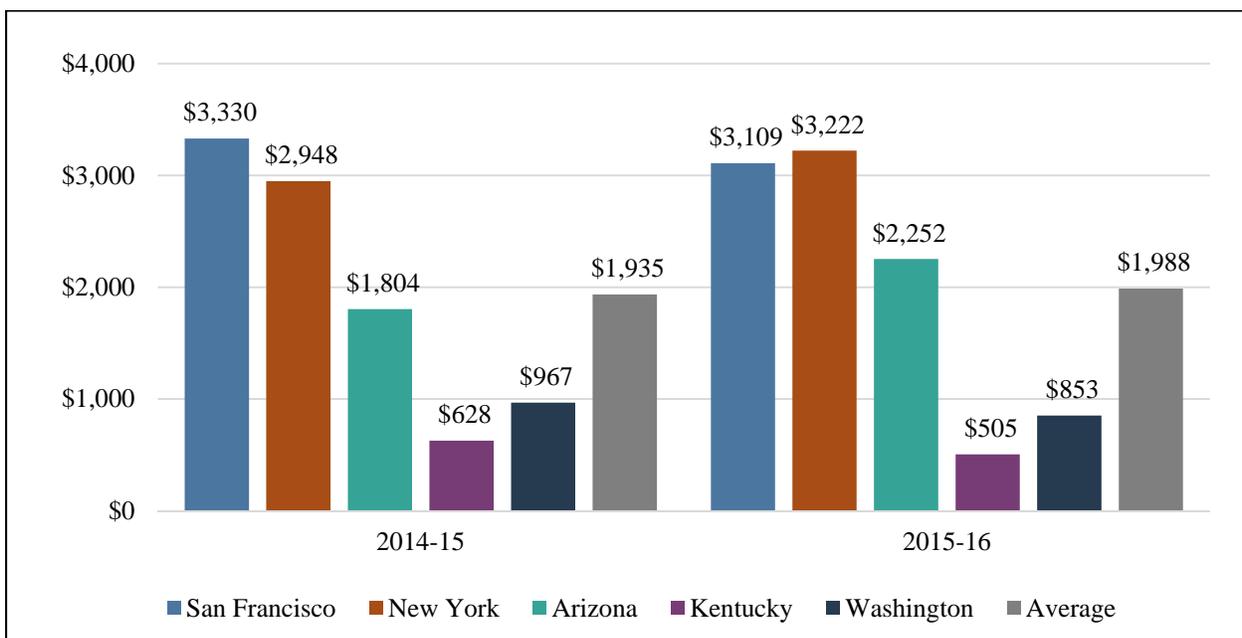
Exhibit 52. Overall Aim 1 Costs by Site in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from sites and their partners.

Exhibit 53. Costs per Active Candidate by Site in 2014–15 and 2015–16



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from sites and their partners.

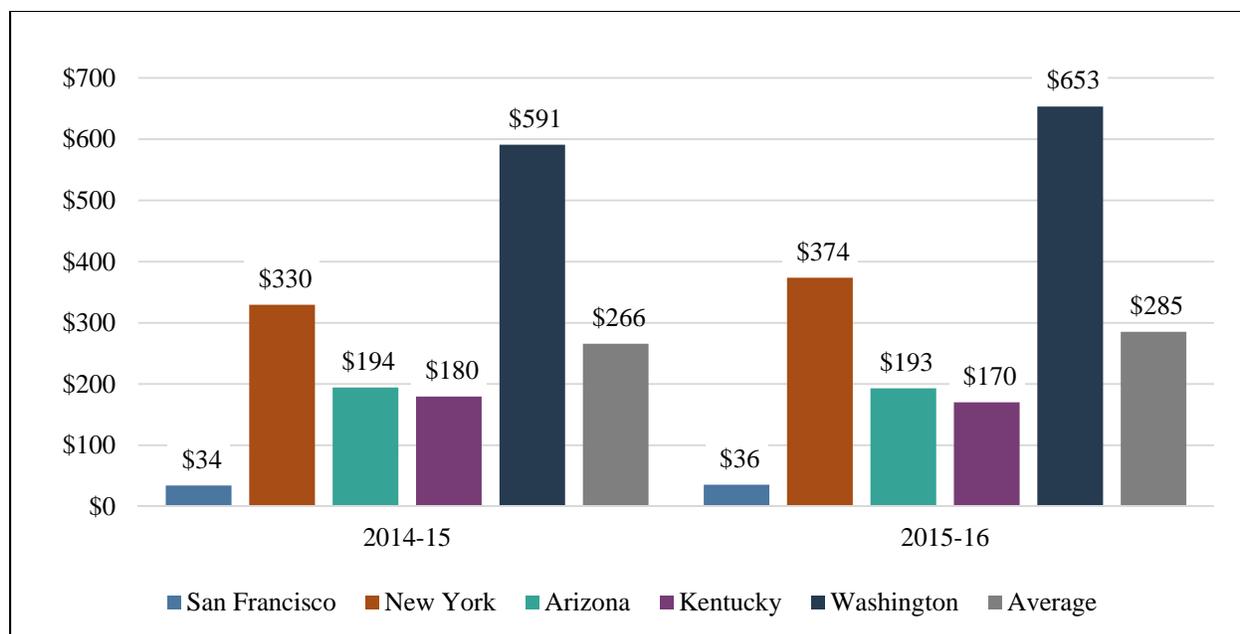
Costs by Key Effort

Recruitment

To begin with, when we examined total spending on recruitment strategies only, we found additional variation across sites. On average, sites spent \$266,000 on recruitment in 2014–15 and \$285,000 in 2015–16 (see Exhibit 54). We found that Washington still had the highest costs, but San Francisco now spent the least—only \$34,000 in 2014–15 and \$36,000 in 2015–16. In addition, Kentucky was less of an outlier here, spending similar amounts as Arizona in both years, averaging \$175,000 and \$194,000, respectively, across the two years.

However, taking into account the size of each site’s programs, on the basis of the number of newly recruited candidates, the results change (see Exhibit 55). Most sites were spending similar amounts on recruitment per candidate, with spending differences between four of the five measuring no more than \$400 in either study year. The clear outlier is New York, which consistently spent the most per candidate on recruitment, spending \$855 to \$1,175 more than the next highest site. This expenditure per candidate may be explained by the relatively high personnel costs attributed to teacher center directors. We were unable to capture the efforts of these directors at the individual level and, therefore, gathered averages with low precision. Although teacher center directors were contributing to recruitment work across the state, more accurate data on how their time was spent may have impacted the magnitude of New York’s recruitment expenditure.

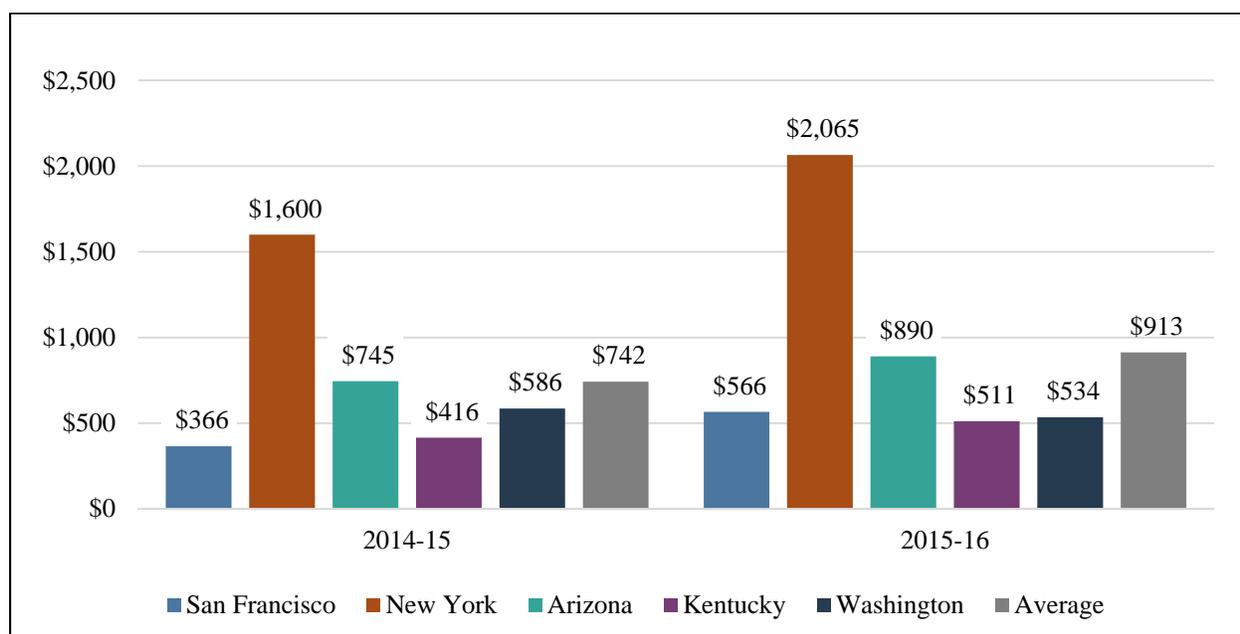
Exhibit 54. Total Recruitment Costs by Site in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from sites and their partners.

Exhibit 55. Total Recruitment Costs per Candidate by Site in 2014–15 and 2015–16



Note. Amounts represent constant 2016 dollars.

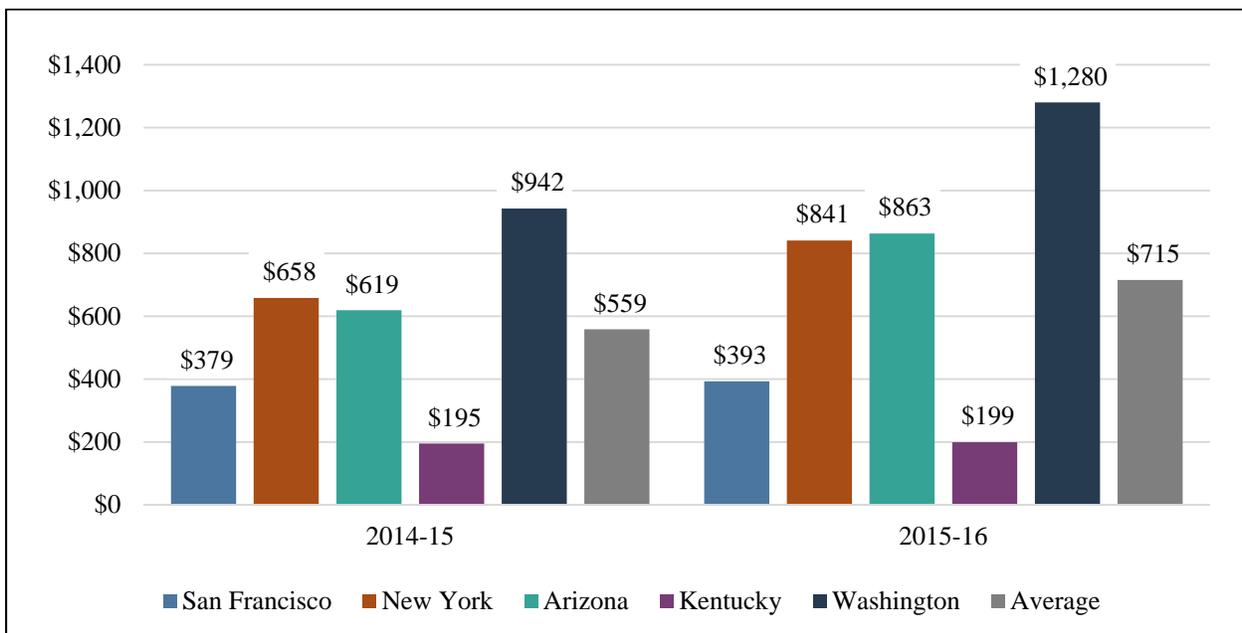
Source. Data collected by AIR cost study team from sites and their partners.

Support

Turning to support costs, we found that, on average, sites spent \$559,000 on support in 2014–15 and \$715,000 in 2015–16 (see Exhibit 56). Kentucky clearly spent the least on support activities and well below the average in both years, spending \$195,000 in 2014–15 and \$199,000 in 2015–16. This was also true in relative terms because Kentucky had the lowest costs per candidate at \$327 and \$273 in 2014–15 and 2015–16, respectively (see Exhibit 57). Kentucky’s low relative spending on support strategies may be explained by the fact that, unlike other sites, it spent roughly equivalent amounts on recruitment and support. Because its overall costs were low, its support costs appear particularly low, whereas its recruitment costs are more comparable. For example, Arizona spent close to \$700,000 more overall than Kentucky did in 2015–16. However, because Arizona spent more proportionally on support, its recruitment costs were only about \$20,000 more than Kentucky’s. The remainder of the \$700,000 additional dollars went toward support, resulting in a much wider support gap between the two sites. A similar result can be seen when comparing Kentucky with other sites.

At the other end, the results were similar to overall costs. Although Washington spent the most, it had among the lowest costs per candidate, totaling \$594 in 2014–15 and \$564 in 2015–16. However, although San Francisco spent less than most sites on support in absolute terms, its costs per candidate were highest in both years at \$3,053 in 2014–15 and \$2,850 in 2015–16. As mentioned previously, this may be because San Francisco cannot take advantage of economies of scale. Alternatively, this site’s high costs per candidate for support could have been largely driven by Sessions and Workshops (see San Francisco case study), which includes hourly pay for teachers who attend. San Francisco does not plan to offer these hourly payments to teachers in years to come, which may significantly affect their support costs.

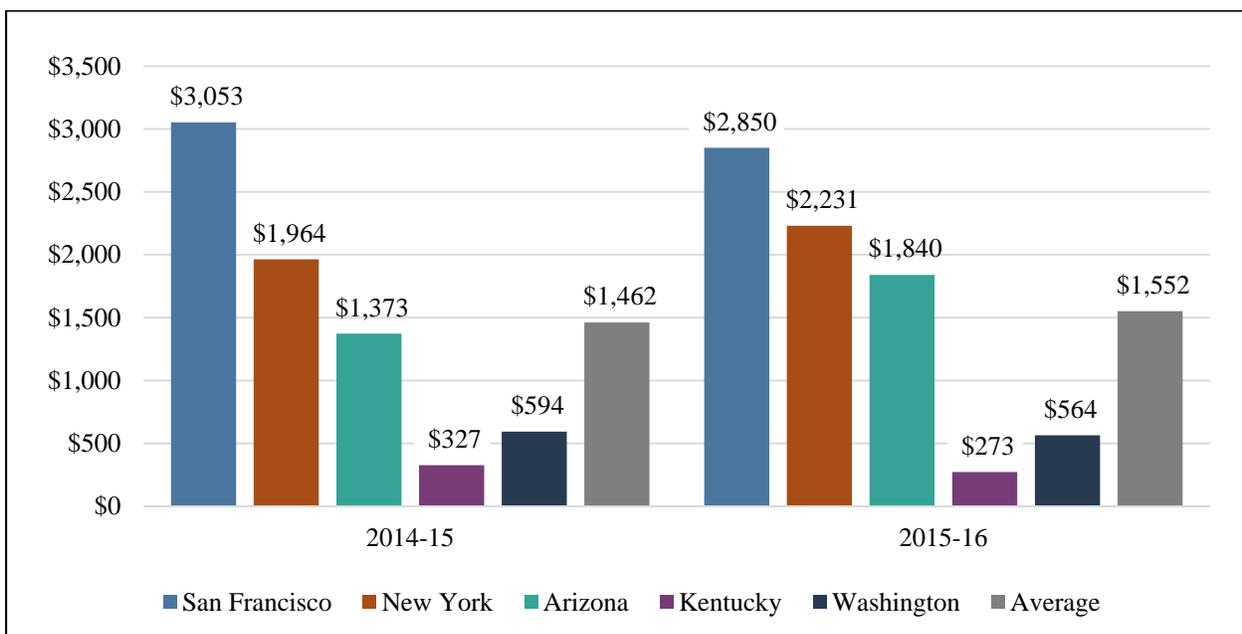
Exhibit 56. Total Support Costs by Site in 2014–15 and 2015–16 (in Thousands of Dollars)



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from sites and their partners.

Exhibit 57. Total Support Costs per Candidate by Site in 2014–15 and 2015–16



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from sites and their partners.

Spending by Strategy Types

Underlying the overall recruitment and support costs are specific strategies we have organized into five broad types: Formal Recruitment, Informal Recruitment, Sessions and Workshops, Targeted Support, and Other Support. We also examined a sixth category—General costs not specific to any particular strategy. On average, spending was consistently highest in Other Support and Sessions and Workshops, with average costs ranging from \$207,000 to \$252,000 and \$185,000 to \$233,000, respectively (see Exhibit 58). General costs were consistently lowest, ranging on average from \$48,000 to \$67,000. However, underneath these averages, there was considerable variation in site spending.

Exhibit 58. Total Recruitment and Support (Aim 1) Costs by Site and Strategy in 2014–15 and 2015–16 (in Thousands of Dollars)

Year	Site	Formal Recruitment	Informal Recruitment	Sessions and Workshops	Targeted Support	Other Support	General
2014–15	San Francisco	\$19	\$12	\$189	\$144	\$14	\$34
	New York	\$106	\$216	\$121	\$126	\$396	\$23
	Arizona	\$81	\$87	\$226	\$36	\$272	\$112
	Kentucky	\$88	\$74	\$90	\$80	\$2	\$41
	Washington	\$488	\$91	\$300	\$273	\$352	\$29
	Average	\$156	\$96	\$185	\$132	\$207	\$48
2015–16	San Francisco	\$15	\$18	\$219	\$142	\$5	\$29
	New York	\$141	\$219	\$204	\$199	\$405	\$47
	Arizona	\$76	\$82	\$350	\$58	\$296	\$195
	Kentucky	\$93	\$62	\$55	\$60	\$61	\$38
	Washington	\$545	\$100	\$335	\$438	\$491	\$24
	Average	\$174	\$96	\$233	\$179	\$252	\$67

Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from sites and their partners.

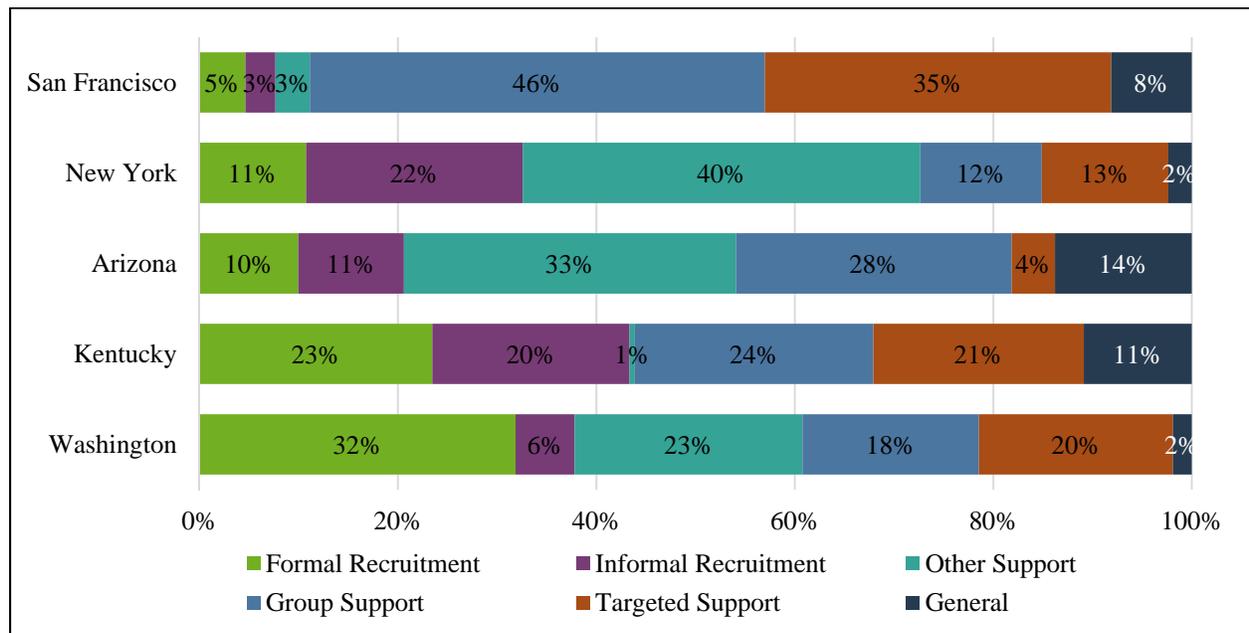
As a percentage of its total costs, San Francisco spent quite a bit more on Sessions and Workshops and Targeted Support than did other sites, exceeding 80% of all site costs in both years (see Exhibit 59 and Exhibit 60). In contrast, other sites spent between 25% and 45% of funds on these strategies.

In addition, Kentucky and San Francisco spent significantly smaller proportions of funds on Other Support than did other sites in 2014–15. In 2015–16, Kentucky increased the share of funds for this strategy, but this did not change in San Francisco, where the proportion continued to be relatively low. This strategy may include reimbursement for candidate’s costs or the provision of free resources.

Consistent with all of the case studies, the General category shown in Exhibit 59 and Exhibit 60 included the costs of general administration personnel time, general office space, and any other resources that supported all of the site’s National Board work. As shown in Exhibit 59 and

Exhibit 60, Washington consistently allocated the lowest percentage of resources toward general resources, and Arizona consistently allocated the highest proportion of resources toward general resources. This contrast most likely has to do with how the two sites are structured. A large majority of Arizona’s general costs are personnel costs, given that some of AZK12’s staff members reported spending time on tasks that supported all their recruitment and support work. Unlike in Arizona, where AZK12 was the hub of all this work, Washington partners often had clear roles and specific activities that were their focus. Therefore, although there may have been administrative work done within these partners, those staff members could still allot their time to specific activities (because their organization only oversaw certain activities). This resulted in this personnel time being included in those specific activities and not the general category.⁷²

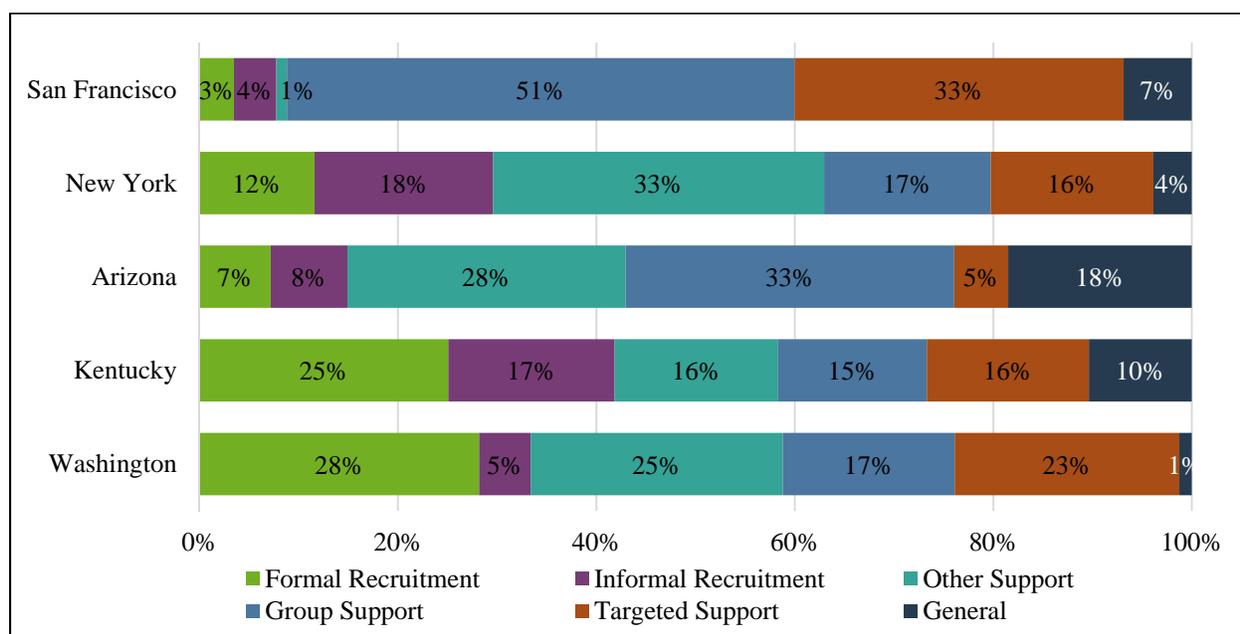
Exhibit 59. Proportional Allocation of Funds by Strategy and Site in 2014–15



Source. Data collected by AIR cost study team from sites and their partners.

⁷² There was variation in how this general administration personnel time was reported among the remaining sites. General facilities and equipment were calculated consistently across sites and simply adjusted for the number of staff working and the amount of equipment used.

Exhibit 60. Proportional Allocation of Funds by Strategy and Site in 2015–16

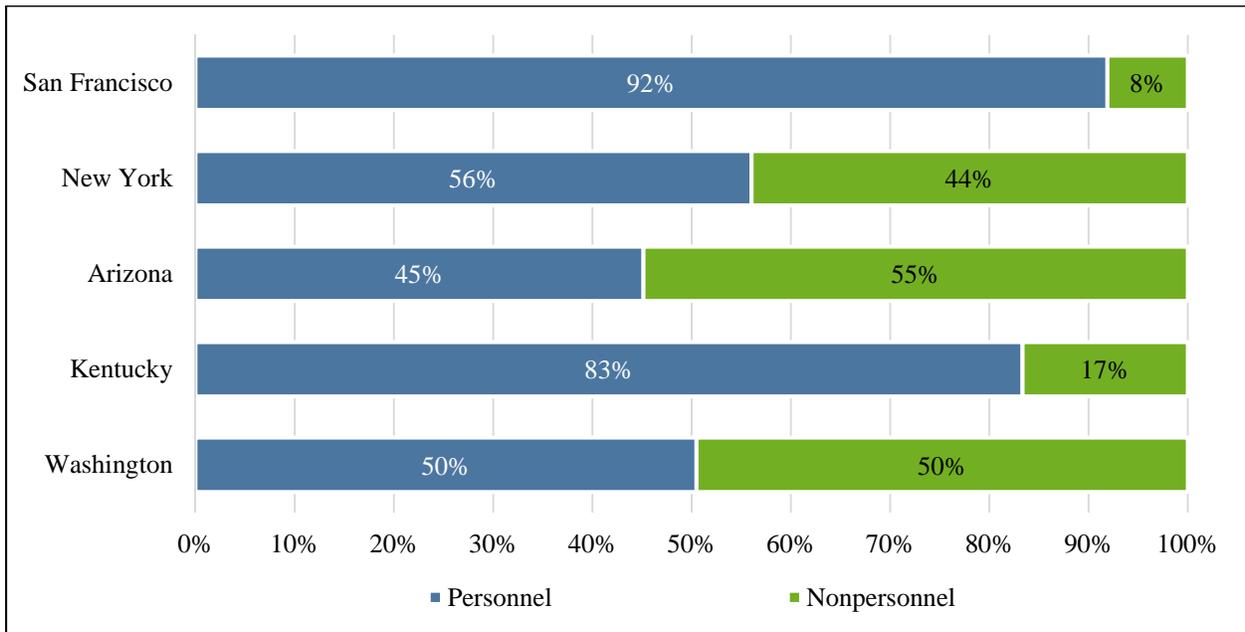


Source. Data collected by AIR cost study team from sites and their partners.

Spending by Resource Category

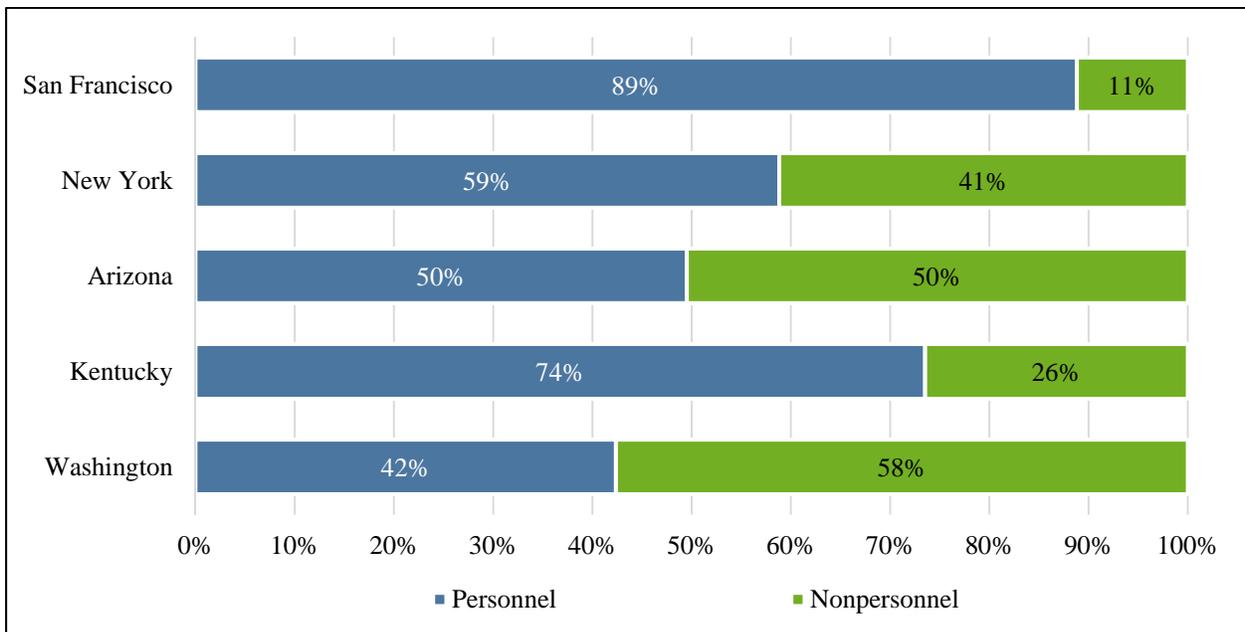
Considering spending on personnel as opposed to nonpersonnel resource types, we might expect that personnel costs would make up the majority of site spending. Although this was consistently true for Kentucky and San Francisco, it is not as clear-cut as we might expect (see Exhibit 61 and Exhibit 62). Perhaps driven by the higher spending in Other Support, which primarily included nonpersonnel costs, Washington and Arizona allocated a large proportion of resources to nonpersonnel spending. In both sites, a large portion of nonpersonnel spending (around half) can be attributed to financial support. In addition, some districts within Washington provided technological resources to candidates, which was also included in this nonpersonnel category. Lastly, the district facilities donated for ambassador sessions were also a sizable portion of this category (this is unsurprising, considering the large number of presentations many ambassadors gave). In Arizona, a relatively higher percentage of resources was attributed to facilities costs because several of their sessions and workshops were held within conference centers and open to teachers from all over the state. In both years, Washington and Arizona spent close to or more than half of their resources on nonpersonnel costs. New York was between these two extremes, spending between 40% and 45% of resources on nonpersonnel expenditures. In comparison with Kentucky and San Francisco, New York had relatively high levels of nonpersonnel costs, which can be attributed to the Albert Shanker Grant, which made up 75% and 65% of nonpersonnel costs in 2014–15 and 2015–16, respectively.

Exhibit 61. Proportional Allocation of Funds to Personnel and Nonpersonnel Resources by Site in 2014–15



Source. Data collected by AIR cost study team from sites and their partners.

Exhibit 62. Proportional Allocation of Funds to Personnel and Nonpersonnel Resources by Site in 2015–16



Source. Data collected by AIR cost study team from sites and their partners.

Sustainability

As with any educational program, sustainability is a key concern. This is especially true for NT3 programs because they relied, at least in part, on funding from a federal SEED grant. The extent to which these programs can be sustained beyond the life of this grant is something we hoped to understand better through this cost study. To examine this, we considered the sources of funding at each site and any induced costs expected in future years.

Funding Source

To begin with, we considered how the overall costs were allocated across funding sources in each of the five sites in our study. Perhaps unsurprisingly, we found similar spending on SEED, ranging from \$239,000 to \$440,000 in 2014–15 (see Exhibit 63) and \$272,000 to \$449,000 in 2015–16 (see Exhibit 64). However, the proportion of all site costs covered by the SEED grant varied considerably from 24% to 81% in 2014–15 and 22% to 74% in 2015–16.

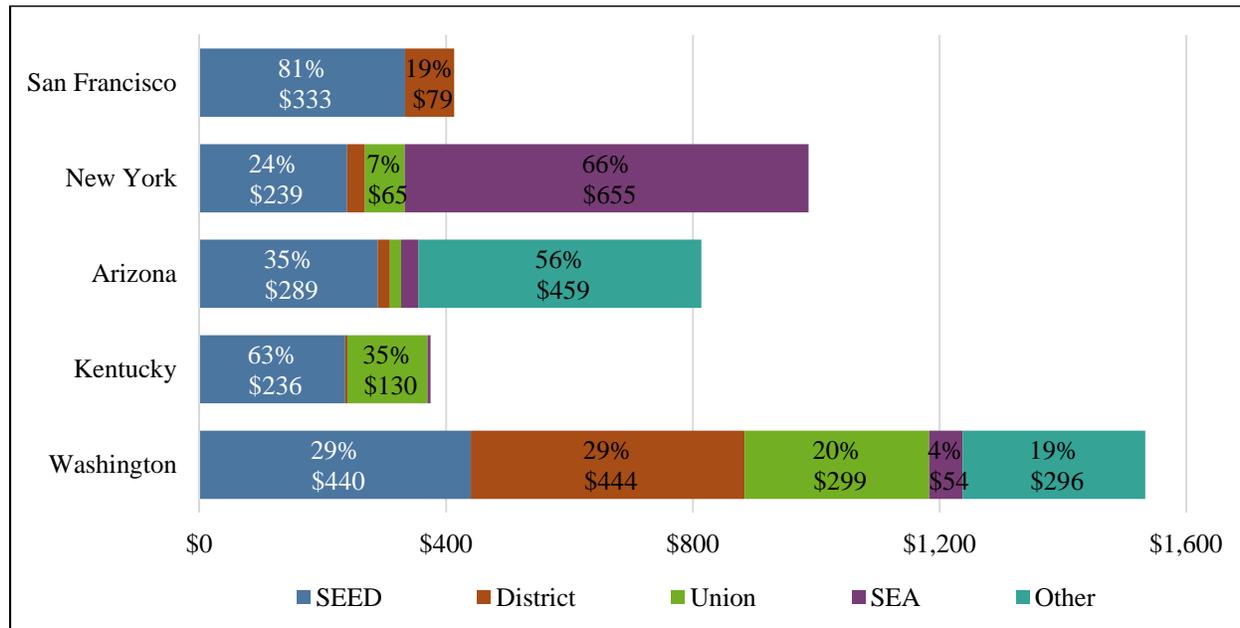
This may be driven by the level of effort of each site’s partner organizations. Although the history of these partnerships and the factors that influenced their creation were not studied, it is clear that these relationships (which often translated into funding support of this work) were important to the sustainability and/or expansion of National Board work within each site. How these partnerships developed may be a topic for further research.

For example, Washington and New York had substantially larger proportions of their funding covered by partner organizations than did other sites, paying for, on average, 74.5% and 69.5% of their costs, respectively. Moreover, the amount of funding from partner organizations in Washington greatly exceeded that in other sites, totaling about \$1.1 million in 2014–15 and \$1.5 million in 2015–16. The next closest state in terms of partner funding was New York, with close to \$750,000 in both years. The vast majority of partner funding in New York came from the state educational agency, making up 66% and 54% in 2014–15 and 2015–16, respectively. This funding from the state educational agency is almost exclusively for the Albert Shanker Grant and related personnel costs.

The Other funding source category, which was an important funding source for both Washington and Arizona, consisted of candidate fees and funding from other organizations that are not districts, unions, or state educational agencies. In Washington, this included funding from the CSTP, and in Arizona the vast majority of funding in other was from AZK12.

Partner funding does not guarantee a program can be sustained beyond the SEED grant. Grant funding, however small as a percentage of the total, may be crucial to implementing a successful program. Nonetheless, a lack of partner funding certainly implies a need for new sources of funding in order for a program to be sustained, especially in sites where SEED funding represented a large portion of current funding.

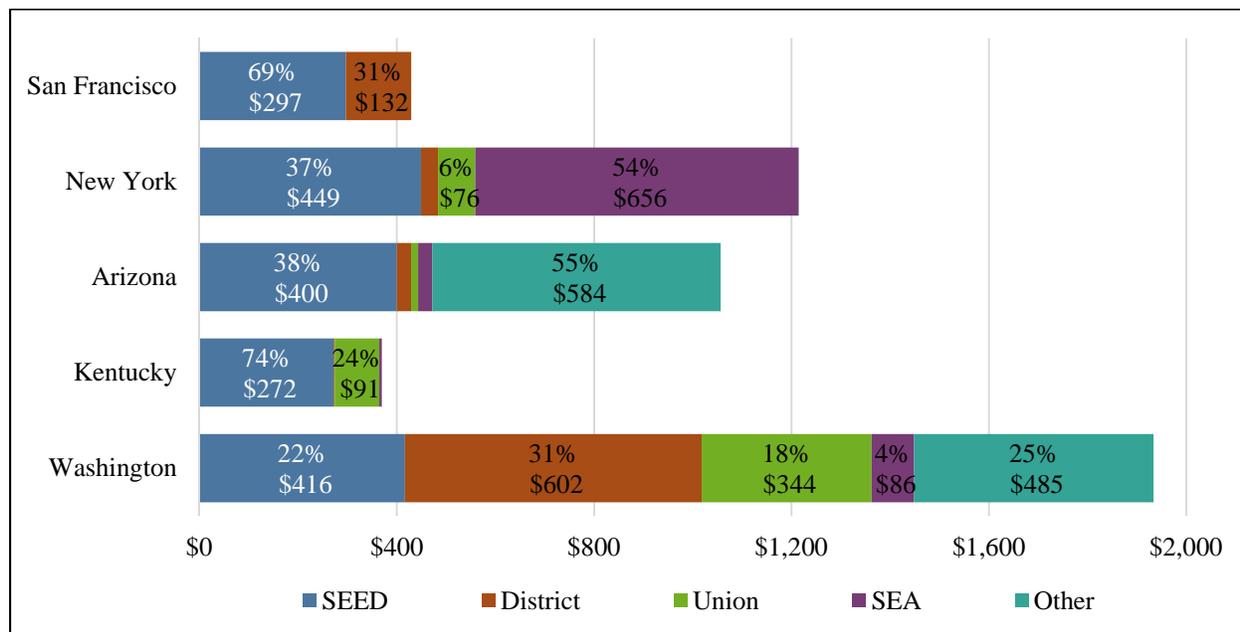
Exhibit 63. Proportional Allocation of Funds by Funding Source and Site in 2014–15 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of less than \$50 are not labeled but are shown to illustrate relative proportion. SEA = state education agency.

Source. Data collected by AIR cost study team from sites and their partners.

Exhibit 64. Proportional Allocation of Funds by Funding Source and Site in 2015–16 (in Shares and Thousands of Dollars)



Note. Amounts represent constant 2016 dollars. Values of less than \$50 are not labeled but are shown to illustrate relative proportion. SEA = state education agency.

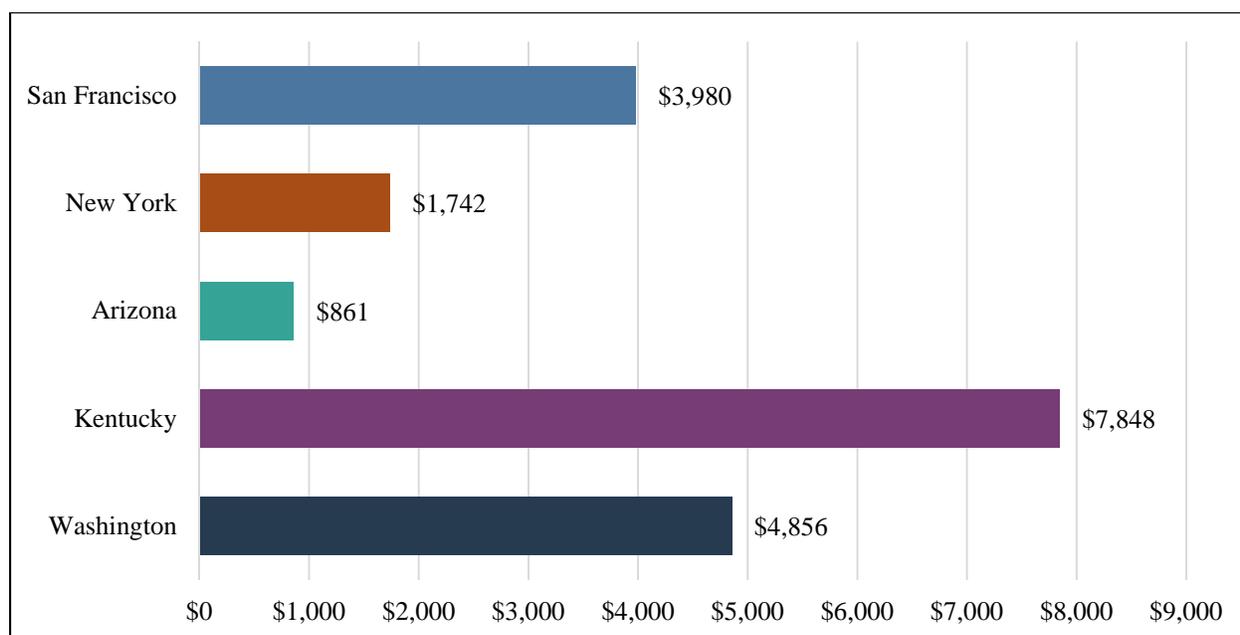
Source. Data collected by AIR cost study team from sites and their partners.

Incentives/Stipends for Achievers

Finally, we estimated induced costs of annual incentives provided by each program over the next five and 10 years. Induced costs are not associated with resources used in operating the program but rather are expended only once candidates successfully achieve NBC. Therefore, although the personnel time required to administer the incentives system is included in the formal recruitment strategy, the induced costs of stipends themselves are not. As shown here, stipends for candidates who have achieved certification represent a major cost that has a profound impact on the sustainability of Aim 1 efforts. Candidates within each of the five sites who achieved NBC often receive compensation of some kind (from the state or district) in future years contingent on them maintaining their certification.⁷³ Although these incentives were not determined by NT3 leadership, they are potentially an important aspect of how attractive and/or affordable certification may have been to teachers within a site.⁷⁴ In this way, these incentives were a part of the greater context in which the sites were working, and understanding these different contexts may shed light on programmatic differences between sites.

In terms of the estimated annual incentives, the two outliers were Kentucky and Washington (see Exhibit 65). Both were estimated to pay out more to candidates annually in future years than were the other sites. Specifically, they were expected to pay out \$7,848 (Kentucky) and \$4,856 (Washington). The next largest after Washington was San Francisco with \$3,980.

Exhibit 65. Estimated Annual Incentives/Stipends for Achievers by Site



Note. Amounts represent constant 2016 dollars.

Source. Data collected by AIR cost study team from sites and their partners.

⁷³ For a more detailed discussion of these costs, see the individual site case study sections.

⁷⁴ NT3 site or partner involvement in the state or district policy making regarding these incentives varies greatly among sites.

9. Study Limitations

For any study, it is important to acknowledge the limitations and the constraints that these limitations put on drawing conclusions from the results. This is particularly important in the context of a cost study that seeks to estimate a variety of costs not found in an annual budget or expenditure report. The values of many of the resources captured in this study are based on assumptions that, if changed, could alter the results. This is one reason why we present the findings rounded to the nearest thousand dollars. To provide any more precise numbers would incorrectly imply a level of precision that this type of study does not produce. Nonetheless, we are confident that the study results are an accurate broad representation of each site's resource allocation and total level of effort.

In this section, we describe in greater detail the key assumptions underlying estimated costs and any other limitations that should be considered before drawing conclusions.

Key Assumptions

The following assumptions have been organized by resource category, including personnel, facilities, equipment, supplies, and other resources. For each, we describe the key assumptions and the extent to which these assumptions, if violated, would likely alter the overall results.

Personnel

With respect to the personnel resource category, in instances in which actual staff compensation was not available, we estimated compensation on the basis of national data sources. Specifically, we estimated salaries on the basis of an individual's position, experience, and educational background by using either the NCES School and Staffing Survey or the Bureau of Labor Statistics Occupational Employment Statistics Survey.⁷⁵ To include benefits, we assumed benefit rates equal to the average rate for instructional staff in the U.S. Census Public School System Finances data.⁷⁶ To the extent that these alternative data sources inaccurately reflect the actual salaries for these individuals, our estimated personnel costs are imprecise. That said, there is no reason to think our estimates are systematically biased in a particular direction, making the overall impact on our findings uncertain. Therefore, we would suggest that our estimates represent a reasonable, albeit imperfect, proxy for actual compensation information. One site where this was a particularly large issue is Washington. Washington site staff did not provide any compensation data for staff, so all salaries were estimated. As a result, we suggest that this be kept in mind when considering this site's personnel costs.

In addition, there are a few particular types of resources for which no estimates were created. These include personnel time volunteered in the form of unpaid overtime or volunteer positions supporting Aim 1 activities. Ideally, these contributions would be reflected in the findings

⁷⁵ For salaries estimated using the NCES data, we also assumed that staff salaries were comparable to teacher salaries for those with similar experience and educational attainment. For all salary estimates, we adjusted prices to the local context by using the NCES CWI.

⁷⁶ U.S. Census, Public Elementary–Secondary Education Finance Data, 2014. Retrieved from <http://www.census.gov/govs/school/>.

because they represent an opportunity cost to those volunteering their time. However, given the large number of partner organizations across the sites and limitations in the data available to us, we determined it would not be possible to capture these resources accurately. Although these resources are not captured in the overall costs, the extent to which volunteered time contributed to Aim 1 activities is captured to some extent in the site case study sections, and this may be an indication of the extent to which a program relied on this type of resource.

Facilities, Equipment, and Supplies

To estimate facilities used to support Aim 1 activities for which there was no specified price, we made a few consistent assumptions and made use of external data sources. Specifically, we estimated the price of facilities on the basis of the facility type, facility size,⁷⁷ and price per square foot as estimated in the Center for Benefit-Cost Studies of Education price database.⁷⁸ To estimate an annual price and account for depreciation in value, we assumed a 35-year life span and a 3.5% discount rate. Finally, we calculated a daily price based on the annual and applied the costs of specific activities for a minimum of one day. Perhaps the most consequential of these assumptions is the assumed life span, which spreads costs over an extended period and assumes the facilities would continue to be used, or had been used, over 35 years. Adjusting this assumption to a shorter, or longer, life span would impact our facilities cost estimates and our findings. Likewise, to the extent that the extant sources of data used to estimate price per square foot for broad types of facilities inaccurately reflect the value of the facilities used, our facility cost estimates are imprecise.

For estimated equipment costs, we relied on the same general approach as for facility costs with respect to estimating an annual price and depreciation over time, although we instead assumed a five-year life span. Otherwise, we assumed equipment was valued at current market prices for the various types used (i.e., personal computers, LCD projectors, etc.). Similar to our exclusion of volunteered time, if equipment used to support an Aim 1 activity was provided by an individual (rather than a partner organization), it was not included in our costs.

For supplies and materials used to support Aim 1 activities, we estimated the value on the basis of current market prices and assumed that supplies purchased for a given activity were not reused for other activities.

Other Resources

In general, we used only reported prices for resources not fitting into one of the other four categories. As a result, very few assumptions were necessary, and the impact of these assumptions being violated would be minimal.

Other Limitations

In addition to the volunteered time and equipment, we generally did not include in our study costs incurred by candidates. Our focus was on accurately estimating the costs borne by the site

⁷⁷ We used the maximum number of people a given facility needed to fill to estimate its size and relied on the Meetings.com [Meeting Room Capacity Calculator](#) tool to convert this to the estimated number of square feet.

⁷⁸ For further information see <http://cbcse.org/cost-resources/>

and its partner organizations. We did not, for example, include candidate time or materials purchased by candidates required for their participation in the program. Although we recognize that these costs may be considerable, we determined that we could estimate them with precision, given available data, and ultimately determined the work required to gather the necessary data to be outside the scope of this study. However, in sites where candidates are required to pay fees to access activities, such as jumpstart or home stretch, these fees were considered and were included in the other funding source category.

Another potential limitation stems from the renewal rates used to estimate induced costs resulting from site incentives to achieve certification. The data used to estimate these rates was more out-of-date than would be ideal, with 2005 being the most recent year available. Feedback from some sites suggests that these rates may be lower than current rates. To the extent that this was the case, we have underestimated induced costs over 10 years by assuming too few candidates will renew their certification after five years. We suggest that this be considered when reviewing and interpreting these results.

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Glossary of Terms

ADE – Arizona Department of Education

AEA – Arizona Education Association

AIR – American Institutes for Research

AZK12 – Arizona K12 Center

CSP – candidate support provider

CSTP – Center for Strengthening the Teaching Profession

CWI – Comparable Wage Index

EPSB – Education Professional Standards Board

FTE – full-time equivalent

KDE – Kentucky Department of Education

KEA – Kentucky Education Association

NBC – National Board Certification

NBCNY – National Board Council of New York

NBCT – National Board–Certified teacher

NBPTS – National Board for Professional Teaching Standards

NCES – National Center for Education Statistics

NT3 – Network to Transform Teaching

NYSED – New York State Education Department

NYSUT – New York State United Teachers

OSPI – Office of Superintendent of Public Instruction

RCM – resource cost model

SEED – Supporting Effective Educator Development

SFUSD – San Francisco Unified School District

Appendix A. Additional Findings

Costs per Candidate by Key Effort

What follows are the recruitment and support costs per candidate at each site. Because there are multiple stages through which a participant goes during recruitment, the research team has defined recruitment in three ways: (a) created an online account (applicant), (b) paid the \$75 registration fee (registrant), and (c) purchased a component (candidate). The last of these three levels of stringency aligns with the National Board definition of recruited candidates.

In addition, active candidates are all those who are pursuing candidacy in a given year, including candidates who began the certification process that year and those who are continuing their work from prior years. This assumes that the resources used to support newly recruited candidates are equivalent to the resources used to support candidates recruited in earlier years.

Finally, the overall cost per candidate shown in the corresponding exhibits in each site’s case study does not equal the cost per candidate for recruitment plus the cost per candidate for support presented in this section. This is because the overall cost calculation spreads recruitment expenditure over all active candidates, not just those who were potentially exposed to recruitment activities. The total cost for each new candidate can be found by summing the cost per candidate for recruitment and the cost per candidate for support; however, this can only be done using the most stringent definition of recruitment as delineated by the National Board (i.e., purchased a component).

San Francisco

Exhibit A1. Recruitment Costs per Applicant, Registrant, and Recruited Candidate for SFUSD

Recruitment Costs							
Year	Total Recruitment Cost	Account Created		Registration Fee Paid		Purchased a Component	
		Number	Cost per Applicant	Number	Cost per Registrant	Number	Cost per Newly Recruited Candidate
2014–15	\$34,414	346	\$99	212	\$162	94	\$366
2015–16	\$35,627	237	\$150	147	\$242	63	\$566

Note. Amounts represent constant 2016 dollars.

Exhibit A2. Support Costs per Active Candidate for SFUSD

Support Costs			
Year	Total Support Cost	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$378,527	124	\$3,053
2015–15	\$393,352	138	\$2,850

Note. Amounts represent constant 2016 dollars.

New York

Exhibit A3. Recruitment Costs per Applicant, Registrant, and Recruited Candidate for New York

Recruitment Costs							
Year	Total Recruitment Cost	Account Created		Registration Fee Paid		Purchased a Component	
		Number	Cost per Applicant	Number	Cost per Registrant	Number	Cost per Newly Recruited Candidate
2014–15	\$329,539	1,058	\$311	523	\$630	206	\$1,600
2015–16	\$373,754	928	\$403	455	\$821	181	\$2,065

Note. Amounts represent constant 2016 dollars.

Exhibit A4. Support Costs per Active Candidate for New York

Support Costs			
Year	Total Support Cost	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$658,021	335	\$1,964
2015–15	\$840,931	377	\$2,231

Note. Amounts represent constant 2016 dollars.

Arizona

Exhibit A5. Recruitment Costs per Applicant, Registrant, and Recruited Candidate for Arizona

Recruitment Costs							
Year	Total Recruitment Cost	Account Created		Registration Fee Paid		Purchased a Component	
		Number	Cost per Applicant	Number	Cost per Registrant	Number	Cost per Newly Recruited Candidate
2014–15	\$194,415	1,010	\$192	601	\$323	261	\$745
2015–16	\$193,188	825	\$234	493	\$392	217	\$890

Note. Amounts represent constant 2016 dollars.

Exhibit A6. Support Costs per Active Candidate for Arizona

Support Costs			
Year	Total Support Cost	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$619,316	451	\$1,373
2015–16	\$863,112	469	\$1,840

Note. Amounts represent constant 2016 dollars.

Kentucky

Exhibit A7. Recruitment Costs per Applicant, Registrant, and Recruited Candidate for Kentucky

Recruitment Costs							
Year	Total Recruitment Cost	Account Created		Registration Fee Paid		Purchased a Component	
		Number	Cost per Applicant	Number	Cost per Registrant	Number	Cost per Newly Recruited Candidate
2014–15	\$179,508	1,770	\$101	1,038	\$173	432	\$416
2015–16	\$170,170	1,185	\$144	731	\$233	333	\$511

Note. Amounts represent constant 2016 dollars.

Exhibit A8. Support Costs per Active Candidate for Kentucky

Support Costs			
Year	Total Support Cost	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$195,261	597	\$327
2015–15	\$199,310	731	\$273

Note. Amounts represent constant 2016 dollars.

Washington

Exhibit A9. Recruitment Costs per Applicant, Registrant, and Recruited Candidate for Washington

Recruitment Costs							
Year	Total Recruitment Cost	Account Created		Registration Fee Paid		Purchased a Component	
		Number	Cost per Applicant	Number	Cost per Registrant	Number	Cost per Newly Recruited Candidate
2014–15	\$591,025	3,792	\$156	2,291	\$258	1,009	\$586
2015–16	\$653,458	4,376	\$149	2,757	\$237	1,223	\$534

Note. Amounts represent constant 2016 dollars.

Exhibit A10. Support Costs per Active Candidate for Washington

Support Costs			
Year	Total Support Cost	Newly Recruited and Existing Candidates	
		Number	Cost per Candidate
2014–15	\$942,427	1,586	\$594
2015–16	\$1,280,096	2,268	\$564

Note. Amounts represent constant 2016 dollars.

Stipend Costs in Local Dollars

This section includes estimated induced costs based on local prices, as opposed to national prices as presented in the report case studies.

San Francisco

Exhibit A11. Estimation of Annual Cost of NBCT Incentives/Stipends for Achievers in SFUSD for 2014–15 Cohort in Local Dollars

Incentive	\$5,000	Years for Completion	2
Lifetime of Certificate	5 years	Attrition Rate	11.3%
NBCTs Recruited in 2014	94	Renewal Rate	51.0%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	94	\$470,000	\$470,000	71	\$352,500	\$352,500
2017–18	83	\$416,984	\$410,014	63	\$312,738	\$307,510
2018–19	74	\$369,948	\$357,684	55	\$277,461	\$268,263
2019–20	66	\$328,218	\$312,032	49	\$246,164	\$234,024
2020–21	58	\$291,195	\$272,208	44	\$218,396	\$204,156
2021–22 (renewal year)	30	\$148,509	\$136,505	22	\$111,382	\$102,379
2022–23	26	\$131,758	\$119,083	20	\$98,818	\$89,312
2023–24	23	\$116,895	\$103,884	18	\$87,672	\$77,913
2024–25	21	\$103,710	\$90,626	16	\$77,782	\$67,969
2025–26	18	\$92,011	\$79,059	14	\$69,008	\$59,294
Total			\$2,351,095			\$1,763,321

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from SFUSD and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

New York

Exhibit A12. Estimation of Annual Cost of NBCT Incentives/Stipends for Achievers in New York for 2014–15 Cohort in Local Dollars

Incentive	\$1,974	Years for Completion	2
Lifetime of Certificate	5 years	Attrition Rate	8.2%
NBCTs Recruited in 2014	206	Renewal Rate	27.0%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	206	\$406,685	\$406,685	155	\$305,014	\$305,014
2017–18	189	\$373,174	\$366,936	142	\$279,881	\$275,202
2018–19	173	\$342,425	\$331,073	130	\$256,819	\$248,304
2019–20	159	\$314,209	\$298,714	119	\$235,657	\$224,036
2020–21	146	\$288,318	\$269,518	110	\$216,239	\$202,139
2021–22 (renewal year)	39	\$77,846	\$71,554	30	\$58,384	\$53,665
2022–23	36	\$71,431	\$64,560	27	\$53,574	\$48,420
2023–34	33	\$65,545	\$58,250	25	\$49,159	\$43,687
2024–25	30	\$60,145	\$52,557	23	\$45,108	\$39,418
2025–26	28	\$55,189	\$47,420	21	\$41,391	\$35,565
Total			\$1,967,267			\$1,475,450

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from NBCNY and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

Arizona

Exhibit A13. Estimation of Annual Cost of NBCT Incentives/Stipends for Achievers in Arizona for 2014–15 Cohort in Local Dollars

Incentive	\$798	Years for Completion	2
Lifetime of Certificate	5 years	Attrition Rate	8.2%
NBCTs Recruited in 2014	261	Renewal Rate	36.1%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	261	\$208,181	\$208,181	196	\$156,136	\$156,136
2017–18	240	\$191,111	\$187,916	180	\$143,333	\$140,937
2018–19	220	\$175,439	\$169,623	165	\$131,580	\$127,217
2019–20	202	\$161,053	\$153,111	151	\$120,790	\$114,833
2020–21	185	\$147,847	\$138,207	139	\$110,885	\$103,655
2021–22 (renewal year)	67	\$53,402	\$49,086	50	\$40,052	\$36,814
2022–23	61	\$49,023	\$44,308	46	\$36,768	\$33,231
2023–24	56	\$45,003	\$39,994	42	\$33,753	\$29,996
2024–25	52	\$41,313	\$36,101	39	\$30,985	\$27,076
2025–26	48	\$37,925	\$32,587	36	\$28,444	\$24,440
Total			\$1,059,114			\$794,336

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from the AZK12, partners, and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

Kentucky

Exhibit A14. Estimation of Annual Cost of NBCT Incentives/Stipends for Achievers in Kentucky for 2014–15 Cohort in Local Dollars

Incentive	\$6,810	Years for Completion	2
Lifetime of Certificate	5 years	Attrition Rate	8.2%
NBCTs Recruited in 2014	432	Renewal Rate	42.7%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	432	\$2,941,920	\$2,941,920	324	\$2,206,440	\$2,206,440
2017–18	397	\$2,703,570	\$2,658,378	297	\$2,022,570	\$1,988,761
2018–19	364	\$2,478,840	\$2,396,661	273	\$1,859,130	\$1,797,496
2019–20	334	\$2,274,540	\$2,162,374	251	\$1,709,310	\$1,625,017
2020–21	307	\$2,090,670	\$1,954,347	230	\$1,566,300	\$1,464,169
2021–22 (renewal year)	131	\$892,110	\$820,000	98	\$667,380	\$613,435
2022–23	120	\$817,200	\$738,589	90	\$612,900	\$553,942
2023–24	110	\$749,100	\$665,722	83	\$565,230	\$502,318
2024–25	101	\$687,810	\$601,037	76	\$517,560	\$452,265
2025–26	93	\$633,330	\$544,179	70	\$476,700	\$409,597
Total			\$15,483,205			\$11,613,439

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from the Kentucky EPSB and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

Washington

Exhibit A15. Estimation of Annual Cost of NBCT Incentives/Stipends for Achievers in Washington for 2014–15 Cohort in Local Dollars

Incentive	\$5,000	Years for Completion	2
Lifetime of Certificate	5 years	Attrition Rate	8.2%
NBCTs Recruited in 2014	1,009	Renewal Rate	57.3%

Year	100% Completion Rate			75% Completion Rate		
	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)	Number of NBCTs From Cohort	Expected Expenditure (Nominal Dollars)	Expected Expenditure (2016 Dollars)
2016–17	1,009	\$5,045,000	\$5,045,000	757	\$3,783,750	\$3,783,750
2017–18	926	\$4,631,310	\$4,553,894	695	\$3,473,483	\$3,415,420
2018–19	850	\$4,251,543	\$4,110,594	638	\$3,188,657	\$3,082,946
2019–20	781	\$3,902,916	\$3,710,448	585	\$2,927,187	\$2,782,836
2020–21	717	\$3,582,877	\$3,349,254	537	\$2,687,158	\$2,511,940
2021–22 (renewal year)	411	\$2,052,989	\$1,887,043	308	\$1,539,741	\$1,415,282
2022–23	377	\$1,884,643	\$1,703,348	283	\$1,413,483	\$1,277,511
2023–24	346	\$1,730,103	\$1,537,536	260	\$1,297,577	\$1,153,152
2024–25	318	\$1,588,234	\$1,387,864	238	\$1,191,176	\$1,040,898
2025–26	292	\$1,457,999	\$1,252,762	219	\$1,093,499	\$939,572
Total			\$28,537,744			\$21,403,308

Note. Historical renewal data are based on candidates who went through the old certification process, which may not reflect renewal rates under the new system, and are weighted by the number of achievers. Note that National Board policies for renewal of certification have changed in recent years from requiring renewal every 10 years to requiring renewal every five years. Because the sample 2014–15 cohort of certified teachers fall under the new guidelines and will be required to renew five years after certification (during the 2021–22) school year, certification renewal is assumed to be required every five years. Discount rate was selected by averaging inflation rates over 2011, 2012, 2013, 2014, and 2015 from <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>.

Source. Data collected by AIR cost study team from the Washington NT3 leadership, partners, and NBPTS Hub. Attrition rate calculated from Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher attrition and mobility: Results from the 2012–13 teacher follow-up survey—First look* (NCES 2014–077). Washington, DC: NCES. Retrieved from <https://nces.ed.gov/pubs2014/2014077.pdf>. Renewal rate data provided by NBPTS staff.

Appendix B. Cost Analysis Memo and Request for Data

Network to Transform Teaching (NT3) Strategic Efforts – Memo on Cost Analysis and Request for Documents

Introduction – As one of the six national Network to Transform Teacher (NT3) sites, a member of the leadership from your organization participated in a discussion with American Institutes for Research (AIR) at the recent October learning event in Louisville, Kentucky. There it was explained that AIR will be conducting a cost analysis of the important activities your site and its core partners are carrying out to further the NT3’s goal of increasing the number of teachers that engage in and complete the National Board Certification process. This document serves the following three purposes: 1) to provide a follow up to the previous discussion that briefly describes the approach to the cost analysis and our data collection needs; 2) to inform sites of what to expect in terms of the remainder of the data collection process; and, 3) to deliver a formal request for documents that marks the first step in the data collection.

Cost Analysis – As discussed at the learning event meeting, there are multiple motivations for performing this cost analysis. Specifically, gaining a better understanding of the staff and nonpersonnel resources and associated costs of the various strategies used by sites to increase teacher certification rates will:

1. Provide other sites both within and outside of NT3 that may want to adopt particular strategies an accurate picture of the resources and costs involved.
2. Give existing sites an in-depth analysis of their current resource allocation that will allow them to improve practice through self-examination and cross-site collaboration.
3. Produce analysis of the different sources of funding used to support the various strategies that will inform future sustainability of the efforts over the longer term.

The intention of this study is *not* to rank and label different sites as high or low cost. Rather, given that there is a wide range of approaches being used across the sites, the purpose here is to describe objectively what is currently being implemented without passing any subjective judgment.

In order to capture the investment sites have made, we will be employing the “ingredients” approach to cost analysis by describing the strategies used to promote National Board Certification. Under this method strategies are characterized by the key activities involved, each requiring a specific set of personnel and/or nonpersonnel resources categorized generally as: personnel, facilities, materials/equipment, and other (e.g., capital costs, contracted services, etc.). The charge of the analysis research team is to collect information on the types and quantities of the resources used and then apply standard input prices to calculate the costs. In addition, we will be gathering information on how resources provided are supported, either by specific funding source or in the case of volunteered/in-kind goods or services, the parties that provide these. Finally, data collection will also entail capturing not only quantitative data, but also qualitative data that describes *how* resources are used to engage in the important activities under

each strategy. The information gathered will be recorded in what is known as a resource cost model (RCM) database.

The main thrust of this analysis is to accurately describe the costs associated with strategies that are most significant in your efforts (i.e., the expectation of the analysis is not to be able to account for every penny that was spent). It is important to note that the cost analysis is *not* a traditional strict audit, however; the intention is to be as comprehensive as possible.

Data Collection Process – The data collection process will consist of two steps. The first step involves a request for documents (RFD) that contain information such as annual fiscal reports used for tracking expenditures and revenues, planning and budgeting documentation, etc. During the learning event meeting, it was made clear that each site works closely with strategic partners. As part of this data collection step, we also would like to know about the organizations that are thought to be core partners and the key strategies they are engaged in. Prior to sites acting on the request, the research team will engage each in a phone conversation to clarify any question as to what the RFD is asking for, as well as better understanding the key strategies and activities being undertaken by the site and their core partners. Each initial call will last approximately a half an hour. The information gathered in the RFD will be used to help the research team prepare (structure and prepopulate) the RCM database. The next section of this document contains the formal RFD for your perusal.

The second step of the data collection process will involve a site visit where two members of the research team will conduct interviews with key site staff using a semi-structured protocol. Interviews will take approximately one hour and will consist of questions asking about the activities involved with each strategy, the types of staff involved and their effort, any non-personnel resources that have been used, and what forms of support were drawn upon. Similar interviews will be conducted with staff from up to three core partner organizations. Whenever possible, the research team will administer interviews with the core partners in person during the site visits. When this is not possible, we will conduct the core partner interviews over the phone. On occasion, there will be a need for the research team to follow up with respondents via short phone calls to clarify questions that might arise and fill in any pieces of information that may have been missed.

The research team understands that there are competing demands made of you and your core partners, and will do everything possible to minimize the data collection burden placed on you. Based on prior experience, we have found that the data collection steps laid out above are the most efficient way to obtain the information necessary to carry out a quality cost analysis. Further, we would like to be clear that the extent of your involvement will be to provide raw information on resource usage under the two data collection steps. Importantly, the process does *not* require you to spend time calculating costs yourself; it is the responsibility of the research team to translate the information you provide into cost estimates of your strategic efforts.

Timeline –The goal would be to obtain most of the annual fiscal reports and expenditure reports by the end of January so that the research team can focus on developing the RCM database in February. AIR will aim to conduct a site visit with the sites in late February and March. If needed, the research team will have a series of follow up phone conversations during the months

of April and May to refine and complete the RCM database. We propose the following timeline to complete the data collection process:

1. Sites receive the formal request for documentation	First week of January 2016
2. Sites send the brief survey regarding their core partners (before brief call)	Second week of January 2016
3. Brief call (30 minutes) to go over the request for documentation	Second and third week of January 2016
4. Sites send the fiscal data: budgets and expenditure reports	End of January 2016
5. Site visit	End of February and March 2016
6. Follow up conversations with sites	April and May 2016

Request for Documents – The research team realizes that each site will have different types of information used for fiscal reporting, planning and budgeting, etc. Moreover, these materials are likely to be in very different formats. To this end, the following provides a general request for the types of documentation that are needed. Please note that in an effort to minimize your burden, our request in no way asks sites to restructure the information into a pre-specified format. Rather, we are simply requesting that the documents be delivered in whatever format that is most convenient for you to deliver it. That being said, given the quantitative nature of many fiscal and planning/budgeting documents, if available, documents of these types delivered in a format readable by Microsoft Excel are preferable.

In order to assist us in this effort, we kindly request the following types of fiscal data:

1. **Budgets and planning documents for fiscal years 2013, 2014 and 2015**

This type of information will allow us to gain a more thorough understanding of the spending your site plans to engage in at the beginning of each fiscal year. We will use the site’s budgets to outline the strategies you use and the expected resources needed to develop and implement activities associated with these strategies.

2. **Final SEED grant expenditure reports for 2013, 2014 and 2015**

Though budgets and planning documents will give our team a baseline from which to outline the “ingredients” used by your site in the implementation and development of the NT3 program, they will not provide accurate information as to where SEED grant resources were ultimately utilized. Therefore, we request your actual expenditure reports for the SEED grant money for fiscal years 2013, 2014 and 2015. This information will allow us to understand on which components of the NT3 program SEED grant money was spent, and we will incorporate these figures into our analysis of the cost of each component or ingredient of the program.

3. **General spending reports**

We understand that though the SEED grant may represent a large portion of your funding, it does not represent the only resources your site has. We are therefore requesting general spending reports including all revenue sources. These spending reports will likely consist of:

- Information on the sources of funding, including, but not limited to:
 - SEED
 - Other grant funding
 - District revenues
 - In-kind donations (such as volunteers)
- Information on where these funds were spent, including, but not limited to:
 - Staff
 - » Salaries
 - » Number of staff and hours devoted to each of the main NT3 activities
 - Contracted services
 - Supplies and materials

Information Regarding Partner Organizations

We understand through conversations with site leaders and the NT3 hub that many of the programs that your site offers rely in part on efforts from partner organizations. In order to truly understand the allocation of resources within the NT3 program, we will need to include the efforts of those partners in our analysis. We will aim to obtain information regarding the funding sources and allocations of resources from your partner organizations. We will use this information in conjunction with the data you provide on your site's expenditures to get a complete picture of the investment of resources and effort put into each main NT3 activity. However, we understand that you may not have access to this type of detail.

We ask that you fill in the short survey in Appendix 1 where we ask you to identify the following:

1. The partner organizations that are the most crucial to the services provided by your site to increase the number of teachers that engage in and complete the National Board Certification process
2. Provide a brief description of what are the services or supports they provide
3. The name of a contact person in each of these partner organizations and their contact information.

We kindly request that you send us back your responses to the short survey in early January, so that we can review it before our call to go over the request for documents.

Thank you for your time and cooperation.

Appendix 1: Partner Organizations Survey

Main Partner	Partner organization name	Strategic services or support provided	Main contact name and contact information
1			
2			
3			

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